



**IXYS**  
A Littelfuse Technology

# Power Semiconductor 2020 - 2021 Product Catalog

A guide to selecting the right power semiconductor for your applications

Littelfuse products are vital components in applications that use electrical energy, from consumer electronics to vehicles and industrial facilities. Our history of innovation and technical expertise enable us to provide objective, comprehensive, and personalized customer solutions.

In 2018, Littelfuse acquired IXYS Corporation and created the IXYS: A Littelfuse brand, which represents the company's comprehensive portfolio of advanced semiconductor technologies, including silicon carbide and wide band gap solutions in discrete and module packages. These power semiconductor products make up the broadest portfolios used by power electronics design engineers today, covering rectifiers, fast diodes, MOSFETs, IGBTs, SSRs, and thyristors at various ratings and outlines and in integrated power modules with the necessary driver IC devices.

IXYS: A Littelfuse Technology provides a core platform for serving a wide range of applications to improve power conversion efficiency, generate clean energy, power and communications networks, control motors, facilitate automation, improve industrial equipment, and electrify transportation from bikes to cars to buses to trains to ships. Littelfuse power semiconductors are relied upon in the most strenuous environments on the planet.

From a technology standpoint, the integration of IXYS and Littelfuse portfolios creates a rare broadbase supplier of high quality power semiconductors. Not only has Littelfuse taken steps, such as its IXYS acquisition, to reinforce its footprint in the power semiconductor industry, it has also invested heavily in the development and commercialization of emerging technologies such as silicon carbide. In 2015, Littelfuse invested in and later acquired Monolith Semiconductor Inc., a Texas-based startup company developing silicon carbide power devices for broad application use. This technology adds another key option for power electronics designers to optimize designs for energy efficiency, power density, and reduced system level costs.

Littelfuse boasts a proud track record of customer satisfaction, manufacturing excellence, and stable growth; much of which can be traced to deep roots as a world leader in product protection. Having the determination to integrate such important capabilities in semiconductor technology demonstrates why Littelfuse is, and will continue to be, an industry innovator and high service supplier for its power electronics customers.

<b>High Voltage TO-252 / 205 / 208 / 247 &amp; ISO247 package</b>	<b>2</b>
<b>New TO-247-4L package</b>	<b>7</b>
<b>ISOPLUS™ family</b>	<b>8</b>
ISOPLUS-SMPD™	9
ISOPLUS-DIL™ / ISOPLUS i4-PAC™	14
<b>IGBT Discretes</b>	<b>17</b>
Ignition IGBTs and Relevant Peripheral Components	20
600V / 650V / 900V / 1700V & 2500V XPT™	22
1200V XPT™ / X2PT™ / NPT / PT IGBTs	28
High Voltage Types 1700V up to 4500V	30
BiMOSFETs (reverse conducting) 1600V up to 3600V	32
<b>IGBT Modules</b>	<b>34</b>
Phase Leg / CBI Modules	34
6-Pack Modules	36
Half Bridge and Boost Modules in SimBus F Housing	38
Full Bridge and Brake / Buck / Boost Modules	39
Half Bridge Modules in 34/62mm housings	40
<b>Power MOSFETs</b>	<b>41</b>
Trench MOSFETs / HiPerFETs (Fast Body Diode)	43
TrenchT2™ / T3™ / T4™ MOSFETs / HiPerFETs (FBD)	45
Polar™ MOSFETs / HiPerFETs (FBD)	48
PolarP2™ / P3™ MOSFETs / HiPerFETs (FBD)	54
X4, X3, X2 & X-Class Ultra Junction Power MOSFETs	56
Q3-Class HiPerFET (Fast Body Diode)	63
Very High Voltage (up to 4700V) / Legacy MOSFETs	64
Linear L2™ Power MOSFETs	66
Depletion-Mode MOSFETs (normally on)	67
PolarP™ and TrenchP™ P-channel MOSFETs	68
Superjunction Power MOSFETs	70
SiC MOSFETs and SiC Schottky Diodes	71
MOSFET Modules	74
Power Factor Correction Modules	75
<b>Diodes</b>	<b>76</b>
Schottky Gen <sup>2</sup> Diodes	77
Schottky Diodes	79
HiPerDyn™ FREDs & Dual Ultrafast Diodes	80
HiPerFRED2™ & HiPerFRED™ Diodes	81
SONIC-FRD™ Diodes	83
FRED Diodes	84
FRED & HiPerFRED™ Modules & Semifast Diodes	86
Rectifier & Avalanche Types	87
Studs: Rectifier & Avalanche Diodes & Thyristors	89
Rectifier Diode Modules	94, 177
<b>Thyristors</b>	<b>90</b>
Discretes Phase Control Thyristors	91
Thyristor / Diode Modules	93, 97, 175
Thyristor Modules	100, 173
Accessories & Design Information	104
<b>Rectifier Bridges</b>	<b>105</b>

1~ / 3~ High Voltage Rectifiers  
Braking Rectifier Assemblies

### Protection Devices

Break-Over Diodes (BOD)  
Fast Break-Over Diodes (BOD)

### Littelfuse

Ignition IGBTs and relevant peripheral components  
SiC products  
Thyristors  
Triac

### IXYS Beverly

#### Gate Drivers & Power Relays

### IXYS Chippenham

Application Notes & Technical Information  
Rectifier Diodes & Standard base clamp modules  
Fast Recovery Diodes  
Soft Recovery Diodes  
Extra Fast Recovery Diodes  
High Power Sonic FRD's  
Phase Control Thyristors  
Medium Voltage Thyristors  
Fast Turn-Off Thyristors  
Distributed Gate Thyristors  
Asymmetric and Pulse Thyristors  
GTOs  
Insulated Gate Bi-polar Transistors - Press-Pack  
Press-Pack IGBT Gate Drive Units  
Dual Thyristor / Single Thyristor Modules  
Thyristor / Diode Modules  
Dual & Single Diode Modules  
Water Cooled Diode & Thyristor Modules  
Power Semiconductor Assemblies  
Westack - Modular Solutions  
WestackLITE - Modular Solutions  
Power Semiconductor Accessories  
Bar Clamps / Box Clamps  
Heatsinks / Coolers

### Power Semiconductor Chips @ DCB Ceramic Substrates

#### Application Notes Highlights

#### Outline Drawings

IXYS Chippenham  
IXYS Milpitas / Lampertheim  
Littelfuse

**USA**

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<b>IXYS Beverly USA</b>	<b>ISO 9001:2015</b>	Quality Management S
<b>IXYS Lampertheim Germany</b>	<b>IATF 16949:2016 (includes ISO 9001:2015)</b> <b>DIN EN ISO 14001:2015</b> <b>OHSAS 18001:2007</b> <b>DIN EN ISO 50001:2011</b>	Quality Management S IATF 16949:201 Environmental Managemen Occupational Safety Assess Energy Management S
<b>IXYS Chippenham UK</b>	<b>ISO 9001:2015</b> <b>EN ISO 14001:2015</b>	Quality Management S Environmental Managemen

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CLA 15E1200NPB		90	CS 19-12ho1S	90	DHG 201600PA		83	DNA 30EM22
CLA 15E1200NPZ	3, 90		CS 20-12io1	90	DHG 2011200HA		83	DNA 30ER22
CLA 16E800PN		90	CS 20-14io1	90	DHG 2011200PA		83	DNA 40U220
CLA 16E1200PN		90	CS 20-16io1	90	DHG 301600HA		83	DNA 90U220
CLA 20EF1200PB		91	CS 20-22moF1	17, 90	DHG 301600PA		83	DNA 90YA22
CLA 20EF1200PZ	3, 91		CS 20-25mo1F	17, 90	DHG 3011200HA		83	DNA 90YC22
CLA 30E1200HB		90	CS 20-25moT1	90	DHG 301M600PC		83	DNA 120E22
CLA 30E1200NPZ	3, 90		CS 22-08io1M	90	➤ DHG 40B1200LB	13, 105		DPF 30I300F
CLA 30E1200PB		90	CS 22-12io1M	90	DHG 40C600HB		83	DPF 30P600
CLA 30E1200PC		90	○ CS 23-08io2	89	DHG 40C1200HB		83	DPF 60C200
CLA 30MT1200NPB	113		○ CS 23-12io2	89	DHG 40I4500KO		83	DPF 60C200
CLA 30MT1200NPZ	3, 113		○ CS 23-16io2	89	DHG 50X650NA		83	DPF 60C300
CLA 40E1200HR	6, 90		CS 30-12io1	90	DHG 50X1200NA		83	DPF 60I200H
CLA 40E1200NHB		90	CS 30-14io1	90	DHG 55I3300FE		83	DPF 60IM40
CLA 40E1200NPZ	3, 90		CS 30-16io1	90	DHG 60C600HB		83	DPF 80C200
➤ CLA 40MT1200NHB	113		○ CS 35-08io4	89	DHG 60I600HA		83	DPF 240X20
CLA 40MT1200NHR	6, 113		○ CS 35-12io4	89	DHG 60I1200HA		83	DPF 40X40
CLA 40MT1200NPB	113		○ CS 35-14io4	89	DHG 60U1200LB	13, 105		DPG 10I200H
CLA 40MT1200NPZ	3, 113		CS 45-08io1	91	DHG 100X650NA		83	DPG 10I200H
CLA 40P1200FC	17, 90		CS 45-12io1	91	DHG 100X1200NA		83	DPG 10I300H
CLA 50E1200HB		91	CS 45-16io1	91	DHH 55-36N1F	17, 80, 83		DPG 10I400H
CLA 50E1200TC		91	CS 45-16io1R	91	DLA 5P800UC		87	DPG 10I400H
CLA 60MT1200NHB	113		CS 60-12io1	91	DLA 10IM800UC		87	DPG 10IM30
CLA 60MT1200NHR	6, 113		CS 60-14io1	91	DLA 20IM800PC		87	DPG 10P400
CLA 60MT1200NTZ	5, 113		CS 60-16io1	91	DLA 40IM800PC		88	DPG 15I200H
◇ CLA 60MU1200LB	13		➤ CS 60-16io1R	91	DLA 60I1200HA		88	DPG 15I300H
CLA 60PD1200NA		97	<b>D</b>		DLA 100B800LB	13, 75, 107		DPG 15I400H
CLA 80E1200HF		91	DAA 10EM1800PZ	2, 87	DLA 100B1200LB	13, 75, 107		DPG 20C200
CLA 80MT1200NHB	113		DAA 10P1800PZ	2, 87	➤ DLA 100IM1200TZ	5, 88		DPG 20C200
CLA 80MT1200NHR	6, 113		DAA 200X1800NA	88	DMA 10I1600PA		87	DPG 20C300
CLA 100E1200HB		91	DAA 200XA1800NA	88	DMA 10IM1200UZ		2, 87	DPG 20C300
CLA 100E1200KB		91	➤ DCG 10P1200HR	6, 73	DMA 10IM1600PZ		2, 87	DPG 20C400
➤ CLA 100E1200TZ	5, 90, 91		➤ DCG 17P1200HR	6, 73	DMA 10IM1600UZ		2, 87	DPG 20C400
CLA 100PD1200NA		98	➤ DCG 20B650LB	13, 73, 105	DMA 10P1200HR		6, 87	DPG 20C400
CLA 110MB1200NA	113		◇ DCG 20B1200LB	13, 73, 105	DMA 10P1200UZ		2, 87	DPG 30C200
CLB 30I1200HB		90	➤ DCG 20C1200HR	6, 73	DMA 10P1600HR		6, 87	DPG 30C200
CLB 30I1200PZ	3, 90		➤ DCG 35C1200HR	6, 73	DMA 10P1600PZ		2, 87	DPG 30C200
CLB 40I1200PZ	3, 90		◇ DCG 40X1200LB	13, 73	DMA 10P1600UZ		2, 87	DPG 30C300
CLE 20E1200PC		91	DCG 45X1200NA	73	DMA 10P1800PZ		2, 87	DPG 30C300
CLE 30E1200PB		91	DCG 85X1200NA	73	DMA 30E1800HA		88	DPG 30C300
CLE 40E1200HB		91	DCG 100X1200NA	73	DMA 30IM1600PZ		2, 88	DPG 30C400
CLE 90UH1200TLB	91, 112		DCG 130X1200NA	73	DMA 30P1200HB		88	DPG 30C400
CLF 20E1200PB		91	➤ DCG 160X650NA	73	DMA 30P1600HB		88	DPG 30I300H
CMA 20E1600PB		90	DFE 10I600PM	84	DMA 30P1600HR		6, 88	DPG 30I300H
CMA 20E1600PZ	3, 90		DFE 25I600HA	84	DMA 40U1800GU		108	DPG 30I400H
CMA 30E1600PB		90	DFE 240X600NA	85	DMA 50I800HA		88	DPG 30I600H
CMA 30E1600PN		90	➤ DFE 250X600NA	85	DMA 50I1200HA		88	DPG 30IM30
CMA 30E1600PZ	3, 90		DH 20-18A	83	DMA 50I1600HA		88	DPG 30IM40
CMA 30P1600FC	17, 90		DH 40-18A	83	DMA 50P1200HB		88	DPG 30P300
CMA 40E1600HR	6, 90		DH 60-14A	83	DMA 50P1200HR		6, 88	DPG 30P400
CMA 50E1600HB		91	DH 60-16A	83	DMA 50P1600HB		88	DPG 60B600
CMA 50E1600QB		91	DH 2x60-18A	83	DMA 80IM1600HB		88	DPG 60C200
CMA 50E1600TZ	5, 91		DH 60-18A	83	DMA 90U1800LB	13, 109		DPG 60C200
CMA 50P1600FC	17, 91		DH 2x61-18A	83	➤ DMA 120B800LB	13, 75, 107		DPG 60C300
◇ CMA 50P1600LB	13		DHG 5I600PA	83	DMA 150E1600NA		88	DPG 60C300
CMA 60MT1600NHB	113		DHG 5I600PM	83	DMA 150YA1600NA		110	DPG 60C300
CMA 60MT1600NHR	6, 113		DHG 10C600PB	83	DMA 150YC1600NA		110	DPG 60C300
CMA 80E1600HB		91	DHG 10I600PA	83	DMA 200X1600NA		88	DPG 60C400
			DHG 10I600PM	83				DPG 60C400

DPJ 50XS1800NA	80	○ DSA 75-18B	89	DSEI 12-12A	84	DSEP 30-06A
○ DS 2-12A	89	DSA 80C45HB	77	DSEI 12-12AZ	2, 84	DSEP 30-06B
○ DS 17-12A	89	DSA 80C100PB	77	DSEI 19-06AS	84	DSEP 30-06C
○ DS 35-12A	89	DSA 90C200HB	78	DSEI 20-12A	84	DSEP 30-12A
○ DS 75-12B	89	DSA 90C200HR	6, 78	DSEI 25-06A	84	DSEP 30-12B
DSA 1-12D	87	DSA 120C150QB	78	DSEI 25-06AS	84	DSEP 30-12C
DSA 1-16D	87	DSA 120X150LB	13, 78	DSEI 2x30-04C	85	DSEP 30-12D
DSA 1-18D	87	DSA 120X200LB	13, 78	DSEI 30-06A	84	DSEP 2x31-0
○ DSA 2-12A	89	DSA 240X150NA	78	DSEI 2x30-06C	85	DSEP 2x31-0
○ DSA 2-16A	89	◇ DSA 240X200LB	13, 78	DSEI 30-10A	84	DSEP 2x31-0
○ DSA 2-18A	89	DSA 240X200NA	78	DSEI 30-10AR	84	DSEP 2x31-1
○ DSA 9-12F	89	DSA 300I45NA	77	DSEI 2x30-10B	85	DSEP 40-03A
○ DSA 9-16F	89	DSA 300I100NA	77	DSEI 30-12A	84	DSEP 60-06A
○ DSA 9-18F	89	DSA 300I200NA	78	DSEI 2x30-12B	85	DSEP 60-06B
DSA 10C150PB	78	○ DSAI 17-12A	89	DSEI 2x31-04C	85	DSEP 2x60-1
DSA 10C150UC	78	○ DSAI 17-16A	89	DSEI 2x31-06C	85	DSEP 60-12A
DSA 10I100PM	77	○ DSAI 17-18A	89	DSEI 2x31-10B	85	DSEP 60-12B
DSA 10IM100UC	77	○ DSAI 35-12A	89	DSEI 2x31-12B	85	DSEP 60-12C
DSA 15I45PA	77	○ DSAI 35-16A	89	DSEI 36-06AS	84	DSEP 60-12D
DSA 15IM45IB	77	○ DSAI 35-18A	89	DSEI 60-02A	84	DSEP 2x61-0
DSA 15IM45UC	77	○ DSAI 75-12B	89	DSEI 2x60-04C	85	DSEP 2x61-0
DSA 15IM150UC	78	○ DSAI 75-16B	89	DSEI 60-06A	84	DSEP 2x61-1
DSA 15IM200UC	78	○ DSAI 75-18B	89	DSEI 60-10A	84	DSEP 2x61-1
○ DSA 17-12A	89	DSB 10I45PM	77	DSEI 60-12A	84	DSEP 75-06A
○ DSA 17-16A	89	DSB 15IM30UC	77	DSEI 2x61-02A	85	DSEP 90-12A
○ DSA 17-18A	89	DSB 15IM45IB	77	DSEI 2x61-04C	85	DSEP 2x91-0
DSA 20C45PB	77	DSB 20C60PN	77	DSEI 2x61-06C	85	DSEP 2x91-0
➤ DSA 20C60PB	77	DSB 20I15PA	77	DSEI 2x61-06P	85	DSEP 2x101-
DSA 20C60PN	77	DSB 30C30PB	77	DSEI 2x61-10B	85	○ DSI 17-12A
DSA 20C100PB	77	DSB 30C45HB	77	DSEI 2x61-12B	85	DSI 30-08A
DSA 20C100PN	77	DSB 30C45PB	77	DSEI 2x61-12P	85	DSI 30-08AS
DSA 20C150PB	78	DSB 30C60PB	77	DSEI 2x101-06A	85	DSI 30-12A
DSA 20C150PN	78	DSB 40C15PB	77	DSEI 2x101-06P	85	DSI 30-12AS
DSA 20C200PB	78	DSB 60C30HB	77	DSEI 2x101-12A	85	DSI 30-16A
DSA 30C45HB	77	DSB 60C30PB	77	DSEI 2x101-12P	85	DSI 30-16AS
DSA 30C45PB	77	DSB 60C45HB	77	DSEI 120-06A	84	○ DSI 35-12A
DSA 30C45PC	77	DSB 60C45PB	77	DSEI 120-12A	84	DSI 45-08A
DSA 30C60PB	77	DSB 60C60HB	77	➤ DSEI 120-12AZ	5, 84	DSI 45-12A
DSA 30C100HB	77	DSB 60C60PB	77	DSEI 2x121-02A	85	DSI 45-16A
DSA 30C100PB	77	DSB 80C45HB	77	DSEI 2x161-02P	85	DSI 45-16AR
DSA 30C100PN	77	DSDI 60-14A	86	DSEI 2x161-06P	85	DSI 2x55-12A
DSA 30C100QB	77	DSDI 60-16A	86	DSEI 2x161-12P	85	DSI 2x55-16A
DSA 30C150HB	78	DSDI 60-18A	86	DSEK 60-02A	84	○ DSI 75-12B
DSA 30C150PB	78	DSEC 16-06A	82	DSEK 60-02AR	84	DSIK 45-16A
DSA 30C150PC	78	DSEC 16-06AC	82	DSEK 60-06A	84	DSP 8-08A
DSA 30C200IB	78	DSEC 16-12A	82	DSEK 60-12A	84	DSP 8-08AS
DSA 30C200PB	78	DSEC 16-12AS	82	DSEK 300-06A	85	DSP 8-08S
DSA 30C200PC	78	DSEC 29-06AC	82	DSEP 6-06AS	82	DSP 8-12A
DSA 30I100PA	77	DSEC 30-06A	82	DSEP 6-06BS	82	DSP 8-12AS
DSA 30I150PA	78	DSEC 30-06B	82	DSEP 8-06A	82	DSP 8-12S
○ DSA 35-12A	89	DSEC 30-12A	82	DSEP 8-06B	82	DSP 25-12A
○ DSA 35-16A	89	DSEC 59-06BC	82	DSEP 8-12A	82	DSP 25-12AT
○ DSA 35-18A	89	DSEC 60-06A	82	DSEP 12-12A	82	DSP 25-16A
DSA 50C100HB	77	DSEC 60-06B	82	DSEP 12-12AZ	2, 82	DSP 25-16AR
DSA 50C100QB	77	DSEC 60-12A	82	DSEP 12-12B	82	DSP 25-16AT
DSA 50C150HB	78	DSEC 120-12AK	82	DSEP 12-12BZ	2, 82	DSP 45-12A
DSA 60C45HB	77	DSEC 240-04A	82	DSEP 15-06A	82	DSP 45-12AZ
DSA 60C45PB	77	DSEC 240-06A	82	DSEP 15-06AS	82	DSP 45-16A
DSA 60C60HB	77	DSEE 15-12CC	80	DSEP 15-06B	82	DSP 45-16AR

DSS 10-01AS	79	FBS 10-12SC	17, 73, 105	IXBF 50N360	16, 33	IXBOD 1-36F
DSS 16-0045A	79	FMD 15-06KC5	16, 70, 75	IXBF 55N300	16, 33	IXBOD 1-38F
DSS 16-0045AS	79	○ FMD 40-06KC	16, 70, 75	IXBH 6N170	32	IXBOD 1-40F
DSS 16-01A	79	FMM 22-05PF	16	IXBH 10N170	32	IXBOD 1-42F
DSS 16-01AS	79	FMM 22-06PF	16	IXBH 10N300	33	IXBOD 2-01
DSS 17-06CR	80	FMM 50-025TF	16	IXBH 10N300HV	5, 33	IXBOD 2-02
DSS 20-0015B	79	FMM 60-02TF	16	IXBH 14N300HV	5, 33	IXBOD 2-03
DSS 20-01AC	79	○ FMM 75-01F	16	IXBH 16N170	32	IXBOD 2-04
DSS 25-0025B	79	FMP 26-02P	16	IXBH 16N170A	32	IXBOD 2-05
DSS 25-0045A	79	FMP 36-015P	16	IXBH 16N360HV	5, 33	IXBOD 2-06
DSS 40-0008D	79	FMP 76-010T	16	IXBH 20N360HV	5, 33	IXBOD 2-07
DSS 2x41-01A	79	FUE 30-12N1	17, 105	IXBH 22N300HV	5, 33	IXBOD 2-08
DSS 60-0045B	79	FUO 22-12N	17, 108	IXBH 24N170	32	IXBOD 2-09
DSS 2x61-0045A	79	FUO 22-16N	17, 108	IXBH 32N300	33	IXBOD 2-10
DSS 2x61-01A	79	FUO 50-16N	17, 108	IXBH 32N300HV	5, 33	IXBOD 2-11
DSS 2x81-0045B	79	○ FUS 45-0045B	17, 79, 105	IXBH 42N170	32	IXBOD 2-12
DSS 2x101-015A	80	<b>G</b>		IXBH 42N170A	32	IXBOD 2-13
DSS 2x101-02A	80	GB0 25-12NO1	106	IXBH 42N300HV	5, 33	IXBOD 2-14
DSS 2x111-008A	79	GB0 25-16NO1	106	IXBK 55N300	33	IXBOD 2-15F
DSS 2x121-0045B	79	GMM 3x60-015X2	14	IXBK 64N250	32	IXBOD 2-15F
DSS 2x160-0045A	79	GUO 40-08NO1	108	IXBK 75N170	32	IXBOD 2-16F
DSS 2x160-01A	79	GUO 40-12NO1	108	IXBL 60N360	33	IXBOD 2-16F
DSS 2x200-0008D	79	GUO 40-16NO1	108	IXBL 64N250	32	IXBOD 2-17F
DSSK 10-018A	80	<b>I</b>		IXBN 42N170A	32	IXBOD 2-17F
DSSK 16-01A	79	➤ ITF 40PF1200DHGTLB	12	IXBN 75N170	32	IXBOD 2-18F
DSSK 16-01AS	79	◇ ITF 40PG1200DHGLB	12	IXBOD 1-06	116	IXBOD 2-18F
DSSK 18-0025BS	79	➤ ITF 48IF1200HR	7, 28	IXBOD 1-07	116	IXBOD 2-19F
DSSK 20-0045B	79	◇ ITG 100IF1200LB	12	IXBOD 1-08	116	IXBOD 2-19F
DSSK 20-015A	80	◇ ITG 100X1200LB	12	IXBOD 1-09	116	IXBOD 2-20F
DSSK 28-0045BS	79	◇ ITG 100XF1200LB	12	IXBOD 1-10	116	IXBOD 2-20F
DSSK 28-006BS	79	◇ IXA 4IF1200PZ	3, 28	IXBOD 1-12R	116	IXBOD 2-21F
DSSK 28-01AS	79	IXA 4IF1200TC	28	IXBOD 1-12RD	116	IXBOD 2-21F
DSSK 30-01A	79	IXA 4IF1200UC	28	IXBOD 1-13R	116	IXBOD 2-22F
DSSK 30-018A	80	IXA 12IF1200HB	28	IXBOD 1-13RD	116	IXBOD 2-22F
DSSK 38-0025B	79	IXA 12IF1200PB	28	IXBOD 1-14R	116	IXBOD 2-23F
DSSK 38-0025BS	79	○ IXA 12IF1200TC	28	IXBOD 1-14RD	116	IXBOD 2-23F
DSSK 40-0015B	79	IXA 17IF1200HJ	28	IXBOD 1-15R	116	IXBOD 2-24F
DSSK 40-006B	79	IXA 20I1200PB	28	IXBOD 1-15RD	116	IXBOD 2-24F
DSSK 40-008B	79	IXA 20I1200PZ	3, 28	IXBOD 1-16R	116	IXBOD 2-25F
DSSK 48-0025B	79	○ IXA 20IF1200HB	28	IXBOD 1-16RD	116	IXBOD 2-25F
DSSK 48-003B	79	◇ IXA 20IF1200HR	7, 28	IXBOD 1-17R	116	IXBOD 2-26F
DSSK 48-003BS	79	IXA 20PG1200DHGLB	12	IXBOD 1-17RD	116	IXBOD 2-26F
DSSK 50-0025B	79	IXA 20RG1200DHGLB	12	IXBOD 1-18R	116	IXBOD 2-27F
DSSK 50-01A	79	IXA 27IF1200HJ	28	IXBOD 1-18RD	116	IXBOD 2-27F
DSSK 50-015A	80	◇ IXA 30IF1200HR	7, 28	IXBOD 1-19R	116	IXBOD 2-28F
DSSK 60-0045A	79	IXA 30PG1200DHGLB	12	IXBOD 1-19RD	116	IXBOD 2-28F
DSSK 60-0045B	79	IXA 30RG1200DHGLB	12	IXBOD 1-20R	116	IXBOD 2-29F
DSSK 60-015A	80	IXA 33IF1200HB	28	IXBOD 1-20RD	116	IXBOD 2-29F
DSSK 60-015AR	80	IXA 37IF1200HJ	28	IXBOD 1-21R	116	IXBOD 2-30F
DSSK 60-02A	80	◇ IXA 40IF1200HR	7, 28	IXBOD 1-21RD	116	IXBOD 2-30F
DSSK 60-02AR	80	IXA 40PG1200DHGLB	12	IXBOD 1-22R	116	IXBOD 2-31F
DSSK 70-0015B	79	IXA 40RG1200DHGLB	12	IXBOD 1-22RD	116	IXBOD 2-31F
DSSK 70-003B	79	IXA 45IF1200HB	28	IXBOD 1-23R	116	IXBOD 2-32F
DSSK 70-008A	79	IXA 55I1200HJ	28	IXBOD 1-23RD	116	IXBOD 2-32F
DSSK 70-008AR	79	IXA 60IF1200NA	28	IXBOD 1-24R	116	IXBOD 2-33F
DSSK 80-0008D	79	IXA 70I1200NA	28	IXBOD 1-24RD	116	IXBOD 2-33F
DSSK 80-0025B	79	IXA 70R1200NA	28	IXBOD 1-25R	116	IXBOD 2-34F
DSSK 80-003B	79	IXBA 10N300HV	3, 33	IXBOD 1-25RD	116	IXBOD 2-34F
DSSK 80-0045B	79	IXBA 14N300HV	3, 33	IXBOD 1-26R	116	IXBOD 2-35F

IXBOD 2-39RD		118	IXFA 16N60P3	55	IXFH 15N100Q3	63	IXFH 102N15
IXBOD 2-40R		118	IXFA 18N65X2	60	IXFH 16N50P	51	IXFH 110N10
IXBOD 2-40RD		118	IXFA 20N50P3	54	IXFH 16N50P3	54	IXFH 110N15
IXBOD 2-41R		118	IXFA 20N85XHV	3, 61	IXFH 16N60P3	55	IXFH 110N25
IXBOD 2-41RD		118	IXFA 22N60P3	55	IXFH 16N80P	52	IXFH 120N15
IXBOD 2-42R		118	IXFA 22N65X2	60	IXFH 16N120P	53	IXFH 120N20
IXBOD 2-42RD		118	IXFA 26N30X3	58	IXFH 18N60P	51	IXFH 120N25
IXBOD 2-43R		118	IXFA 26N50P3	55	IXFH 18N65X2	60	IXFH 120N25
IXBOD 2-44R		118	IXFA 30N25X3	57	IXFH 18N90P	52	IXFH 120N30
IXBOD 2-45R		118	IXFA 34N65X2	60	IXFH 18N100Q3	63	IXFH 140N10
IXBOD 2-46R		118	IXFA 36N20X3	56	IXFH 20N50P3	54	IXFH 140N20
IXBOD 2-47R		118	IXFA 36N30P3	54	IXFH 20N80P	52	IXFH 150N15
IXBOD 2-48R		118	IXFA 38N30X3	58	IXFH 20N85X	61	IXFH 150N17
IXBOD 2-49R		118	IXFA 44N25X3	57	IXFH 20N100P	53	IXFH 150N20
IXBOD 2-50R		118	IXFA 50N20X3	56	IXFH 22N50P	51	IXFH 150N25
IXBOD 2-51R		118	IXFA 56N30X3	58	IXFH 22N60P	51	IXFH 150N30
IXBOD 2-52R		118	IXFA 60N25X3	57	IXFH 22N60P3	55	IXFH 160N15
IXBOD 2-53R		118	IXFA 72N20X3	56	IXFH 22N65X2	60	IXFH 160N15
IXBOD 2-54R		118	IXFA 72N30X3	58	IXFH 24N80P	52	IXFH 170N10
IXBOD 2-55R		118	IXFA 76N15T2	46	IXFH 24N90P	52	IXFH 170N25
IXBOD 2-56R		118	IXFA 80N25X3	57	IXFH 26N50P	51	IXFH 180N20
IXBR 42N170		32	IXFA 90N20X3	56	IXFH 26N50P3	55	IXFH 220N00
IXBT 6N170		32	IXFA 102N15T	44	IXFH 26N60P	51	IXFH 220N20
IXBT 10N170		32	IXFA 110N15T2	46	> IXFH 26N100X	62	IXFH 230N07
IXBT 16N170		32	IXFA 130N10T	44	IXFH 28N60P3	55	IXFH 230N10
IXBT 16N170A		32	IXFA 130N10T2	46	IXFH 30N50P	51	IXFH 270N00
IXBT 16N170AHV	4, 32		IXFA 180N10T2	46	IXFH 30N50Q3	63	IXFH 320N10
IXBT 16N360HV	4, 33		IXFA 220N06T3	47	IXFH 30N60P	51	IXFH 340N07
IXBT 20N360HV	4, 33		IXFA 230N075T2	46	IXFH 30N85X	61	IXFH 400N07
IXBT 22N300HV	4, 33		IXFA 270N06T3	47	> IXFH 32N100X	62	IXFJ 20N85X
IXBT 24N170		32	IXFB 30N120P	53	IXFH 34N50P3	55	IXFJ 26N50P
IXBT 32N300HV	4, 33		IXFB 40N110P	53	IXFH 34N65X2	60	IXFJ 80N25X
IXBT 42N170		32	IXFB 40N110Q3	63	IXFH 36N50P	51	IXFK 20N120
IXBT 42N170A		32	IXFB 44N100P	53	IXFH 36N60P	51	IXFK 24N80P
IXBT 42N300HV	4, 33		IXFB 44N100Q3	63	IXFH 40N85X	61	IXFK 24N100
IXBX 28N300HV	5, 33		IXFB 52N90P	52	IXFH 42N50P2	54	IXFK 26N100
IXBX 50N360HV	5, 33		IXFB 60N80P	52	IXFH 42N60P3	55	IXFK 26N120
IXBX 55N300	33		IXFB 62N80Q3	63	IXFH 44N50P	51	IXFK 32N80P
IXBX 64N250	32	>	IXFB 70N100X	62	IXFH 44N50Q3	63	IXFK 32N80P
IXBX 75N170	32		IXFB 82N60P	51	IXFH 46N30T	44	IXFK 32N90P
IXBX 75N170A	32		IXFB 82N60Q3	63	IXFH 46N65X2	60	IXFK 32N100
IXCH 36N250	32		IXFB 90N85X	61	IXFH 50N30Q3	63	IXFK 32N100
IXCK 36N250	32		IXFB 100N50P	51	IXFH 50N60P3	55	> IXFK 32N100
○ IXDH 20N120	28		IXFB 100N50Q3	63	IXFH 50N85X	61	IXFK 36N60P
○ IXDH 20N120D1	28		IXFB 110N60P3	55	IXFH 52N30P	50	IXFK 40N90P
○ IXDH 30N120D1	28		IXFB 120N50P2	54	IXFH 52N50P2	54	IXFK 44N50P
○ IXDN 55N120D1	28		IXFB 132N50P3	55	IXFH 56N30X3	58	IXFK 44N80P
○ IXDN 75N120	28		IXFB 150N65X2	60	IXFH 60N50P3	55	IXFK 44N80P
○ IXDR 30N120D1	28		IXFB 170N30P	50	IXFH 60N65X2	60	IXFK 48N60P
IXEL 40N400	31		IXFB 210N20P	50	IXFH 60N65X2-4	60	IXFK 48N60P
IXFA 4N85X	61		IXFB 210N30P3	54	IXFH 69N30P	50	IXFK 50N85X
IXFA 4N100P	53		IXFB 300N10P	50	IXFH 70N20Q3	63	> IXFK 52N100
IXFA 5N100P	53		IXFH 5N100P	53	IXFH 70N30Q3	63	IXFK 64N50P
IXFA 6N120P	53		IXFH 6N120P	53	IXFH 72N30X3	58	IXFK 64N50P
IXFA 7N80P	52		IXFH 7N100P	53	IXFH 74N20P	50	IXFK 64N60P
IXFA 7N100P	53		IXFH 10N80P	52	IXFH 80N25X3	57	IXFK 64N60P
IXFA 8N65X2	60		IXFH 10N100P	53	IXFH 80N65X2	60	IXFK 64N60P
IXFA 8N85XHV	3, 61		IXFH 12N65X2	60	IXFH 80N65X2-4	60	IXFK 66N85X
IXFA 10N60P	51		IXFH 12N80P	52	IXFH 86N30T	44	IXFK 78N50P



IXFK 102N30P	50	IXFN 56N90P	52	IXFP 14N60P3	55	IXFR 15N100P	55
IXFK 120N20P	50	IXFN 60N80P	52	IXFP 14N85X	61	IXFR 16N120P	55
IXFK 120N25P	50	IXFN 62N80Q3	63	IXFP 14N85XM	61	IXFR 18N90P	55
IXFK 120N30P3	54	IXFN 64N50P	51	IXFP 16N50P	51	IXFR 20N80P	55
IXFK 120N30T	44	IXFN 64N60P	51	IXFP 16N50P3	54	IXFR 20N100P	55
IXFK 120N65X2	60	IXFN 66N85X	61	IXFP 16N60P3	55	IXFR 20N120P	55
IXFK 140N20P	50	IXFN 70N100X	62	IXFP 18N65X2	60	IXFR 24N80P	55
IXFK 140N25T	44	IXFN 70N120SK	73	IXFP 18N65X2M	60	IXFR 24N90P	55
IXFK 140N30P	50	IXFN 74N100X	62	IXFP 20N50P3	54	IXFR 24N100P	55
IXFK 150N15P	50	IXFN 80N50P	51	IXFP 20N85X	61	IXFR 26N100P	55
IXFK 150N30P3	54	IXFN 80N50Q3	63	IXFP 22N60P3	55	IXFR 26N120P	55
IXFK 150N30X3	58	IXFN 80N60P3	55	IXFP 22N65X2	60	IXFR 30N60P	55
IXFK 160N30T	44	IXFN 82N60P	51	IXFP 22N65X2M	60	IXFR 32N80P	55
IXFK 170N10P	50	IXFN 82N60Q3	63	IXFP 26N30X3	58	IXFR 32N80Q3	55
IXFK 170N20P	50	IXFN 90N85X	61	IXFP 26N50P3	55	IXFR 32N100P	55
IXFK 170N20T	44	IXFN 90N170SK	73	IXFP 30N25X3	57	IXFR 32N100Q3	55
IXFK 170N25X3	57	IXFN 94N50P2	54	IXFP 30N25X3M	57	IXFR 36N50P	55
IXFK 180N15P	50	IXFN 100N50P	51	IXFP 34N65X2	60	IXFR 36N60P	55
IXFK 180N25T	44	IXFN 100N50Q3	63	IXFP 34N65X2M	60	IXFR 40N90P	55
IXFK 200N10P	50	IXFN 100N65X2	60	IXFP 36N20X3	56	IXFR 44N50P	55
IXFK 210N30X3	58	IXFN 102N30P	50	IXFP 36N20X3M	56	IXFR 44N50Q3	55
IXFK 220N15P	50	IXFN 110N60P3	55	IXFP 36N30P3	54	IXFR 44N80P	55
IXFK 220N17T2	46	IXFN 110N85X	61	IXFP 38N30X3	58	IXFR 48N60P	55
IXFK 220N20X3	56	IXFN 120N65X2	60	IXFP 38N30X3M	58	IXFR 48N60Q3	55
IXFK 230N20T	44	IXFN 130N90SK	73	IXFP 44N25X3	57	IXFR 64N50P	55
IXFK 240N15T2	46	IXFN 132N50P3	55	IXFP 44N25X3M	57	IXFR 64N50Q3	55
IXFK 240N25X3	57	IXFN 140N20P	50	IXFP 50N20X3	56	IXFR 64N60P	55
IXFK 250N10P	50	IXFN 140N25T	44	IXFP 50N20X3M	56	IXFR 64N60Q3	55
IXFK 300N20X3	56	IXFN 140N30P	50	IXFP 56N30X3	58	IXFR 80N50P	55
IXFK 320N17T2	46	IXFN 150N65X2	60	IXFP 56N30X3M	58	IXFR 80N50Q3	55
IXFK 360N10T	44	IXFN 160N30T	44	IXFP 60N25X3	57	IXFR 80N60P	55
IXFK 360N15T2	46	IXFN 170N25X3	57	IXFP 60N25X3M	57	IXFR 102N30P	55
IXFK 420N10T	44	IXFN 170N30P	50	IXFP 72N20X3	56	IXFR 140N20P	55
IXFK 520N075T2	46	IXFN 170N65X2	60, 60	IXFP 72N20X3M	56	IXFR 140N30P	55
IXFL 30N120P	53	IXFN 180N15P	50	IXFP 72N30X3	58	IXFR 180N15P	55
IXFL 32N120P	53	IXFN 180N25T	44	IXFP 72N30X3M	58	IXFR 200N10P	55
IXFL 36N110P	53	IXFN 200N10P	50	IXFP 76N15T2	46	IXFR 230N20P	55
IXFL 38N100P	53	IXFN 210N20P	50	IXFP 80N25X3	57	IXFT 14N80P	55
IXFL 40N110P	53	IXFN 210N30P3	54	IXFP 90N20X3	56	IXFT 15N100P	55
IXFL 44N100P	53	IXFN 210N30X3	58	IXFP 90N20X3M	56	IXFT 16N80P	55
IXFL 60N80P	52	IXFN 220N20X3	56	IXFP 102N15T	44	IXFT 16N120P	55
IXFL 82N60P	51	IXFN 230N20T	44	IXFP 110N15T2	46	IXFT 18N90P	55
IXFL 100N50P	51	IXFN 240N15T2	46	IXFP 130N10T	44	IXFT 18N100P	55
IXFL 132N50P3	55	IXFN 240N25X3	57	IXFP 130N10T2	46	IXFT 20N80P	55
IXFL 210N30P3	54	IXFN 300N10P	50	IXFP 180N10T2	46	IXFT 20N100P	55
IXFN 20N120P	53	IXFN 300N20X3	56	IXFP 220N06T3	47	IXFT 24N80P	55
IXFN 26N100P	53	IXFN 320N17T2	46	IXFP 230N075T2	46	IXFT 24N90P	55
IXFN 26N120P	53	IXFN 360N10T	44	IXFP 270N06T3	47	IXFT 26N60P	55
IXFN 27N120SK	73	IXFN 360N15T2	46	IXFQ 8N85X	61	IXFT 26N100P	55
IXFN 30N120P	53	IXFN 420N10T	44	IXFQ 10N80P	52	IXFT 30N50P	55
IXFN 32N80P	52	IXFN 520N075T2	46	IXFQ 14N80P	52	IXFT 30N50Q3	55
IXFN 32N100P	53	IXFP 4N85X	61	IXFQ 20N50P3	55	IXFT 30N60P	55
IXFN 32N100Q3	63	IXFP 4N85XM	61	IXFQ 22N60P3	55	IXFT 30N85X	55
IXFN 32N120P	53	IXFP 4N100P	53	IXFQ 24N50P2	54	IXFT 32N100P	55
IXFN 38N100P	53	IXFP 5N100P	53	IXFQ 26N50P3	55	IXFT 36N50P	55
IXFN 40N90P	52	IXFP 6N120P	53	IXFQ 28N60P3	55	IXFT 36N60P	55
IXFN 40N110P	53	IXFP 7N80P	52	IXFQ 34N50P3	55	IXFT 40N85X	55
IXFN 40N110Q3	63	IXFP 7N100P	53	IXFQ 50N60P3	55	IXFT 42N50P	55
IXFN 44N80P	52	IXFP 8N65X2	60	IXFQ 60N25X3	57	IXFT 44N50P	55

IXFT 69N30P	50	IXFX 200N10P	50	IXGN 320N60A3	29	IXTA 06N120
IXFT 70N20Q3	63	IXFX 210N30X3	58	IXGN 400N60A3	29	IXTA 08N50D
IXFT 70N30Q3	63	IXFX 220N15P	50	IXGP 12N120A3	29	IXTA 8N65X2
IXFT 80N65X2HV	4, 60	IXFX 220N17T2	46	IXGP 20N120A3	29	IXTA 8N70X2
IXFT 86N30T	44	IXFX 230N20T	44	IXGP 36N60A3	29	IXTA 08N100
IXFT 88N30P	50	IXFX 240N15T2	46	IXGP 48N60A3	29	IXTA 08N100
IXFT 94N30P3	54	IXFX 240N25X3	57	IXGR 6N170A	30	IXTA 08N100
IXFT 94N30T	44	IXFX 250N10P	50	IXGR 55N120A3H1	29	IXTA 08N120
IXFT 96N20P	50	IXFX 300N20X3	56	IXGR 72N60A3H1	29	IXTA 10N60P
IXFT 100N30X3HV	4, 58	IXFX 320N17T2	46	IXGT 6N170	30	IXTA 10P15T
IXFT 120N15P	50	IXFX 360N10T	44	IXGT 6N170A	30	IXTA 10P50P
IXFT 120N25T	44	IXFX 360N15T2	46	IXGT 10N170	30	IXTA 12N50P
IXFT 120N25X3HV	4, 57	IXFX 420N10T	44	IXGT 10N170A	30	IXTA 12N65X
IXFT 120N30X3HV	4, 58	IXFX 520N075T2	46	IXGT 16N170	30	IXTA 12N70X
IXFT 140N10P	50	IXFY 4N85X	61	IXGT 16N170A	30	IXTA 14N60P
IXFT 140N20X3HV	4, 56	IXFY 8N65X2	60	IXGT 24N170	30	IXTA 15N50L
IXFT 150N17T2	46	IXFY 26N30X3	58	IXGT 24N170A	30	IXTA 15P15T
IXFT 150N20T	44	IXFY 30N25X3	57	IXGT 25N250	31	IXTA 16N50P
IXFT 150N25X3HV	4, 57	IXFY 36N20X3	56	IXGT 25N250HV	4, 31	IXTA 18P10T
IXFT 150N30X3HV	4, 58	IXFZ 140N25T	44	IXGT 32N100A3	29	IXTA 20N65X
IXFT 170N25X3HV	4, 57	IXFZ 520N075T2	46	IXGT 32N120A3	29	IXTA 24N65X
IXFT 180N20X3HV	4, 56	IXG 50I4500KN	31	IXGT 32N170	30	IXTA 24P085
IXFT 220N20X3HV	4, 56	➤ IXG 65I3300KN	31	IXGT 32N170A	30	IXTA 26P10T
IXFT 320N10T2	46	➤ IXG 70IF1200NA	28	IXGT 72N60A3	29	IXTA 26P20P
IXFT 340N075T2	46	IXGA 12N120A3	29	IXGX 55N120A3H1	29	IXTA 28P065
IXFT 400N075T2	46	IXGA 20N120A3	29	IXGX 72N60A3H1	29	➤ IXTA 30N25L
IXFX 20N120P	53	IXGA 20N250HV	3, 31	IXGX 75N250	31	IXTA 30N65X
IXFX 24N100Q3	63	IXGA 36N60A3	29	IXGX 82N120A3	29	IXTA 32P05T
IXFX 26N100P	53	IXGA 48N60A3	29	IXGX 100N170	30	IXTA 32P20T
IXFX 26N120P	53	IXGF 20N250	16, 31	IXGX 120N60A3	29	IXTA 34N65X
IXFX 32N80P	52	IXGF 25N250	16, 31	IXGX 120N120A3	29	IXTA 36N30P
IXFX 32N80Q3	63	IXGF 32N170	16, 30	IXGX 320N60A3	29	IXTA 36P15P
IXFX 32N90P	52	IXGH 6N170	30	○ IXKC 20N60C	70	IXTA 42N25P
IXFX 32N100P	53	IXGH 6N170A	30	IXKF 40N60SCD1	16, 70	IXTA 44P15T
IXFX 32N100Q3	63	IXGH 10N170	30	○ IXKH 35N60C5	70	IXTA 48N20T
IXFX 40N90P	52	IXGH 10N170A	30	○ IXKH 70N60C5	70	IXTA 48P05T
IXFX 44N80P	52	IXGH 12N120A3	29	○ IXKN 40N60C	70	IXTA 50N20P
IXFX 44N80Q3	63	IXGH 16N170	30	○ IXKN 75N60C	70	IXTA 50N25T
IXFX 48N60P	51	IXGH 16N170A	30	IXKR 25N80C	70	IXTA 52P10P
IXFX 48N60Q3	63	IXGH 20N120A3	29	IXKR 40N60C	70	IXTA 60N10T
➤ IXFX 52N100X	62	IXGH 24N170	30	○ IXKR 47N60C5	70	IXTA 60N20T
IXFX 64N50P	51	IXGH 24N170A	30	IXKT 70N60C5	70	IXTA 62N15P
IXFX 64N50Q3	63	IXGH 25N250	31	IXLF 19N250A	16, 31	IXTA 64N10L
IXFX 64N60P	51	IXGH 32N100A3	29	IXTA 1N100P	49	IXTA 70N075
IXFX 64N60P3	55	IXGH 32N120A3	29	IXTA 1N120P	49	IXTA 75N10P
IXFX 64N60Q3	63	IXGH 32N170	30	IXTA 1N200P3HV	3, 64	IXTA 76N25T
IXFX 66N85X	61	IXGH 32N170A	30	IXTA 1R4N100P	49	IXTA 76P10T
IXFX 78N50P3	55	IXGH 36N60A3	29	IXTA 1R4N120P	49	IXTA 80N075
IXFX 80N50P	51	IXGH 36N60A3D4	29	IXTA 1R6N100D2	67	IXTA 80N12T
IXFX 80N50Q3	63	IXGH 48N60A3	29	IXTA 1R6N50D2	67	IXTA 86N20T
IXFX 80N60P3	55	IXGH 48N60A3D1	29	IXTA 2N100P	49	IXTA 90N055
IXFX 94N50P2	54	IXGH 56N60A3	29	IXTA 02N250HV	3, 64	IXTA 90N075
IXFX 98N50P3	55	IXGH 64N60A3	29	IXTA 2R4N120P	49	IXTA 96P085
IXFX 100N65X2	60	IXGH 72N60A3	29	IXTA 3N50D2	67	IXTA 100N04
IXFX 120N25P	50	IXGK 55N120A3H1	29	IXTA 3N100D2	67	➤ IXTA 100N15
IXFX 120N30P3	54	IXGK 72N60A3H1	29	IXTA 3N100D2HV	3, 67	IXTA 110N05
IXFX 120N30T	44	IXGK 75N250	31	IXTA 3N100P	49	IXTA 120N04
IXFX 120N65X2	60	IXGK 82N120A3	29	IXTA 3N120	65	IXTA 120N07
		IXGK 100N170	30	IXTA 3N120HV	3, 65	IXTA 120P06

IXTA 160N04T2	45	IXTH 32P20T	69	IXTK 110N20L2	66	IXTP 08N100P
IXTA 170N075T2	45	IXTH 34N65X2	59	IXTK 120N20P	48	IXTP 08N120P
IXTA 180N10T	43	IXTH 36N50P	49	IXTK 120N25P	48	IXTP 10N60P
IXTA 200N055T2	45	IXTH 36P15P	68	IXTK 120N65X2	59	IXTP 10P15T
IXTA 220N04T2	45	IXTH 38N30L2	66	IXTK 120P20T	69	IXTP 10P50P
IXTA 230N04T4	47	IXTH 40N50L2	66	IXTK 140N20P	48	IXTP 12N50P
IXTA 230N075T2	45	IXTH 44N25L2	66	IXTK 140N30P	48	IXTP 12N65X2
IXTA 260N055T2	45	IXTH 44P15T	69	IXTK 150N15P	48	IXTP 12N65X2
IXTA 270N04T4	47	IXTH 48N65X2	59	IXTK 170N10P	48	IXTP 12N70P
IXTA 270N04T4-7	47	IXTH 48P20P	68	IXTK 170P10P	68	IXTP 12N70P
IXTA 300N04T2	45	IXTH 50N25T	43	IXTK 180N15P	48	IXTP 14N60P
IXTA 340N04T4	47	IXTH 50N30L2	66	IXTK 200N10L2	66	IXTP 15N50L2
IXTA 340N04T4-7	47	IXTH 52P10P	68	IXTK 200N10P	48	IXTP 15P15T
IXTA 380N036T4-7	47	IXTH 58N25L2	66	IXTK 210P10T	69	IXTP 16N50P
IXTA 460P2	54	IXTH 60N20L2	66	IXTK 240N075L2	66	IXTP 18P10T
IXTF 1N250	16, 64	IXTH 62N65X2	59	IXTK 400N15X4	56	IXTP 20N65X2
IXTF 1N450	16, 64	IXTH 64N10L2	66	IXTK 550N055T2	45	IXTP 20N65X2
IXTF 1R4N450	16, 64	IXTH 68P20T	69	IXTK 600N04T2	45	IXTP 24N65X2
IXTF 2N300P3	16, 64	IXTH 75N10L2	66	IXTL 2N450	64	IXTP 24N65X2
IXTF 02N450	16, 64	IXTH 76N25T	43	IXTL 2N470	64	IXTP 24P085T
IXTF 6N200P3	16, 64	IXTH 76P10T	69	IXTL 2x180N10T	43	IXTP 26P10T
IXTF 200N10T	16, 43	IXTH 80N075L2	66	IXTN 5N250	64	IXTP 26P20P
IXTH 1N200P3	64	IXTH 80N65X2	59	IXTN 32P60P	68	IXTP 28P065T
IXTH 1N200P3HV	6, 64	IXTH 86N25T	43	IXTN 40P50P	68	IXTP 30N25L2
IXTH 1N250	64	IXTH 88N30P	48	IXTN 60N50L2	66	IXTP 30N65X2
IXTH 1N300P3HV	6, 64	IXTH 90P10P	68	IXTN 80N30L2	66	IXTP 32P05T
IXTH 1N450HV	5, 64	IXTH 96N20P	48	IXTN 90N25L2	66	IXTP 32P20T
IXTH 1R4N250P3	64	IXTH 96N25T	43	IXTN 90P20P	68	IXTP 34N65X2
IXTH 1R8N220P3HV	6, 64	IXTH 96P085T	69	IXTN 102N65X2	59	IXTP 36N30P
IXTH 2N170D2	67	IXTH 110N10L2	66	IXTN 110N20L2	66	IXTP 36P15P
IXTH 02N250	64	IXTH 110N25T	43	IXTN 120P20T	69	IXTP 42N25P
IXTH 2N300P3HV	6, 64	IXTH 120P065T	69	IXTN 170P10P	68	IXTP 44N10T
IXTH 02N450HV	5, 64	IXTH 130N10T	43	IXTN 200N10L2	66	IXTP 44P15T
IXTH 2R4N120P	49	IXTH 130N15X4	56	IXTN 200N10T	43	IXTP 48N20P
IXTH 3N100P	49	IXTH 130N20T	43	IXTN 210P10T	69	IXTP 48P05T
IXTH 3N120	65	IXTH 140N075L2	66	IXTN 240N075L2	66	IXTP 50N20P
IXTH 3N150	65	IXTH 140P05T	69	IXTN 400N15X4	56	IXTP 50N25T
IXTH 3N200P3HV	6, 64	IXTH 140P10T	69	IXTN 550N055T2	45	IXTP 52P10P
IXTH 4N150	65	IXTH 150N15X4	56	IXTN 600N04T2	45	IXTP 60N10T
IXTH 04N300P3HV	6, 64	IXTH 180N10T	43	IXTN 660N04T4	47	IXTP 60N20P
IXTH 05N250P3HV	6, 64	IXTH 200N10T	43	IXTP 1N100P	49	IXTP 62N15P
IXTH 6N50D2	67	IXTH 240N15X4	56	IXTP 1N120P	49	IXTP 64N10L2
IXTH 6N100D2	67	IXTH 260N055T2	45	IXTP 1R4N100P	49	IXTP 70N075P
IXTH 6N120	65	IXTH 270N04T4	47	IXTP 1R4N120P	49	IXTP 75N10P
IXTH 6N150	65	IXTH 300N04T2	45	IXTP 1R6N100D2	67	IXTP 76N25T
IXTH 06N220P3HV	6, 64	IXTH 340N04T4	47	IXTP 1R6N50D2	67	IXTP 76P10T
IXTH 10N100D2	67	IXTH 360N055T2	45	IXTP 2N65X2	59	IXTP 80N075P
IXTH 10P50P	68	IXTH 420N04T2	45	IXTP 2N100P	49	IXTP 80N10T
IXTH 12N65X2	59	IXTH 440N055T2	45	IXTP 02N120P	49	IXTP 80N12T
IXTH 12N70X2	61	IXTH 450P2	54	IXTP 2R4N120P	49	IXTP 86N20T
IXTH 15N50L2	66	IXTH 460P2	54	IXTP 3N50D2	67	IXTP 90N055T
IXTH 16N10D2	67	IXTH 500N04T2	45	IXTP 3N100D2	67	IXTP 90N075P
IXTH 16N20D2	67	IXTJ 3N150	7, 65	IXTP 3N100P	49	IXTP 96P085T
IXTH 16N50D2	67	IXTJ 4N150	7, 65	IXTP 3N120	65	IXTP 100N04T2
IXTH 16P60P	68	IXTJ 6N150	7, 65	IXTP 4N65X2	59	IXTP 100N15P
IXTH 20N65X2	59	IXTK 5N250	64	IXTP 4N70X2	61	IXTP 110N05P
IXTH 20P50P	68	IXTK 32P60P	68	IXTP 4N70X2M	61	IXTP 120N04T2
IXTH 22N50P	49	IXTK 40P50P	68	IXTP 05N100P	49	IXTP 120N075P
IXTH 24N65X2	59	IXTK 60N50L2	66	IXTP 6N50D2	67	IXTP 120P065T

> IXTA 170N13X4	56	IXTQ 460P2	54	> IXTT 240N15X4HV	4, 56	IXXH 50N60C
IXTP 180N10T	43	IXTQ 470P2	54	IXTT 360N055T2	45	IXXH 50N60C
IXTP 200N055T2	45	IXTQ 480P2	54	IXTT 440N04T4HV	4, 47	IXXH 60N65E
IXTP 220N04T2	45	IXTR 16P60P	68	IXTT 440N055T2	45	IXXH 60N65E
IXTP 230N04T4	47	IXTR 20P50P	68	IXTT 500N04T2	45	IXXH 60N65E
> IXTA 230N04T4M	47	IXTR 32P60P	68	IXTU 4N70X2	61	IXXH 75N60E
IXTP 230N075T2	45	IXTR 36P15P	68	IXTU 8N70X2	61	IXXH 75N60E
IXTP 260N055T2	45	IXTR 40P50P	68	IXTX 1R4N450HV	5, 64	IXXH 75N60C
IXTP 270N04T4	47	IXTR 48P20P	68	IXTX 4N300P3HV	6, 64	IXXH 75N60C
IXTP 300N04T2	45	IXTR 68P20T	69	IXTX 5N250	64	IXXH 80N65E
IXTP 340N04T4	47	IXTR 90P10P	68	IXTX 6N200P3HV	6, 64	IXXH 80N65E
IXTP 450P2	54	IXTR 90P20P	68	IXTX 32P60P	68	IXXH 80N65E
IXTP 460P2	54	IXTR 102N65X2	59	IXTX 40P50P	68	IXXH 100N60C
IXTQ 10P50P	68	IXTR 120P20T	69	IXTX 60N50L2	66	IXXH 100N60C
IXTQ 14N60P	49	IXTR 140P10T	69	IXTX 80N30L2	66	IXXH 110N65E
IXTQ 16N50P	49	IXTR 170P10P	68	IXTX 90N25L2	66	IXXH 110N65E
IXTQ 18N60P	49	IXTR 200N10P	48	IXTX 90P20P	68	IXXH 140N65E
IXTQ 22N50P	49	IXTR 210P10T	69	IXTX 102N65X2	59	IXXH 140N65E
IXTQ 22N60P	49	IXTT 1N250HV	4, 64	IXTX 110N20L2	66	IXXK 100N60C
IXTQ 26N50P	49	IXTT 1N300P3HV	4, 64	IXTX 120N65X2	59	IXXK 100N60C
IXTQ 26N60P	49	IXTT 1N450HV	4, 64	IXTX 120P20T	69	IXXK 110N65E
IXTQ 26P20P	68	IXTT 2N170D2	67	IXTX 170P10P	68	IXXK 160N65E
IXTQ 30N50L2	66	IXTT 2N300P3HV	4, 64	IXTX 200N10L2	66	IXXK 160N65E
IXTQ 30N50P	49	IXTT 02N450HV	4, 64	IXTX 210P10T	69	IXXK 200N60C
IXTQ 30N60L2	66	IXTT 3N200P3HV	4, 64	IXTX 240N075L2	66	IXXK 200N60C
IXTQ 30N60P	49	IXTT 4N150HV	4, 65	> IXTX 400N15X4	56	IXXK 200N65E
IXTQ 32P20T	69	IXTT 6N120	65	IXTX 550N055T2	45	IXXK 300N60C
IXTQ 36N30P	48	IXTT 6N150	65	IXTX 600N04T2	45	IXXK 300N60C
IXTQ 36N50P	49	IXTT 10N100D2	67	IXTY 1N100P	49	IXXN 100N60C
IXTQ 36P15P	68	IXTT 12N150HV	4, 65	IXTY 1R4N100P	49	IXXN 110N65E
IXTQ 40N50L2	66	IXTT 16N10D2	67	> IXTY 1R4N120P	49	IXXN 110N65E
IXTQ 42N25P	48	IXTT 16N20D2	67	> IXTY 1R4N210PHV	2, 49	IXXN 200N60C
IXTQ 44N50P	49	IXTT 16N50D2	67	IXTY 1R6N100D2	67	IXXN 200N60C
IXTQ 44P15T	69	IXTT 16P60P	68	IXTY 1R6N50D2	67	IXXN 200N60C
IXTQ 48N20T	43	IXTT 20P50P	68	IXTY 2N65X2	59	IXXN 200N65E
IXTQ 50N20P	48	IXTT 26N50P	49	IXTY 2N100P	49	IXXN 340N65E
IXTQ 50N25T	43	IXTT 26N60P	49	IXTY 02N120P	49	IXXP 12N65E
IXTQ 52N30P	48	IXTT 30N50L2	66	IXTY 4N65X2	59	IXXP 12N65E
IXTQ 52P10P	68	IXTT 30N50P	49	IXTY 4N70X2	61	IXXP 50N60E
IXTQ 60N10T	43	IXTT 30N60L2	66	IXTY 08N50D2	67	IXXQ 30N60E
IXTQ 60N20L2	66	IXTT 30N60P	49	IXTY 8N65X2	59	IXXR 100N60C
IXTQ 60N20T	43	IXTT 34N65X2HV	4, 59	IXTY 8N70X2	61	IXXR 110N65E
IXTQ 62N15P	48	IXTT 36N50P	49	IXTY 08N100D2	67	IXXX 100N60C
IXTQ 64N25P	48	IXTT 38N30L2	66	IXTY 08N100P	49	IXXX 100N60C
IXTQ 69N30P	48	IXTT 40N50L2	66	IXTY 10P15T	69	IXXX 110N65E
IXTQ 74N20P	48	> IXTT 44N25L2HV	4, 66	IXTY 15P15T	69	IXXX 140N65E
IXTQ 75N10P	48	IXTT 48P20P	68	IXTY 18P10T	69	IXXX 160N65E
IXTQ 76N25T	43	IXTT 52N30P	48	IXTY 26P10T	69	IXXX 160N65E
IXTQ 82N25P	48	IXTT 60N20L2	66	IXTY 32P05T	69	IXXX 200N60C
IXTQ 86N20T	43	IXTT 64N25P	48	IXTY 44N10T	43	IXXX 200N60C
IXTQ 86N25T	43	IXTT 68P20T	69	IXTY 48P05T	69	IXXX 200N65E
IXTQ 88N30P	48	IXTT 69N30P	48	IXTY 90N055T2	45	IXXX 300N60C
IXTQ 96N15P	48	IXTT 74N20P	48	IXTZ 550N055T2	45	IXXX 300N60C
IXTQ 96N20P	48	IXTT 75N10L2	66	IXXA 50N60B3	22	IXYA 8N90C3
IXTQ 96N25T	43	IXTT 82N25P	48	IXXH 30N60B3	22	IXYA 8N250C
IXTQ 100N25P	48	IXTT 88N30P	48	IXXH 30N60B3D1	22	IXYA 12N250C
IXTQ 110N10P	48	IXTT 90P10P	68	IXXH 30N60C3	22	IXYA 15N65C
IXTQ 120N15P	48	IXTT 96N15P	48	IXXH 30N60C3D1	22	IXYA 20N65E
		IXTT 96N20P	48	IXXH 30N65B4	24	IXYA 20N65C



IXYF 16N250CV1	16, 27	IXYK 100N120B3	26	IXYX 100N65C3D1	23	LSIC2SD065
IXYF 30N170CV1	16, 27	IXYK 100N120C3	26	IXYX 100N120B3	26	LSIC2SD120
IXYF 30N450	16, 31	IXYK 120N120B3	26	IXYX 100N120C3	26	LSIC2SD120
IXYF 40N450	16, 31	IXYK 120N120C3	26	IXYX 120N120B3	26	LSIC2SD120
IXYH 8N250CHV	5, 27	IXYK 140N90C3	26	IXYX 120N120C3	26	LSIC2SD120
IXYH 8N250CV1HV	5, 27	IXYK 140N120A4	25	IXYX 140N90C3	26	LSIC2SD120
IXYH 10N170C	27	IXYK 200N65B3	23	IXYX 140N120A4	25	LSIC2SD120
IXYH 10N170CV1	27	IXYK 300N65A3	23	IXYX 200N65B3	23	LSIC2SD120
IXYH 12N250CHV	5, 27	IXYL 40N250CV1	27	IXYX 300N65A3	23	LSIC2SD120
IXYH 12N250CV1HV	5, 27	IXYL 50N170CV1	27	IXYX 8N90C3	26	LSIC2SD120
IXYH 16N170C	27	IXYL 60N450	31			LSIC2SD120
IXYH 16N170CV1	27	IXYN 30N170CV1	27	L0103NERP	114	LSIC2SD120
IXYH 16N250CV1HV	5, 27	IXYN 50N170CV1	27	L0107NTRP	114	LSIC2SD120
IXYH 20N65B3	23	IXYN 75N65C3D1	23	L0109NERP	114	LSIC2SD120
IXYH 20N65C3	23	IXYN 80N90C3H1	26	LJ6004D8RP	114	LSIC2SD120
IXYH 20N120C3	26	IXYN 82N120C3	26	○ LKK 47-06C5	70	LSIC2SD120
IXYH 20N120C3D1	26	IXYN 82N120C3H1	26	◇ LSiC1MO120N0025	71	LSIC2SD120
IXYH 24N90C3	26	IXYN 100N65A3	23	◇ LSiC1MO120E0025	71	LSIC2SD120
IXYH 24N90C3D1	26	IXYN 100N65B3D1	23	◇ LSiC1MO120E0040	71	LSIC2SD120
IXYH 24N170C	27	IXYN 100N65C3H1	23	LSiC1MO120E0080	71	LSIC2SD120
IXYH 24N170CV1	27	IXYN 100N120B3H1	26	LSiC1MO120E0120	71	LSIC2SD120
IXYH 25N250CHV	5, 27	IXYN 100N120C3	26	LSiC1MO120E0160	71	LSX807MBRP
IXYH 30N65B3D1	23	IXYN 100N120C3H1	26	◇ LSiC1MO120G0025	7, 71	LX807MTRP
IXYH 30N65C3	23	IXYN 120N65B3D1	23	◇ LSiC1MO120G0040	7, 71	M
IXYH 30N65C3H1	23	IXYN 120N65C3D1	23	◇ LSiC1MO120G0080	7, 71	MCB 20P120
IXYH 30N120A4	25	IXYN 120N120C3	26	◇ LSiC1MO120G0120	7, 71	MCB 30P120
IXYH 30N120B4	25	IXYN 140N120A4	25	◇ LSiC1MO120G0160	7, 71	MCB 35P170
IXYH 30N120C3	26	IXYN 300N65A3	23	◇ LSiC1MO120T0080	71	MCB 40P120
IXYH 30N120C3D1	26	IXYP 8N90C3	26	◇ LSiC1MO120T0120	71	MCB 60I120
IXYH 30N120C4	25	IXYP 8N90C3D1	26	◇ LSiC1MO120T0160	71	MCB 60P120
IXYH 30N170C	27	IXYP 10N65B3D1	23	LSiC1MO170E1000	71	MCC 19-08ic
IXYH 30N450HV	5, 31	IXYP 10N65C3	23	◇ LSiC1MO170H0750	71	MCC 19-08ic
IXYH 40N65B3	23	IXYP 10N65C3D1	23	◇ LSiC1MO170T0750	71	MCC 19-12ic
IXYH 40N65B3D1	23	IXYP 15N65C3	23	◇ LSiC2SB065B10A	72	MCC 19-12ic
IXYH 40N65C3	23	IXYP 15N65C3D1	23	◇ LSiC2SB065B20A	72	MCC 19-14ic
IXYH 40N65C3D1	23	IXYP 20N65B3	23	◇ LSiC2SB065B32A	72	MCC 19-14ic
IXYH 40N65C3H1	23	IXYP 20N65B3D1	23	◇ LSiC2SB065B40A	72	MCC 19-16ic
IXYH 40N90C3	26	IXYP 20N65C3D1	23	◇ LSiC2SB120B10A	72	MCC 19-16ic
IXYH 40N90C3D1	26	IXYP 20N120A4	25	◇ LSiC2SB120B20A	72	MCC 19-16ic
IXYH 40N120A4	25	IXYP 20N120B4	25	◇ LSiC2SB120B30A	72	MCC 21-08ic
IXYH 40N120B3	26	IXYP 20N120C3	26	◇ LSiC2SB120B30A	72	MCC 21-12ic
IXYH 40N120B3D1	26	IXYP 20N120C4	25	◇ LSiC2SB120B40A	72	MCC 21-14ic
IXYH 40N120B4	25	IXYP 30N65C3	23	◇ LSiC2SB170B10A	72	MCC 21-16ic
IXYH 40N120C3	26	IXYP 30N120A4	25	◇ LSiC2SB170B25A	72	MCC 26-08ic
IXYH 40N120C3D1	26	IXYP 30N120A4	25	◇ LSiC2SB170B50A	72	MCC 26-08ic
IXYH 40N120C3D1	26	IXYP 30N120C3	26	LSIC2SD065A06A	72	MCC 26-12ic
IXYH 40N120C4	25	IXYP 50N65C3	23	LSIC2SD065A08A	72	MCC 26-12ic
IXYH 50N65C3	23	IXYQ 30N65B3D1	23	LSIC2SD065A10A	72	MCC 26-14ic
IXYH 50N65C3D1	23	IXYQ 40N65B3D1	23	LSIC2SD065A16A	72	MCC 26-14ic
IXYH 50N65C3H1	23	IXYQ 40N65C3D1	23	LSIC2SD065A20A	72	MCC 26-14ic
IXYH 50N120C3	26	IXYR 50N120C3D1	26	◇ LSiC2SD065B16A	72	MCC 26-16ic
IXYH 50N120C3D1	26	IXYR 100N120C3	26	LSIC2SD065C06A	72	MCC 26-16ic
IXYH 55N120A4	25	IXYT 12N250CV1HV	4, 27	LSIC2SD065C08A	72	MCC 26-16ic
IXYH 60N90C3	26	IXYT 20N120C3D1HV	4, 26	LSIC2SD065C10A	72	MCC 44-08ic
IXYH 75N65C3	23	IXYT 25N250CHV	4, 27	LSIC2SD065C16A	72	MCC 44-08ic
IXYH 75N65C3D1	23	IXYT 30N65C3H1HV	4, 23	LSIC2SD065C20A	72	MCC 44-12ic
IXYH 75N65C3H1	23	IXYT 30N450HV	4, 31	LSIC2SD065D06A	2, 72	MCC 44-14ic
IXYH 80N90C3	26	IXYT 40N120A4HV	4, 25	LSIC2SD065D08A	2, 72	MCC 44-14ic
IXYH 82N120C3	26	IXYT 55N120A4HV	4, 25	LSIC2SD065D10A	2, 72	MCC 44-16ic
IXYH 85N120A4	25	IXYT 80N90C3	26			MCC 44-16ic

MCC 56-14io8B	100	MCD 26-08io8B	97	MCD 224-20io1	99	MCMA 200P1
MCC 56-16io1B	100	MCD 26-12io1B	97	MCD 224-22io1	99	MCMA 240U1
MCC 56-16io8B	100	MCD 26-12io8B	97	MCD 225-12io1	99	MCMA 240U1
MCC 56-18io1B	100	MCD 26-14io1B	97	MCD 225-14io1	99	MCMA 245U1
MCC 56-18io8B	100	MCD 26-14io8B	97	MCD 225-16io1	99	MCMA 260P1
MCC 72-08io1B	101	MCD 26-16io1B	97	MCD 225-18io1	99	MCMA 260P1
MCC 72-08io8B	101	MCD 26-16io8B	97	MCD 255-12io1	99	MCMA 260PD1
MCC 72-12io1B	101	MCD 40-12io6	97	MCD 255-14io1	99	MCMA 260PD1
MCC 72-12io8B	101	MCD 40-16io6	97	MCD 255-16io1	99	MCMA 265P1
MCC 72-14io1B	101	MCD 44-08io1B	97	MCD 255-18io1	99	MCMA 265P1
MCC 72-14io8B	101	MCD 44-08io8B	97	MCD 310-08io1	99	MCMA 265PD1
MCC 72-16io1B	101	MCD 44-12io1B	97	MCD 310-12io1	99	MCMA 265PD1
MCC 72-16io8B	101	MCD 44-12io8B	97	MCD 310-14io1	99	➤ MCMA 280P1
MCC 72-18io1B	101	MCD 44-14io1B	97	MCD 310-16io1	99	➤ MCMA 280PD1
MCC 72-18io8B	101	MCD 44-14io8B	97	MCD 310-18io1	99	MCMA 400P1
MCC 94-20io1B	101	MCD 44-16io1B	97	MCD 310-20io1	99	MCMA 400PD1
MCC 94-22io1B	101	MCD 44-16io8B	97	MCD 310-22io1	99	MCMA 450U1
MCC 94-24io1B	101	MCD 44-18io1B	97	MCD 312-12io1	99	MCMA 550P1
MCC 95-08io1B	101	MCD 44-18io8B	97	MCD 312-14io1	99	MCMA 550PD1
MCC 95-08io8B	101	MCD 56-08io1B	97	MCD 312-16io1	99	MCMA 650M1
MCC 95-12io1B	101	MCD 56-08io8B	97	MCD 312-18io1	99	MCMA 650M1
MCC 95-12io8B	101	MCD 56-12io1B	97	MCK 200-18io1	102	MCMA 700P1
MCC 95-14io1	101	MCD 56-12io8B	97	MCMA 25P1200TA	100	MCMA 700P1
MCC 95-14io1B	101	MCD 56-14io1B	97	MCMA 25P1600TA	100	MCMA 700P1
MCC 95-14io8B	101	MCD 56-14io8B	97	MCMA 25PD1200TB	97	MCMA 700P1
MCC 95-16io1	101	MCD 56-16io1B	97	MCMA 25PD1600TB	97	MCMA 700PD1
MCC 95-16io1B	101	MCD 56-16io8B	97	MCMA 35P1200TA	100	MCMA 700PD1
MCC 95-16io8B	101	MCD 56-18io1B	97	MCMA 35P1600TA	100	MCNA 40P22
MCC 95-18io1B	101	MCD 56-18io8B	97	MCMA 35PD1200TB	97	MCNA 40PD2
MCC 95-18io8B	101	MCD 72-08io1B	98	MCMA 35PD1600TB	97	MCNA 55P22
MCC 132-08io1	101	MCD 72-08io8B	98	MCMA 50P1200TA	100	MCNA 55PD2
MCC 132-12io1	101	MCD 72-12io1B	98	MCMA 50P1600TA	100	MCNA 75P22
MCC 132-14io1	101	MCD 72-12io8B	98	MCMA 50PD1200TB	97	MCNA 75PD2
MCC 132-16io1	101	MCD 72-14io1B	98	MCMA 50PD1600TB	97	MCNA 95P22
MCC 132-18io1	101	MCD 72-14io8B	98	MCMA 65P1200TA	101	MCNA 95PD2
MCC 161-20io1	102	MCD 72-16io1B	98	MCMA 65P1600TA	101	MCNA 120P2
MCC 161-22io1	102	MCD 72-16io8B	98	MCMA 65P1800TA	101	MCNA 120PD2
MCC 162-08io1	102	MCD 72-18io1B	98	MCMA 65PD1200TB	97	MCNA 120PD2
MCC 162-12io1	102	MCD 72-18io8B	98	MCMA 65PD1600TB	97	➤ MCNA 120UI
MCC 162-14io1	102	MCD 94-20io1B	98	MCMA 65PD1800TB	97	MCNA 120UI
MCC 162-16io1	102	MCD 94-22io1B	98	MCMA 85P1200TA	101	MCNA 150P2
MCC 162-18io1	102	MCD 95-08io1B	98	MCMA 85P1600TA	101	MCNA 150PD2
MCC 200-14io1	102	MCD 95-08io8B	98	MCMA 85P1800TA	101	MCNA 180P2
MCC 200-16io1	102	MCD 95-12io1B	98	MCMA 85PD1200TB	98	MCNA 180PD2
MCC 200-18io1	102	MCD 95-12io8B	98	MCMA 85PD1600TB	98	MCNA 220P2
MCC 224-20io1	102	MCD 95-14io1B	98	MCMA 85PD1800TB	98	MCNA 220PD2
MCC 224-22io1	102	MCD 95-14io8B	98	MCMA 110P1200TA	101	➤ MCNA 250P2
MCC 224-24io1	102	MCD 95-16io1	98	MCMA 110P1600TA	101	➤ MCNA 250PD2
MCC 225-12io1	102	MCD 95-16io1B	98	MCMA 110P1600VA	101	MCNA 360P2
MCC 225-14io1	102	MCD 95-16io8B	98	MCMA 110P1800TA	101	MCNA 360PD2
MCC 225-16io1	102	MCD 95-18io1B	98	MCMA 110PD1200TB	98	MCNA 500P2
MCC 225-18io1	102	MCD 95-18io8B	98	MCMA 110PD1600TB	98	MCNA 500PD2
MCC 255-12io1	102	MCD 132-08io1	98	MCMA 110PD1800TB	98	MCNA 650P2
MCC 255-14io1	102	MCD 132-12io1	98	MCMA 120UJ1800ED	112	MCNA 650PD2
MCC 255-16io1	102	MCD 132-14io1	98	MCMA 140P1200TA	101	MCO 25-12io1
MCC 255-18io1	102	MCD 132-16io1	98	MCMA 140P1400TA	101	MCO 25-16io1
MCC 310-08io1	102	MCD 132-18io1	98	MCMA 140P1600TA	101	MCO 50-12io1
MCC 310-12io1	102	MCD 161-20io1	99	MCMA 140P1800TA	101	MCO 50-16io1
		MCD 161-22io1	99	MCMA 140PD1200TB	98	MCO 75-12io1

MCO 500-14io1	103	MDD 312-20N1	96	MDNA 700P2200CC	96	MIXA 150Q1
MCO 500-16io1	103	MDD 312-22N1	96	MDO 500-12N1	96	MIXA 150R1
MCO 500-18io1	103	MDMA 25P1200TG	94	MDO 500-14N1	96	MIXA 150W1
MCO 600-16io1	103	MDMA 25P1600TG	94	MDO 500-16N1	96	MIXA 225PF
MCO 600-18io1	103	MDMA 25P1800TG	94	MDO 500-18N1	96	> MIXA 225RF
MCO 600-20io1	103	MDMA 35P1200TG	94	MDO 500-20N1	96	MIXA 300PF
MCO 600-22io1	103	MDMA 35P1600TG	94	MDO 500-22N1	96	MIXA 450PF
MDA 95-22N1B	95	MDMA 35P1800TG	94	MDO 600-16N1	96	> MIXG 70W12
MDD 26-08N1B	94	MDMA 50P1200TG	94	MEA 75-12DA	86	MIXG 120W1
MDD 26-12N1B	94	MDMA 50P1600TG	94	MEA 95-06DA	86	MIXG 120W1
MDD 26-14N1B	94	MDMA 50P1800TG	94	MEA 250-12DA	86	◇ MIXG 120W1
MDD 26-16N1B	94	MDMA 60UC1600VC	112	MEA 300-06DA	86	◇ MIXG 120W1
MDD 26-18N1B	94	MDMA 65P1200TG	94	MEE 75-12DA	86	MIXG 120W1
MDD 44-08N1B	94	MDMA 65P1600TG	94	MEE 95-06DA	86	MIXG 180W1
MDD 44-12N1B	94	MDMA 65P1800TG	94	MEE 250-12DA	86	> MIXG 180W1
MDD 44-14N1B	94	MDMA 85P1200TG	94	MEE 300-06DA	86	◇ MIXG 180W1
MDD 44-16N1B	94	MDMA 85P1600TG	94	MEK 75-12DA	86	MIXG 180W1
MDD 44-18N1B	94	MDMA 85P1800TG	94	MEK 95-06DA	86	> MIXG 240RF
MDD 56-08N1B	94	MDMA 110P1200TG	95	MEK 150-04DA	86	> MIXG 240RF1
MDD 56-12N1B	94	MDMA 110P1600TG	95	MEK 250-12DA	86	◇ MIXG 240RF
MDD 56-14N1B	94	MDMA 110P1800TG	95	MEK 300-06DA	86	MIXG 240W1
MDD 56-16N1B	94	> MDMA 120U1600VA	109	MEK 350-02DA	86	◇ MIXG 240W1
MDD 56-18N1B	94	MDMA 140P1200TG	95	MEK 600-04DA	86	> MIXG 240W1
MDD 72-08N1B	94	MDMA 140P1600TG	95	MEO 450-12DA	86	MIXG 240W12
MDD 72-12N1B	94	MDMA 140P1800TG	95	MEO 500-06DA	86	MIXG 240W1
MDD 72-14N1B	94	> MDMA 150U1600VA	109	MEO 550-02DA	86	◇ MIXG 240W1
MDD 72-16N1B	94	> MDMA 180P1600YD	95	> MG06100S-BN4MM	40	MIXG 300PF
MDD 72-18N1B	94	MDMA 200P1600SA	95	> MG06150S-BN4MM	40	> MIXG 360PF
MDD 95-08N1B	95	MDMA 210P1600YD	95	> MG06200S-BN4MM	40	> MIXG 360PF12
MDD 95-12N1B	95	MDMA 210UB1600PTED	1, 111	> MG06300D-BN4MM	40	MIXG 360RF1
MDD 95-14N1B	95	MDMA 240UB1600ED	111	> MG06400D-BN4MM	40	> MIXG 360RF
MDD 95-16N1B	95	MDMA 280P1600YD	96	> MG0675S-BN4MM	40	MIXG 450PF
MDD 95-18N1B	95	MDMA 280UB1600PTED	1, 111	> MG12100S-BN2MM	40	◇ MIXG 450RF1
MDD 95-20N1B	95	> MDMA 300P1600PTSF	96	> MG12150S-BN2MM	40	MKE 38P600
MDD 95-22N1B	95	MDMA 360UB1600PTED	1, 111	> MG12200D-BN2MM	40	MKE 38RK60
MDD 142-08N1	95	> MDMA 360UC1600TED	112	> MG12300D-BN2MM	40	◇ MKH 17RP65
MDD 142-12N1	95	MDMA 380P1600KC	96	> MG12400D-BN2MM	40	○ MKI 50-12F7
MDD 142-14N1	95	MDMA 380P1800KC	96	> MG17100D-BN4MM	40	MKI 100-12F8
MDD 142-16N1	95	MDMA 425P1600PTSF	96	> MG17100S-BN4MM	40	> MMIX 1B15N
MDD 142-18N1	95	MDMA 450U1600PTEH	1, 110	> MG17150D-BN4MM	40	> MMIX 1B20N
MDD 172-08N1	95	MDMA 450UB1600PTED	111	> MG17200D-BN4MM	40	MMIX 1F40N
MDD 172-12N1	95	> MDMA 450UB1600PTEH	111	> MG17300D-BN4MM	40	MMIX 1F44N
MDD 172-14N1	95	MDMA 600P1600PTSF	1, 96	> MG1750S-BN4MM	40	MMIX 1F132
MDD 172-16N1	95	MDMA 660U1600PTEH	1, 110	> MG1775S-BN4MM	40	MMIX 1F180N
MDD 172-18N1	95	MDMA 700P1600CC	96	○ MIEB 100W1200DPFTEH	37	MMIX 1F180N
MDD 175-28N1	95	MDMA 700P1800CC	96	○ MIEB 101W1200EH	37	MMIX 1F210N
MDD 175-34N1	95	MDMA 900U1600PTEH	1, 110	> MITA 300RF1700PTED	39	MMIX 1F230N
MDD 200-14N1	95	MDNA 25P2200TG	94	> MITA 300RF1700PTED-PC	39	MMIX 1F360
MDD 200-16N1	95	MDNA 35P2200TG	94	MIXA 10WB1200TED	34	MMIX 1F420
MDD 200-18N1	95	MDNA 50P2200TG	94	MIXA 20WB1200TED	34	MMIX 1F520
MDD 200-22N1	95	MDNA 65P2200TG	94	MIXA 30W1200TED	36	MMIX 1G75N
MDD 255-12N1	96	MDNA 85P2200TG	94	MIXA 30WB1200TED	34	MMIX 1G120
MDD 255-14N1	96	MDNA 110P2200TG	95	MIXA 40W1200TED	36	MMIX 1H60N
MDD 255-16N1	96	MDNA 140P2200TG	95	MIXA 40WB1200TED	34	MMIX 1T132
MDD 255-18N1	96	> MDNA 180P2200YD	95	> MIXA 41W1200ED	36	MMIX 1T550
MDD 255-20N1	96	> MDNA 210P2200YD	95	MIXA 60HU1200VA	39	MMIX 1T600
MDD 255-22N1	96	MDNA 210UB2200PTED	111	MIXA 60W1200TED	36	MMIX 1Y82N
MDD 310-12N1	96	> MDNA 210UB2200TED	111	MIXA 60WB1200TEH	35	MMIX 1Y100
MDD 310-14N1	96	MDNA 240U2200ED	110	MIXA 60WH1200TEH	35	MMIX 2F60N

MMO 62-12io6	113	Q8040K3TP	114	UGE 0421AY4	115	VBO 130-08N
MMO 62-16io6	113	Q8040K5TP	114	UGE 1112AY4	115	VBO 130-12N
MMO 74-12io6	113	QJ6004D4RP	114	UGE 3126AY4	115	VBO 130-16N
MMO 74-16io6	113	QJ6006DH4RP	114	<b>V</b>		VBO 130-18N
MMO 90-12io6	113	QJ6008DH4RP	114	VBE 17-06NO7	105	VBO 160-08N
MMO 90-14io6	113	QJ6016LH4TP	114	VBE 17-12NO7	105	VBO 160-12N
MMO 90-16io6	113	QJ6016NH2RP	114	VBE 26-06NO7	105	VBO 160-16N
MMO 110-12io7	113	QJ6016NH6RP	114	VBE 26-12NO7	105	VBO 160-18N
MMO 110-14io7	113	QJ6016RH3TP	114	VBE 55-06NO7	105	VCO 132-12N
MMO 140-12io7	113	QJ6025KH6TP	114	VBE 55-12NO7	105	VCO 132-16N
MMO 140-16io7	113	QJ6025LH5TP	114	VBE 60-06A	105	VCO 180-12N
MMO 175-12io7	113	QJ6025NH5RP	114	VBE 60-12A	105	VCO 180-16N
MMO 175-16io7	113	QJ6025RH5TP	114	VBE 100-06NO7	105	VGB 0124AY
MMO 230-12io7	113	QJ8012LH5TP	114	VBE 100-12NO7	105	VGf 0136AB
MMO 230-16io7	113	QJ8016LH6TP	114	VBO 21-08NO7	106	VGO 36-16io
◇ MMPA 60P1000TLA	74	QJ8016NH4RP	114	VBO 21-12NO7	106	VHF 15-08io5
◇ MMXB 95HX650PTED	74	QJ8025LH5TP	114	VBO 22-08NO8	106	VHF 15-12io5
MPK 95-06DA	86	QJ8025NH5RP	114	VBO 22-12NO8	106	VHF 15-16io5
➤ MTC 120W55GC	14	➤ QJ8030LH4TP	114	VBO 22-16NO8	106	VHF 25-08io7
➤ MTC 120WX55GD	14	➤ QJ8040KH5TP	114	VBO 22-18NO8	106	VHF 25-12io7
◇ MTC 120WX75GD	14	QK040J7TP	114	VBO 25-08NO2	106	VHF 28-08io5
MTI 85W100GC	14	QK040K4TP	114	VBO 25-12AO2	106	VHF 28-12io5
◇ MTI 85WX100GD	14	<b>S</b>		VBO 25-12NO2	106	VHF 28-16io5
MTI 145WX100GD	14	S6002TSRP	92	VBO 25-16AO2	106	VHF 36-08io5
MTI 200WX75GD	14	S6004DS2RP	92	VBO 25-16NO2	106	VHF 36-12io5
○ MUBW 15-12A7	34	S601ERP	92	VBO 30-08NO7	106	VHF 36-16io5
○ MUBW 25-12A7	34	S602ECSR	92	VBO 30-12NO7	106	VHFD 37-08io
○ MUBW 35-12A7	34	S602TSRP	92	VBO 30-16NO7	106	VHFD 37-12io
○ MUBW 50-12A8	35	S6X8BBSRP	92	VBO 30-18NO7	106	VHFD 37-16io
MUBW 50-17T8	35	S8008DRP	92	VBO 36-08NO8	106	VMM 90-09F
MUBW 50-17T8-PFPC	1, 35	S8015LTP	92	VBO 36-12NO8	106	○ VMO 1200-0
MUBW 70-17T8-PFPC	1, 35	S8025LTP	92	VBO 36-16NO8	106	VTO 39-08ho
○ MUBW 75-12T8	35	S8025RTP	92	VBO 36-18NO8	106	VTO 39-12ho
MUBW 75-17T8	35	S802ECSR	92	VBO 40-08NO6	106	VUB 72-12NO
○ MWI 15-12A7	36	S8040RTP	92	VBO 40-12NO6	106	VUB 72-16NO
○ MWI 25-12A7	36	S8055RTP	92	VBO 40-16NO6	106	VUB 116-16N
○ MWI 50-12T7T	36	S8065JTP	92	VBO 50-08NO7	106	VUB 120-16N
○ MWI 75-12T7T	36	S8X5ECSR	92	VBO 50-12NO7	106	VUB 120-16N
○ MWI 100-12A8	37	S8X8TSRP	92	VBO 50-16NO7	106	VUB 135-22N
➤ MXB 12R650DCGFC	73, 75	SJ6004DS2RP	92	VBO 50-18NO7	106	VUB 145-16N
➤ MXB 40P650LB	11, 70	SJ6008DRP	92	VBO 52-08NO7	106	VUB 160-16N
➤ MXB 40RK600DFELB	11, 70, 75	SJ6008DS2RP	92	VBO 52-12NO7	106	VUB 160-16N
<b>N</b>		SJ6012DRP	92	VBO 52-16NO7	106	VUC 36-12go
nanoASMDC016F-2	20	SJ6012NRP	92	VBO 52-18NO7	106	VUC 36-16go
NGB15N41ACLT4G	20	SJ6025L2TP	92	VBO 54-08NO7	106	VUE 22-06NO
NGB18N40ACLT4G	20	SJ6025R2TP	92	VBO 54-12NO7	106	VUE 22-12NO
NGB8202ANT4G	20	SJ6040LTP	92	VBO 54-16NO7	106	VUE 35-06NO
NGB8204ANT4G	20	SJ6040N2RP	92	VBO 68-08NO7	106	VUE 35-12NO
NGB8206ANTF4G	20	SJ6040RTP	92	VBO 68-12NO7	106	VUE 50-12NO
NGB8207ABNT4G	20	SK025NRP	92	VBO 68-16NO7	106	VUE 75-06NO
NGB8207BNT4G	20	SK065KTP	92	VBO 72-08NO7	106	VUE 75-12NO
NGB8245NT4G	20	SLD8S	20	VBO 72-12NO7	106	VUE 130-06N
NGD15N41ACLT4G	20	➤ SV6016R2TP	92	VBO 72-16NO7	106	VUE 130-12N
NGD18N40ACLT4G	20	➤ SV6020R2TP	92	VBO 72-18NO7	106	VUI 30-12N1
NGD18N45CLBT4G	20	➤ SV6025L2TP	92	VBO 78-08NO7	107	VUI 72-16NO
NGD8201ANT4G	20	➤ SV6025R2TP	92	VBO 78-12NO7	107	○ VUM 24-05N
NGD8201BNT4G	20	<b>T</b>		VBO 78-16NO7	107	VUM 25-05E
NGD8205ANT4G	20	TPSMB	20	VBO 88-08NO7	107	○ VUM 33-05N
NGD8209NT4G	20	TPSMB-VR	20			VUM 33-06P



VUO 30-08NO3	108	VUO 110-08NO7	109	CPC1333	123	CPC1983YE
VUO 30-12NO3	108	VUO 110-12NO7	109	CPC1335	120	> CPC1984Y
VUO 30-14NO3	108	VUO 110-16NO7	109	CPC1390	120	CPC1986J
VUO 30-16NO3	108	VUO 110-18NO7	109	CPC1393	120	CPC1988J
VUO 30-18NO3	108	VUO 121-16NO1	110	CPC1394	120	CPC1998J
VUO 34-08NO1	108	VUO 122-08NO7	110	CPC1510	120	CPC2014N
VUO 34-12NO1	108	VUO 122-12NO7	110	CPC1510	125	CPC2017N
VUO 34-14NO1	108	VUO 122-16NO7	110	CPC1511	120	CPC2025N
VUO 34-16NO1	108	VUO 125-12NO7	110	CPC1511	125	CPC2030N
VUO 34-18NO1	108	VUO 125-16NO7	110	CPC1540	120	CPC2125N
VUO 35-12NO7	108	VUO 125-18NO7	110	CPC1540	125	CPC2317N
VUO 35-16NO7	108	VUO 160-08NO7	110	CPC1560	120	CPC2330N
VUO 35-18NO7	108	VUO 160-12NO7	110	CPC1560	125	CPC3701
VUO 36-08NO8	108	VUO 160-16NO7	110	> CPC1561	125	CPC3703
VUO 36-12NO8	108	VUO 160-18NO7	110	CPC1563	120	CPC3708
VUO 36-14NO8	108	VUO 162-16NO7	110	CPC1563	125	CPC3710
VUO 36-16NO8	108	VUO 190-08NO7	110	CPC1580	131	CPC3714
VUO 36-18NO8	108	VUO 190-12NO7	110	CPC1590	131	CPC3720
VUO 50-08NO3	108	VUO 190-16NO7	110	CPC1593	120	CPC3730
VUO 50-12NO3	108	VUO 190-18NO7	110	CPC1593	125	CPC3902
VUO 50-14NO3	108	VUO 192-16NO7	110	CPC1596	132	CPC3909
VUO 50-16NO3	108	VVZ 39-08ho7	112	CPC1705Y	126	CPC3960
VUO 50-18NO3	108	VVZ 39-12ho7	112	CPC1706Y	126	CPC3980
VUO 52-08NO1	108	VVZ 40-12io1	112	CPC1708J	126	CPC3982
VUO 52-12NO1	108	VVZ 40-16io1	112	CPC1709J	126	CPC40055S
VUO 52-14NO1	108	VVZ 110-12io7	112	CPC1718J	126	CPC5001
VUO 52-16NO1	108	VVZ 175-12io7	112	CPC1726Y	126	CPC5002
VUO 52-18NO1	108	VVZ 175-16io7	112	CPC1727J	126	CPC5902
VUO 52-20NO1	108	VVZB 120-16ioX	111	CPC1777J	126	CPC5903
VUO 52-22NO1	108	VVZB 135-16ioXT	111	CPC1779J	126	<b>F</b>
VUO 55-12NO7	108	VVZB 170-16ioXT	111	CPC1786J	126	FDA215
VUO 55-16NO7	108	○ VVZF 70-16io7	112	CPC1788J	126	FDA217
VUO 55-18NO7	108	VW 2x60-12io1	113	CPC1906Y	126	<b>I</b>
VUO 60-12NO3	109	VW 2x60-14io1	113	CPC1907B	126	> IX4310T
VUO 60-14NO3	109	VW 2x60-16io1	113	CPC1908J	126	IX4340
VUO 60-16NO3	109	VWO 35-08ho7	113	CPC1909J	126	> IX4340NE
VUO 60-18NO3	109	VWO 35-12ho7	113	CPC1916Y	126	> IX4351NE
VUO 62-08NO7	109	<b>IXYS Beverly</b>		CPC1918J	126	IX4426
VUO 62-12NO7	109	<b>c</b>		CPC1926Y	126	IX4427
VUO 62-14NO7	109	CPC1002N	124	CPC1927J	126	IX4428
VUO 62-16NO7	109	CPC1004N	124	CPC1943	127	IXD_602
VUO 62-18NO7	109	CPC1006N	120	CPC1945G	127	IXD_604
VUO 64-16NO7	109	CPC1008N	120	CPC1945Y	127	IXD_604SI
VUO 68-08NO7	109	CPC1009N	120	CPC1961 Dual	127	IXD_604SIA
VUO 68-12NO7	109	CPC1010N	120	CPC1963	127	IXD_609
VUO 68-16NO7	109	CPC1011N	120	CPC1964B	128	IXD_609SI
○ VUO 70-16NO7	109	CPC1014N	120	CPC1964BX6	128	IXD_614
VUO 80-08NO1	109	CPC1016N	120	CPC1965G	127	IXD_614SI
VUO 80-12NO1	109	CPC1017N	120	CPC1965Y	127	IXD_630
VUO 80-14NO1	109	CPC1018N	120	CPC1966	128	IXD_630M
VUO 80-16NO1	109	CPC1019N	120	CPC1966B	128	<b>L</b>
VUO 80-18NO1	109	CPC1020N	120	CPC1966B	128	LAA100
VUO 80-18NO1	109	CPC1025N	120	CPC1966BX8	128	LAA100L
VUO 82-08NO7	109	CPC1030N	120	CPC1966YX6	128	LAA108
VUO 82-12NO7	109	CPC1035N	120	CPC1966YX8	128	LAA110
VUO 82-14NO7	109	CPC1106N	123	CPC1967J	126	LAA110L
VUO 82-16NO7	109	CPC1114N	123	CPC1968J	126	LAA120
VUO 82-18NO7	109	CPC1117N	123	CPC1972	127	LAA120L
VUO 84-16NO7	109	CPC1125N	123	CPC1973Y	126	LAA125
VUO 86-08NO7	109					

LBA127	124	PLA134	121	E0660NC45E	151	H1200NC25Y
LBA127L	124	PLA140	121	E0660NH45E	151	<b>K</b>
LBA710	124	PLA140L	121	E0770HF65F	151	K0445LG600
LBA716	124	PLA143	121	E1000TF65F	151	K0445LG650
LBB110	123	PLA150	121	E1250HC45E	151	K0500LC600
LBB120	123	PLA160	121	E1375EF65F	151	K0500LC650
LBB126	123	PLA170	121	> E1500MC33E	151	K0560QE600
LBB127	123	PLA171	121	E1500NC36P	151	K0560QE650
LCA100	120	PLA172P	121	E1500NC42P	151	K0625QA600
LCA100L	120	PLA190	121	E1500NC48P	151	K0625QA650
LCA110	120	PLA191	121	E1500NH36P	151	K0890NC360
LCA110L	120	PLA192	121	E1500NH42P	151	K0890NC420
LCA120	120	PLA193	121	E1500NH48P	151	K0900ME600
LCA120L	120	PLA194	121	> E1680NC17F	151	K0900ME650
LCA125	120	PLB150	123	E1800TC45E	151	K1010MA600
LCA125L	120	PLB171	123	E2060FF65F	151	K1010MA650
LCA127	121	PLB190	123	E2400EC45E	151	K1121NC320
LCA127L	121	PM1204	127	E3000EC45E	151	K1121NC360
LCA129	121	PM1205	127	E4000FD45E	151	K1197NC280
LCA182	121	PM1206	127	<b>F</b>		K1197NC320
LCA210	124	PS1201	127	F0240YC250	150	↔ K1210MA480
LCA210L	124	PS2401	127	F0240YC300	150	↔ K1210MA520
LCA220	124	PS2601	127	F0240YH250	150	> K1270MA420
LCA701	121	<b>X</b>		F0240YH300	150	> K1270MA450
LCA710	121	XAA117	122	F0300WC140	150	K1495HE600
LCA712	121	XAA170	122	F0300WC180	150	K1495HE650
LCA715	121	XBB170	123	F0800LC140	150	K1670HA600
LCA717	121	XCA170	121	F0800LC180	150	K1670HA650
LCB110	123	XCB170	123	F0900VC450	150	↔ K1785HA420
LCB111	123	<b>IXYS Chippenham</b>		F0900VC520	150	↔ K1785HA450
LCB120	123	<b>A</b>		F0900VF450	150	K1947ZC400
LCB126	123	A0516YC240	167	F0900VF520	150	K1947ZC450
LCB127	123	A0516YC280	167	F1000LC080	150	K1947ZD400
LCB710	123	A1237NC240	167	F1000LC120	150	K1947ZD450
LCB716	123	A1237NC280	167	F1300NC45P	150	K2085TE600
LCB717	123	C0044BG400SBE	172	F1300NC50P	150	K2085TE650
LCC110	124	C0044BG400SBG	172	F1300NC55P	150	K2095ZC360
LCC120	124	C0044BG400SBJ	172	F1400NC140	150	K2095ZC420
LOC110	133	C0044BG400SBL	172	F1400NC180	150	K2095ZD360
LOC111	133	C0044BG400SBL	172	F1500NC200	150	K2095ZD420
LOC112	133	C0044BG400SBM	172	F1500NC250	150	K2325TJ600
LOC117	133	C0044BG400SBN	172	F1600NC080	150	K2325TJ650
LOC210	133	C0044BG400SBP	172	F1600NC120	150	> K3745EA600
LOC211	133	C0044BG400SBQ	172	<b>G</b>		> K3745EA650
<b>O</b>		C0044BG400SBR	172	> G1000NC45B	168	↔ K4005EA480
OAA160	122	C0044BG400SBS	172	G1000QC25B	168	↔ K4005EA520
OMA160	121	C0044BG400SBT	172	G1000QC45B	168	↔ K4215EA420
<b>P</b>		C0044BG400SBW	172	G2000HF250	168	↔ K4215EA450
PAA110	122	C0044BG400SBZ	172	G2000HF450	168	<b>L</b>
PAA110L	122	C0044BG400SCA	172	G2500HF250	168	L0001HC600
PAA127	122	C0044BG400SCB	172	G3000TF250	168	L0001NC600
PAA132	122	C0044BG400SCC	172	G3000TF450	168	L0001QC600
PAA140	122	C0044BG400SCD	172	> G4000EF250	168	L0001TC600
PAA140L	122	C0044BG400SCE	172	G4000EF450	168	L0001YC600
PAA150	122	C0044BG400SCF	172	<b>H</b>		L0001ZF600
PAA190	122	C0044BG400SCG	172	H0500KC200	168	<b>M</b>
PAA191	122	C0044BG400SCH	172	H0500KC20Y	168	M0130RL200
PAA193	122	C0044BG400SCJ	172	H0500KC25D	168	M0130RL250
PBA150	124	C0044BG400SCK	172			M0130RM200

M0139RM180	147	M0759YH160	148	M1609ND260	145	MCC431-22ic
M0139SL120	147	M0790YC200	145	M1858NC120	149	MCC431-24ic
M0139SL180	147	M0790YC250	145	M1858NC160	149	MCC500-14ic
M0139SM120	147	M0790YH200	145	M1858ND120	149	MCC500-18ic
M0139SM180	147	M0790YH250	145	M1858ND160	149	MCC500-22ic
M0225YH300	148	M0859LC140	148	M2273VC300	145	MCC500-30ic
M0225YH360	148	M0859LC160	148	M2273VC360	145	MCC500-36ic
M0225YH450	148	M0859LC180	148	M2273VF300	145	MCC501-12ic
M0268RC200	147	M0863LC260	148	M2273VF360	145	MCC501-14ic
M0268RC250	147	M0863LC300	148	M2322ZC300	149	MCC501-16ic
M0268RJ200	147	M0863LC360	148	M2322ZC400	149	MCC501-18ic
M0268RJ250	147	M0872LC140	148	M2322ZD300	149	MCC550-12ic
M0268SC200	147	M0872LC180	148	M2322ZD400	149	MCC550-16ic
M0268SC250	147	M0872LC210	148	M2325HA400	145	MCC552-12ic
M0268SJ200	147	M0914LC200	145	M2325HA450	145	MCC552-14ic
M0268SJ250	147	M0914LC250	145	M2408NC020	146	MCC552-16ic
M0280RC200	147	M0955JK200	148	M2408NC060	146	MCC580-28ic
M0280RC250	147	M0955JK250	148	M2408ND020	146	MCC600-22ic
M0280RJ200	147	M0955LC200	148	M2408ND060	146	MCC650-24ic
M0280RJ250	147	M0955LC250	148	M2413VC200	149	MCC700-14ic
M0280SC200	147	M1010NC400	145	M2413VC250	149	MCC700-18ic
M0280SC250	147	M1010NC450	145	M2413VF200	149	MCC720-14ic
M0280SJ200	147	M1010ND400	145	M2413VF250	149	MCC720-18ic
M0280SJ250	147	M1010ND450	145	➢ M2505MC220	146	MCD160-30ic
M0310YH300	148	M1022LC120	149	➢ M2505MC250	146	MCD160-36ic
M0310YH350	148	M1022LC160	149	M2639ZC360	146	MCD220-28ic
M0334RC120	147	M1022LC200	149	M2639ZC420	146	MCD265-24ic
M0334RC200	147	M1080LC100	149	M2639ZD360	146	MCD320-30ic
M0334RJ120	147	M1080LC120	149	M2639ZD420	146	MCD320-36ic
M0334RJ200	147	M1102NC500	149	M2698ZC250	146	MCD325-14ic
M0334SC120	147	M1102NC600	149	M2698ZC280	146	MCD325-18ic
M0334SC200	147	M1102ND500	149	M2698ZC350	146	MCD380-28ic
M0334SJ120	147	M1102ND600	149	M2698ZD250	146	MCD431-20ic
M0334SJ200	147	M1104NC400	149	M2698ZD280	146	MCD431-22ic
M0336RA120	147	M1104NC450	149	M2698ZD350	146	MCD431-24ic
M0336RA140	147	M1104ND400	149	M2837VC180	146	MCD500-14ic
M0336SA120	147	M1104ND450	149	M2837VC250	146	MCD500-18ic
M0336SA140	147	M1163NC400	145	M2837VF180	146	MCD500-22ic
M0347WC160	148	M1163NC450	145	M2837VF250	146	MCD500-30ic
M0347WC200	148	M1163ND400	145	M3560TJ420	149	MCD500-36ic
M0347WC250	148	M1163ND450	145	M3560TJ450	149	MCD501-12ic
M0358WC120	148	M1242NC260	149	M3770ZC200	146	MCD501-14ic
M0358WC180	148	M1242NC360	149	M3770ZC240	146	MCD501-16ic
M0367WC140	148	M1242ND260	149	M3770ZC300	146	MCD501-18ic
M0367WC200	148	M1242ND360	149	M3770ZD200	146	MCD550-12ic
M0367WC280	148	M1494NC160	149	M3770ZD240	146	MCD550-16ic
M0371YH350	148	M1494NC250	149	M3770ZD300	146	MCD552-12ic
M0371YH450	148	M1494ND160	149	M4305TJ240	149	MCD552-14ic
M0433WC120	148	M1494ND250	149	M4305TJ280	149	MCD552-16ic
M0433WC160	148	M1494NK160	149	MCA500-14io1	173	MCD580-28ic
M0433WC200	148	M1494NK250	149	MCA500-18io1	173	MCD600-22ic
M0437WC080	148	M1502NC200	145	MCA500-22io1	173	MCD650-24ic
M0437WC140	148	M1502NC250	145	MCA550-12io1	173	MCD700-14ic
M0451YC120	148	M1502ND200	145	MCA550-16io1	173	MCD700-18ic
M0451YC160	148	M1502ND250	145	MCA600-22io1W	179	MCD720-14ic
M0451YC200	148	M1565VC400	149	MCA700-14io1W	179	MCD720-18ic
M0588LC400	145	M1565VC450	149	MCA700-18io1W	179	MCK500-14ic
M0588LC450	145	M1565VF400	149	MCC160-30io3	173	MCK500-18ic
M0659LC400	148			MCC160-36io3	173	MCK500-22ic

MCO741-22io1	174	MDD 810-16N2	177	N0882NC450	153	N2172ZC420
MCO801-14io1	174	MDD 810-18N2	177	N0910LC200	153	N2172ZC450
MCO801-18io1	174	MDD1080-18N7	178	N0910LC260	153	N2172ZD420
MCR500-30io7	173	MDD1080-24N7	178	N0910LC280	153	N2172ZD450
MCR500-36io7	173	MDD1080-28N7	178	N1010NC300	153	○N2191ML160
MCR580-28io7	173	MDD275-30N3	177	N1010NC380	153	○N2191ML180
MCR650-24io7	173	MDD275-36N3	177	> N1052LC200	153	N2285HA420
MCR720-14io7	173	MDD410-24N3	177	> N1052LC220	153	N2285HA450
MCR720-18io7	173	MDD410-28N3	177	N1075LN180	153	N2367MK200
MDA 710-22N2	177	MDD510-14N3	177	N1132NC300	153	N2367MK220
MDA 710-26N2	177	MDD510-18N3	177	N1132NC340	153	N2385HE320
MDA 810-12N2	177	MDD600-14N1	177	N1132NC360	153	N2385HE360
MDA 810-16N2	177	MDD600-18N1	177	N1140LN140	153	N2418ZC300
MDA 810-18N2	177	MDD600-22N1	177	N1159NC380	153	N2418ZC360
MDA1080-18N7	178	MDD630-30N2	177	N1159NC420	153	N2418ZD300
MDA1080-24N7	178	MDD630-36N2	177	N1174JK200	153	N2418ZD360
MDA1080-28N7	178	MDD950-14N1W	179	N1174JK220	153	N2500VC120
MDA275-30N3	177	MDD950-18N1W	179	N1263JK160	153	N2500VC160
MDA275-36N3	177	MDD950-22N1W	179	N1263JK180	153	N2500VF120
MDA410-24N3	177	MDK 710-22N2	177	○N1351VC400	153	N2500VF160
MDA410-28N3	177	MDK 710-26N2	177	○N1351VC450	153	○N2520ML080
MDA510-14N3	177	MDK 810-12N2	178	○N1351VF400	153	○N2520ML120
MDA510-18N3	177	MDK 810-16N2	178	○N1351VF450	153	○N2520ML140
MDA600-14N1	177	MDK 810-18N2	178	N1366JK080	153	N2543ZC240
MDA600-18N1	177	MDK1080-18N7	178	N1366JK120	153	N2543ZC300
MDA600-22N1	177	MDK1080-24N7	178	N1366JK140	153	N2543ZD240
MDA630-30N2	177	MDK1080-28N7	178	○N1449QL200	153	N2543ZD300
MDA630-36N2	177	MDK275-30N3	177	○N1449QL220	153	N2593MK160
MDA950-14N1W	179	MDK275-36N3	177	N1467NC200	153	N2593MK180
MDA950-18N1W	179	MDK410-24N3	177	N1467NC260	153	N2600MC160
MDA950-22N1W	179	MDK410-28N3	177	N1547NC160	153	N2600MC180
MDC160-30io3	175	MDK510-14N3	177	N1547NC200	153	N2655HA320
MDC160-36io3	175	MDK510-18N3	177	○N1581QL160	154	N2655HA360
MDC220-28io3	175	MDK600-14N1	177	○N1581QL180	154	N2825TE420
MDC265-24io3	175	MDK600-18N1	177	N1651QK200	154	N2825TE450
MDC320-30io2	175	MDK600-22N1	177	N1651QK220	154	N2825TJ420
MDC320-36io2	175	MDK630-30N2	177	○N1661VC300	154	N2825TJ450
MDC325-14io3	175	MDK630-36N2	177	○N1661VC360	154	N2830HE260
MDC325-18io3	175	MDK950-14N1W	179	○N1661VF300	154	N2830HE280
MDC380-28io2	175	MDK950-18N1W	179	○N1661VF360	154	○N2900QL020
MDC431-20io2	175	MDK950-22N1W	179	N1718NC120	154	○N2900QL040
MDC431-22io2	175	MDO1120-24N1	178	N1718NC180	154	○N2900QL060
MDC431-24io2	175	MDO1120-28N1	178	N1718NC200	154	N3012ZC200
MDC500-14io1	175	MDO1201-14N1	178	N1725MC320	154	N3012ZC260
MDC500-18io1	175	MDO1201-18N1	178	N1725MC360	154	N3012ZD200
MDC500-22io1	175	MDO1201-22N1	178	N1802NC120	154	N3012ZD260
MDC500-30io7	176	> MTE1200AD45AA	171	N1802NC160	154	N3022MK080
MDC500-36io7	176	<b>N</b>		N1806QK160	154	N3022MK120
MDC501-12io2	175	N0180SH120	152	N1806QK180	154	N3022MK140
MDC501-14io2	175	N0180SH160	152	○N1817QL080	154	N3029ZC240
MDC501-16io2	175	N0335SC120	152	○N1817QL120	154	N3029ZC280
MDC501-18io2	175	N0335SC160	152	○N1817QL140	154	N3029ZD240
MDC550-12io1	176	N0416SC040	152	○N2015ML200	154	N3029ZD280
MDC550-16io1	176	N0416SC080	152	○N2015ML220	154	N3165HA260
MDC552-12io2	176	N0465WN140	153	N2055HE420	154	N3165HA280
MDC552-14io2	176	N0465WN160	153	N2055HE450	154	N3175HE160
MDC552-16io2	176	N0530YN220	153	N2055MC260	154	N3175HE180
MDC580-28io7	176	N0530YN250	153	N2055MC280	154	N3229QK020
MDC600-22io1W	179	N0616LC400	153			N3229QK040



N3565HA180	156	P		161	○ P0838LC08C	161	R0964LC12C
○ N3597ML020	156	○ P0128SH10C	160	○ P0848YC04B	161	R0964LC12D	
○ N3597ML040	156	○ P0128SH10D	160	○ P0848YC04C	161	R0964LC12E	
○ N3597ML060	156	○ P0128SH10E	160	○ P0848YC06B	161	R0990LC08A	
N3620TE320	156	○ P0128SH12C	160	○ P0848YC06C	161	R0990LC08E	
N3620TE360	156	○ P0128SH12D	160	○ P1007LC08D	161	R0990LC08C	
N3620TJ320	156	○ P0128SH12E	160	○ P1007LC08E	161	➢ R1045NC28I	
N3620TJ360	156	○ P0128SJ10C	160	○ P1007LC08F	161	➢ R1045NC28J	
N3790TE240	156	○ P0128SJ10D	160	○ P1007LC12D	161	➢ R1045NC32I	
N3790TE280	156	○ P0128SJ10E	160	○ P1007LC12E	161	➢ R1045NC32J	
N3790TJ240	156	○ P0128SJ12C	160	○ P1007LC12F	161	R1124NC18I	
N3790TJ280	156	○ P0128SJ12D	160	<b>R</b>		R1124NC18J	
N3880ZD160	156	○ P0128SJ12E	160	R0472YC12E	162	R1124NC18L	
N3880ZD180	156	○ P0248SC12D	160	R0472YC12EKER	160	R1124NC18M	
N3904HK200	156	○ P0248SC12E	160	R0472YC12F	162	R1124NC20I	
N3904HK220	156	○ P0273SC12D	160	R0472YC12FKER	160	R1124NC20J	
N3930ZC120	156	○ P0273SC12E	160	R0472YC16E	162	R1124NC20L	
N3930ZC160	156	○ P0273SC12F	160	R0472YC16EKER	160	R1124NC20M	
N3930ZD120	156	○ P0295WC12D	161	R0472YC16F	162	R1124NC21I	
N3930ZD160	156	○ P0295WC12E	161	R0472YC16FKER	160	R1124NC21J	
N4085ZC080	156	○ P0306SC08A	160	R0487YC12D	162	R1124NC21L	
N4085ZC120	156	○ P0306SC08B	160	R0487YC12E	162	R1124NC21M	
N4085ZD080	156	○ P0306SC08C	160	R0487YC14D	162	R1127NC32F	
N4085ZD120	156	○ P0311SC12E	160	R0487YC14E	162	R1127NC32J	
➢ N4165EE420	156	○ P0311SC12F	160	R0577YC12C	162	R1127NC32L	
➢ N4165EE450	156	○ P0327WC08C	161	R0577YC12D	162	R1127NC32M	
N4316MK020	156	○ P0327WC08D	161	R0577YC12E	162	R1127NC34F	
N4316MK040	156	○ P0327WC08E	161	R0633YC12D	162	R1127NC34J	
N4316MK060	156	○ P0327WC08F	161	R0633YC12E	162	R1127NC34L	
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N4340TE220	156	○ P0327WC12D	161	R0717LC14G	162	R1127NC36J	
N4340TJ180	156	○ P0327WC12E	161	R0717LC14H	162	R1127NC36L	
➢ N4340TJ180MBR	174	○ P0327WC12F	161	R0717LC16G	162	R1158NC26I	
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N4472HK160	156	○ P0330SC06A	160	R0736LC20K	162	R1178NC14F	
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➢ N4650EA420	157	○ P0330SC08A	160	R0736LC22K	162	R1178NC14L	
➢ N4650EA450	157	○ P0330SC08C	160	R0736LC25J	162	R1211NC12I	
➢ N4845EE320	157	○ P0366WC04A	161	R0736LC25K	162	R1211NC12J	
➢ N4845EE360	157	○ P0366WC04B	161	R0736LC25L	162	R1211NC12L	
➢ N4940HK120	157	○ P0366WC04C	161	R0736LC25M	162	R1271NC12I	
➢ N4940HK140	157	○ P0366WC06A	161	R0809LC10A	162	R1271NC12J	
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➢ N5415EA360	157	○ P0366WC08B	161	R0830LC12E	162	R1275NC18J	
➢ N5715EE240	157	○ P0366WC08C	161	R0830LC12F	162	R1275NC20I	
➢ N5715EE280	157	○ P0367WC12E	161	R0830LC12F	162	R1275NC20J	
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N6012ZD020	157	○ P0389WC04C	161	R0830LC14E	162	R1275NC21J	
N6012ZD040	157	○ P0389WC08B	161	R0830LC14F	162	○ R1279NC22I	
N6012ZD060	157	○ P0389WC08C	161	R0878LC18K	162	○ R1279NC22J	
➢ N6405EA240	157	○ P0431SC04B	160	R0878LC18L	162	○ R1279NC22L	
➢ N6405EA280	157	○ P0431SC04C	160	R0878LC18M	162	○ R1279NC22M	
N6974HK020	157	○ P0431SC06B	160	R0878LC20K	162	○ R1279NC25I	
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N6974HK060	157	○ P0515WC04B	161	R0878LC20M	162	○ R1279NC25L	
				R0878LC21K	162		

○ R1280NC22M	164	R2619ZC21J	165	> R4680EA24K	166	T0385HF65E
○ R1280NC25J	164	R2619ZC21K	165	> R4680EA24L	166	> T0425VC33G
○ R1280NC25K	164	R2619ZC21L	165	> R4680EA24M	166	T0510VB45E
○ R1280NC25L	164	R2619ZC25J	165	> R4680EA28K	166	T0600AF65G
○ R1280NC25M	164	R2619ZC25K	165	> R4680EA28L	166	> T0600NC17A
○ R1331NC10B	164	R2619ZC25L	165	> R4680EA28M	166	T0600TB45A
○ R1331NC10C	164	R2619ZD18J	165	> R5145FA42V	166	> T0640VC33E
○ R1331NC10D	164	R2619ZD18K	165	> R5145FA42W	166	> T0710TC33A
○ R1331NC12B	164	R2619ZD18L	165	> R5145FA45V	166	T0800EB45G
○ R1331NC12C	164	R2619ZD20J	165	> R5145FA45W	166	T0800TB45E
○ R1331NC12D	164	R2619ZD20K	165	> R5370EA18J	166	> T0840NC17E
R1446NC12C	164	R2619ZD20L	165	> R5370EA18K	166	T0900AF65E
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R1446NC12E	164	R2619ZD21K	165	> R5370EA22K	166	T0900EB45A
R1446NC12F	164	R2619ZD21L	165	<b>S</b>		T0960VC17G
○ R1448NC14H	164	R2619ZD25J	165	S0300SR12Y	168	> T1000EC33G
○ R1448NC14J	164	R2619ZD25K	165	S0500KC200	168	> T1000TC33E
○ R1448NC18H	164	R2619ZD25L	165	S0500KC20Y	168	T1200EB45E
○ R1448NC18J	164	R2620ZC22J	165	S0500KC25D	168	T1290BF65A
○ R1448NC20H	164	R2620ZC22K	165	S0500KC25Y	168	T1375DF65E
○ R1448NC20J	164	R2620ZC22L	165	S0500YC20Y	168	> T1440VC17E
○ R1448NC20K	164	R2620ZC25J	165	S0500YC25Y	168	> T1500EC33E
○ R1448NC20L	164	R2620ZC25K	165	S0700KC140	168	T1600GB45G
○ R1448NC20M	164	R2620ZC25L	165	S0700KC14Y	168	> T1680TC17G
R1605MC20E	164	R2620ZD22J	165	S0700KC17D	168	T1800GB45A
R1605MC20F	164	R2620ZD22K	165	S0700KC17Y	168	T1890BF65E
R1605MC20G	164	R2620ZD22L	165	S1200NC200	168	> T2000BB45G
R1605MC20H	164	R2620ZD25J	165	S1200NC20Y	168	> T2000GC33G
R1605MC20J	164	R2620ZD25K	165	S1200NC25D	168	T2400GB45E
R1605MC22E	164	R2620ZD25L	165	S1200NC25Y	168	T2960BB45E
R1605MC22F	164	R2714ZC14H	166	SXB11987HEX	183	<b>W</b>
R1605MC22G	164	R2714ZC14J	166	SXB1265FB	183	W0428RE25G
R1605MC22H	164	R2714ZC14K	166	SXB1375B	183	W0428RE28G
R1605MC22J	164	R2714ZC18H	166	SXB1645FB	183	W0428RE32G
R1700MC18E	164	R2714ZC18J	166	SXB1764FG	183	W0428RF25G
R1700MC18F	164	R2714ZC18K	166	SXB1920G	183	W0428RF28G
R1700MC18G	164	R2714ZD14H	166	SXB2096B	183	W0428RF32G
R1700MC18H	164	R2714ZD14J	166	SXB2167FB	183	W0428SE25G
R1700MC18J	164	R2714ZD14K	166	SXB2324FG	183	W0428SE28G
R1700MC21E	164	R2714ZD18H	166	SXB2939G	183	W0428SE32G
R1700MC21F	164	R2714ZD18J	166	SXB3120FG	183	W0428SF25G
R1700MC21G	164	R2714ZD18K	166	SXB3442B	183	W0428SF28G
R1700MC21H	164	○ R3047TC24K	166	SXB3529HEXT	183	W0428SF32G
R1700MC21J	164	○ R3047TC24M	166	SXB3840HEX	183	W0503RC16G
R1955MC14D	165	○ R3047TC24N	166	SXB4264B	183	W0503RC20G
R1955MC14E	165	○ R3047TC28K	166	SXB4649HEXT	183	W0503RC24G
R1955MC14F	165	○ R3047TC28M	166	SXB4869G	183	W0503SC16G
R1955MC16D	165	○ R3047TC28N	166	SXB5877HEX	183	W0503SC20G
R1955MC16E	165	> R3115TJ24J	166	SXB5993G	183	W0503SC24G
R1955MC16F	165	> R3115TJ24K	166	SXB6240HEXT	183	W0507YH42G
R2075MC12A	165	> R3115TJ28J	166	SXB9737HEX	183	W0507YH45G
R2075MC12B	165	> R3115TJ28K	166	SXC1076FB	186	W0642WC16G
R2075MC12C	165	R3370ZC12C	166	SXC1195FR	186	W0642WC20G
> R2295HA22F	165	R3370ZC12D	166	SXC1318FB	186	W0642WC24G
> R2295HA22H	165	R3370ZC12E	166	SXC1464FR	186	W0735RA12G
R2475ZC28M	165	R3370ZD12C	166	SXC1517FG	186	W0735RA15G
R2475ZC28N	165	R3370ZD12D	166	SXC1609FB	186	W0735SA12G
R2475ZC28R	165	R3370ZD12E	166	SXC1788FR	186	W0735SA15G
R2475ZD28M	165	○ R3559TC20K	166	SXC1871FG	186	

W0944WC150	140	W1980JK220	141	W3708MC350KDN	139	W5636MC150
W1032LC500	140	W2054NC420	141	W3708MC350KDR	139	W5636MC150
W1032LC560	140	W2054NC450	141	○ W3743ZC400	142	W5696VC100
W1032LC600	140	W2058LC100	141	○ W3743ZC450	142	W5696VC140
W1060LG420	140	W2058LC120	141	○ W3743ZC500	142	W5696VF100
W1060LG450	140	W2058LC120KBN	139	○ W3743ZD400	142	W5696VF140
W106CEC240	144	W2058LC120KBR	139	○ W3743ZD450	142	W5715ED520
W106CEC280	144	W2058LC120KCN	139	○ W3743ZD500	142	W5715ED560
W1074YC200	140	W2058LC120KCR	139	W3841VC300	142	W5715ED600
W1074YC260	140	W2058LC140	141	W3841VC340	142	W5838ZC180
W1074YC320	140	W2115MC520	141	W3841VF300	142	W5838ZC220
W1074YH200	140	W2115MC560	141	W3841VF340	142	W5838ZD180
W1074YH260	140	W2115MC600	141	W3842MC240	142	W5838ZD220
W1074YH320	140	W2134NC360	141	W3842MC280	142	W5984TE360
➤ W108CED180	144	W2134NC400	141	W3842MC280KDN	139	W5984TE400
➤ W108CED220	144	W2340JK120	141	W3842MC280KDR	139	W5984TJ360
W1185LC420	140	W2340JK150	141	W3842MC28A	142	W5984TJ400
W1185LC450	140	W2624NC240	141	W3864QK120	142	W6262ZC200
W1185LC450KBN	139	W2624NC280	141	W3864QK150	142	W6262ZC240
W1185LC450KBR	139	W2624ND240	141	W3864QK180	142	W6262ZD200
W1185LC450KCN	139	W2624ND280	141	W4096ZC420	142	W6262ZD240
W1185LC450KCR	139	W2820VC420	141	W4096ZC450	142	W6360EC520
W121CEC180	144	W2820VC450	141	W4096ZD420	142	W6360EC560
W121CEC220	144	W2820VF420	141	W4096ZD450	142	W7032DB020
W1260LG320	140	W2820VF450	141	W4205TE520	142	W7032DB040
W1260LG360	140	W2830HE520	141	W4205TE560	142	W7045MC030
W1263YC160	140	W2830HE560	141	W4205TE600	142	W7045MC060
W1263YC200KER	138	W2830HE600	141	W4205TJ520	142	➤ W8400ED320
W1263YC200KES	138	➤ W2840QA180	141	W4205TJ560	142	➤ W8400ED350
W1263YC220	140	➤ W2840QA220	141	W4205TJ600	142	W8405ZC100
W1263YC250	140	➤ W2865HA680	141	➤ W4295NK200	143	W8405ZC140
W1263YC250KER	138	➤ W2865HA720	141	➤ W4295NK220	143	W8405ZD100
W1263YC250KES	138	W2899MC480	141	➤ W4534NC030	143	W8405ZD140
W1263YH160	140	W3082MC420	141	W4534NC060	143	W8570TE180
W1263YH200	140	W3082MC450	141	➤ W4534ND030	143	W8570TE220
W1263YH250	140	W3082MC450KDN	139	➤ W4534ND060	143	➤ W8570TJ180
W1360LG240	140	W3082MC450KDR	139	➤ W4550HA360	143	➤ W8570TJ220
W1360LG300	140	W3090HA520	141	➤ W4550HA400	143	W9830TE120
W1411LC320	140	W3090HA560	141	W4693QK050	143	W9830TE150
W1411LC360	140	W3090HA600	141	W4693QK080	143	W9830TJ120
W1411LC360KBN	139	○ W3128VC360	141	W4693QK080	143	➤ W9830TJ150
W1411LC360KBR	139	○ W3128VC400	141	W4693QR050	143	➤ W9830TJ150
W1411LC360KCN	139	○ W3128VF360	141	○ W4713HL300	143	➤ W9830TJ150
W1411LC360KCR	139	○ W3128VF400	141	○ W4713HL350	143	➤ W9830TJ150
W1520NC500	140	W3270NC180	142	○ W4713HM300	143	X
W1520NC600	140	W3270NC20A	142	○ W4713HM350	143	XK0450BA010
W1524LC240	140	W3270NC220	142	W4767MC180	143	XK0450BA020
W1524LC300	140	W3270NC22A	142	W4767MC220	143	XK0450BB010
W1524LC300KBN	139	W3305QK240	142	W5092ZC320	143	XK0450BB020
W1524LC300KBR	139	W3305QK280	142	W5092ZC350	143	XK0450DA050
W1524LC300KCN	139	➤ W3409NK240	142	W5092ZD320	143	XK0450DT050
W1524LC300KCR	139	➤ W3409NK280	142	W5092ZD350	143	XK0450SA050
W1730JK240	140	W3455QK200	142	W5130MK240	143	
W1730JK280	140	W3455QK220	142	W5130MK280	143	
W1748LC180	141	W3477MC360	142	W5139TE450	143	
W1748LC220KBN	139	W3477MC400	142	W5139TE480	143	
W1748LC220KBR	139	W3630TE650	142	W5139TJ450	143	
W1748LC220KCN	139	W3630TE720	142	W5139TJ480	143	

XK1000BA025M	193	XSFHxxxxAN	193	XST1000M10P	187
XK1000DA074M	188	XSFLPxxxxAN	193	XST1000M12P	187
XK1000SA074M	188	XSFTBxxxxAN	193	XST1000M16P	187
XK1100DA076M	188	XSFTCxxxxAN	193	XW076NC16A	194
XK1130DA076M	188	XSFTxxxxAN	193	XW076NC16B	194
XK1130DT076M	188	XSGSCX13	187	XW076NC16BS	194
XK1130SA076M	188	XSK042	190	XW076NC16BT	194
XK1500BA034M	193	XSK042	191	XW076NC16C	194
XK1800DA076M	188	XSK054	190	XW076NC16CT	194
XK1800DT076M	188	XSK054	191	XW076NC16R	194
XK1800SA076M	188	XSK056	190	XW076NC16W	194
XK2000DA114M	188	XSK056	191	XW116ZC20A	194
XK2000SA114M	188	XSK065	190	XW116ZC20B	194
XK2100DA076M	188	XSK065	191	XW116ZC20C	194
XK2100DA076ML	188	XSK075	190	XW116ZC20R	194
XK2100SA076M	188	XSK075	191	XW116ZC20W	194
XK2100SA076ML	188	XSK087	190	XW127EA25A	194
XK2140DA076M	188	XSK087	191	XW127EA25B	194
XK2140DA076ML	188	XSK103	190	XW127EC25A	194
XK2140DT076M	188	XSK103 (2200/3200)	191	XW127EC25B	194
XK2140DT076ML	188	XSK103 (4000)	191	XW160FC25A	194
XK2140SA076M	188	XSK112	190	XW160FC25B	194
XK2140SA076ML	188	XSK112	191	XW180BA34E	194
XK2500DA114M	188	XSK120	190	XW180BA34F	194
XK2500DA116M	188	XSK120	191	XW180GA34A	194
XK2500DA116ML	188	XSK126	190	XW180GA34B	194
XK2500SA114M	188	XSK126	191	XW180GC34A	194
XK2500SA116M	188	XSK1500DA076038	192	XW180GC34B	194
XK2500SA116ML	188	XSK1500DA076076	192	XW270QA25A	194
XK2700DA076M	188	XSK1500DA076101	192	<b>Y</b>	
XK2700DT076M	188	XSK160	190	Y200CKC250	167
XK2700SA076M	188	XSK160	191	Y500CNC250	167
XK3000DA116M	188	XSK2000DA076038	192		
XK3000DA116ML	188	XSK2000DA076076	192		
XK3000SA116M	188	XSK2000DA076101	192		
XK3000SA116ML	188	XSK3000DA076038	192		
XK3060DA140ML	189	XSK3000DA076076	192		
XK3060SA140ML	189	XSK3000DA076101	192		
XK3500DA116M	188	XSK3400DA076038	192		
XK3500DA116ML	188	XSK3400DA076076	192		
XK3500SA116M	188	XSK3400DA076101	192		
XK3500SA116ML	188	XSK3800DA116M076	192		
XK4000DA116M	189	XSK3800DA116M101	192		
XK4000DA116ML	189	XSK4400DA116M076	192		
XK4000SA116M	189	XSK4400DA116M101	192		
XK4000SA116ML	189	XSK6000DA116M076	192		
XK5000DA128M	189	XSK6000DA116M101	192		
XK5000DA128ML	189	XSL1000C2WRP	187		
XK6120DA180ML	189	XSL1000C2WRT	187		
XK6120SA180ML	189	XSL1100C2WRT	187		
XK7000DA128M	189	XSL200D8WRC	187		
XK7000DA128ML	189	XSL200D8WRCP	187		
XK8000DA180ML	189	XSL220C2WRT	187		
XK8000SA180ML	189	XSL300C2WRP	187		
XK9000DA160M	189	XSL300C2WS	187		

$C_{oes}, C_{oss}$	Output capacitance	$I_G, I_{GT}$	Trigger gate current
$C_{res}, C_{rss}$	Reverse transfer (Miller) capacitance	$I_{GD}$	Non-trigger gate current
<b>d</b>	Duty cycle	$I_{GES}$	Gate emitter leakage current
$d_A$	Strike distance through air	$I_H$	Holding current
<b>di/dt, -di/dt</b>	Rate of change of current	$I_{IN(H)}$	Signal input current (high level)
<b>(di/dt)<sub>cr</sub></b>	Critical rate of rise of current	$I_{IN(L)}$	Signal input current (low level)
$di_F/dt, -di_F/dt$	Rate of change of forward current	$I_{ISOL}$	RMS current for isolation test
$d_s$	Creep distance on surface	$I_L$	Latching current
<b>dv/dt</b>	Rate of rise of voltage	$I_R$	Reverse current
<b>(dv/dt)<sub>cr</sub></b>	Critical rate of rise of voltage	$I_{RM}$	Maximum reverse recovery current
$E_{AR}$	Repetitive avalanche energy	$I_{RMS}$	RMS current
$E_{AS}$	Non-repetitive avalanche energy	$I_{RRM}$	Maximum repetitive reverse current
$E_{off}$	Turn-off energy per pulse	$I_S$	Continuous source current
$E_{on}$	Turn-on energy per pulse	$I_{SM}$	Maximum pulsed source current
$E_{rec(off)}$	Reverse recovery losses at turn-off	$I^2t$	I <sup>2</sup> t value for fusing
$F_{(mounting)}$	Required force to mount hole-less discretes on heat sink	$I_{TSM}$	Maximum surge on-state current
$g_{fs}$	Forward transconductance	$K_f$	Characteristic factor
$I_{AR}$	Repetitive avalanche current	$K_p$	Coeff. for energy per pulse Ep
$I_{AVM}$	Maximum average forward current	$K_T$	Temperature coefficient of VBC
$I_{BO}$	Breakover current	<b>L</b>	Series stray inductance
$I_{C(on)}$	Short circuit current	$M_d$	Mounting torque
$I_C$	Collector current	$P_C$	Collector power dissipation
$I_{C25}$	Continuous DC collector current at T <sub>C</sub> = 25°C	$P_D$	Power dissipation
$I_{C90}$	Continuous DC collector current at T <sub>C</sub> = 90°C	$P_{GAV}$	Average gate power dissipation
$I_{CES}$	Collector emitter leakage current	$P_{G(AV)M}$	Maximum average gate power
$I_{CM}$	Maximum pulsed collector current	$P_{GM}$	Maximum gate power dissipation
$I_D$	Drain current	$P_{RSM}$	Maximum surge reverse power
$I_{DD}$	Module supply current, operating mode	$P_T, P_{tot}$	Total power dissipation
$I_{DD0}$	Module supply current, standby mode	$Q_g$	Total gate charge
$I_{D(cont)}$	Continuous drain current	$Q_{gc}$	Gate collector (Miller) charge
$I_{D25}$	Continuous drain current at T <sub>C</sub> = 25°C	$Q_{gd}$	Gate drain (Miller) charge
$I_{DAV}$	Average DC output current	$Q_{ge}$	Gate emitter charge
$I_{D(AV)M}$	Maximum average DC output current	$Q_{gs}$	Gate source charge
$I_{DM}$	Maximum pulsed drain current	$Q_r$	Reverse recovery charge
$I_{DRM}$	Maximum repetitive off-state current	$Q_{RM}$	Reverse recovery charge (intrinsic)
$I_{D(RMS)}$	RMS output current	$Q_s$	Recovered charge to IRM
$I_{DSS}$	Drain source leakage current	<b>RBSOA</b>	Reverse Bias Safe Operating Area
$I_F, I_T$	Forward current	$R_{DS(on)}$	Static drain source on resistance
$I_{FM}$	Maximum forward current		



$R_{thJC}$	Thermal resistance junction to case
$R_{thJK}^?$ , $R_{thJH}$	Thermal resistance junction to heatsink
$R_{thJS}$	Thermal resistance junction to heatsink
$R_{thJW}$	Thermal resistance junction to water
$R_{thKA}$	Thermal resistance heatsink to ambient
<b>SCSOA</b>	Short Circuit Safe Operating Area
$T_{amb}$ , $T_A$	Ambient (cooling medium) temperature
$T_C$ , $T_{case}$	Case temperature
$t_{d(off)}$	Turn-off delay time
$t_{d(on)}$	Turn-on delay time
$t_{fl}$	Current fall time (inductive load)
$t_{fr}$	Forward recovery time
$t_{FLT}$	Overcurrent or short circuit trip delay time
$t_{gd}$	Gate controlled delay time
$T_J$ , $T_{VJ}$	Virtual junction temperature
$T_{JM}^?$ , $T_{VJM}$	Maximum virtual junction temperature
$T_K$ , $T_H$ , $T_S$	Heatsink temperature
$T_L$	Lead temperature
$T_{S(max)}$	Maximum allowable heatsink temperature
$T_{stg}$	Storage temperature
$t_P$	Pulse time
$t_q$	Turn-off time
$t_r$	Current rise time
$t_{rr}$	Reverse recovery time
$t_{rv}$	Rise time of collector emitter voltage
$t_{SC}$	Short circuit duration
$V_{BO}$	Breakover voltage
$V_{CE}$	Collector emitter voltage
$V_{CE(sat)}$	Collector emitter saturation voltage
$V_{CE(sat)FLT}$	Collector emitter saturation voltage to indicate fault
$V_{CEK}$	Collector emitter clamp voltage on chip level
$V_{CES}$	Collector emitter voltage
$V_{CGR}$	Collector gate voltage
$V_{DD}$	Module supply voltage
$V_{DD FLT}$	Module supply voltage without fault
$V_{DGR}$	Drain gate voltage
$V_{DRM}$	Maximum repetitive forward blocking voltage
$V_{DS}$	Drain source voltage
$V_{DSM}$	Max. non-repetitive forward blocking voltage
$V_{DSS}$	Drain source breakdown voltage

$V_{GE(th)}$	Gate emitter threshold voltage
$V_{GEM}$	Maximum transient collector gate voltage
$V_{GES}$	Maximum DC gate voltage
$V_{GS}$	Gate source voltage
$V_{GS(th)}$	Gate threshold voltage
$V_{GSM}$	Maximum transient gate source voltage
$V_{GT}$	Gate trigger voltage
$V_H$	Holding voltage
$V_{IN}$	Input control voltage
$V_{IN(H)}$	Input voltage threshold for IGBT
$V_{IN(L)}$	Input voltage threshold for IGBT
$V_{ISOL}$	Isolation voltage
$V_R$	Reverse voltage
$V_{RES}$	Input voltage threshold for Resistor
$V_{RGM}$	Maximum reverse gate voltage
$V_{RRM}$	Maximum repetitive reverse voltage
$V_{RSM}$	Maximum non-repetitive reverse voltage
$V_{SD}$	Forward voltage drop
$V_T$	Forward voltage
$V_{TO}$	Threshold voltage (for power loss)
$Z_{thJC}$	Transient thermal impedance junction to case
$Z_{thJK}^?$ , $Z_{thJH}$	Transient thermal impedance junction to heatsink

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#### Note

As far as patents or other rights of third parties are concerned, this specification is only assumed for components per se, not for applications and circuits implemented with components or assemblies. This specification describes the type of component and shall not be taken as assured characteristics.

Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings or maximum ratings of the device at these or at any other conditions above the limiting values. The characteristics sections of the specification is not intended for limiting values for extended periods may affect device reliability. Delivery and rights to change design or specifications are reserved. Changes have been made to earlier published specifications. This specification herein supersedes all previously published information.

#### Life support applications

IXYS products used in life support appliances, devices, or systems, where malfunction of these products can reasonably be expected to result in personal injury must be expressly authorized.

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L  
M  
N  
R

Extra fast diodes  
HP Sonic-FRD™  
Phase control thyristor  
Distributed gate thyristor  
Fast turn-off thyristor  
Medium voltage thyristor  
Asymmetric thyristor  
Symmetrical gate turn-off thyristor  
Fast symmetrical gate turn-off thyristor  
Asymmetric gate turn-off thyristor  
Pulse Thyristor

For devices exceeding 9999 Amperes, digit 5 of the part number changes to C (x100)

19mm  
25mm  
29mm  
32mm  
34mm  
38mm  
44mm ('B' thickness only), 110mm  
47mm  
50mm  
57mm  
63mm  
66mm/68mm  
73mm  
75mm  
85mm  
99mm  
125mm

(electrode diameter in brackets)

26mm reverse build  
8mm (D)  
Standard outline - 14mm (W, Y), 16mm (K), 26mm (L, Q, M, T, E), 26.5mm (N), 33mm (V), 36mm (J)  
21mm (N), 24mm (V, Z), 26mm (F, G)  
35mm inverse build (T, M, Q, E)  
19.5mm (L), 26mm (K, N, V), 35mm (6.5kV Sonic diode)  
35mm (L, N)  
14mm (N), 26mm (Y)  
19.5mm (N), 25.8mm (V), 26mm (T)  
Wespack 14.5mm (J, Q, M, H)  
Wespack 26mm (Q, M)  
Wespack 33mm (H)  
14mm (W, Y), 26mm (L)  
Wespack 14mm (Q), 26mm (N)

t <sub>q</sub> Code	
0	No code
A	10
B	12
C	15
D	20
E	25
F	30
G	35
H	40
J	50
K	60
L	65

V <sub>RRM</sub> % of V <sub>DRM</sub> (S and T)
0
D
Y

15

0 t<sub>q</sub> code (thyristors), V<sub>RRM</sub> % of V<sub>DRM</sub> for Gate turn-off thyristors - See relevant tables  
P PIN diode (Product groups: W, M, F, E)  
R Rotating package (N, K, W)  
A Avalanche rated diode (W)

Q  
N  
V  
H  
T  
E  
A  
D  
G  
B

B  
D  
F

45

**Electrode diameter**

- 38mm
- 47mm
- 63mm
- 66mm
- 75mm
- 85mm
- 96mm
- 110mm
- 125mm
- 132mm

**Die series**

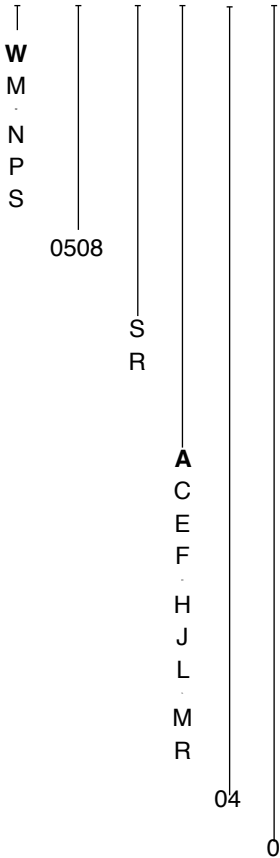
**Voltage grade -  $V_{RRM}/100$**

**Build description for multiple square die**

- A Reverse conducting
- E Asymmetric
- G Reverse Conducting (IGBT to diode ratio of 2:1)

**STUD DEVICES**

W 0508 S A 04 0



**Device type**

- Rectifier diode
- Fast/Soft recovery diode

**Phase control thyristor**

- Fast turn-off thyristor

**Symmetrical Gate turn-off thyristor**

Device nominal current rating

Device polarity

- Stud Anode
- Stud Cathode

Package

**3/4" stud glass/metal**

- 3/4" stud ceramic
- 3/4" HV ceramic stud with lug
- 3/4" HV ceramic stud

**1/2" ceramic stud**

- 1/2" ceramic stud with flag
- M12 stud ceramic with lug

**3/8" stud ceramic**

- M20 stud ceramic with lug & gate leads

Voltage grade -  $V_{RRM}, V_{DRM}/100$

$t_q$  code - See table for relevant code

All IXYS UK stud devices are available with or without leads, sleeving and nuts.

Please add one of the following three-letter code options are required, to the end of the part number.

000 - Leaded stud, no sleeving, no nuts and washers

S0L - Leaded stud, with standard\* sleeving, nuts and washers supplied loose

00L - Leaded stud, no sleeving, nuts and washers supplied

NLL - Non-leaded stud, nuts and washers supplied (Applies also to devices with flag/tag terminals)

S0F - Leaded stud, with standard\* sleeving, nuts and washers supplied

00F - Leaded stud, no sleeving, nuts and washers supplied

NLF - Non-leaded stud, nuts and washers fitted (Applies also to devices with flag/tag terminals)

S00 - Leaded stud, with standard\* sleeving, nuts and washers supplied

NLS - Non-leaded stud, no nuts and washers supplied (Applies also to devices with flag/tag terminals)

\* - Standard sleeving means the following:  
 Red for all thyristor studs  
 Blue for 'S' polarity diode studs  
 Red for 'R' polarity diode studs

Example 1	M	I	X	G	120	W		1200	DPF	T	E
Example 2		I	X	A	40	P	G	1200	DHG		L
Example 3		C	M	A	20	E		1600			P

Index	
0	M = Module; no letter for discretes
1	Kind of main chip C = SCR, D = Diode, I = IGBT, M = MosFET
2	Chip technology
3	Chip generation resp. precisely defined technology
Value 1	Current rating
4	Basic circuit
5	Precisely defined circuit
Value 2	Voltage rating
6 (a-c)	as Index 1-3; usage e.g. for special chips like SiC
6 d	Specials (e.g.: thermistor)
7	Basic package
8	Precisely defined package
Hyphen	-
9	Extras: e.g. delivery formats, auxiliaries

## Examples for Indices

Index 1 & 2	Description	detailed
CL	High Efficiency Thyristor	up to 1200V
CM	Thyristor	up to 1800V
CN	High Voltage Thyristor	≥ 2000V
DF	FRED	Gold
DH	Sonic Fast Recovery Diode	Helium
DL	Low Voltage Standard Rectifier	up to 1200V
DM	Standard Rectifier	up to 1800V
DN	High Voltage Standard Rectifier	≥ 2000V
DP	HiPerFRED™	Platinum
DS	Schottky Diode	2nd generation
IG	IGBT	PT (Punch Through)
IT	IGBT	Trench
IX	IGBT	XPT
MK	Superjunction MOSFET	Powered by Infineon CoolMOS™ b
MT	MOSFET	Trench

H	H~ Bridge	+ 1~ Rectifier Bridge
I	Single Part	, Copack
M	AC-Controlling	/ Triac
P	Phase leg	, high-side Thyristor / low-side Diode
Q	Buck Chopper	with series connected dice
R	Boost/Brake Chopper	+ free wheeling diode + Vcesat-Diode
S	Brake Chopper (Rating IGBT >> Rating Diode)	+ free wheeling diode
U	3~ Rectifier Bridge	+ Brake unit
W	6-Pack	+ 3~ Rectifier Bridge & Brake Unit
X	Parallel legs	, anti-parallel
Y	Half 3~ Bridge	, Common anode

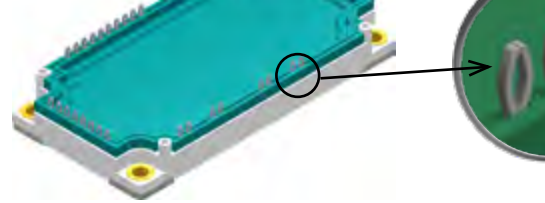
Index 7 & 8 Discretes	Description	Index 7 & 8 Discretes	Description
FA	i4-Pac (3sym)	NB	SOT-227UI (minibloc)
FB	i4-Pac (3HV)	PA	TO-220AC (2)
FC	i4-Pac (5)	PB	TO-220AB (3)
FD	i4-Pac (5HC)	PC	TO-263AB (D2Pak) (2)
FE	i4-Pac (2HV)	PJ	ISOPLUS220AB (3)
HA	TO-247AD (2)	PM	TO-220ACFP (2)
HB	TO-247AD (3)	PN	TO-220ABFP (3)
HF	PLUS247 (3)	PZ	TO-263AB (D2Pak) (2HV)
HI	ISOPLUS247 (2)	QB	TO-3P (3)
HJ	ISOPLUS247 (3)	TC	TO-268AA (D3Pak) (2)
HR	ISO247 (3)	TZ	TO-268AA (D3Pak) (2HV)
IB	TO-262 (I2Pak) (3)	UC	TO-252AA (DPak)
LB	SMPD-B	UZ	TO-252AA (DPak) (2HV)
NA	SOT-227B (minibloc)		

Index 7 & 8 Modules	Description	Index 7 & 8 Modules	Description
CA	ComPack	TA	TO-240AA-1B
CB	ComPack	TB	TO-240AA-1B
CC	ComPack	TG	TO-240AA-1B
ED	E2-Pack	VA	V1-A-Pack
EH	E3-Pack	VC	V1-B-Pack
KA	Y1-CU	VH	V2-Pack
KB	Y1-CU	YA	Y4-M6
KC	Y1-CU	YB	Y4-M6
SF	Simbus F	YD	Y4-M6

Index 6 d	Specials	Index 9	Packaging
P	PressFit-Pin	NI	No Metal Inserts
PT	PressFit-Pin + Thermistor	PC	Phase Change Material
PST	PressFit-Pin + Shunt + Thermistor	TRL	Tape & Reel Left
S	Shunt	TRR	Tape & Reel Right
T	Thermistor	TUB	Tube



- simplified process
- reduced mounting time
- no risk of bad solder contacts
- reduced aging of pin contact
- no thermal stress for the PCB assembly
- press out possible for maintenance



The pin concept is based on the proven „Bizon“-Pin concept.

Pressing process is a plastic deformation of pin and via of the board ending in a cold welding

Pin features are:

- Pin concept based on successfully proven „Bizon“-Pin concept
- Pin qualification according to IEC 60352-5
- High conductive Cu alloy with Ni / gal. Tin surface
- Very low contact resistance
- Low press-in force per pin and PCB hole diameter independent press-out force
- Press-Fit-Pin usable for PCB's designed for competitor devices

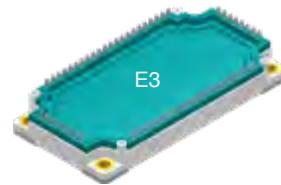
### Started with the following modules types:

Pin configuration see Data Sheets

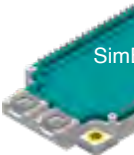
Board and Via Requirements E2 and E3			
	min.	typical	max.
Drill hole diameter		2.35 mm	
Final hole diameter	2.14 mm	2.20 mm	2.29 mm
Cu thickness inside the hole	>25 $\mu\text{m}$		
Sn thickness inside the hole			<15 $\mu\text{m}$
Cu thickness for PCB tracks	35 $\mu\text{m}$	70 $\mu\text{m}$ 105 $\mu\text{m}$	
PCB thickness	1.60 mm	2.00 mm	
Metallization PCB	chem. Tin		
Board and Via Requirements SimBus F			
	min.	typical	max.
Drill hole diameter		1.16 mm	
Final hole diameter	1.00 mm	1.05 mm	1.10 mm
Cu thickness inside the hole	>25 $\mu\text{m}$		
Sn thickness inside the hole			<15 $\mu\text{m}$
Cu thickness for PCB tracks	35 $\mu\text{m}$	70 $\mu\text{m}$ 105 $\mu\text{m}$	
PCB thickness	1.60 mm	2.00 mm	
Metallization PCB	chem. Tin		



MCMA 240U  
MDMA 210U  
MDMA 280U  
MDMA 360U



MIXG 120W1200PTEH  
MIXG 180W1200PTEH  
MIXG 240W1200PTEH  
  
MDMA 450U1600PTEH  
MDMA 660U1600PTEH  
MDMA 900U1600PTEH  
MDNA 660U2200PTEH  
  
MUBW 50-17T8-PFPC  
MUBW 75-17T8-PFPC



MDMA 600P  
MDNA 600P  
MCNA 360P  
MCMA 400P  
MCNA 500P  
MCMA 550P  
  
MCNA 360P  
MCMA 400P  
MCNA 500P  
MCMA 550P

DMA 10IM1200UZ	Standard diode	Single	1200	10	150	X004a
DMA 10IM1600UZ			1600			
DMA 10P1200UZ DMA 10P1600UZ		Phase Leg	2x 1200 2x 1600	10	150	
<b>Sonic Diode</b>						
➤ DHG 10IM1800UZ	Fast Recovery Diode	Single	1800	10	100	Creepa pin/pin: pin/Cu
<b>MOSFET</b>						
➤ IXTY 1R4N120PHV	Standard MOSFET	Single	1200	1.4	25	

## High Voltage TO-263 (D<sup>2</sup>-Pak) package

- ✓ improved pin spacing (no middle pin)
- ✓ creepage distance pins to copper of backside: 4.7 mm for new TO-263ABHV packa

Type	Technology	Config.	V <sub>RRM</sub>	I <sub>FAV</sub> / I <sub>D</sub>	@ T <sub>c</sub>	P <sub>out</sub>	
➤ New			V	A	°C	Outl pag	
<b>Diode</b>							
DMA 10IM1600PZ	Standard diode	Single	1600	10	150	X011c	
DMA 30IM1600PZ			1600	30	140		
DNA 30E2200PZ			2200	30	140		
DNA 30EM2200PZ			2200	30	140		
DMA 10P1600PZ		Phase Leg	2x 1600	10	150		
DMA 10P1800PZ			2x 1800	10	150		
DAA 10EM1800PZ	Avalanche diode	Single	1800	10	150		
DAA 10P1800PZ		Phase Leg	2x 1800	10	150		
<b>FRED / HiPerFRED</b>							
DSEI 12-12AZ	FRED	Single	1200	11	100		
DSEP 12-12AZ	HiPerFRED			12	135		
DSEP 12-12BZ				15	130		
<b>SiC Diodes</b>							
➤ LSIC2SD065D06A	Schottky Barrier Diode	Single	650	6	152		
➤ LSIC2SD065D08A				8	150		
➤ LSIC2SD065D10A				10	147		
➤ LSIC2SD065D16A				16	140		
➤ LSIC2SD065D20A				20	135		
LSIC2SD120D10				1200	10	151	
LSIC2SD120D15			15		150		
LSIC2SD120D20			20		150		

CLA 5E1200PZ	High Efficiency SCR	Single	1200	5	135
1) CLA 15E1200NPZ				15	120
1) CLA 30E1200NPZ				30	115
2) CLB 30I1200PZ				30	115
1) CLA 40E1200NPZ				40	125
2) CLB 40I1200PZ				40	125
CMA 20E1600PZ	Standard Thyristor	Single	1600	20	115
CMA 30E1600PZ				30	115
CME 30E1600PZ	Fast Thyristor	Single	1600	30	80
<b>Triac</b>					
CLA 30MT1200NPZ	High Efficiency	Triac	1200	15	120
CLA 40MT1200NPZ				20	115
<b>Triode (Reverse Conducting Thyristor)</b>					
CLA 20EF1200PZ	High Efficiency	Single	1200	20	115

Type	Technology	Config.	V <sub>CES</sub>	I <sub>C25</sub>	V <sub>CEsat</sub> typ.
◇ under development					
➤ New			V	A	V
<b>IGBT &amp; BiMOS</b>					
◇ IXA 4I1200PZ	XPT™ IGBT	Copack	1200	9	1.8
IXA 20I1200PZ		Single		38	1.8
IXYA 20N120C3HV	Fast XPT™ IGBT	Single	1200	40	3.4
IXYA 20N120A4HV	GenX4™ XPT™ IGBT	Single	1200	80	1.7
➤ IXYA 20N120B4HV				76	1.8
➤ IXYA 20N120C4HV				68	2.1
IXYA 30N120A4HV				106	1.6
IXYA 8N250CHV	High Voltage XPT™ IGBT	Single	2500	29	3.4
IXYA 12N250CHV				28	3.7
IXGA 20N250HV	High Voltage NPT IGBT	Single	2500	30	3.1
IXBA 16N170AHV	High Voltage BiMOS	Single	1700	16	6.0
IXBA 10N300HV			3000	34	2.8
IXBA 14N300HV			38	2.7	

X011c

Creepa  
pin/pin:  
pin/Cu  
mm  
For mo  
outline

Type	Technology	Config.	V <sub>DSS</sub>	I <sub>D25</sub>	R <sub>DSon</sub> max. W
			V	A	W
<b>MOSFET</b>					
IXFA 8N85XHV	X-Class HiPerFET™	Single	850	8	0.85
IXFA 14N85XHV				14	0.55
IXFA 20N85XHV				20	0.33
IXTA 08N100D2HV	Depletion Mode MOSFET	Single	1000	0.8	21.0
IXTA 3N100D2HV				3.0	6.0
IXTA 05N100HV	High Voltage MOSFET	Single	1000	0.75	17.0
IXTA 3N120HV		Single	1200	3.0	4.5
IXTA 3N150HV		Single	1500	2.0	7.3
IXTA 4N150HV				4.0	6.0
IXTA 1N200P3HV		Single	2000	1.0	40.0
IXTA 02N250HV		Single	2500	0.2	450

IXYT 30N65C3H1HV	GenX3™ XPT™ IGBT	Single	650	60	2.7	-	
IXYT 20N120C3D1HV			1200	36	3.4	-	
> IXYT 40N120A4HV	GenX4™ XPT™ IGBT	Single	1200	150	1.8	-	
> IXYT 55N120A4HV				175	1.5	-	
> IXYT 85N120A4HV				300	1.5	-	
IXYT 12N250CV1HV	High Voltage XPT™ IGBT	Single	2500	28	3.7	-	
IXYT 25N250CHV				95	4.0	-	
IXYT 30N450HV				4500	60	3.9	-
IXGT 25N250HV	High Voltage NPT IGBT	Single	2500	60	2.9	-	
IXBT 16N170AHV	High Voltage BIMOS	Single	1700	16	6.0	-	
IXBT 22N300HV				3000	60	2.7	-
IXBT 32N300HV				80	2.8	-	
IXBT 42N300HV				104	3.0	-	
IXBT 16N360HV				3600	48	2.5	-
IXBT 20N360HV					70	3.4	-
<b>MOSFET</b>							
IXTT 140N075L2HV	Linear MOSFET	Single	75	140	-	(11)	
> IXTT 44N25L2HV				250	44	-	(75)
IXTT 440N04T4HV	TrenchT4™ MOSFET	Single	40	440	-	(1.25)	
> IXFT 26N100XHV	X-class HiPerFET™	Single	1000	26	-	(320)	
> IXFT 32N100XHV				32	-	(220)	
IXTT 34N65X2HV	X2-class MOSFET	Single	650	34	-	(96)	
IXFT 60N65X2HV	X2-class HiPerFET™	Single	650	60	-	(52)	
IXFT 80N65X2HV				80	-	(38)	
IXFT 30N85XHV				850	30	-	(230)
IXFT 40N85XHV					40	-	(145)
IXFT 50N85XHV					50	-	(105)
IXFT 140N20X3HV	X3-class HiPerFET™	Single	200	140	-	(96)	
IXFT 180N20X3HV				180	-	(75)	
IXFT 220N20X3HV				220	-	(62)	
IXFT 120N25X3HV			250	120	-	(120)	
IXFT 150N25X3HV				150	-	(90)	
IXFT 170N25X3HV				170	-	(74)	
IXFT 100N30X3HV			300	100	-	(135)	
IXFT 120N30X3HV				120	-	(110)	
IXFT 150N30X3HV				150	-	(83)	
> IXTT 240N15X4HV	X4-class MOSFET	Single	150	240	-	(4.4)	
IXTT 4N150HV	High Voltage MOSFET	Single	1500	4	-	6	
IXTT 12N150HV				12	-	2	
IXTT 3N200P3HV				2000	3	-	8
IXTT 1N250HV				2500	1.5	-	40
IXTT 1N300P3HV				3000	1	-	50
IXTT 2N300P3HV					2	-	21
IXTT 02N450HV				4500	0.2	-	625
IXTT 1N450HV				1	-	80	
> MCB 60I1200TZ	SiC Power MOSFET	Single	1200	90	-	(34)	

X019a

Creepa  
pin/pin:  
pin/Cu  
mm  
For mo  
outline

<b>DSEP 60-12AZ</b>	HiPerFRED	Single	1200	60	115
<b>DSEP 90-12AZ</b>	HiPerFRED	Single	1200	90	105
<b>DSP 45-12AZ</b>	Standard diode	Phase leg	2x 1200	45	130
<b>DSP 45-16AZ</b>			2x 1600	45	130
➤ <b>DLA 100IM1200TZ</b>			1200	100	105
<b>CLA 60MT1200NTZ</b>	High Efficiency	Triac	1200	30	120
<b>CMA 50E1600TZ</b>	Standard Thyristor	Single	1600	50	110
➤ <b>CLA 100E1200TZ</b>			1200	100	105
<b>CNE 60E2200TZ</b>	High Voltage Thyristor		2200	60	80

Creepage  
pin/pin:  
pin/Cu  
mm  
For mo  
outline

## High Voltage TO-247HV and PLUS247HV packages

- ✓ improved pin spacing for high potential
- ✓ creepage distance pins to copper of backside: > 5.7 mm
- ✓ creepage distance between high voltage pins (collector/emitter or drain/source): > 7.0 mm

Type	Technology	$V_{CES} / V_{DSS}$ V	$I_{C25} / I_{D25}$ ( $I_{C110}$ ) A	$V_{CEsat}$ typ. V	w / Diode	$R_{DS(on)}$ max. $\Omega$	Fig. No.	Pa Outlin pag
<b>IXYH 8N250CHV</b>	XPT™ IGBT	2500	(8)	4.0		-	X014c	X014c
<b>IXYH 8N250CV1HV</b>			(8)	4.0	•	-		
<b>IXYH 12N250CHV</b>			(12)	4.5		-		
<b>IXYH 12N250CV1HV</b>			(12)	4.5	•	-		
<b>IXYH 16N250CV1HV</b>			(16)	4.0	•	-		
<b>IXYH 25N250CHV</b>			(25)	4.0		-		
<b>IXYX 25N250CV1HV</b>			(25)	4.0	•	-	X015c	
<b>IXYX 40N250CHV</b>			(40)	4.0		-		
<b>IXYH 30N450HV</b>	BiMOSFET	4500	(30)	3.9		-	X014c	X015c
<b>IXYX 40N450HV</b>			35	3.9		-	X015c	
<b>IXBH 10N300HV</b>		3000	34	2.8		-	X014c	
<b>IXBH 14N300HV</b>			38	2.7		-		
<b>IXBH 22N300HV</b>			60	2.7		-		
<b>IXBX 28N300HV</b>			62	2.7		-	X015c	
<b>IXBH 32N300HV</b>			(32)	2.8		-	X014c	
<b>IXBH 42N300HV</b>			(42)	2.5		-		
<b>IXBH 16N360HV</b>	3600	48	2.5		-	X014c		
<b>IXBH 20N360HV</b>		70	3.4		-			
<b>IXBX 50N360HV</b>		125	2.9		-	X015c		
<b>IXTH 02N450HV</b>	MOSFET	4500	0.2	-		625	X014c	
<b>IXTH 1N450HV</b>			1.0	-		80		
<b>IXTX 1R4N450HV</b>			1.4	-		40	X015c	



		V	A	V	$\omega$	$\Omega$		
IXTH 1N200P3HV	Polar 3 MOSFET	2000	1.0	-		40	X014c	X014c
IXTH 3N200P3HV			3	-		8		
IXTX 6N200P3HV			6	-		4	X015c	
IXTH 06N220P3HV		2200	0.6	-		80	X014c	
IXTH 1R8N220P3HV			1.8	-		21.5		
IXTH 05N250P3HV		2500	0.5	-		110	X014c	
IXTH 04N300P3HV		3000	0.4	-		190	X014c	X015c
IXTH 1N300P3HV			1.0	-		50		
IXTH 2N300P3HV			2	-		21		
IXTX 4N300P3HV			4	-		12.5	X015c	

## ISO247 package

- ✓ 3000V isolation
- ✓ Excellent thermal performance
- ✓ 100% mechanical fit to TO-247

Type	Technology	Configuration	$V_{RRM}$	$I_{DAV} / I_{TAV}$	@ $T_c$	Pa
➤ New			V	A	°C	Outli pag
<b>Diode</b>						
DSA 90C200HR	Schottky Diode	Common Cathode	200	2x 45	145	
DPF 30P600HR	HiPerFRED	Phase Leg	2x 600	30	130	
DMA 10P1200HR	Standard		2x 1200	10	145	
DMA 10P1600HR			2x 1600	10	145	
DMA 30P1600HR			2x 1600	30	105	
DMA 50P1200HR			2x 1200	50	105	
➤ DCG 10P1200HR	SiC Schottky Diode		Common Cathode	2x 1200	10	80
➤ DCG 17P1200HR		17			80	
➤ DCG 20C1200HR		Common Cathode	1200	2x 10	80	
➤ DCG 35C1200HR				2x 17	80	
<b>Thyristor</b>						
CLA 40E1200HR	High Efficiency	Single	1200	40	95	
CMA 40E1600HR	Standard		1600	40	90	
<b>Triac</b>						
CLA 40MT1200NHR	High Efficiency	Triac	1200	20	110	
CLA 60MT1200NHR				30	100	
CLA 80MT1200NHR				40	100	
CMA 60MT1600NHR	Standard		1600	30	90	
CMA 80MT1600NHR		40			95	

➤ New					typ.	max.	Outl pag
✧ under development			V	A	V	Ω	
<b>IGBT</b>							
✧ IXA 20IF1200HR	XPT™ IGBT	Copack	1200	33	1.8	-	X016c
✧ IXA 30IF1200HR					48	-	
✧ IXA 40IF1200HR					63	-	
➤ ITF 48IF1200HR	Fast Trench IGBT	Copack	1200	72	2.4	-	
<b>MOSFET</b>							
IXFJ 26N50P3	Polar3™ HiperFET™	Single	500	14	-	0.265	
IXFJ 80N25X3	X3-Class HiPerFET™	Single	250	44	-	0.018	
IXFJ 20N85X			850	9.5	-	0.36	
IXTJ 3N150	High Voltage MOSFET	Single	1500	2.3	-	8.00	
IXTJ 4N150				2.5	-	6.00	
IXTJ 6N150				3.0	-	3.85	

## TO-247-4L package

- ✓ separate driver source pin for optimized gate control
- ✓ reduced gate loop
- ✓ optimized for fast switching SiC MOSFETs

Part Type	V <sub>DSS</sub>	I <sub>D</sub> T <sub>C</sub> = 25°C	I <sub>D</sub> T <sub>C</sub> = 100°C	R <sub>DS(on)</sub> T <sub>J</sub> = 25°C mΩ (typ)	C <sub>ISS</sub> typ pF	Q <sub>g</sub> typ nC	R <sub>thJC</sub> K/W	Pa Out on pa
✧ Under Development	V	A	A	mΩ (typ)	pF	nC	K/W	
<b>SiC MOSFETs</b>								
✧ LSiC1MO120G0025	1200	100	70	25	4465	250	0.30	L014d
✧ LSiC1MO120G0040		65	50	40	2825	160	0.42	
✧ LSiC1MO120G0080		39	25	80	1825	95	0.70	
✧ LSiC1MO120G0120		27	18	120	1125	80	0.90	
✧ LSiC1MO120G0160		22	14	160	870	57	1.00	

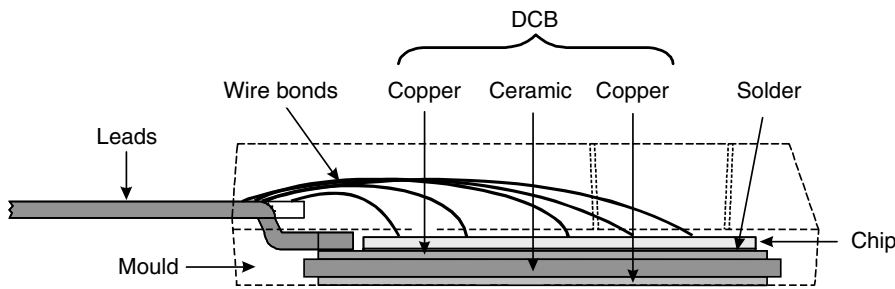
# Isolated Discrete Packages

ISOPLUS247™ is the DCB isolated version of the PLUS247™ package (TO-247 without a mounting hole). The design of this patented package is revolutionary: the silicon chip is soft soldered onto a Direct Copper Bond (DCB) substrate instead of the usual copper lead frame. The DCB ceramic, the same substrate material as used in the high power modules, not only provides high isolation capability (2500 V<sub>RMS</sub>) but also unbeatable low thermal resistance compared to conventional, externally mounted isolation materials.

## Advantages:

- Isolation capability from leads to backside 2500 V<sub>RMS</sub> – no external isolation foil needed
- Thermal resistance from Junction to Case only slightly higher as for non-isolated version
- Increased power- and temperature cycling capability
- DCB can be patterned like printed circuit boards – allowing special functions to be realized

## Package cross section



While the junction-to-case thermal resistance is higher than an equivalent, non-isolated device, what really matters is the total thermal resistance from junction-to-heatsink ( $R_{thJH}$ ). Comparing a device in ISOPLUS247™ to its companion in the non-isolated package with an external isolation foil, one can see that the overall  $R_{th}$  is now lower for the part in the already isolated package (see example).

Due to the matched thermal expansion coefficients of silicon and DCB ceramic, mechanical stress to the die and solder caused by power and temperature

cycling is reduced so that reliability is improved. Mounting is done with clips, which not only saves time but also guarantees constant pressure force over the whole lifetime of the assembly.

Parts in the ISOPLUS247™ housing can be identified by the letter "R" in the IXYS part number. Potentially all devices now encapsulated in TO-247, TO-264 and PLUS247™ housings can be molded in the ISOPLUS247™. There are already more than 100 different ISOPLUS247™

types available.

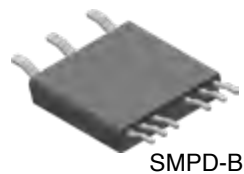
Another interesting feature is the ability to pattern the DCB like a printed circuit board. This allows special functions can be realized: the **series connection** of multiple chips within one package.

**ISOPLUS220™**, **ISOPLUS264™** are also available for the corresponding packages.

A larger version of this technology is medium power **ISOPLUS247™** has up to five terminal pins. It is possible to build up full diode bridge, se-leg transistor converter and boost converters within one isolated device.

**ISOPLUS-DIL™** 37.5 mm wide provides the largest area within the ISOPLUS™ family. It is available in 2 pin output configuration with plate carrier, 300 A RMS on one side and 10 pins on the opposite side in 12 pin configuration with 12 pins. The package is intended for different low voltage (< 200V) either as single switch or as the highest power density. ISOPLUS-DIL™ is ideal for the use in automotive

**ISOPLUS-SMPD™** is a variant of IXYS ISOPLUS™ family with an increased creepage distance between pins to DCB (> 10mm) pin (up to 7 mm).



## Example: ISOPLUS247™ compared to conventional isolated device

Type	Package	Isolation	$R_{thJC}$ K/W	$R_{thCK}$ K/W	Total K/W	Factor
IXFR 180N10	ISOPLUS247™	internal DCB	0.3	0.15	0.45	1
IXFX 180N10	PLUS247™	external foil	0.22	1.02	1.24	2.8

ISOPLUS-SMPD™ package is the key to making designer's life easier as it provides a device featuring:

- 2.5 kV isolation to heatsink (UL rating)
- low thermal impedance for good cooling by only 0.38 mm thick ceramic
- more than 4 mm creepage distance from pin to mounting surface
- up to 7 mm creepage from pin to pin (depending on package type)
- high integration such as phase leg or 3~ input rectifier in one package
- automatic mounting by pick & place possible (packaged in Tape & Reel)

This enables the engineer to make flat designs with a concept of distributed power dissipation. The latter is a combination of heatsinks with a thinner base reducing weight and cost.

The new ISOPLUS-SMPD™ package is small and light weight with two rows of pins, resembling an SMD assembly to the board in standard SMD pick & place equipment. Together with other standard SMD components, ISOPLUS-SMPD™ devices are available in Tape & Reel or in a Blister Tray option.

The complete board including the power components can run through a standard SMD soldering process.

Two types are available, ISOPLUS-SMPD™-B (Fig. 1) is optimized for implementing more complex topologies like phase-legs, buck and boost chopper as well as single – or 3-phase input rectifier bridges, which can be used as building blocks for inverters. ISOPLUS-SMPD™-X (Fig. 2) with a larger number of pins on either side allows the integration of large dies for very high current capability up to 600 A per unit.



Fig. 1 SMPD-B

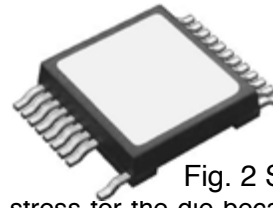


Fig. 2 SMPD-X

Both designs benefit from the ISOPLUS™ construction with low mechanical stress for the die because of the close match in the thermal expansion coefficient of die and DCB resulting in long term reliability.

As normal these devices require a layer of thermal interface material (heat transfer paste) to be applied to the backside of the power devices (or to the heat sink surface). Then the devices can be mounted together with the PCB. These power devices need to be pressed down to the heat sink to ensure low thermal resistances. Pressure can be applied in different ways, for example using a mounting clip or a post, applying pressure directly to the power device (see Fig. 3 and Fig. 4).

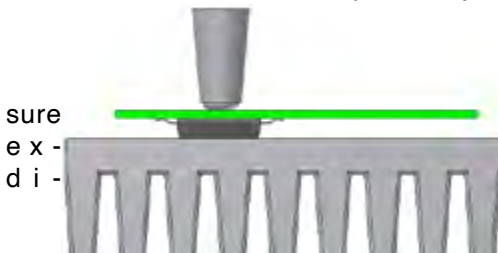


Fig. 3 Mounting example

The high package flexibility allows to offer

- high current single Trench MOSFET
- high current single IGBT
- buck and boost converters
- phase-legs with desaturation diodes for switch control
- 1~ or 3~ input rectifiers
- multiple boost stages
- cascade configurations

Customer specific designs are feasible.

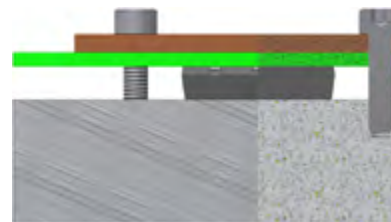
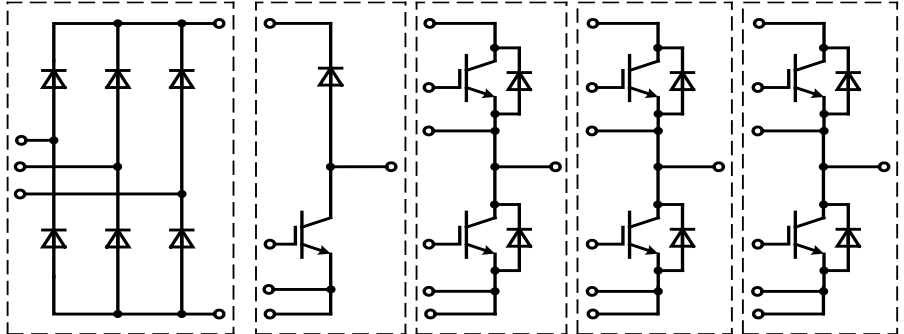


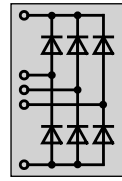
Fig. 4 Mounting example

- 2500 V UL rated electrical isolation
- low thermal resistance
- increased power & temperature cycling
- saves space

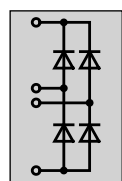
- replaces multiple discretes
- reduces parasitic inductance & c
- reduces EMI
- heat spreading



**Rectifier**

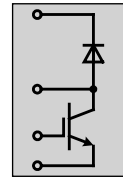


**Line Rectifier**  
DMA 90U1800LB  
**Sonic-FRD**  
DHG 60U1200LB

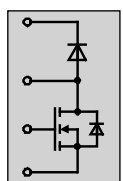


**Line Rectifier**  
DLA 100B1200LB  
DLA 100B800LB  
**Fast Rectifier**  
DPG 60B600LB HiPer-FRED  
DCG 20B650LB SiC  
DHG 40B1200LB Sonic  
DCG 20B1200LB SiC

**Brake & Boost**

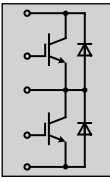


**XPT-IGBT**  
IXA 20RG1200DHGLB  
IXA 30RG1200DHGLB  
IXA 40RG1200DHGLB

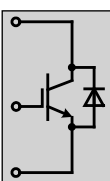


**CoolMOS™ Boost**  
MKE 38RK600DFELB & FRED Diode  
MKG 40RK600LB & Sonic Diode  
MKH 17RP650DCGLB Dual Boost & SiC

**Inverter**



**XPT-IGBT**  
IXA 20PG1200D  
IXA 30PG1200D  
IXA 40PG1200D  
ITF 40PF1200D



**XPT-IGBT**  
MMIX 1X100N60  
MMIX 1X200N60  
MMIX 1Y82N120  
MMIX 1Y100N120  
IXG 70IF1200



<b>MMIX 1F33N055T2</b>	A Trench2	55	330	1.5	330
<b>MMIX 1F520N075T2</b>	A Trench2 HiPerFET™	75	500	1.6	545
<b>MMIX 1F420N10T</b>	A Trench HiPerFET™	100	334	2.6	670
<b>MMIX 1F360N15T2</b>	A Trench2 HiPerFET™	150	235	4.4	715
<b>MMIX 1F230N20T</b>	A Trench HiPerFET™	200	156	8.3	358
<b>MMIX 1F180N25T</b>	A Trench HiPerFET™	250	132	13	364
<b>MMIX 1F160N30T</b>	A Trench HiPerFET™	300	102	20	376
<b>MMIX 1F210N30P3</b>	A Polar3 HiPerFET™		108	16	268
<b>MMIX 1F132N50P3</b>	A Polar3 HiPerFET™	500	63	43	267
<b>MMIX 1F44N100Q3</b>	A Q3 HiPerFET™	1000	30	245	264
<b>MMIX 1F40N110P</b>	A Polar HiPerFET™	1100	24	290	310

### BUCK / BOOST

<b>MKE 38RK600DFELB</b>	C MOSFET <sup>Ⓞ</sup> CP & FRED	600	50	45	150	X030a
➤ <b>MXB 40RK600DFELB</b>	C X2 Class & FRED		68	38	140	
◇ <b>MKH 17RP650DCGLB</b>	D Dual MOSFET <sup>Ⓞ</sup> CFD & SiC	650	2x 22	110	118	

### PHASE-LEG

<b>MMIX 2F150N20T</b>	B Trench™ HiPerFET™	200	84	16.5	177	X031a
<b>MMIX 2F94N30T</b>	B Trench™ HiPerFET™	300	52	40	190	
<b>MMIX 2F60N50P3</b>	B Trench™ HiPerFET™	500	30	110	96	
<b>MKE 38P600LB</b>	B MOSFET <sup>Ⓞ</sup> CP	600	50	40	150	X030a
➤ <b>MXB 40P650LB</b>	B X2 Class	650	68	38	140	
➤ <b>MCB 20P1200LB</b>	B SiC	1200	22	98 (80 typ.)	62	
➤ <b>MCB 30P1200LB</b>	B SiC		37	52 (40 typ.)	115	
➤ <b>MCB 40P1200LB</b>	B SiC		58	34 (25 typ.)	161	
◇ <b>MCB 60P1200TLB</b>	F SiC & NTC		77	34 (25 typ.)	161	
◇ <b>MCB 35P1700TLB</b>	F SiC & NTC	1700	35	70 (45 typ.)	188	

### SINGLE with Current and Temperature Sense

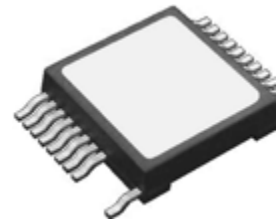
<b>MMIX 1T132N50P3</b>	E Polar3™	500	63	43	267	X031a
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Ⓞ Powered by Infineon CoolMOS™ superjunction bare die

SMPD-B X030a

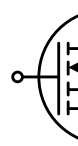


SMPD-X X031a



Outline drawings on pages O-36...O-59

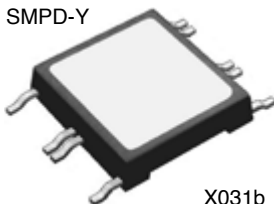
See data sheet for pin arrangement



<b>MMIX 1X100N60B3H1</b>	B	XPT & Sonic		145	1.50	2.80	X031a
<b>MMIX 1X200N60B3H1</b>	B	XPT & Sonic		175	1.40	3.45	
<b>MMIX 1X340N65B4</b>	A	XPT™ IGBT GenX4™		450	1.40	2.54	
<b>MMIX 1Y82N120C3H1</b>	B	XPT fast & Sonic	1200	78	2.90	(3.70)	X030a
<b>MMIX 1Y100N120C3H1</b>	B	XPT fast & Sonic		92	2.90	3.55	
◇ <b>ITG 100IF1200LB</b>	B	Trench & Sonic2		150	1.65	9.2	X030a
<b>MMIX 1G120N120A3V1</b>	B	GenX3 IGBT & Sonic		110	1.85	58	X031a
<b>MMIX 1G75N250</b>	A	IGBT for cap discharge	2500	110	2.50	-	X031a
➤ <b>MMIX 1B15N300C</b>	B	BiMOSFET™	3000	37	4.70	-	
➤ <b>MMIX 1B20N300C</b>	B	BiMOSFET™		50	4.50	-	
<b>DUAL</b>							
◇ <b>ITG 100X1200LB</b>	2x A 2 x Trench		1200	2x 85	1.65	4.5	X030a
◇ <b>ITG 100XF1200LB</b>	2x B 2 x Trench & Sonic2			2x 85	1.65	4.5	
<b>BOOST</b>							
<b>IXA 20RG1200DHGLB</b>	E	XPT & Sonic	1200	32	1.80	1.7	X030a
<b>IXA 30RG1200DHGLB</b>	E	XPT & Sonic		43	1.90	3.0	
<b>IXA 40RG1200DHGLB</b>	E	XPT & Sonic		63	1.85	4.1	
<b>PHASE-LEG</b>							
<b>IXA 20PG1200DHGLB</b>	C	XPT & Sonic	1200	32	1.80	1.7	X030a
<b>IXA 30PG1200DHGLB</b>	C	XPT & Sonic		43	1.90	3.0	
<b>IXA 40PG1200DHGLB</b>	C	XPT & Sonic		63	1.85	4.1	
➤ <b>ITF 40PF1200DHGTLB</b>	D	Trench IGBT & Sonic & NTC		56	2.05	2.6	X031b
◇ <b>ITF 40PG1200DHGLB</b>	C	Trench IGBT & Sonic		56	2.05	2.6	
<b>FULL-BRIDGE</b>							
<b>MMIX 4G20N250</b>	F	IGBT for cap discharge	2500	23	3.1 max	-	X031b



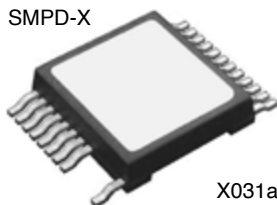
SMPD-Y



X031b

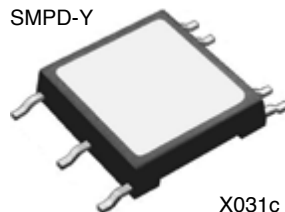
Outline drawings on  
pages O-36...O-59

SMPD-X



X031a

SMPD-Y



X031c

<b>DSA 120X200LB</b>	A Schottky	200	2x 60	150	
◇ <b>DSA 240X200LB</b>	A Schottky		2x 120		
◇ <b>DCG 40X1200LB</b>	A SiC	1200	2x 14.5	80	
<b>1~ BRIDGE</b>					
<b>DPG 60B600LB</b>	B HiPerFRED	600	60	110	X030a
➤ <b>DCG 20B650LB</b>	B SiC	650	21	80	
<b>DLA 100B800LB</b> <sup>1)</sup>	B Rectifier	800	124	80	
➤ <b>DMA 120B800LB</b>	B Rectifier		130	90	
<b>DLA 100B1200LB</b>	B Rectifier	1200	124	80	
➤ <b>DHG 40B1200LB</b>	B Sonic		34	80	
◇ <b>DCG 20B1200LB</b>	B SiC		18	80	
<b>3~ BRIDGE</b>					
<b>DHG 60U1200LB</b>	C Sonic	1200	62	80	X030a
<b>DMA 90U1800LB</b>	C Rectifier	1800	99	80	

<sup>1)</sup> AECQ qualified

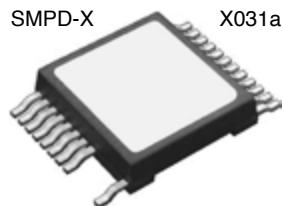
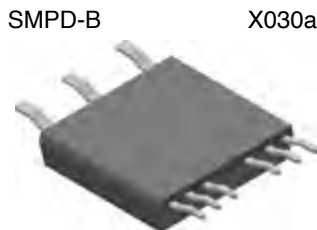
## Thyristors, Triacs

Type	Circuit diagram / Bipolar type		$V_{RRM}$	$I_{TAV}$	@ $T_C$	Fig. No.
◇ under development			V	A	°C	
<b>DUAL</b>						
◇ <b>CLA 60MU1200LB</b>	2x D	Triac	1200	2x 30	100	X030a
<b>PHASE-LEG</b>						
◇ <b>CMA 50P1600LB</b>	E	Thyristor	2x 1600	50	90	X030a

## MOS-Gated Thyristors

Type	$V_{DM}$	$I_{TSM}$ 1μs $T_C = 25°C$	$I_{TSM}$ 10μs $T_C = 25°C$	$r_T$ typ.	$V_T$ max.	$Q_{g(on)}$ typ.	$t_{ri}$ typ. $T_C = 25°C$	$V_{GK(th)}$ max.	Circuit Diagram	Fig. No.
	V	kA	kA	mΩ	V	nC	ns	V		
<b>MMJX 1H40N150</b>	1500	15.5	6.4	1.2	6	99	100	5	F	X032
<b>MMIX 1H60N150V1</b>	1500	32.0	11.8	1.2	6	180	100	5	G	X031a

Outline drawings on pages O-36...O-59



See data sheet for pin arrangement

## Six-Pack

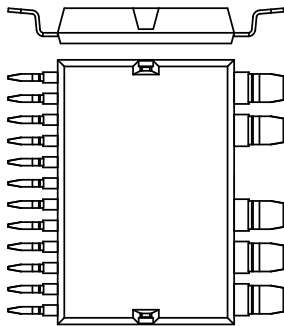
➤ <b>MTC 120W55GC</b>	55	160	120	2.2	7.0	110	
<b>MTI 85W100GC</b>	100	110	83	3.2	6.3	90	

## 3x Phase Leg

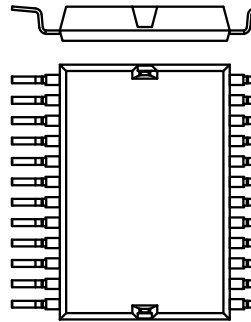
➤ <b>MTC 120WX55GD</b>	55	160	120	2.2	7.0	110	
✧ <b>MTC 120WX75GD</b>	75	160	120	2.2	10.5	178	
<b>MTI 200WX75GD</b>		265	200	1.1	10.8	155	
✧ <b>MTI 85WX100GD</b>	100	110	83	3.2	6.3	90	
<b>MTI 145WX100GD</b>		190	145	1.7	11.0	155	
<b>GMM 3x60-015X2</b>	150	50	38	19.0	5.8	97	

Customized configurations possible

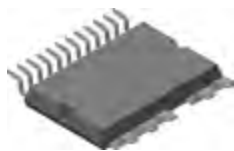
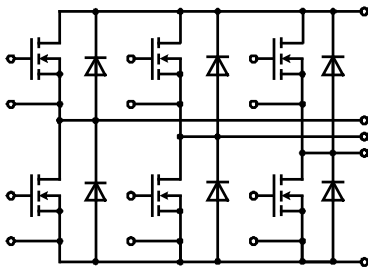
Outline drawing  
pages O-36



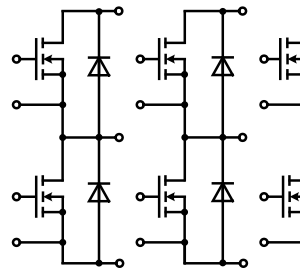
MTI...W..GC  
SURFACE MOUNT DEVICE



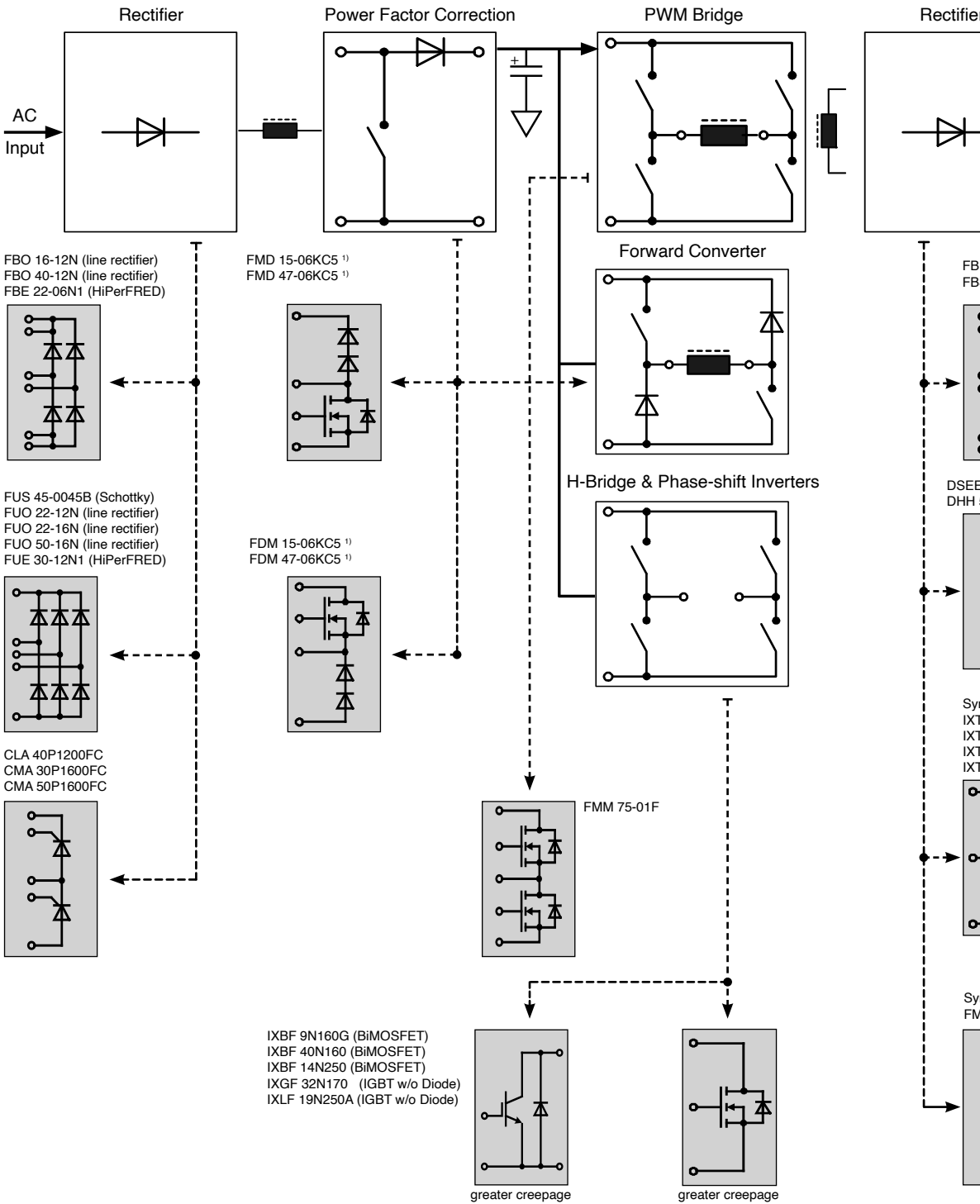
MTI...WX...GD; MTC...X...TGD  
SURFACE MOUNT DEVICE



X026c ISOPLUS-DIL™



X026d ISOPLUS-DIL™



<sup>1)</sup> Powered by Infineon CoolMOS™ superjunction bare die

See application note „Combining the features of modules and discretives in a new Power Semiconductor“ for general description of the packaging technologies.

See alphanumeric index for the page number of the particular product.

<b>IXKF 40N60SCD1</b>		D MOSFET <sup>®</sup> & serial Schottky & HiPerFRED free wheeling Diode	600	38	25	60	X024a
<b>IXTF 6N200P3</b>		A Polar3™ High Voltage MOSFET	2000	4	(2.3)	≤ (4.2)	X024c
<b>IXTF 2N300P3</b>		A Polar3™ High Voltage MOSFET	3000	1.6	(0.9)	≤ (21)	
<b>IXTF 1N250</b>		A High Voltage MOSFET	2500	1	na	≤ (40)	
<b>IXTF 1R4N450</b>		A High Voltage MOSFET	4500	1.4	na	≤ (40)	
<b>IXTF 02N450</b>		A High Voltage MOSFET		0.2	na	≤ (625)	
<b>IXTF 1N450</b>		A High Voltage MOSFET		0.9	na	≤ (80)	
<b>FMD 15-06KC5</b> ○ <b>FMD 40-06KC</b>	Boost	C MOSFET <sup>®</sup> & HiPerDynFRED C MOSFET <sup>®</sup> & HiPerDynFRED	600	15	11	150 60	X024a
○ <b>FMM 75-01F</b>	Phase leg	B HiPerFET	100	75	50	18	
<b>FMP 76-010T *</b>		G Trench™ P & N-Channel	±100	-54 / 62	na	24 / 11	
<b>FMP 36-015P *</b>		G Polar™ P & N-Channel	±150	-22 / 36	na	110 / 40	
<b>FMP 26-02P *</b>		G Polar™ P & N-Channel	±200	-17 / 26	na	170 / 60	
<b>FMM 60-02TF</b>		B Trench HiPerFET	200	33	na	32	
<b>FMM 50-025TF</b>		B Trench HiPerFET	250	30	na	≤ 60	
<b>FMM 22-05PF</b>		B PolarHV™ HiPerFET	500	13	na	≤ 270	
<b>FMM 22-06PF</b>		B PolarHV™ HiPerFET	600	12	na	≤ 350	

\* high side switch: p-channel; low side switch: n-channel

## IGBTs / BiMOSFETs

Type	Configu-ration	Circuit diagram / Technology	$V_{CES}$	$I_{C25}$	$I_{C90/110}$	$V_{CE(sat)}$ typ.	Fig. No.
			V	$T_C = 25^\circ C$ A	$T_C = 90^\circ C$ (110°C) A	$T_C = 25^\circ C$ V	
<b>IXYF 30N170CV1</b> <b>IXGF 32N170</b>	Single	F High voltage XPT™ IGBT	1700	36	(20)	3.5	X024c
		E High voltage IGBT		44	(19)	2.7	
<b>IXGF 20N250</b> <b>IXGF 25N250</b> <b>IXLF 19N250A</b> <b>IXYF 16N250CV1</b> <b>IXBF 14N300</b> <b>IXBF 22N300</b> <b>IXBF 32N300</b> <b>IXBF 28N300</b> <b>IXBF 42N300</b> <b>IXBF 55N300</b>	Single	E High voltage IGBT	2500	23	14	≤ 3.1	X024c
		E High voltage IGBT		30	(15)	≤ 2.9	
		E High voltage IGBT		32	19	3.2	
		F High voltage XPT™ IGBT		26	(14)	3.3	
		F BiMOSFET		28	14	2.2	
		F BiMOSFET		38	22	2.2	
		F BiMOSFET		40	22	2.8	
		F BiMOSFET		50	28	2.3	
		F BiMOSFET		60	(24)	2.5	
		F BiMOSFET		86	(34)	2.7	
<b>IXBF 16N360</b> <b>IXBF 20N360</b> <b>IXBF 50N360</b>	Single	F BiMOSFET	3600	26	16	2.5	X024c
		F BiMOSFET		45	(18)	2.9	
		F BiMOSFET		70	(28)	2.4	
<b>IXYF 30N450</b> <b>IXYF 40N450</b>	Single	E High voltage XPT™ IGBT	4500	23	(17)	3.2	X024c
		E High voltage XPT™ IGBT		60	(32)	3.2	



CS 20-23M01F	Phase leg	M Thyristor	2x 1200	40	X024c
CLA 40P1200FC		H HiPerFRED		55	X024b
DSEE 55-24N1F		M Thyristor	2x 1600	30	X024a
CMA 30P1600FC		M Thyristor		50	
CMA 50P1600FC		H Sonic-FRD	2x 1800	50	X024b
DHH 55-36N1F	1-Phase bridge	J HiPerFRED	600	20	X024a
FBE 22-06N1		I Si-Carbide	1200	10	
FBS 10-12SC		J Rectifier		22	
FBO 16-12N		J Rectifier		40	
FBO 40-12N					
○ FUS 45-0045B	3-Phase bridge	L Schottky	45	45	
FUO 22-12N		K Rectifier	1200	27	
FUE 30-12N1		K HiPerFRED		30	
FUO 22-16N		K Rectifier	1600	27	
FUO 50-16N		K Rectifier		50	

Outline drawings on pages O-36...O-59

X024a  
ISOPLUS\_i4pac(5)



X024b  
ISOPLUS\_i4pac(3sym)



X024c  
ISOPLUS\_4pac(3asym)



X024e  
ISOPLUS



vice versa. Low switching speed versions are often combined with low  $V_{CE(sat)}$  for low frequency applications. High switching speed versions tend to have higher  $V_{CE(sat)}$ .

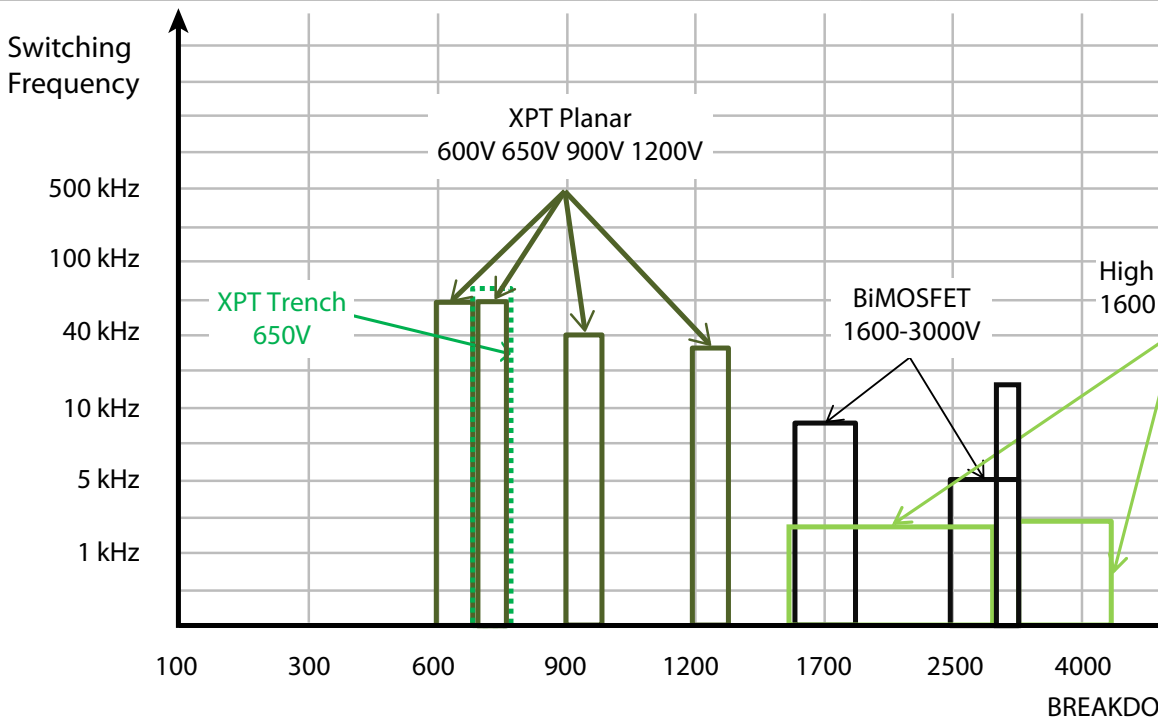
**Temperature Coefficient** – this determines the device  $V_{CE(sat)}$  trend against temperature. A device is said to have a positive temperature coefficient if the  $V_{CE(sat)}$  rises when the junction temperature increases. Likewise a negative temperature coefficient is when the device's  $V_{CE(sat)}$  reduces when the junction temperature increases. A positive temperature coefficient device can be operated in parallel. A negative temperature coefficient device cannot be operated in parallel but may have higher temperatures.

**Safe Operating Area (SOA)** – the ability for an IGBT to sustain voltage and current in shorter time scales without reverse bias (FBSOA) is SOA when turning the IGBT into the on-state. Reverse Bias (RBSOA) is SOA when turning to the off-state. Circuit SOA (SCSOA) is an indication of ability to withstand surge currents in operation.

**Avalanche Rated** – the ruggedness of the IGBT in the avalanche region. An avalanche rated device is far more alternative devices during operation and is an indication of reliability.

### IGBT technology

IGBT Characteristic	Non-Punch Through (NPT)	XPT Planar	XPT GenX3		XPT Trench		BiMOSFET (RC IGBT)			
Discrete Part No. Prefix	IXD..	IXA..	IXY..		IXX..		IXB..			
Discrete Part No. Suffix	NONE	NONE	B3	C3	B4	C4	NONE	A (1700V)	C	NONE
$V_{CE(SAT)}$	MEDIUM	MEDIUM	MED.	HIGH	LOW	MED.	LOW	MED.	HIGH	LOW
Switching Speed	MEDIUM	MEDIUM	MED.	HIGH	MED.	HIGH	LOW	MED.	MED.	LOW
Temperature Coefficient	POSITIVE	POSITIVE	POSITIVE		POSITIVE		POSITIVE			
Safe Operating Area	SCSOA RBSOA FBSOA	SCSOA RBSOA FBSOA	SCSOA RBSOA FBSOA		SCSOA RBSOA		SCSOA RBSOA			
Avalanche Rated	YES	YES	YES		NO		NO			
Voltage Range	600-1700V	600-1200V	650 / 650 / 900 /1200V		650V		1600-3000V			



Drive and solar inverters.

### **Xtreme Light Punch Through (X2PT™) Planar IGBTs**

are the second generation of XPT IGBTs. Features are 10  $\mu$ s short circuit capability, 175°C max junction temperature, further reduced  $V_{CE(sat)}$  and lower turn-off losses ( $E_{off}$ ) resulting in a competitive performance to later generations at reduced  $R_{th}$ . Thus they are ideally suited for Motor Drive inverters.

### **Xtreme Light Punch Through (XPT™) Trench IGBTs**

are the latest development from IXYS starting at 650 V. This range features not only a low  $V_{CE(sat)}$  and low switching losses making the platform attractive for fast switching applications whilst retaining good thermal performance, a positive temperature coefficient. Either discrete or co-packaged with ultrafast soft recovery Sonic diodes, IGBTs have industry leading efficiency at medium to high switching frequency.

### **1600 V & 1700 V Low Sat IGBTs**

These rugged High Voltage NPT devices are designed for capacitor discharge applications. featuring high voltage, high power density & high peak current capability. These High Voltage NPT IGBTs enable the designer to replace costly, lower performance solutions such as thyristors or series connected MOSFETs or IGBTs types used in applications above 1200 V. Offered as co-packs, they provide a more complete solution for power conversion.

### **1600 V & 1700 V High Speed IGBTs**

This family of 1600/1700 V IGBTs are rugged NPT devices targeted for high voltage applications requiring high short circuit withstand capability. They are particularly suitable for high voltage switching applications. In addition, its fast switching "A" version 1700 V NPT IGBTs in co-pack and phase-leg configurations for PWM applications with switching frequencies upwards of 50 kHz.

### **Very High Voltage (2500 V - 4000 V) IGBTs**

IXYS' offers a unique portfolio of discrete 2500 V, 3000 V and 4000 V VHV IGBTs with collector current ratings from 2 A to 75 A ( $T_c = 110^\circ\text{C}$ ). The voltage and current ratings of these devices, coupled with advanced gate-control, allow the system designer to greatly reduce the complexity of many high voltage systems. These IGBTs enable the use of a single device in systems whose circuits previously used multiple, high voltage switches.

### **B-series (BiMOSFET) IGBTs**

IXYS BiMOSFETs are devices which have combined strengths of MOSFETs and IGBTs. BiMOSFETs feature a monolithic intrinsic diode which can reduce die count in many applications.



## Ignition IGBTs

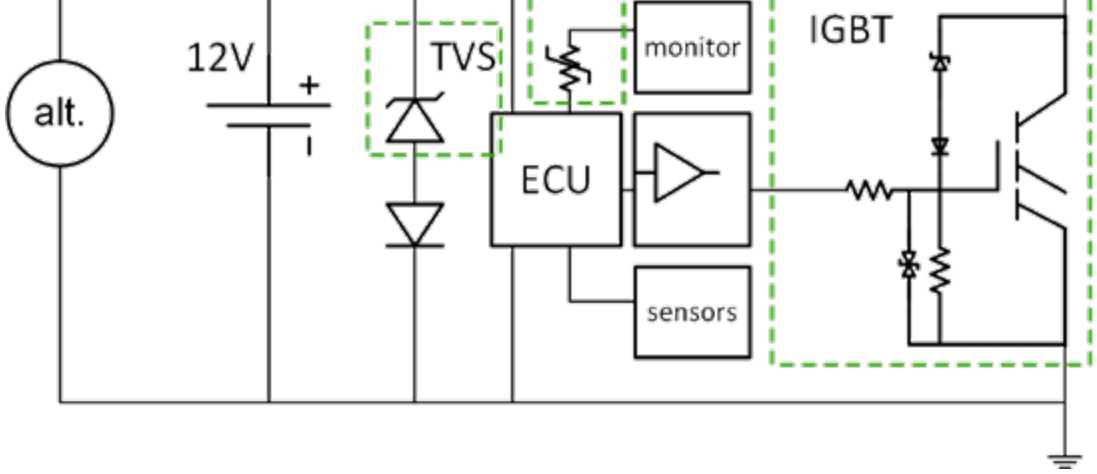
Part Number	$BV_{CES}$ @ $I_C$ V		$I_{Cmax}$ A		$V_{CE(sat)}$ V		$E_{AS}$ mJ		Fig. No.	Pac Outline pages
NGD8205ANT4G	350		20		1.30		250		L004	L004
NGD18N40ACLBT4G	400		18		1.80		400			
NGD8201ANT4G	400		20		1.30		250			
NGD8201BNT4G	400		20		1.50		435			
NGD15N41ACLT4G	410		15		1.90		250			
NGD8209NT4G	410		12		1.80		274			
NGD18N45CLBT4G	450		18		2.07		360			
NGB8207ABNT4G	365		20		1.75		500		L011b	L011b
NGB8206ANTF4G	350		20		1.30		250			
NGB8207BNT4G	365		20		1.50		500			
NGB8204ANT4G	400		18		1.80		400			
NGB8202ANT4G	400		20		1.30		250			
NGB18N40ACLBT4G	400		18		1.80		400			
NGB15N41ACLT4G	410		15		1.90		250			
NGB8245NT4G	450		20		1.10		158			

## TVS Diodes for Ignition Applications

Part Number	$V_R$ Range		$P_{PP}$ 10x1000 $\mu$ s V	$P_{PP}$ 10x15ms mJ	Fig. No.	Pac Outline pages
	min. V	max. V				
TPSMB	5.8	468	600	2200 load dump	L003a	L003a/b
TPSMB-VR	6.5	150	600		L003b	
TPSMC	10.2	77.8	1500			
TPSMD	10.0	85	3000			
SLD8S	12.0	57	7000		L007	L007

## Resettable PTCs for Ignition Applications

Part Number	Current @ 0°C		Current @ 25°C		Current @ 60°C		Time to Trip max. s	Resistance @ 25°C		Tripped State Power Dissipation max. W	Fig. No.	Pac Out pag
	HOLD	TRIP	HOLD	TRIP	HOLD	TRIP		min.	max.			
	A	A	A	A	A	A		$\Omega$	$\Omega$			
nanoASMD016F-2	0.18	0.7	0.16	0.45	0.012	0.028	0.3	1.1	5	0.5	L008	L008



## Fuses for Ignition Applications

Part Number	Current	Voltage max.	Resistance	Melting $I^2t$	Voltage Drop at Rated Current	Dissipa- tion at Rated Current	Fig. No.	Pa Outli pag
440A Series	A	V	$\Omega$	A <sup>2</sup> s	V	W		
0440 005.WRA	5	32	12	4.761	0.0654	0.327	L008	L008
0440 007.WRA	7		7.53	8.464	0.0696	0.487		
0440 008.WRA	8		6.34	12.95	0.0655	0.524		

### B3 Class (5-30 kHz switching)

<b>IXXQ 30N60B3M</b>	600	33	19	1.85	180	0.70	1.660				90	X017c	X005a
<b>IXXH 30N60B3</b>		60	30	1.85	180	0.70	0.550				270	X014a	
<b>IXXH 30N60B3D1</b>		60	30	1.85	180	0.70	0.550	•	30	0.90	270	X014a	
<b>IXXA 50N60B3</b>		120	50	1.80	190	1.20	0.250				600	X011b	
<b>IXXH 50N60B3</b>		120	50	1.80	190	1.20	0.250				600	X014a	
<b>IXXH 50N60B3D1</b>		120	50	1.80	190	1.20	0.250	•	30	0.90	600	X014a	
<b>IXXP 50N60B3</b>		120	50	1.80	190	1.20	0.250				600	X005a	
<b>IXXR 100N60B3H1</b>		145	68	1.80	200	2.80	0.310	•	-	0.62	400	X016a	X011b
<b>IXXH 75N60B3</b>		160	75	1.85	170	2.20	0.200				750	X014a	
<b>IXXH 75N60B3D1</b>		160	75	1.85	170	2.20	0.200	•	30	0.90	750	X014a	
<b>IXXN 100N60B3H1</b>		170	100 (90°C)	1.80	200	2.80	0.250	•	50	0.42	500	X027a	
<b>IXXK 100N60B3H1</b>		200	100 (100°C)	1.80	200	2.80	0.180	•	65	0.30	695	X020a	
<b>IXXN 200N60B3H1</b>		200	98	1.70	215	3.45	0.160	•	30	0.70	780	X027a	
<b>IXXX 100N60B3H1</b>		200	100 (100°C)	1.80	200	2.80	0.180	•	65	0.30	695	X015a	X014a
<b>IXXH 100N60B3</b>		220	100	1.80	200	2.80	0.180				830	X014a	
<b>IXXN 200N60B3</b>		280	160	1.70	215	3.45	0.160				940	X027a	
<b>IXXK 200N60B3</b>		380	200	1.70	215	3.45	0.092				1630	X020a	
<b>IXXX 200N60B3</b>		380	200	1.70	215	3.45	0.092				1630	X015a	
<b>IXXK 300N60B3</b>		550	300	1.60	200	3.70	0.065				2300	X020a	
<b>IXXX 300N60B3</b>		550	300	1.60	200	3.70	0.065				2300	X015a	

### C3 Class (20-60 kHz switching)

<b>IXXH 30N60C3</b>	600	60	30	2.20	32	0.40	0.550				270	X014a	X015a
<b>IXXH 30N60C3D1</b>		60	30	2.20	78	0.40	0.550	•	30	0.90	270	X014a	
<b>IXXH 50N60C3</b>		100	50	2.30	90	0.48	0.250				600	X014a	
<b>IXXH 50N60C3D1</b>		100	50	2.30	90	0.48	0.250	•	30	0.90	600	X014a	
<b>IXXH 75N60C3</b>		150	75	2.30	80	1.07	0.200				750	X014a	
<b>IXXH 75N60C3D1</b>		150	75	2.30	80	1.07	0.200	•	30	0.90	750	X014a	
<b>IXXK 100N60C3H1</b>		170	100 (90°C)	2.20	115	1.40	0.180	•	65	0.30	695	X020a	
<b>IXXX 100N60C3H1</b>	170	100 (90°C)	2.20	115	1.40	0.180	•	65	0.30	695	X015a	X016a	
<b>IXXH 100N60C3</b>	190	100	2.20	115	1.40	0.180				830	X014a		
<b>IXXN 200N60C3H1</b>	200	98	2.10	90	2.10	0.160	•	30	0.70	780	X027a		
<b>IXXK 200N60C3</b>	340	200	2.10	90	2.10	0.092				1630	X020a		
<b>IXXX 200N60C3</b>	340	200	2.10	90	2.10	0.092				1630	X015a		
<b>IXXK 300N60C3</b>	510	300	2.00	90	2.35	0.065				2300	X020a		
<b>IXXX 300N60C3</b>	510	300	2.00	90	2.35	0.065				2300	X015a		

X027a  
227B



SOT-

miniBLOC

X020a TO-264



X017c



IXYN 100N65A3	650	170	100	1.80	160	2.40	0.25			600	X027a	X005a	
➤ IXYH 100N65A3		240	100	1.80	225	3.70	0.18			470	X014a		
➤ IXYN 300N65A3		470	300	1.60	175	7.30	0.10			1500	X027a		
➤ IXYK 300N65A3		600	300	1.60	175	7.30	0.065			2300	X020a		
➤ IXYX 300N65A3		600	300	1.60	175	7.30	0.065			2300	X015a		
<b>B3 Class (10-30 kHz switching)</b>													
IXYP 10N65B3D1	650	32	19	1.95	116	0.36	0.94	•	9	2.30	160	X005a	X011b
IXYA 20N65B3		58	20	2.10	147	0.76	0.65				230	X011b	
IXYH 20N65B3		58	20	2.10	147	0.76	0.65				230	X014a	
IXYP 20N65B3		58	20	2.10	147	0.76	0.65				230	X005a	
IXYP 20N65B3D1		58	20	2.10	147	0.76	0.65	•	23	1.85	230	X005a	
IXYQ 30N65B3D1		70	30	2.10	93	1.00	0.55	•	50	0.60	270	X017a	X011c
IXYH 30N65B3D1		70	30	2.10	93	1.00	0.55	•	50	0.60	270	X014a	
IXYH 40N65B3		86	40	2.00	174	1.15	0.50				300	X014a	
IXYQ 40N65B3D1		86	40	2.00	174	1.15	0.50	•	50	0.60	300	X017a	
IXYH 40N65B3D1		86	40	2.00	174	1.15	0.50	•	50	0.60	300	X014a	
IXYN 100N65B3D1		185	100	1.85	160	2.16	0.25	•	67	0.40	600	X027a	X014a
IXYH 100N65B3		225	100	1.85	160	2.16	0.18				830	X014a	
IXYK 100N65B3D1		225	100	1.85	160	2.16	0.18	•	67	0.36	830	X020a	
IXYX 100N65B3D1		225	100	1.85	160	2.16	0.18	•	67	0.36	830	X015a	
IXYN 120N65B3D1		250	120	1.90	196	2.20	0.18	•	86	0.38	830	X027a	
IXYH 120N65B3		340	120	1.90	196	2.20	0.11					X014a	
IXYK 200N65B3		410	200	1.70	230	5.60	0.096					X020a	
IXYX 200N65B3		410	200	1.70	230	5.60	0.096					X015a	X015a
<b>C3 Class (20-60 kHz switching)</b>													
IXYP 10N65C3	650	30	10	2.50	38	0.15	0.94				160	X005a	
IXYP 10N65C3D1		30	10	2.50	38	0.15	0.94	•	23	1.85	160	X005a	
IXYA 15N65C3D1		38	15	2.50	42	0.24	0.75	•	23	1.85	200	X011b	
IXYP 15N65C3		38	15	2.50	42	0.24	0.75				200	X005a	
IXYP 15N65C3D1		38	15	2.50	42	0.24	0.75	•	23	1.85	200	X005a	X017a
IXYA 20N65C3		50	20	2.50	36	0.40	0.65				230	X011b	
IXYA 20N65C3D1		50	20	2.50	36	0.40	0.65	•	18	1.85	200	X011b	
IXYH 20N65C3		50	20	2.50	36	0.40	0.65				230	X014a	
IXYP 20N65C3D1		50	20	2.50	36	0.40	0.65	•	18	1.85	200	X005a	
IXYH 30N65C3H1		60	30	2.70	30	0.41	0.55	•	29	0.80	270	X014a	
IXYK 30N65C3		60	30	2.70	30	0.41	0.55				270	X014a	
IXYT 30N65C3H1HV		60	30	2.70	30	0.41	0.55	•	29	0.80	270	X019a	X019a
IXYP 30N65C3		60	30	2.70	30	0.41	0.55				270	X005a	
IXYQ 40N65C3D1		80	40	2.35	30	0.53	0.50	•	50	0.60	300	X017a	
IXYH 40N65C3		80	40	2.35	30	0.53	0.50				300	X014a	
IXYH 40N65C3H1		80	40	2.35	80	0.46	0.50	•	40	0.60	300	X014a	
IXYH 40N65C3D1		80	40	2.35	30	0.53	0.50	•	50	0.60	300	X014a	
IXYH 50N65C3H1		130	50	2.10	42	0.56	0.25	•	40	0.60	600	X014a	X020a
IXYP 50N65C3		132	50	2.10	32	0.70	0.25				600	X005a	
IXYH 50N65C3D1		132	50	2.10	32	0.70	0.25	•	50	0.60	600	X014a	
IXYH 50N65C3		132	50	2.10	32	0.70	0.25				600	X014a	
IXYA 50N65C3		132	50	2.10	32	0.70	0.25				600	X011b	
IXYN 75N65C3D1		150	75	2.30	64	1.30	0.25	•	60	0.52	600	X027a	
IXYN 100N65C3H1		160	90	2.30	66	1.15	0.25	•	50	0.42	600	X027a	X027a
IXYH 75N65C3H1		170	75	2.30	58	1.30	0.20	•	62	0.45	750	X014a	227B
IXYH 75N65C3		175	75	2.30	64	1.30	0.20				750	X014a	
IXYH 75N65C3D1		175	75	2.30	64	1.30	0.20	•	62	0.45	750	X014a	
IXYN 120N65C3D1		190	100	2.80	60	0.70	0.18	•	72	0.38	830	X027a	
IXYX 100N65C3D1		200	100	2.30	66	1.15	0.18	•	67	0.36	830	X015a	
IXYH 100N65C3		200	100	2.30	66	1.15	0.18				830	X014a	
IXYK 100N65C3D1		200	100	2.30	66	1.15	0.18	•	67	0.36	830	X020a	
IXYH 120N65C3		260	120	2.80	60	0.70	0.11					X014a	

A4 Class (5-20 kHz switching)												X005a	
<b>IXXN 200N65A4</b>	650	440	200	1.80	190	8	0.12				1250	X027a	
B4 Class (10-30 kHz switching)													
<b>IXXP 12N65B4</b>	650	38	12	1.95	110	0.38	0.940				160	X005a	
<b>IXXP 12N65B4D1</b>		38	12	1.95	110	0.38	0.940	•	11	2.30	160	X005a	
<b>IXXH 30N65B4</b>		70	30	2.00	60	1.07	0.650				230	X014a	X007a
<b>IXXH 30N65B4D1</b>		70	30	2.00	60	1.07	0.650	•	40	0.75	230	X014a	
<b>IXXH 40N65B4</b>		115	40	2.00	116	1.30	0.330				455	X014a	
<b>IXXH 40N65B4D1</b>		115	40	2.00	116	1.30	0.330	•	50	0.60	455	X014a	
<b>IXXH 60N65B4</b>		120	60	2.20	88	1.80	0.330				536	X014a	
<b>IXXH 60N65B4H1</b>		120	60	2.20	88	1.80	0.330	•	47	0.60	536	X014a	X014a
<b>IXXH 40N65B4H1</b>		123	40	2.00	73	1.40	0.330	•	40	0.60	455	X014a	
<b>IXXR 110N65B4H1</b>		150	70	2.20	105	1.40	0.330	•	48	0.70	455	X016a	
<b>IXXH 80N65B4</b>		160	80	2.10	94	2.70	0.240				625	X014a	
<b>IXXH 80N65B4H1</b>		160	80	2.10	102	3.10	0.240	•	62	0.45	625	X014a	
<b>IXXH 80N65B4D1</b>		180	80	2.10	94	2.70	0.240	•	65	0.47	625	X014a	X015a
<b>IXXN 110N65B4H1</b>		230	110	2.10	110	2.16	0.200	•	70	0.42	750	X027a	
<b>IXXH 110N65B4</b>		250	110	2.10	110	2.16	0.170				880	X014a	
<b>IXXK 110N65B4H1</b>		250	110	2.10	110	2.16	0.170	•	78	0.38	880	X020a	
<b>IXXX 110N65B4H1</b>		250	110	2.10	110	2.16	0.170	•	78	0.38	880	X015a	
<b>IXXK 160N65B4</b>		310	160	1.80	160	2.36	0.160				940	X020a	
<b>IXXX 160N65B4</b>		310	160	1.80	160	2.36	0.160				940	X015a	X016a
<b>IXXH 140N65B4</b>		340	140	1.90	100	3.90	0.125				1200	X014a	
<b>IXXX 140N65B4H1</b>		350	140	1.90	100	3.90	0.125	•	72	0.24	1200	X015a	
<b>IXXK 200N65B4</b>		480	200	1.70	120	5.00	0.092				1630	X020a	
<b>IXXX 200N65B4</b>		480	200	1.70	120	2.54	0.092				1630	X015a	
<b>IXXN 340N65B4</b>		520	340 (90°C)	1.70	110	2.54	0.100				1500	X027a	X020a
C4 Class (20-60 kHz switching)													
<b>IXXH 30N65C4D1</b>	650	62	30	2.5	34	0.44	0.65	•	30	0.75	230	X014a	
<b>IXXH 40N65C4D1</b>		110	40	2.3	36	0.64	0.33	•	55	0.6	455	X014a	
<b>IXXH 60N65C4</b>		125	60	2.4	54	1.5	0.33				536	X014a	X027a
<b>IXXN 110N65C4H1</b>		210	110	2.35	40	0.9	0.2	•	70	0.42	750	X027a	227B
<b>IXXH 110N65C4</b>		235	110	2.35	40	0.9	0.17				880	X014a	
<b>IXXK 160N65C4</b>		290	160	2.1	57	1.3	0.16				940	X020a	
<b>IXXX 160N65C4</b>		290	160	2.1	57	1.3	0.16				940	X015a	
<b>IXXH 140N65C4</b>		320	160	2.3	63	2.5	0.125				1200	X014a	

**A4 Class (up to 5kHz switching)**

<b>IXYA 20N120A4HV</b>	1200	80	20	1.9	286	4.85	0.40	375	X011c
<b>IXYP 20N120A4</b>		80	20	1.9	286	4.85	0.40	375	X005a
<b>IXYA 30N120A4HV</b>		106	30	1.9	270	5.60	0.30	500	X011c
<b>IXYH 30N120A4</b>		106	30	1.9	270	5.60	0.30	500	X014a
<b>IXYP 30N120A4</b>		106	30	1.9	270	5.60	0.30	500	X005a
➤ <b>IXYH 40N120A4</b>		150	40	1.8	365	8.30	0.22	680	X014a
➤ <b>IXYT 40N120A4HV</b>		150	40	1.8	365	8.3	0.22	680	X019a
➤ <b>IXYT 55N120A4HV</b>		175	55	1.8	270	8.8	0.23	650	X019a
➤ <b>IXYH 55N120A4</b>		175	55	1.8	270	8.8	0.23	650	X014a
➤ <b>IXYT 85N120A4HV</b>		300	85	1.8	280	13.7	0.13	1150	X019a
➤ <b>IXYH 85N120A4</b>		300	85	1.8	280	13.7	0.13	1150	X014a
➤ <b>IXYK 140N120A4</b>		480	140	1.7	320	20	0.10	1500	X020a
➤ <b>IXYN 140N120A4</b>		480	140	1.7	320	20	0.14	1070	X027a
➤ <b>IXYX 140N120A4</b>		480	140	1.7	320	20	0.10	1500	X015a

X005a  
X011c  
X014a  
X019a  
X020a  
X027a  
X014a

**B4 Class (5-30 kHz switching)**

➤ <b>IXYA 20N120B4HV</b>	1200	76	20	2.1	170	2.70	0.40	375	X011c
➤ <b>IXYP 20N120B4</b>		76	20	2.1	170	2.70	0.40	375	X005a
➤ <b>IXYH 30N120B4</b>		100	30	2.1	190	4.00	0.30	500	X014a
➤ <b>IXYH 40N120B4</b>		136	40	2.1	190	4.40	0.22	680	X014a

X015a

**C4 Class (20-50 kHz switching)**

➤ <b>IXYA 20N120C4HV</b>	1200	68	20	2.5	86	1.60	0.40	375	X011c
➤ <b>IXYP 20N120C4</b>		68	20	2.5	86	1.60	0.40	375	X005a
➤ <b>IXYH 30N120C4</b>		94	30	2.4	100	2.70	0.30	500	X014a
➤ <b>IXYH 40N120C4</b>		120	40	2.5	80	2.65	0.22	680	X014a

X027a  
227B  
SOT-  
miniBLOC



X020a  
TO-264



X019a

**C3 Class (20-50 kHz switching)**

IXYA 8N90C3D1	900	20	8	2.5	163	0.22	1.20	•	12	2.5	125	X011b
IXYP 8N90C3		20	8	2.5	163	0.22	1.20				125	X005a
IXYP 8N90C3D1		20	8	2.5	163	0.22	1.20	•	12	2.5	125	X005a
IXYY 8N90C3		20	8	2.5	163	0.22	1.20				125	X004
IXYH 24N90C3		44	24	2.7	130	0.55	0.62				240	X014a
IXYH 24N90C3D1		44	-24	2.7	130	0.55	0.62	•	15	1.6	200	X014a
IXYH 40N90C3D1		90	40	2.5	150	1.2	0.25	•	25	0.9	500	X014a
IXYH 40N90C3		105	40	2.5	150	1.2	0.25				600	X014a
IXYN 80N90C3H1		115	-70	2.7	-98	-2.5	0.25	•	42	0.42	500	X027a
IXYH 60N90C3		140	60	2.7	-165	-2.15	0.20				750	X014a
IXYH 80N90C3		165	80	2.7	-98	-2.5	0.18				830	X014a
IXYT 80N90C3		165	80	2.7	-98	-2.5	0.18				830	X019
IXYK 140N90C3		310	140	2.7	-125	-5	0.092				1630	X020a
IXYX 140N90C3		310	140	2.7	-125	-5	0.092				1630	X015a

**B3 Class (5-30 kHz switching)**

IXYH 40N120B3D1	1200	86	40	2.9	206	2.05	0.26	•	25	0.9	480	X014a
IXYH 40N120B3		96	40	2.9	206	2.05	0.26				577	X014a
IXYN 100N120B3H1		165	76	2.6	° 260	10.1 °	0.18	•	42	0.42	690	X027a
IXYK 100N120B3		225	100	2.6	° 260	10.1 °	0.13				1150	X020a
IXYX 100N120B3		225	100	2.6	° 260	10.1 °	0.13				1150	X015a
IXYK 120N120B3		320	120	2.2	° 406	27.9 °	0.10				1500	X020a
IXYX 120N120B3		320	120	2.2	° 407	27.9 °	0.10				1500	X015a

**C3 Class (20-50 kHz switching)**

IXYH 20N120C3D1	1200	36	17	3.4	° 105	0.7 °	0.54	•	23	0.90	230	X014a
IXYT 20N120C3D1HV		36	17	3.4	° 105	0.7 °	0.54	•	23	0.90	230	X019a
IXYA 20N120C3HV		40	20	3.4	° 105	0.7 °	0.54				278	X011c
IXYH 20N120C3		40	20	3.4	° 105	0.7 °	0.54				278	X014a
IXYP 20N120C3		40	20	3.4	° 105	0.7 °	0.54				278	X005a
IXYR 50N120C3D1		56	* 32	4.0	° 60	1.4 °	0.43	•	25	0.90	290	X016a
IXYH 30N120C3D1		66	30	4.0	88	0.9	0.30	•	25	0.90	416	X014a
IXYH 30N120C3		75	30	3.3	° 140	1.6 °	0.30				500	X014a
IXYP 30N120C3		75	30	3.3	° 140	1.6 °	0.30				500	X005a
IXYH 40N120C3D1		80	* 40	3.5	° 143	2.1 °	0.26	•	25	0.90	480	X014a
IXYH 40N120C3		90	40	3.5	° 143	2.1 °	0.26				577	X014a
IXYH 50N120C3D1		90	**50	4.0	° 60	1.4 °	0.20	•	25	0.90	625	X014a
IXYH 50N120C3		100	50	3.5	60	1.4	0.20				750	X014a
IXYR 100N120C3		104	58	3.5	125	3.55	0.31				484	X016a
IXYN 82N120C3H1		105	46	3.2	95	3.7	0.25	•	42	0.42	500	X027a
IXYN 82N120C3		120	66	3.2	95	3.7	0.25				600	X027a
IXYN 100N120C3H1	134	62	3.5	125	3.55	0.18	•	42	0.42	690	X027a	
IXYN 100N120C3	152	86	3.5	125	3.55	0.18				830	X027a	
IXYB 82N120C3H1	164	82	3.2	95	3.7	0.12	•	42	0.35	1040	X021a	
IXYK 100N120C3	188	100	3.5	125	3.55	0.13					X020a	
IXYX 100N120C3	188	100	3.5	125	3.55	0.13					X015a	
IXYH 82N120C3	200	82	3.2	95	3.7	0.12					X014a	
IXYK 120N120C3	240	120	3.2	° 120	7.2 °	0.10				1500	X020a	
IXYX 120N120C3	240	120	3.2	° 120	7.2 °	0.10				1500	X015a	
IXYN 120N120C3	240	120	3.2	° 120	7.2 °	0.125				1200	X027a	











\* T<sub>c</sub> = 90°C    \*\* T<sub>c</sub> = 100°C    ° T<sub>j</sub> = 150°C

1700V XPT™ Planar IGBTs

IXYH 10N170C	1700	36	10	4.1	94	0.90	0.53			
IXYH 10N170CV1		36	10	4.1	94	0.90	0.53	•	22	0.70
IXYF 30N170CV1		36	20	4.0	134	3.50	0.65	•	20	0.86
IXYH 16N170C		40	16	3.8	140	1.95	0.48			
IXYH 16N170CV1		40	16	3.8	140	1.95	0.48	•	22	0.70
IXYH 24N170C		58	24	4.0	140	2.66	0.30			
IXYH 24N170CV1		58	24	4.0	140	2.66	0.30	•	28	0.55
IXYN 30N170CV1		80	30	4.0	134	3.50	0.22	•	33	0.43
IXYL 50N170CV1		90	46	3.7	160	8.20	0.26	•	26	0.83
IXYH 30N170C		100	30	4.0	134	3.50	0.16			
IXYK 30N170CV1		100	30	4.0	134	3.50	0.16	•	38	0.36
IXYX 30N170CV1		100	30	4.0	134	3.50	0.16	•	38	0.36
IXYN 50N170CV1		120	50	3.7	160	8.20	0.17	•	42	0.42
IXYX 50N170C		178	50	3.7	160	8.20	0.10			

2500V XPT™ Planar IGBTs

IXYF 16N250CV1	2500	26	14	4.0	236	4.40	0.83	•	9	1.50
IXYA 12N250CHV		28	12	4.5	138	1.95	0.48			
IXYH 12N250CHV		28	12	4.5	138	1.95	0.48			
IXYH 12N250CV1HV		28	12	4.5	138	1.95	0.48	•	14	0.80
IXYT 12N250CV1HV		28	12	4.5	138	1.95	0.48	•	14	0.80
IXYA 8N250CHV		29	8	4.0	128	1.20	0.53			
IXYH 8N250CHV		29	8	4.0	128	1.20	0.53			
IXYH 8N250CV1HV		29	8	4.0	128	1.20	0.53	•	14	0.80
IXYH 16N250CV1HV		38	16	4.0	236	4.40	0.30	•	14	0.80
IXYL 40N250CV1		80	40	4.0	250	11.50	0.26	•	23	0.83
IXYH 25N250CHV		95	25	4.0	350	10.50	0.16			
IXYT 25N250CHV		95	25	4.0	350	10.50	0.16			
IXYX 25N250CV1		95	25	4.0	350	10.50	0.16	•	30	0.32
IXYX 25N250CV1HV		95	25	4.0	350	10.50	0.16	•	30	0.32
IXYX 40N250CHV		154	40	4.0	250	11.50	0.10			

X011c	<b>TO-263ABHV</b>	X014a	<b>TO-247AD</b>	X014c	<b>TO-247HV</b>	On p
						
X015a	<b>PLUS247</b>	X015c	<b>PLUS247 HV</b>	X019a	<b>TO-268AAHV</b>	
						X027a <b>SOT-</b>
X020a	<b>TO-264</b>	X022e	<b>ISOPLUS264™</b>	X024c	<b>ISOPLUS i4-PAC™</b>	
						

	1200	9	5	1.8	0.25	2.70	•	6	X004	
◇ IXA 4IF1200PZ		9	5	1.8	0.25	2.70	•	6	X011c	
IXA 4IF1200TC		9	5	1.8	0.25	2.70	•	6	X019	
IXA 12IF1200HB		20	13	1.8	1.10	1.50	•	14	X014a	
IXA 12IF1200PB		20	13	1.8	1.10	1.50	•	14	X005a	X005a
○ IXA 12IF1200TC		20	13	1.8	1.10	1.50	•	14	X019	
IXA 17IF1200HJ		28	18	1.8	1.70	1.26	•	19	X016a	
◇ IXA 20IF1200HR		33	19	1.8	1.70	0.95	•	22	X016c	
○ IXA 20IF1200HB		38	22	1.8	1.70	0.76	•	24	X014a	X011c
IXA 20I1200PB		38	22	1.8	1.70	0.76		-	X005a	
IXA 20I1200PZ		38	22	1.8	1.70	0.76		-	X011c	
IXA 27IF1200HJ		43	24	1.8	3.00	0.84	•	25	X016a	
◇ IXA 30IF1200HR		48	27	1.8	3.00	0.70	•	30	X016c	
IXA 33IF1200HB		58	34	1.8	3.00	0.50	•	33	X014a	X014a
IXA 37IF1200HJ		58	33	1.8	4.10	0.64	•	25	X016a	
◇ IXA 40IF1200HR		63	36	1.8	4.10	0.64	•	30	X016c	
IXA 45IF1200HB		78	45	1.8	4.10	0.38	•	33	X014a	
IXA 55I1200HJ		84	54	1.8	5.50	0.43		-	X016a	
IXA 60IF1200NA		88	56	1.8	5.50	0.43	•	51	X027a	X016a
IXA 70I1200NA		100	65	1.8	5.50	0.35		-	X027a	
IXA 70R1200NA <sup>1)</sup>		100	65	1.8	5.50	0.35	•	55	X027a	

### 1200 V Fast Trench IGBT

➤ ITF 48IF1200HR	1200	72	56 (80°C)	2.05	2.4 (150°C)	0.38	•	(80°C) 50	X016c	X016c
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### 1200 V X2PT™ IGBT

➤ IXG 70IF1200NA	1200	130	86	1.8	5.3 (150°C)	0.38	•	71	X027a	
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<sup>1)</sup> boost configuration

X019

## NPT IGBT

NPT = Non Punch Through

### 1200 V NPT IGBT

○ IXDH 20N120	1200	38	25 (90°C)	2.4	2.4	0.63		-	X014a	X027a
○ IXDH 20N120D1		38	25 (90°C)	2.4	2.4	0.63	•	(90°C) 19	X014a	227B
○ IXDH 30N120D1		60	38 (90°C)	2.4	3.4	0.42	•	(90°C) 35	X014a	
○ IXDR 30N120D1		50	30 (90°C)	2.4	3.4	0.60	•	(90°C) 27	X016a	
○ IXDN 55N120D1		100	62 (90°C)	2.3	6.2	0.28	•	(90°C) 60	X027a	
○ IXDN 75N120		150	95 (90°C)	2.2	10.5	0.19		-	X027a	



IXGH 36N60A3D4	600	75	36	1.40	325	5.30	0.56	•	-	2.50	220	X014a	X011b
IXGH 48N60A3D1		75	48	1.35	224	5.60	0.42	•	-	0.90	300	X014a	
IXGH 72N60A3		75	72	1.35	250	6.50	0.23	-	-	-	540	X014a	
IXGK 72N60A3H1		75	72	1.35	250	6.50	0.23	•	-	0.30	540	X020a	
IXGR 72N60A3H1		75	72	1.35	250	6.50	0.62	•	-	0.80	200	X016a	
IXGT 72N60A3		75	72	1.35	250	6.50	0.23	-	-	-	540	X019	
IXGX 72N60A3H1		75	72	1.35	250	6.50	0.23	•	-	0.30	540	X015a	
IXGH 56N60A3		150	56	1.35	315	6.75	0.38	-	-	-	330	X014a	
IXGN 72N60A3		160	68	1.35	250	6.50	0.35	-	-	-	360	X027a	
IXGN 120N60A3		200	120	1.35	260	10.40	0.21	-	-	-	595	X027a	
IXGN 120N60A3D1		200	120	1.35	260	10.40	0.21	•	-	0.85	595	X027a	
IXGX 120N60A3		200	120	1.35	260	10.40	0.16	-	-	-	780	X015a	
IXGK 320N60A3		320	210	1.25	740	na	0.13	-	-	-	1000	X020a	
IXGN 320N60A3		320	170	1.25	740	na	0.17	-	-	-	735	X027a	
IXGX 320N60A3		320	210	1.25	740	na	0.13	-	-	-	1000	X015a	
IXGN 400N60A3		400	190	1.25	270	na	0.15	-	-	-	830	X027a	
IXGA 36N60A3		na	36	1.40	325	5.30	0.56	-	-	-	220	X011b	
IXGA 48N60A3		na	48	1.35	224	5.60	0.42	-	-	-	300	X011b	
IXGH 36N60A3		na	36	1.40	325	5.30	0.56	-	-	-	220	X014a	
IXGH 48N60A3		na	48	1.35	2.24	5.60	0.42	-	-	-	300	X014a	
IXGH 64N60A3		na	64	1.35	222	6.00	0.27	-	-	-	460	X014a	
IXGP 36N60A3		na	36	1.40	325	5.30	0.56	-	-	-	220	X005a	
IXGP 48N60A3		na	48	1.35	224	5.60	0.42	-	-	-	300	X005a	
IXGH 32N100A3	1000	75	32	2.20	540	13.00	0.42	-	-	-	300	X014a	X019
IXGT 32N100A3		75	32	2.20	540	13.00	0.42	-	-	-	300	X019	
IXGA 12N120A3	1200	22	na	3.00	1035	na	1.25	-	-	-	100	X011b	X020a
IXGH 12N120A3		22	na	3.00	1035	na	1.25	-	-	-	100	X014a	
IXGP 12N120A3		22	na	3.00	1035	na	1.25	-	-	-	100	X005a	
IXGA 20N120A3		40	20	2.50	715	10.10	0.69	-	-	-	180	X011b	
IXGH 20N120A3		40	20	2.50	715	10.10	0.69	-	-	-	180	X014a	
IXGP 20N120A3		40	20	2.50	715	10.10	0.69	-	-	-	180	X005a	
IXGR 55N120A3H1		70	30	2.35	282	29.00	0.62	•	-	0.42	200	X016a	
IXGH 32N120A3		75	na	2.35	1240	na	0.42	-	-	-	300	X014a	X027a 227B
IXGT 32N120A3		75	32	2.35	1240	na	0.42	-	-	-	300	X019	
IXGK 55N120A3H1		125	55	2.30	282	29.00	0.27	•	-	0.42	460	X020a	
IXGX 55N120A3H1		125	55	2.30	282	29.00	0.27	•	-	0.42	460	X015a	
IXGK 120N120A3		240	120	2.20	325	58.00	0.15	-	-	-	830	X020a	
IXGX 120N120A3		240	120	2.20	325	58.00	0.15	-	-	-	830	X015a	
IXGK 82N120A3		260	82	2.05	780	22.50	0.10	-	-	-	1250	X020a	
IXGX 82N120A3		260	82	2.05	780	22.50	0.10	-	-	-	1250	X015a	

IXGT 6N170	12	(6)	4.0	2.0	1.65	X019	X014a
IXGH 10N170	20	10	4.0		1.10	X014a	
IXGT 10N170	20	10	4.0		1.10	X019	
IXGH 16N170	32	16	3.5	11.2	0.65	X014a	
IXGT 16N170	32	16	3.5	11.2	0.65	X019	
IXGF 32N170	44	-19	3.5	13.5	0.62	X024c	X015a
IXGH 24N170	50	24	3.3	12.0	0.50	X014a	
IXGT 24N170	50	24	3.3	12.0	0.50	X019	
IXGH 32N170	75	32	3.3	14.0	0.35	X014a	
IXGT 32N170	75	32	3.3	14.0	0.35	X019	
IXGN 100N170	160	95	3.0		0.17	X027a	X016a
IXGX 100N170	170	100	3.0		0.15	X015a	
IXGK 100N170	170	100	3.0		0.15	X020a	
IXGN 200N170	280	160	2.6	44.0	0.10	X027a	

X019

X020a

## 1700 V NPT IGBTs

Part Type	V <sub>CES</sub> V	I <sub>C</sub> T <sub>C</sub> = 25°C A	I <sub>C</sub> T <sub>C</sub> = 90°C (110°C) A	V <sub>CE(sat)</sub> T <sub>C</sub> = 25°C V	t <sub>fi</sub> typ T <sub>J</sub> = 25°C ns	E <sub>off</sub> typ T <sub>J</sub> = 125°C mJ	R <sub>thJC</sub> K/W	Fig. No.
IXGR 6N170A	1700	5.5	(2.5)	7	32	0.25	2.50	X016a
IXGH 6N170A		6	(3)	7	32	0.26	1.65	X014a
IXGT 6N170A		6	(3)	7	32	0.26	1.65	X019
IXGH 10N170A		10	(5)	6	35	0.60	0.89	X014a
IXGT 10N170A		10	5	6	35	0.60	0.89	X019
IXGH 16N170A		16	11	5	70	2.00	0.65	X014a
IXGT 16N170A		16	11	5	70	2.00	0.65	X019
IXGH 24N170A		24	16	6	40	1.47	0.50	X014a
IXGT 24N170A		24	16	6	40	1.47	0.50	X019
IXGH 32N170A		32	21	5	50	2.40	0.35	X014a
IXGT 32N170A		32	21	5	50	2.40	0.35	X019

X024c IS

X027a  
227B

<b>IXGF 20N250</b>	2500	23	[14]	3.1	930	na	1.25	100	X024c	X011c
<b>IXGA 20N250HV</b>		30	12	3.1	930	na	0.83	150	X011c	
<b>IXGF 25N250</b>		30	15	2.9	200	na	1.10	114	X024c	
<b>IXLF 19N250A</b>		32	[19]	3.9	250	30	0.50	250	X024c	
<b>IXGH 25N250</b>		60	25	2.9	200	na	0.50	250	X014a	
<b>IXGT 25N250</b>		60	25	2.9	200	na	0.50	250	X019	X014a
<b>IXGT 25N250HV</b>		60	25	2.9	200	na	0.50	250	X019a	
<b>IXGL 75N250</b>		110	[65]	2.9	455	na	0.29	430	X022e	
<b>IXGK 75N250</b>		170	75	2.7	455	na	0.16	780	X020a	
<b>IXGX 75N250</b>		170	75	2.7	455	na	0.16	780	X015a	
➤ <b>IXG 65I3300KN</b>	3300	85	(48 )	2.8	900	52	0.34	368	X022e	
<b>IXEL 40N400</b>	4000	90	40	3.5	425	205	0.26	380	X022e	X014c
<b>IXG 50I4500KN</b>	4500	74	(42)	3.2	1350	73	0.34	368	X022e	
<b>IXYF 30N450</b>		23	17	3.9	1220	na	0.54	230	X024c	
<b>IXYT 30N450HV</b>		60	30	3.9	1220	na	0.29	430	X019a	
<b>IXYF 40N450</b>		60	32	3.9	1120	na	0.43	290	X024c	
<b>IXYH 30N450HV</b>		60	30	3.9	1220	na	0.29	430	X014c	
<b>IXYL 60N450</b>		90	38	3.3	1360	na	0.30	417	X022e	X015a
<b>IXYX 40N450HV</b>		95	40	3.9	1120	na	0.19	660	X015c	

X019a

**TO-268AAHV**

X019

**TO-268AA**

X015c

X024c **ISOPLUS i4-PAC™**X022e **ISOPLUS264™**

X020a

<b>IXBT 6N170</b>		12	6.0	2.84	17	600	1.65	X019	X011c
<b>IXBA 16N170AHV</b>		16	10	(6.00)	65	-150	0.83	X011c	
<b>IXBH 16N170A</b>		16	10	(6.00)	65	-150	0.83	X014a	X014a
<b>IXBT 16N170A</b>		16	10	(6.00)	65	-150	0.83	X019	
<b>IXBT 16N170AHV</b>		16	10	(6.00)	65	-150	0.83	X019a	
<b>IXBH 10N170</b>		20	10	3.40	30	-150	0.89	X014a	
<b>IXBT 10N170</b>		20	10	3.40	30	-150	0.89	X019	
<b>IXBN 42N170A</b>		38	21	5.20	188	-82	0.40	X027a	
<b>IXBH 16N170</b>		40	16	(3.30)	72	705	0.50	X014a	
<b>IXBT 16N170</b>		40	16	(3.30)	72	705	0.50	X019	
<b>IXBH 42N170A</b>		42	21	5.20	188	-82	0.35	X014a	
<b>IXBT 42N170A</b>		42	21	5.20	188	-82	0.35	X019	
<b>IXBR 42N170</b>		57	32	(2.90)	188	740	0.62	X016a	
<b>IXBH 24N170</b>		60	(24)	(2.50)	140	960	0.50	X014a	
<b>IXBT 24N170</b>		60	(24)	(2.50)	140	960	0.50	X019	
<b>IXBH 42N170</b>		80	42	(2.80)	188	740	0.35	X014a	X016a
<b>IXBT 42N170</b>		80	42	(2.80)	188	740	0.35	X019	
<b>IXBX 75N170A</b>		110	65	4.95	358	-175	0.12	X015a	
<b>IXBN 75N170</b>		145	75	2.60	350	580	0.20	X027a	
<b>IXBK 75N170</b>		200	(75)	2.60	350	580	0.12	X020a	
<b>IXBX 75N170</b>		200	(75)	2.60	350	580	0.12	X015a	
<b>IXCH 36N250</b>	2500	73	(36)	2.60	177	900	0.21	X014a	
<b>IXCK 36N250</b>		73	(36)	2.60	177	900	0.21	X020a	
<b>IXBL 64N250</b>		116	(46)	2.50	400	175	0.25	X022e	
<b>IXBK 64N250</b>		156	(64)	2.50	400	175	0.17	X020a	
<b>IXBX 64N250</b>		156	(64)	2.50	400	175	0.17	X015a	

X020a

**TO-264**

X019a

**TO-268AAHV**

X019

X022e

**ISOPLUS264™**X027a  
227B**SOT-  
miniBLOC**

<b>IXBH 10N300</b>		30	(10)	2.8	45	1030	0.69	X014a	X011c
<b>IXBA 10N300HV</b>		34	(10)	2.2	46	2010	0.69	X011c	
<b>IXBH 10N300HV</b>		34	(10)	2.2	46	2010	0.69	X014c	
<b>IXBF 22N300</b>		38	22	2.2	110	1650	0.83	X024c	X014a
<b>IXBA 14N300HV</b>		38	(14)	2.2	62	1730	0.62	X011c	
<b>IXBH 14N300HV</b>		38	(14)	2.2	62	1730	0.62	X014c	
<b>IXBF 32N300</b>		40	22	2.8	142	630	0.78	X024c	
<b>IXBF 28N300</b>		50	28	2.3	110	3280	0.58	X024c	
<b>IXBF 42N300</b>		60	(24)	2.5	200	490	0.52	X024c	
<b>IXBT 22N300HV</b>		60	(22)	2.2	110	1650	0.43	X019a	X014c
<b>IXBH 22N300HV</b>		60	(22)	2.2	110	1650	0.43	X014c	
<b>IXBX 28N300HV</b>		62	(28)	2.3	110	3280	0.36	X015c	
<b>IXBH 32N300</b>		80	(32)	2.8	142	630	0.31	X014a	
<b>IXBH 32N300HV</b>		80	(32)	2.8	142	630	0.31	X014c	
<b>IXBT 32N300HV</b>		80	(32)	2.8	142	630	0.31	X019a	
<b>IXBF 55N300</b>		86	(34)	2.7	335	260	0.35	X024c	X014c
<b>IXBH 42N300HV</b>		104	(42)	2.5	200	490	0.25	X014c	
<b>IXBT 42N300HV</b>		104	(42)	2.5	200	490	0.25	X019a	
<b>IXBK 55N300</b>		130	(55)	2.7	335	260	0.20	X020a	
<b>IXBX 55N300</b>		130	(55)	2.7	335	260	0.20	X015a	
<b>IXBF 16N360</b>	3600	26	16	2.5	65	115	1.00	X024c	X015a
<b>IXBF 20N360</b>		45	(18)	2.9	110	1100	0.54	X024c	
<b>IXBH 16N360HV</b>		48	(16)	2.5	65	115	0.46	X014c	
<b>IXBT 16N360HV</b>		48	(16)	2.5	65	115	0.46	X019a	
<b>IXBH 20N360HV</b>		70	(20)	2.9	110	1100	0.29	X014c	
<b>IXBT 20N360HV</b>		70	(20)	2.9	110	1100	0.29	X019a	
<b>IXBF 50N360</b>		70	(28)	2.4	210	1670	0.43	X024c	
<b>IXBL 60N360</b>		92	(36)	2.8	450	1025	0.30	X022e	
<b>IXBX 50N360HV</b>		125	(50)	2.4	210	1670	0.19	X015c	

X020a

**TO-264**

X019a

**TO-268AAHV**

X015c

X024c **ISOPLUS i4-PAC™**

X022e

**ISOPLUS264™**

Type	$V_{CES}$	$I_{C80}$ IGBT $T_C = 80^\circ\text{C}$	$V_{CE(sat)}$ typ IGBT $T_J = 25^\circ\text{C}$	$E_{on}$ IGBT $T_J = 150^\circ\text{C}$	$E_{off}$ IGBT $T_J = 150^\circ\text{C}$	$R_{thJC}$ IGBT	$I_{F80}$ Diode $T_C = 80^\circ\text{C}$
➤ <b>New</b>	V	A	V	mJ	mJ	K/W	A
<b>1200 V X2PT™ IGBT with shunt</b>							
➤ <b>MIXG 360PF1200PSTED</b> <sup>1)</sup>	1200	420 <sup>3)</sup>	1.7	32	32	0.08	34
➤ <b>MIXG 360PF1200PSTED-PC</b> <sup>1)2)</sup>		420 <sup>3)</sup>	1.7	32	32	0.08	34

<sup>1)</sup> Press fit pin version

<sup>2)</sup> phase change material (PCM)

<sup>3)</sup> Rating correlates to parallel operation of T1A@T1B (resp. T2A@T2B)

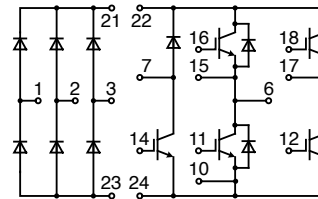
Outline drawings on  
pages O-36...O-59

See data sheet for pin arrangement



X112

E2-Pack



## CBI 2 IGBT Modules

Type	Rectifier 3~			Inverter 3~					Brake ch	
	$V_{RRM}$	$I_{DAVM}$ $T_C = 80^\circ\text{C}$	$R_{thJC}$ typ.	$V_{CES}$	$I_C$ $T_C = 25^\circ\text{C}$	$I_C$ $T_C = 80^\circ\text{C}$	$V_{CE(sat)}$ typ.	$R_{thJC}$ typ.	$V_{CES}$	$I_C$ $T_C = 80^\circ\text{C}$
○ Not for new design	V	A	K/W	V	A	A	V	K/W	V	A
<b>1200 V NPT IGBT</b>										
○ <b>MUBW 15-12A7</b>	1600	24	1.3	600	35	25	2.0	0.70	600	15
○ <b>MUBW 25-12A7</b>		24	1.3		50	35	2.2	0.55		15
○ <b>MUBW 35-12A7</b>		29	1.1		50	35	2.5	0.55		25
<b>1200 V XPT IGBT</b>										
<b>MIXA 10WB1200TED</b>	1600	105	1.1	1200	17	12	1.8	2.00	1200	12
<b>MIXA 20WB1200TED</b>		105	1.1		28	20	1.8	1.26		12
<b>MIXA 30WB1200TED</b>		105	1.1		43	30	1.8	0.84		12
<b>MIXA 40WB1200TED</b>		105	1.1		50	40	1.8	0.64		20

○ Not for new design	V <sub>RRM</sub>	I <sub>DAVM</sub>	R <sub>thJC</sub>	V <sub>CES</sub>	T <sub>c</sub>	T <sub>c</sub>	T <sub>c</sub>	V <sub>CE(sat)</sub>	R <sub>thJC</sub>	V <sub>CES</sub>	T <sub>c</sub>
◇ under development	V	A	K/W	V	25°C	80°C	80°C	V	K/W	V	80°C

### 1200 V NPT IGBT

○ MUBW 50-12A8	1600	46	0.94	1200	85	60	2.2	0.35	1200	35
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### 1200 V Trench IGBT

○ MUBW 75-12T8	1600	50	0.94	1200	105	75	1.7	0.35	1200	35
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### 1200 V XPT™ IGBT

MIXA 60WB1200TEH	1600	190	0.65	1200	85	60	1.8	0.43	1200	40
MIXA 60WH1200TEH <sup>1)</sup>		135	0.65		85	60	1.8	0.43		40
MIXA 80WB1200TEH		265	0.50		120	84	1.8	0.32		40
◇ MIXA 81WB1200TEH		290	0.45		120	84	1.8	0.32		60

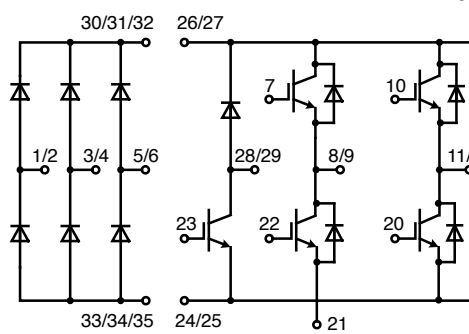
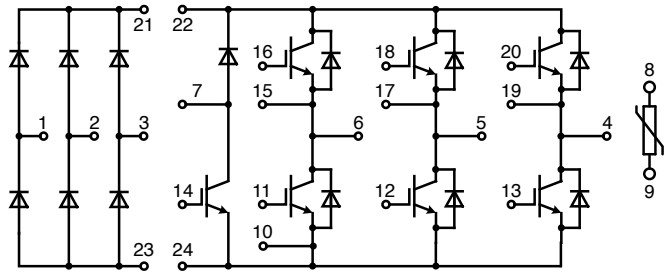
### 1700 V Trench IGBT

MUBW 50-17T8	2200	130	1.10	1700	74	53	2.0	0.49	1700	34
➤ MUBW 50-17T8-PFPC <sup>2)</sup>		130	1.10		74	53	2.0	0.49		34
MUBW 75-17T8		155	0.95		113	80	2.0	0.28		34
➤ MUBW 75-17T8-PFPC <sup>2)</sup>		155	0.95		113	80	2.0	0.28		34

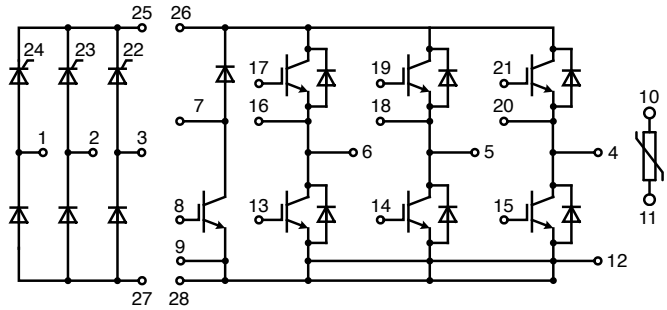
<sup>1)</sup> Input rectifier half-controlled; <sup>2)</sup> with press fit pins and pre applied phase

**Options:** press fit pin version and phase change material; please contact IXYS sales

#### Layout A



#### Layout C

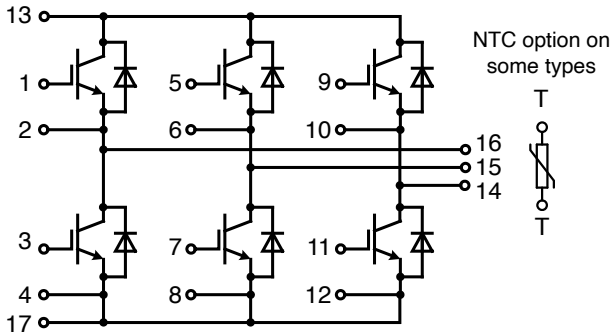




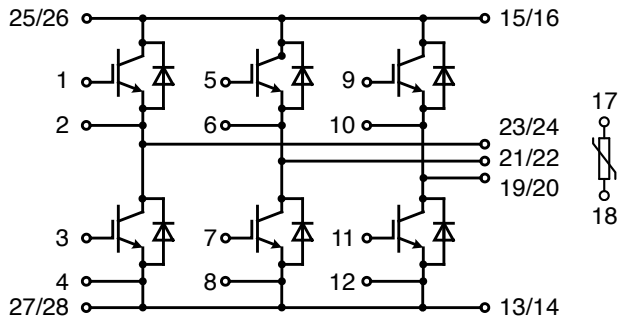
○ Not for new design ➤ New	V	T <sub>C</sub> = 25°C A	T <sub>C</sub> = 80°C A	T <sub>J</sub> = 25°C V	T <sub>J</sub> = 125°C mJ	K/W	T <sub>C</sub> = 25°C A	T <sub>C</sub> = 80°C A
<b>1200 V NPT IGBT</b>								
○ MWI 15-12A7	1200	30	20	1.0	1.8	0.88	25	1
○ MWI 25-12A7		50	35	2.2	2.8	0.55	50	3
<b>1200 V XPT™ IGBT</b>								
MIXA 30W1200TED <sup>1)</sup>	1200	43	30	1.8	3.0	0.84	44	2
MIXA 40W1200TED <sup>1)</sup>		60	40	1.8	4.1	0.64	44	2
➤ MIXA 41W1200ED <sup>1)</sup>		60	40	1.8	4.1	0.64	44	2
MIXA 60W1200TED <sup>1)</sup>		85	60	1.8	5.5	0.43	88	5
MIXA 80W1200TED <sup>1)</sup>		120	84	1.8	8.3	0.32	135	9
<b>1200 V X2PT™ IGBT</b>								
➤ MIXG 70W1200TED <sup>1)</sup>	1200	105	79	1.7	5.3 (150°C)	0.42	88	5
<b>1200 V Trench IGBT</b>								
○ MWI 50-12T7T	1200	75	50	1.7	6.5	0.49	110	7
○ MWI 75-12T7T		105	75	1.7	9.5	0.35	150	10

<sup>1)</sup> Options: press fit pin version and phase change material; please contact IXYS sales office for availability

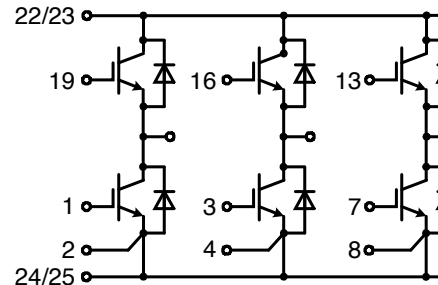
**Layout A**



**Layout B**



**Layout C**



➤ New	V	A	A	V	mJ	K/W	A
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### 1200 V NPT IGBT

○ MWI 100-12A8		160	110	2.2	14.6	0.19	200
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### 1200 V SPT+ IGBT

○ MIEB 100W1200DPFTEH	1200	183	128	1.8	9.7	0.20	135
○ MIEB 101W1200EH		183	128	1.8	9.7	0.20	135

### 1200 V XPT™ IGBT

<b>MIXA 80W1200TEH</b> <sup>1)</sup>	1200	120	84	1.8	8.3	0.32	135
<b>MIXA 100W1200TEH</b> <sup>1)</sup>		155	108	1.8	11.0	0.25	135
<b>MIXA 150W1200TEH</b> <sup>1)</sup>		220	150	1.8	16.0	0.18	190

### 1200 V X2PT™

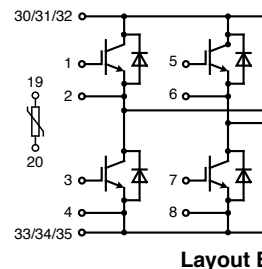
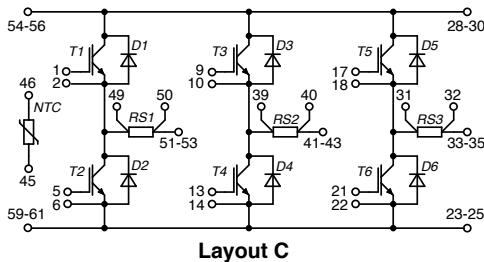
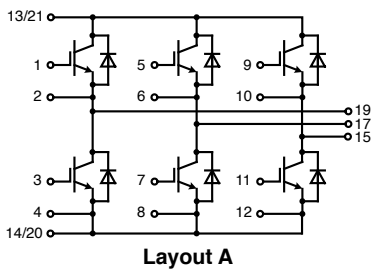
<b>MIXG 120W1200DPFTEH</b> <sup>1)</sup>	1200	185	140	1.7	8.2 (150°C)	0.30	199
<b>MIXG 120W1200TEH</b> <sup>1)</sup>		185	140	1.7	8.2 (150°C)	0.30	180
➤ <b>MIXG 120W1200PTEH</b> <sup>2)</sup>		185	140	1.7	8.2 (150°C)	0.30	180
✧ <b>MIXG 120W1200PTEH-PC</b> <sup>2) 3)</sup>		185	140	1.7	8.2 (150°C)	0.30	180
<b>MIXG 180W1200TEH</b> <sup>1)</sup>		260	195	1.7	14.7 (150°C)	0.18	230
➤ <b>MIXG 180W1200PTEH</b> <sup>2)</sup>		260	195	1.7	14.7 (150°C)	0.18	230
➤ <b>MIXG 180W1200PTEH-PC</b> <sup>2) 3)</sup>		260	195	1.7	14.7 (150°C)	0.18	230
<b>MIXG 240W1200TEH</b> <sup>1)</sup>		312	233	1.7	20.5 (150°C)	0.16	200
✧ <b>MIXG 240W1200PTEH</b> <sup>2)</sup>		312	233	1.7	20.5 (150°C)	0.16	200
✧ <b>MIXG 240W1200PTEH-PC</b> <sup>2) 3)</sup>		312	233	1.7	20.5 (150°C)	0.16	200

### 1200 V X2PT™ with Shunt Resistor

✧ <b>MIXG 120W1200STEH</b> <sup>1)</sup>	1200	185	140	1.7	8.2 (150°C)	0.24	180
✧ <b>MIXG 180W1200STEH</b> <sup>1)</sup>		260	195	1.7	14.7 (150°C)	0.18	230
✧ <b>MIXG 240W1200ZTEH</b> <sup>1)</sup>		312	233	1.7	20.5 (150°C)	0.16	189
➤ <b>MIXG 240W1200PZTEH</b> <sup>2)</sup>		312	233	1.7	20.5 (150°C)	0.16	189
<b>MIXG 240W1200PZTEH-PC</b> <sup>2) 3)</sup>		312	233	1.7	20.5 (150°C)	0.16	189

<sup>1)</sup> Options: press fit pin version and / or phase change material; please contact IXYS sales office for availability

<sup>2)</sup> press fit pin version      <sup>3)</sup> phase change material (PCM)



Type	$V_{CES}$	$I_{C80}$ IGBT	$V_{CE(sat)}$ typ IGBT	$E_{on}$ IGBT	$E_{off}$ IGBT	$R_{thJC}$ IGBT	$I_{F}$ Dio
> New ◇ under development	V	$T_c = 80^\circ\text{C}$ A	$T_j = 25^\circ\text{C}$ V	$T_j = 125^\circ\text{C}$ mJ	$T_j = 125^\circ\text{C}$ mJ	K/W	$T_c =$ A

**XPT™ / X2PT™ IGBT Phase-Leg**

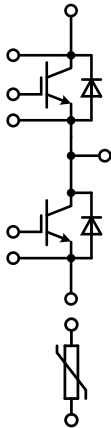
MIXA 225PF1200TSF	1200	250	1.80	20	27	0.115	18
MIXA 300PF1200TSF		325	1.80	20	42	0.085	18
MIXA 450PF1200TSF		450	1.80	22	68	0.060	26
MIXG 300PF1700TSF	1700	315	2.10	60	69	0.078	20
MIXG 450PF1700TSF		435	2.10	110	108	0.061	33

**XPT™ / X2PT™ IGBT Brake / Boost**

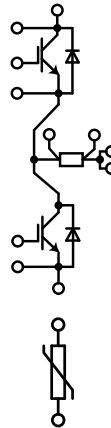
> MIXA 225RF1200TSF	1200	250	1.80	20	27	0.115	18
◇ MIXG 450RF1700TSF	1700	435	2.10	110	108	0.061	33

Options: press fit pin version and phase change material; please contact IXYS sales office for availability

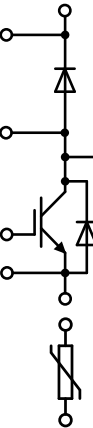
...PF...  
phase-leg



...PF...  
phase-leg & shunt



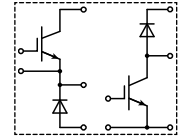
...RF...  
brake / bo



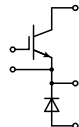
# IGBT Modules

Type	Technology	$V_{CES}$ V	$I_{C25}$ IGBT $T_C = 25^\circ\text{C}$ A	$I_{C80}$ IGBT $T_C = 80^\circ\text{C}$ A	$V_{CE(sat)}$ typ IGBT $T_J = 25^\circ\text{C}$ V	$E_{off}$ IGBT $T_J = 125^\circ\text{C}$ mJ	$I_{F80}$ Diode $T_C = 80^\circ\text{C}$ A
○ Not for new design							
○ MKI 50-12F7 MKI 100-12F8	Fast NPT <sup>1</sup>	1200	65	45	3.2	2.5	70
○ MIXA 61H1200ED ○ MIXA 81H1200EH	XPT	1200	85	60	1.8	5.5	59
			120	84	1.8	8.3	90

## Brake / Buck / Boost Chopper IGBT Modules



MIXA...HU...



MIXA...Q...

Type	$V_{CES}$ V	$I_{C25}$ IGBT $T_C = 25^\circ\text{C}$ A	$I_{C80}$ IGBT $T_C = 80^\circ\text{C}$ A	$V_{CE(sat)}$ typ IGBT $T_J = 25^\circ\text{C}$ V	$E_{off}$ IGBT $T_J = 125^\circ\text{C}$ mJ	$R_{thJC}$ IGBT K/W	$I_{F25}$ Diode $T_C = 25^\circ\text{C}$ A
<b>X2PT™ IGBT Brake</b>							
◇ MIXG 240RF1200TED <sup>1)</sup>	1200	335	250	1.7	23 (150°C)	0.12	265
➤ MIXG 240RF1200PTED <sup>2)</sup>		335	250	1.7	23 (150°C)	0.12	265
➤ MIXG 240RF1200PTED-PC <sup>2) 3)</sup>		335	250	1.7	23 (150°C)	0.12	265
➤ MIXG 360RF1200TED <sup>1)</sup>		532	400	1.7	30 (150°C)	0.08	390
MIXG 360RF1200PTED-PC <sup>2) 3)</sup>		532	400	1.7	30 (150°C)	0.08	390
<b>Trench IGBT Brake</b>							
➤ MITA 300RF1700PTED <sup>2)</sup>	1700	450	310	1.7	34	0.09	390
➤ MITA 300RF1700PTED-PC <sup>2) 3)</sup>		450	310	1.7	34	0.09	390
<b>XPT™ IGBT Brake / Boost Chopper</b>							
MIXA 80R1200VA	1200	120	84	1.9	8.3	0.32	135
MIXA 150R1200VA		220	150	1.8	16	0.18	190
<b>XPT™ IGBT Buck Chopper</b>							
MIXA 150Q1200VA	1200	220	150	1.8	16	0.18	190
<b>XPT™ IGBT Buck / Boost switched reluctance Chopper</b>							
MIXA 60HU1200VA	1200	85	60	1.8	5.5	0.43	88

<sup>1)</sup> Options: press fit pin version and / or phase change material; please contact IXYS sales office for availability

<sup>2)</sup> press fit pin version      <sup>3)</sup> phase change material (PCM)

See data sheet for pin arrangements



X103 V1-Pack



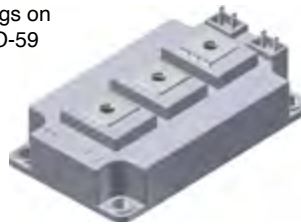
X112 E2-Pack



X112a E2-Pack PFF

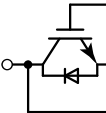
Type	$V_{CES}$	$I_{C25}$ IGBT $T_c = 25^\circ\text{C}$	$I_c$ IGBT	@ $T_c$ °C	$V_{CE(sat)}$ typ IGBT $T_j = 25^\circ\text{C}$	$E_{off}$ IGBT $T_j = 125^\circ\text{C}$	$V_F$ typ Diode $T_j = 25^\circ\text{C}$
➤ New	V	A	A		V	mJ	V
➤ MG0675S-BN4MM	600	100	75	70	1.45	2.40	1.55
➤ MG06100S-BN4MM		125	100	70	1.45	3.35	1.55
➤ MG06150S-BN4MM		225	150	60	1.45	5.30	1.55
➤ MG06200S-BN4MM		300	200	60	1.45	6.90	1.55
➤ MG12100S-BN2MM	1200	140	100	80	1.70	10.00	1.65
➤ MG12150S-BN2MM		200	150	80	1.70	14.50	1.65
➤ MG1750S-BN4MM	1700	75	50	80	2.00	15.50	1.80
➤ MG1775S-BN4MM		125	75	80	2.00	23.50	1.80
➤ MG17100S-BN4MM		150	100	80	2.00	32.50	1.80

Outline drawings on  
pages O-36...O-59



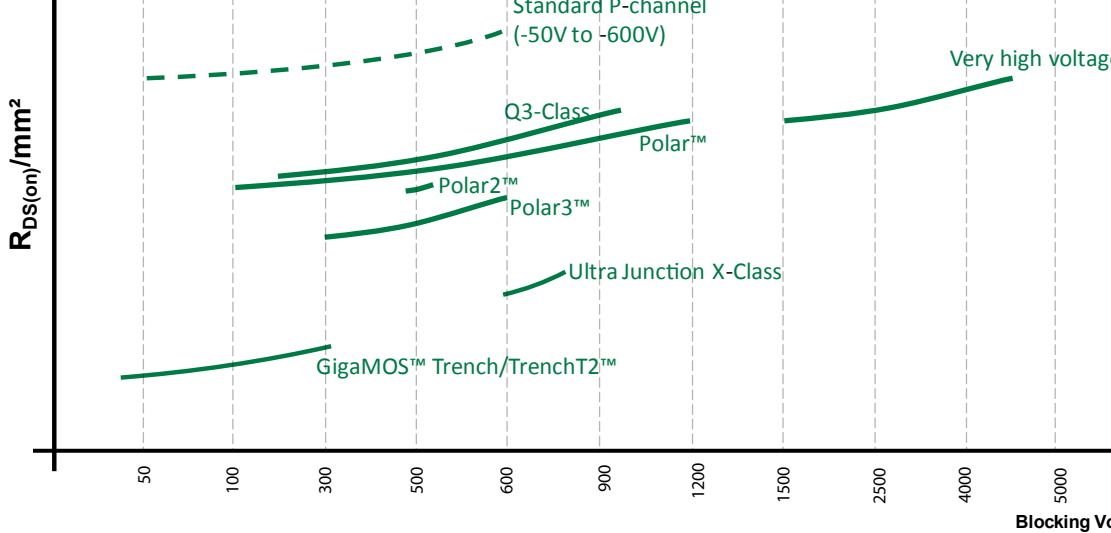
X128e

Modul-62mm



## 62 mm Package

➤ MG06300D-BN4MM	600	400	300	70	1.45	12	1.55
➤ MG06400D-BN4MM		500	400	70	1.45	15	1.55
➤ MG12200D-BN2MM	1200	290	200	80	1.70	25	1.65
➤ MG12300D-BN2MM		480	300	80	1.70	37	1.65
➤ MG12400D-BN2MM		580	400	80	1.70	50	1.65
➤ MG17100D-BN4MM	1700	150	100	80	2.00	31	1.80
➤ MG17150D-BN4MM		250	150	80	2.00	47	1.80
➤ MG17200D-BN4MM		300	200	80	2.00	63	1.80
➤ MG17300D-BN4MM		400	300	80	2.00	94	1.80



### Trench and Trench2 Power MOSFETs

IXYS Trench Power MOSFETs are ideally suited for low-voltage, high-current applications. These MOSFETs feature an unusually low  $R_{DS(on)}$ , thus guaranteeing low power dissipation. Trench HiPerFET™ versions feature all of the advantages of IXYS' Trench Standard Power MOSFETs with an added benefit of a fast intrinsic rectifier which provides low reverse charge ( $Q_{rr}$ ) and excellent commutating  $dV/dt$  ratings for enhanced power switching capabilities and device ruggedness.

### Polar™ Power MOSFETs

Polar™ MOSFETs (IXT..) feature a proprietary cell design and process that has resulted in a MOSFET with a significantly lower  $R_{DS(on)}$  per unit area along with a decrease in gate charge. IXYS has also reduced the wafer thickness, which substantially reduces the thermal resistance. The combination of lower  $R_{DS(on)}$ , lower gate charge  $Q_g$  and higher power dissipation capability has resulted in a new class of MOSFETs, which will increase the cost effectiveness in switch mode power supply (SMPS) applications. IXYS' Polar™ HiPerFETs™ (IXF..) combine the strengths of the Polar Standard product family with a faster body diode reverse recovery time ( $t_{rr}$ ) is reduced to make them suitable for phase-shift bridges, motor control and uninterruptible power supply applications (UPS). This family of HiPerFETs™ provide lowest  $R_{DS(on)}$ , low  $R_{thJC}$ , low  $Q_g$ , and enhanced  $DV/DT$  capability.

### PolarP2™ Power MOSFETs

PolarP2™ devices are an optimized range of the standard Polar platform for 500V device rating.

### PolarP3™ HiPerFET™ Power MOSFETs

The PolarP3™ HiPerFET™ product family is the latest addition to IXYS' benchmark high-performance Polar Standard product family for our product portfolio between 500V and 600V. Its high Figure of Merit (FOM) being the multiplication of  $Q_g$  and  $R_{DS(on)}$  makes it an excellent alternative to weaker super junction technologies. All IXYS Polar MOSFETs are tested 100% for reliability and ruggedness.

### X-Class Power MOSFETs

These devices are developed using a charge compensation principle and proprietary process technology, resulting in MOSFETs with significantly reduced resistance  $R_{DS(on)}$  and gate charge  $Q_g$ . They also exhibit a superior  $dV/dt$  capability. Designed for such applications as switched-mode and resonant-mode power supplies, DC-DC converters, PFC, DC motor drives, and robotic and servo control, these MOSFETs enable higher efficiency, along with high power density and system performance. The X2-Class Power MOSFETs, devices with fast body diodes and avalanche ratings, are also available.

### Q3-Class HiPerFET™ MOSFETs

Q3-Class HiPerFET™ MOSFETs (Identified by the suffix letter Q3) is the direct result of a revolutionary new cell design that decreases the MOSFETs total gate charge ( $Q_g$ ) and the Miller capacitance ( $C_{rss}$ ), while maintaining the ruggedness of the switching intrinsic diode of the company's current HiPerFET™ product line. The result is a MOSFET with dramatic improvements in switching efficiencies and thus enabling higher frequency operation and smaller power supplies.

bias safe operating area" (FBSOA) capability to overcome the limitations posed by conventional power MOSFETs in the current saturation region. These extended FBSOA Power MOSFETs are not intended for high speed switching

### Depletion-Mode MOSFET

Depletion-Mode Power MOSFETs operate in a 'normally-on' mode, not requiring energy or gate voltage for turn-on. In regular enhancement type MOSFETs these Depletion-Mode MOSFETs require a negative gate bias to turn off. They remain on at or above zero gate bias voltage but otherwise have similar MOSFET characteristics. The "normally-on" mode of these devices combined with an enhanced linear operating capability allows for an ideal device selection for current sources, current regulators, solid-state relays, level shifting, active loads, start-up circuits and active power filters. Since they require no energy or gate voltage for turn-on, high energy efficiency can be achieved through device implementation in "normally on" load switch applications. With the high degree of current regulation, these devices can also act as current sources with high dynamic impedance in power filter applications to limit voltage and current noise and spikes. Furthermore, they can provide active circuit protection to limit the surge of current during short-circuit or overload conditions.

### PolarP™ P-Channel Power MOSFETs

IXYS' Polar technology platform employed in our PolarP™ P-Channel MOSFETs utilizes a proprietary cell design for overall device efficiency and performance. This technology platform reduces on-state resistance by as much as 40% compared to legacy counterparts. With such low on-state resistances, these devices offer low conduction losses while a low input capacitance. The combination of low  $R_{DS(on)}$  and gate charge allow for improved switching performance. These P-Channel MOSFETs are dynamic dV/dt and avalanche rated making them extremely rugged in demanding environments and can easily be paralleled due to an on-state resistance with a positive temperature coefficient. They are suitable for 'high side' switching where a simple drive circuit referenced to ground can be used, circumventing additional 'high side' driver circuitry commonly involved when using an N-Channel MOSFET. This will help designers to reduce component count and improve reliability. Furthermore it allows for the design of a complementary power output stage, with a corresponding IXYS N-Channel MOSFET for a power half bridge stage with a simple drive circuit.

### TrenchP™ P-Channel Power MOSFETs

This family of P-Channel devices benefit from technological advances derived from IXYS' robust Trench cell technology implemented in their wide portfolio of industry recognized power devices. They feature an ultra low  $R_{DS(on)}$ , minimizing conduction losses and promoting improved operating and thermal efficiencies. These TrenchP™ P-Channel MOSFETs are suitable for 'high side' switching where a simple drive circuit referenced to ground can be employed, circumventing additional 'high side' driver circuitry commonly involved when using an N-Channel MOSFET. This enables designers to reduce component count, improving drive circuit simplicity and cost structure. Furthermore it allows for the design of a complementary power output stage with a corresponding IXYS N-Channel MOSFET, for a power half bridge stage with a simple drive circuit. Applications that will greatly benefit from these devices include high side switching, high current regulators, DC Choppers, DC-DC converters, amplifiers, push-pull amplifiers and power solid state relays.

### Very High Voltage Power MOSFETs

IXYS' VHV N-Channel Power MOSFETs are specifically designed to address demanding, fast-switching applications with switching capabilities of 2.5kV to 4.5kV. These VHV Power MOSFETs are also ideally suited for parallel operation due to the low temperature coefficient of their on-state resistance. Parallel operation with these devices provides a more cost-effective solution than employing series-connected, lower-voltage MOSFETs. The reduction or replacement of multiple series-connected devices and the associated gate drive circuitry commonly involved, simplifies design, improves reliability and reduces overall system cost. These VHV MOSFETs represent an optimal solution in applications such as laser and x-ray generation systems, power supplies, pulse circuits, high voltage automated test equipment and capacitor discharge circuits. 4.5kV devices feature high isolation capability with superior thermal performance.



IXTP 60N10T		60	0.0180	2650	49	59	0.85	176	X005a	
IXTA 60N10T		60	0.0180	2650	49	59	0.85	176	X011b	
IXTQ 60N10T		60	0.0180	2650	49	59	0.85	176	X017a	
IXTP 80N10T		80	0.0140	3040	60	100	0.65	230	X005a	X005a
IXTF 200N10T		90	0.0070	9400	152	76	0.96	156	X024d	
IXTL 2x180N10T		100	0.0074	6900	151	60	1.00	150	X022c	
IXTP 130N10T		130	0.0091	5080	104	67	0.42	360	X005a	
IXTH 130N10T		130	0.0091	5080	104	67	0.42	360	X014a	
IXTA 130N10T		130	0.0091	5080	104	67	0.42	360	X011b	X011b
IXTQ 130N10T		130	0.0091	5080	104	67	0.42	360	X017a	
IXTP 180N10T		180	0.0064	6900	151	72	0.31	480	X005a	
IXTH 180N10T		180	0.0064	6900	151	100	0.31	480	X014a	
IXTA 180N10T		180	0.0064	6900	151	72	0.31	480	X011b	
IXTQ 180N10T		180	0.0064	6900	151	100	0.31	480	X017a	X014a
IXTN 200N10T		200	0.0055	9400	152	76	0.30	550	X027a	
IXTH 200N10T		200	0.0055	9400	152	76	0.27	550	X014a	
IXTQ 200N10T		200	0.0055	9400	152	76	0.27	550	X017a	
IXTP 48N20T	200	48	0.0500	3090	60	130	0.50	250	X005a	
IXTA 48N20T		48	0.0500	3090	60	130	0.50	250	X011b	X017a
IXTQ 48N20T		48	0.0500	3090	60	130	0.50	250	X017a	
IXTP 60N20T		60	0.0400	4530	73	118	0.30	500	X005a	
IXTA 60N20T		60	0.0400	4530	73	118	0.30	500	X011b	
IXTQ 60N20T		60	0.0400	4530	73	118	0.30	500	X017a	
IXTP 86N20T		86	0.0290	4500	90	140	0.31	480	X005a	X022c
IXTA 86N20T		86	0.0290	4500	90	140	0.31	480	X011b	
IXTQ 86N20T		86	0.0290	4500	90	140	0.31	480	X017a	
IXTH 130N20T		130	0.0160	8800	150	150	0.18	830	X014a	
IXTP 50N25T	250	50	0.0600	4000	78	166	0.31	400	X005a	
IXTH 50N25T		50	0.0600	4000	78	166	0.31	400	X014a	
IXTA 50N25T		50	0.0600	4000	78	166	0.31	400	X011b	X024d
IXTQ 50N25T		50	0.0600	4000	78	166	0.31	400	X017a	
IXTP 76N25T		76	0.0390	4920	92	148	0.27	460	X005a	
IXTH 76N25T		76	0.0390	4920	92	148	0.27	460	X014a	
IXTA 76N25T		76	0.0390	4920	92	148	0.27	460	X011b	
IXTQ 76N25T		76	0.0390	4920	92	148	0.27	460	X017a	X027a 227B
IXTH 86N25T		86	0.0370	5330	105	156	0.23	540	X014a	
IXTQ 86N25T		86	0.0370	5330	105	156	0.23	540	X017a	
IXTH 96N25T		96	0.0290	6100	114	158	0.20	625	X014a	
IXTQ 96N25T		96	0.0290	6100	114	158	0.20	625	X017a	
IXTH 110N25T		110	0.0240	9400	157	170	0.18	694	X014a	

<b>IXFH 230N10T</b>		230	0.0047	15300	250	-82	0.23	650	X014a	
<b>IXFX 360N10T</b>		360	0.0029	33000	525	130	0.12	1250	X015a	
<b>IXFN 360N10T</b>		360	0.0026	33000	525	130	0.18	830	X027a	
<b>IXFK 360N10T</b>		360	0.0029	33000	525	130	0.12	1250	X020a	X005a
<b>IXFX 420N10T</b>		420	0.0026	47000	670	140	0.09	1670	X015a	
<b>IXFN 420N10T</b>		420	0.0023	47000	670	140	0.14	1070	X027a	
<b>IXFK 420N10T</b>		420	0.0026	47000	670	140	0.09	1670	X020a	
<b>IXFA 102N15T</b>	150	102	0.0180	5220	87	120	0.33	455	X011b	X011b
<b>IXFH 102N15T</b>		102	0.0180	5220	87	120	0.33	455	X014a	
<b>IXFP 102N15T</b>		102	0.0180	5220	87	120	0.33	455	X005a	
<b>IXFH 160N15T</b>		160	0.0096	8800	160	90	0.18	830	X014a	
<b>IXFH 150N20T</b>	200	150	0.0150	11700	177	-100	0.14	890	X014a	
<b>IXFT 150N20T</b>		150	0.0150	11700	177	-100	0.14	890	X019	X014a
<b>IXFR 230N20T</b>		156	0.0080	28000	378	200	0.25	600	X016a	
<b>IXFX 170N20T</b>		170	0.0110	19600	265	200	0.13	1150	X015a	
<b>IXFK 170N20T</b>		170	0.0110	19600	265	200	0.13	1150	X020a	
<b>IXFN 230N20T</b>		220	0.0075	28000	378	200	0.138	1090	X027a	
<b>IXFX 230N20T</b>		230	0.0075	28000	378	200	0.09	1670	X015a	X015a
<b>IXFK 230N20T</b>		230	0.0075	28000	378	200	0.90	1670	X020a	
<b>IXFZ 140N25T</b>	250	100	0.0170	19000	255	200	0.28	445	D5	
<b>IXFH 110N25T</b>		110	0.0240	9400	157	170	0.18	694	X014a	
<b>IXFH 120N25T</b>		120	0.0230	11300	180	-108	0.14	890	X014a	
<b>IXFT 120N25T</b>		120	0.0230	11300	180	-108	0.14	890	X019	X016a
<b>IXFN 140N25T</b>		120	0.0170	19000	255	200	0.18	690	X027a	
<b>IXFX 140N25T</b>		140	0.0170	19000	255	200	0.13	960	X015a	
<b>IXFK 140N25T</b>		140	0.0170	19000	255	200	0.13	960	X020a	
<b>IXFN 180N25T</b>		168	0.0129	23800	364	200	0.138	900	X027a	
<b>IXFX 180N25T</b>		180	0.0129	23800	364	200	0.09	1390	X015a	X019
<b>IXFK 180N25T</b>		180	0.0129	23800	364	200	0.09	1390	X020a	
<b>IXFH 46N30T</b>	300	46	0.0800	4770	86	150	0.27	460	X014a	
<b>IXFT 46N30T</b>		46	0.0800	4770	86	150	0.27	460	X019	
<b>IXFH 86N30T</b>		86	0.0430	11300	180	150	0.15	830	X014a	
<b>IXFT 86N30T</b>		86	0.0430	11300	180	150	0.15	830	X019	X020a
<b>IXFH 94N30T</b>		94	0.0360	11400	190	-155	0.14	890	X014a	
<b>IXFT 94N30T</b>		94	0.0360	11400	190	-155	0.14	890	X019	
<b>IXFX 120N30T</b>		120	0.0240	20000	265	200	0.13	960	X015a	
<b>IXFK 120N30T</b>		120	0.0240	20000	265	200	0.13	960	X020a	
<b>IXFN 160N30T</b>		130	0.0190	28000	335	200	0.138	900	X027a	X027a 227B
<b>IXFX 160N30T</b>		160	0.0190	28000	335	200	0.09	1390	X015a	
<b>IXFK 160N30T</b>		160	0.0190	28000	335	200	0.09	1390	X020a	

IXTA 120N04T2		120	0.0061	3240	58	35	0.75	200	X011b	
IXTP 160N04T2		160	0.0050	4640	79	40	0.60	250	X005a	
IXTA 160N04T2		160	0.0050	4640	79	40	0.60	250	X011b	X004
IXTP 220N04T2		220	0.0035	6820	112	45	0.42	360	X005a	
IXTA 220N04T2		220	0.0035	6820	112	45	0.42	360	X011b	
IXTP 300N04T2		300	0.0025	10700	145	53	0.31	480	X005a	
IXTH 300N04T2		300	0.0025	10700	145	53	0.31	480	X014a	
IXTA 300N04T2		300	0.0025	10700	145	53	0.31	480	X011b	
IXTH 420N04T2		420	0.0020	19700	315	74	0.16	935	X014a	X005a
IXTH 500N04T2		500	0.0016	25000	405	84	0.15	1000	X014a	
IXTT 500N04T2		500	0.0016	25000	405	84	0.15	1000	X019	
IXTX 600N04T2		600	0.0015	40000	590	100	0.12	1250	X015a	
IXTN 600N04T2		600	0.00105	40000	590	100	0.16	940	X027a	
IXTK 600N04T2		600	0.0015	40000	590	100	0.12	1250	X020a	
IXTA 90N055T2	55	90	0.0084	2770	42	37	1.00	150	X011b	X011b
IXTP 90N055T2		90	0.0084	2770	42	37	1.00	150	X005a	
IXTY 90N055T2		90	0.0084	2770	42	37	1.00	150	X004	
IXTP 110N055T2		110	0.0066	3060	57	38	0.82	180	X005a	
IXTA 110N055T2		110	0.0066	3060	57	38	0.82	180	X011b	
IXTP 140N055T2		140	0.0054	4760	82	40	0.60	250	X005a	X014a
IXTA 140N055T2		140	0.0054	4760	82	40	0.60	250	X011b	
IXTP 200N055T2		200	0.0042	6970	109	49	0.42	360	X005a	
IXTA 200N055T2		200	0.0042	6970	109	49	0.42	360	X011b	
IXTP 260N055T2		260	0.0033	10800	140	60	0.31	480	X005a	
IXTH 260N055T2		260	0.0033	10800	140	60	0.31	480	X014a	
IXTA 260N055T2		260	0.0033	10800	140	60	0.31	480	X011b	X015a
IXTH 360N055T2		360	0.0024	20000	330	78	0.16	935	X014a	
IXTT 360N055T2		360	0.0024	20000	330	78	0.16	935	X019	
IXTH 440N055T2		440	0.0018	25000	405	76	0.15	1000	X014a	
IXTT 440N055T2		440	0.0018	25000	405	76	0.15	1000	X019	
IXTX 550N055T2		550	0.0016	40000	595	100	0.12	1250	X015a	
IXTN 550N055T2		550	0.0013	40000	595	100	0.16	940	X027a	X019
IXTK 550N055T2		550	0.0016	40000	595	100	0.12	1250	X020a	
IXTZ 550N055T2		550	0.0010	40000	595	100	0.25	600	D5	
IXTP 130N065T2	65	130	0.0066	4800	79	41	0.60	250	X005a	
IXTA 130N065T2		130	0.0066	4800	79	41	0.60	250	X011b	
IXTP 70N075T2	75	70	0.0120	2580	46	48	1.00	150	X005a	X020a
IXTA 70N075T2		70	0.0120	2580	46	48	1.00	150	X011b	
IXTP 90N075T2		90	0.0100	3290	54	50	0.82	180	X005a	
IXTA 90N075T2		90	0.0100	3290	54	50	0.82	180	X011b	
IXTP 120N075T2		120	0.0077	4740	78	50	0.60	250	X005a	
IXTA 120N075T2		120	0.0077	4740	78	50	0.60	250	X011b	X027a
IXTP 170N075T2		170	0.0054	6860	109	63	0.42	360	X005a	227B
IXTA 170N075T2		170	0.0054	6860	109	63	0.42	360	X011b	
IXTP 230N075T2		230	0.0042	10.5	178	66	0.31	480	X005a	
IXTA 230N075T2		230	0.0042	10.5	178	66	0.31	480	X011b	
IXTP 80N12T2	120	80	0.0170	4740	80	90	0.46	325	X005a	
IXTA 80N12T2		80	0.0170	4740	80	90	0.46	325	X011b	

## TrenchT2™ HiPerFET™ Power MOSFETs

IXFP 230N075T2	75	230	0.0042	10500	178	59	0.31	480	X005a	D5	
IXFH 230N075T2		230	0.0042	10500	178	59	0.31	480	X014a		
IXFA 230N075T2		230	0.0042	10500	178	59	0.31	480	X011b		
IXFH 340N075T2		340	0.0032	19000	300	75	0.16	935	X014a		
IXFT 340N075T2		340	0.0032	19000	300	75	0.16	935	X019		X005a
IXFH 400N075T2		400	0.0023	24000	420	77	0.15	1000	X014a		
IXFT 400N075T2		400	0.0023	24000	420	77	0.15	1000	X019		
IXFZ 520N075T2		420	0.0016	41000	545	n/a	0.25	600	D5		
IXFN 520N075T2		480	0.0019	41000	545	n/a	0.16	940	X027a	X007a	
IXFX 520N075T2		520	0.0022	41000	545	n/a	0.12	1250	X015a		
IXFK 520N075T2		520	0.0022	41000	545	n/a	0.12	1250	X020a		
IXFP 130N10T2	100	130	0.0091	6600	130	n/a	0.42	360	X005a	X011b	
IXFA 130N10T2		130	0.0091	6600	130	n/a	0.42	360	X011b		
IXFP 180N10T2		180	0.0060	10500	185	66	0.31	480	X005a		
IXFA 180N10T2		180	0.0060	10500	185	66	0.31	480	X011b		
IXFH 320N10T2		320	0.0035	25000	430	98	0.15	1000	X014a		X014a
IXFT 320N10T2		320	0.0035	26000	430	98	0.15	1000	X019		
IXFP 76N15T2	150	76	0.0200	5800	97	69	0.43	350	X007a	X015a	
IXFA 76N15T2		76	0.0200	5800	97	69	0.43	350	X011b		
IXFP 110N15T2		110	0.0130	8600	150	85	0.31	480	X005a		
IXFH 110N15T2		110	0.0130	8600	150	85	0.31	480	X014a		
IXFA 110N15T2		110	0.0130	8600	150	85	0.31	480	X011b		
IXFH 160N15T2		160	0.0090	15000	253	n/a	0.17	880	X014a		
IXFX 240N15T2		240	0.0052	32000	460	n/a	0.12	1250	X015a		X019
IXFN 240N15T2		240	0.0052	32000	460	n/a	0.18	830	X027a		
IXFK 240N15T2		240	0.0052	32000	460	n/a	0.12	1250	X020a		
IXFN 360N15T2		310	0.0040	47500	715	n/a	0.14	1070	X027a		X020a
IXFX 360N15T2		360	0.0040	47500	715	n/a	0.09	1670	X015a		
IXFK 360N15T2		360	0.0040	47500	715	n/a	0.09	1670	X020a		
IXFX 220N17T2	170	220	0.0063	31000	500	n/a	0.12	1250	X015a	X027a 227B	
IXFK 220N17T2		220	0.0063	31000	500	n/a	0.12	1250	X020a		
IXFN 320N17T2		260	0.0052	45000	640	n/a	0.14	1070	X027a		
IXFX 320N17T2		320	0.0052	45000	640	n/a	0.09	1670	X015a		
IXFK 320N17T2		320	0.0052	45000	640	n/a	0.09	1670	X020a		
IXFH 150N17T2	175	150	0.0120	14600	233	n/a	0.17	880	X014a	X027a 227B	
IXFT 150N17T2		150	0.0120	14600	233	n/a	0.17	880	X019		

<b>IXFP 220N06T3</b>		220	0.0040	8500	136	38	0.340	440	X005a
<b>IXFA 270N06T3</b>		270	0.0031	12600	200	47	0.310	480	X011b
<b>IXFH 270N06T3</b>		270	0.0031	12600	200	47	0.310	480	X014a
<b>IXFP 270N06T3</b>		270	0.0031	12600	200	47	0.310	480	X005a

X007a

## TrenchT4™ Power MOSFETs

Part Type	V <sub>DSS</sub>	I <sub>D(cont)</sub> Chip T <sub>C</sub> = 25°C	R <sub>DS(on)</sub> T <sub>C</sub> = 25°C	C <sub>iss</sub> typ.	Q <sub>g</sub> typ.	t <sub>rr</sub> typ.	R <sub>thJC</sub>	P <sub>D</sub>	Fig. No.
> New	V	A	Ω	pF	nC	ns	K/W	W	
<b>IXTA 380N036T4-7</b>	36	380	0.0010	13400	260	54	0.310	480	X012c
<b>IXTA 230N04T4</b>	40	230	0.0029	7400	140	32	0.440	340	X011b
<b>IXTP 230N04T4</b>		230	0.0029	7400	140	32	0.440	340	X005a
> <b>IXTP 230N04T4M</b>		230	0.0029	7400	140	32	3.750	40	X007a
<b>IXTP 270N04T4</b>		270	0.0024	9140	182	48	0.400	375	X005a
<b>IXTA 270N04T4-7</b>		270	0.0022	9140	182	48	0.400	375	X012c
<b>IXTH 270N04T4</b>		270	0.0024	9140	182	48	0.400	375	X014a
<b>IXTA 270N04T4</b>		270	0.0022	9140	182	48	0.400	375	X011b
<b>IXTA 340N04T4</b>		340	0.0017	13000	256	43	0.310	480	X011b
<b>IXTA 340N04T4-7</b>		340	0.0017	13000	256	43	0.310	480	X012c
<b>IXTH 340N04T4</b>		340	0.0019	13000	256	43	0.310	480	X014a
<b>IXTP 340N04T4</b>		340	0.0019	13000	256	43	0.310	480	X005a
<b>IXTT 440N04T4HV</b>		440	0.00125	26000	480	72	0.160	940	X019a
<b>IXTN 660N04T4</b>		660	0.00085	44000	860	60	0.144	1040	X027a

X011b

X012c

X027a

**SOT-227B**  
**miniBLOC**



X019a

**TO-268HV**



X014a

IXTQ 110N10P		110	0.015	3550	110	130	0.31	480	X017a	
IXTR 200N10P		120	0.008	7600	235	100	0.50	300	X016a	
IXTT 140N10P		140	0.011	4700	155	120	0.25	600	X019	
IXTQ 140N10P		140	0.011	4700	155	120	0.25	600	X017a	
IXTK 170N10P		170	0.009	6000	198	120	0.21	715	X020a	
IXTT 170N10P		170	0.009	6000	198	120	0.21	715	X019	
IXTQ 170N10P		170	0.009	6000	198	120	0.21	715	X017a	
IXTK 200N10P		200	0.0075	7600	240	100	0.18	800	X020a	X011b
IXTP 62N15P	150	62	0.040	2250	70	150	0.42	350	X005a	
IXTA 62N15P		62	0.040	2250	70	150	0.42	350	X011b	
IXTQ 62N15P		62	0.040	2250	70	150	0.42	350	X017a	
IXTT 96N15P		96	0.024	3500	110	150	0.31	480	X019	
IXTQ 96N15P		96	0.024	3500	110	150	0.31	480	X017a	
IXTT 120N15P		120	0.016	4900	150	150	0.25	600	X019	
IXTQ 120N15P		120	0.016	4900	150	150	0.25	600	X017a	
IXTK 150N15P		150	0.013	5800	190	150	0.21	714	X020a	X014a
IXTQ 150N15P		150	0.013	5800	190	150	0.21	714	X017a	
IXTK 180N15P		180	0.010	7000	240	150	0.18	800	X020a	
IXTP 50N20P	200	50	0.060	2720	70	150	0.42	360	X005a	
IXTA 50N20P		50	0.060	2720	70	150	0.42	360	X011b	
IXTQ 50N20P		50	0.060	2720	70	150	0.42	360	X017a	
IXTT 74N20P		74	0.034	3300	107	160	0.31	480	X019	
IXTQ 74N20P		74	0.034	3300	107	160	0.31	480	X017a	
IXTH 96N20P		96	0.024	4800	145	160	0.25	600	X014a	X016a
IXTT 96N20P		96	0.024	4800	145	160	0.25	600	X019	
IXTQ 96N20P		96	0.024	4800	145	160	0.25	600	X017a	
IXTK 120N20P		120	0.022	6000	152	180	0.21	714	X020a	
IXTQ 120N20P		120	0.022	6000	152	180	0.21	714	X017a	
IXTK 140N20P		140	0.018	7500	240	180	0.18	800	X020a	
IXTP 42N25P	250	42	0.084	2300	70	200	0.42	300	X005a	
IXTA 42N25P		42	0.084	2300	70	200	0.42	300	X011b	
IXTQ 42N25P		42	0.084	2300	70	200	0.42	300	X017a	X017a
IXTT 64N25P		64	0.049	3450	105	200	0.31	400	X019	
IXTQ 64N25P		64	0.049	3450	105	200	0.31	400	X017a	
IXTK 82N25P		82	0.035	4800	142	200	0.25	500	X020a	
IXTT 82N25P		82	0.035	4800	142	200	0.25	500	X019	
IXTQ 82N25P		82	0.035	4800	142	200	0.25	500	X017a	
IXTK 100N25P		100	0.027	6300	185	200	0.21	600	X020a	
IXTT 100N25P		100	0.027	6300	185	200	0.21	600	X019	
IXTQ 100N25P		100	0.027	6300	185	200	0.21	600	X017a	X019
IXTK 120N25P		120	0.024	8700	185	200	0.18	700	X020a	
IXTP 36N30P	300	36	0.110	2250	70	250	0.42	300	X005a	
IXTA 36N30P		36	0.110	2250	70	250	0.42	300	X011b	
IXTQ 36N30P		36	0.110	2250	70	250	0.42	300	X017a	
IXTT 52N30P		52	0.066	3490	110	250	0.31	400	X019	
IXTQ 52N30P		52	0.066	3490	110	250	0.31	400	X017a	
IXTT 69N30P		69	0.049	4960	156	330	0.25	500	X019	
IXTQ 69N30P		69	0.049	4960	156	330	0.25	500	X017a	X020a
IXTH 88N30P		88	0.040	6300	180	250	0.21	600	X014a	
IXTK 88N30P		88	0.040	6300	180	250	0.21	600	X020a	
IXTT 88N30P		88	0.040	6300	180	250	0.21	600	X019	
IXTQ 88N30P		88	0.040	6300	180	250	0.21	600	X017a	
IXTK 102N30P		102	0.033	7500	224	250	0.18	700	X020a	
IXTK 140N30P		140	0.240	14800	185	250	0.12	1040	X020a	

IXTQ 10N50P		10	0.40	2400	40	400	0.42	300	X017a	
IXTH 22N50P		22	0.27	2880	50	400	0.35	350	X014a	
IXTQ 22N50P		22	0.27	2880	50	400	0.35	350	X017a	
IXTT 26N50P		26	0.23	3600	65	300	0.31	400	X019	
IXTQ 26N50P		26	0.23	3600	65	300	0.31	400	X017a	
IXTH 30N50P		30	0.20	4150	70	400	0.27	460	X014a	
IXTT 30N50P		30	0.20	4150	70	400	0.27	460	X019	
IXTQ 30N50P		30	0.20	4150	70	400	0.27	460	X017a	X004a
IXTH 36N50P		36	0.17	4700	82	400	0.23	540	X014a	
IXTT 36N50P		36	0.17	4700	82	400	0.23	540	X019	
IXTQ 36N50P		36	0.17	4700	82	400	0.23	540	X017a	
IXTQ 44N50P		44	0.14	5440	98	400	0.19	650	X017a	
IXTP 10N60P	600	10	0.74	1720	32	500	0.62	200	X005a	
IXTA 10N60P		10	0.74	1720	32	500	0.62	200	X011b	
IXTP 14N60P		14	0.55	2500	36	500	0.42	300	X005a	
IXTA 14N60P		14	0.55	2500	36	500	0.42	300	X011b	X005a
IXTQ 14N60P		14	0.55	2500	36	500	0.42	300	X017a	
IXTQ 18N60P		18	0.42	2500	49	500	0.35	360	X017a	
IXTQ 22N60P		22	0.35	3600	62	500	0.31	400	X017a	
IXTH 26N60P		26	0.27	4150	72	500	0.27	460	X014a	
IXTT 26N60P		26	0.27	4150	72	500	0.27	460	X019	
IXTQ 26N60P		26	0.27	4150	72	500	0.27	460	X017a	
IXTH 30N60P		30	0.24	5050	82	500	0.23	540	X014a	
IXTT 30N60P		30	0.24	5050	82	500	0.23	540	X019	
IXTQ 30N60P		30	0.24	5050	82	500	0.23	540	X017a	X011b
IXTP 05N100P	1000	0.5	30	196	8.1	750	2.50	50	X005a	
IXTA 05N100P		0.5	30	196	8.1	750	2.50	50	X011b	
IXTP 08N100P		0.8	20	240	11.3	750	3.00	42	X005a	
IXTY 08N100P		0.8	20	240	11.3	750	3.00	42	X004	
IXTA 08N100P		0.8	20	240	11.3	750	3.00	42	X011b	
IXTP 1N100P		1.0	15	331	15.5	750	2.50	50	X005a	
IXTY 1N100P		1.0	15	331	15.5	750	2.50	50	X004	
IXTA 1N100P		1.0	15	331	15.5	750	2.50	50	X011b	
IXTP 1R4N100P		1.4	11	450	17.8	750	2.00	63	X005a	X014a
IXTY 1R4N100P		1.4	11	450	17.8	750	2.00	63	X004	
IXTA 1R4N100P		1.4	11	666	17.8	750	2.00	63	X011b	
IXTP 2N100P		2.0	7.5	655	24.3	800	1.45	86	X005a	
IXTY 2N100P		2.0	7.5	655	24.3	800	1.45	86	X004	
IXTA 2N100P		2.0	7.5	655	24.3	800	1.45	86	X011b	
IXTP 3N100P		3.0	4.8	1100	39	820	1.00	125	X005a	
IXTH 3N100P		3.0	4.8	1100	39	820	1.00	125	X014a	
IXTA 3N100P		3.0	4.8	1100	39	820	1.00	125	X011b	
IXTP 02N120P	1200	0.2	75	104	4.7	1600	3.80	33	X005a	X017a
IXTY 02N120P		0.2	75	104	4.7	1600	3.80	33	X004	
IXTP 06N120P		0.6	34	236	13.3	900	3.00	42	X005a	
IXTA 06N120P		0.6	34	236	13.3	900	3.00	42	X011b	
IXTP 08N120P		0.8	25	333	14	900	2.50	50	X005a	
IXTA 08N120P		0.8	25	333	14	900	2.50	50	X011b	
IXTP 1N120P		1.0	20	445	17.6	900	2.00	63	X005a	
IXTA 1N120P		1.0	20	445	17.6	900	2.00	63	X011b	
IXTP 1R4N120P		1.4	13	666	24.8	900	1.45	86	X005a	X019
➤ IXTY 1R4N120P		1.4	13	666	24.8	900	1.45	86	X004	
➤ IXTY 1R4N120PHV		1.4	13	666	24.8	900	1.45	86	X004a	
IXTA 1R4N120P		1.4	13	725	24.8	900	1.45	86	X011b	
IXTP 2R4N120P		2.4	7.5	1207	37	920	1.00	125	X005a	
IXTH 2R4N120P		2.4	7.5	1207	37	920	1.00	125	X014a	
IXTA 2R4N120P		2.4	7.5	1207	37	920	1.00	125	X011b	



IXFT 140N10P		140	0.0110	4700	155	150	0.25	600	X019	
IXFH 170N10P		170	0.0090	6000	198	150	0.21	715	X014a	
IXFK 170N10P		170	0.0090	6000	198	150	0.21	715	X020a	
IXFX 200N10P		200	0.0075	7600	235	150	0.18	830	X015a	
IXFN 200N10P		200	0.0075	7600	235	150	0.22	680	X027a	
IXFK 200N10P		200	0.0075	7600	235	150	0.18	830	X020a	
IXFX 250N10P		250	0.0065	16000	205	200	0.12	1250	X015a	X015a
IXFK 250N10P		250	0.0065	16000	205	200	0.12	1250	X020a	
IXFN 300N10P		295	0.0055	23	279	200	0.14	1070	X027a	
IXFB 300N10P		300	0.0055	23	279	200	0.10	1500	X021a	
IXFH 96N15P	150	96	0.0240	3500	110	200	0.31	480	X014a	
IXFR 180N15P		100	0.0130	7000	240	200	0.50	300	X016a	
IXFH 120N15P		120	0.0160	4900	150	200	0.25	600	X014a	
IXFT 120N15P		120	0.0160	4900	150	200	0.25	600	X019	
IXFN 180N15P		150	0.0110	7000	240	200	0.22	680	X027a	
IXFH 150N15P		150	0.0130	5800	190	200	0.21	714	X014a	X016a
IXFK 150N15P		150	0.0130	5800	190	200	0.21	714	X020a	
IXFX 180N15P		180	0.0110	7000	240	200	0.18	830	X015a	
IXFK 180N15P		180	0.0110	7000	240	200	0.18	830	X020a	
IXFX 220N15P		220	0.0090	15.4	162	200	0.12	1250	X015a	
IXFK 220N15P		220	0.0090	15.4	162	200	0.12	1250	X020a	
IXFH 74N20P	200	74	0.0340	3300	107	200	0.31	480	X014a	
IXFR 140N20P		90	0.0220	7500	240	200	0.50	300	X016a	X019
IXFH 96N20P		96	0.0240	4800	145	200	0.25	600	X014a	
IXFT 96N20P		96	0.0240	4800	145	200	0.25	600	X019	
IXFN 140N20P		115	0.0180	7500	240	200	0.22	680	X027a	
IXFH 120N20P		120	0.0220	6000	152	200	0.21	714	X014a	
IXFK 120N20P		120	0.0220	6000	152	200	0.21	714	X020a	
IXFK 140N20P		140	0.0180	7500	240	200	0.18	830	X020a	
IXFX 170N20P		170	0.0140	11.4	185	200	0.12	1250	X015a	X020a
IXFK 170N20P		170	0.0140	11.4	185	200	0.12	1250	X020a	
IXFN 210N20P		188	0.0105	18.6	255	200	0.14	1070	X027a	
IXFB 210N20P		210	0.0105	18.6	255	200	0.10	1500	X021a	
IXFH 100N25P	250	100	0.0270	6300	185	200	0.21	600	X014a	
IXFX 120N25P		120	0.0240	8700	185	200	0.18	700	X015a	
IXFK 120N25P		120	0.0240	8700	185	200	0.18	700	X020a	
IXFH 52N30P	300	52	0.0660	3490	110	200	0.31	400	X014a	X021a
IXFR 102N30P		60	0.0360	7500	224	200	0.50	250	X016a	
IXFH 69N30P		69	0.0490	4960	156	200	0.25	500	X014a	
IXFT 69N30P		69	0.0490	4960	156	200	0.25	500	X019	
IXFR 140N30P		70	0.0260	14800	185	200	0.35	360	X016a	
IXFN 102N30P		86	0.0330	7500	224	200	0.22	570	X027a	
IXFH 88N30P		88	0.0400	6300	180	200	0.21	600	X014a	
IXFK 88N30P		88	0.0400	6300	180	200	0.21	600	X020a	X027a
IXFT 88N30P		88	0.0400	6300	180	200	0.21	600	X019	227B
IXFK 102N30P		102	0.0330	7500	224	200	0.18	700	X020a	
IXFN 140N30P		110	0.0240	14800	185	200	0.18	700	X027a	
IXFN 170N30P		138	0.0018	20	258	200	0.14	890	X027a	
IXFX 140N30P		140	0.0240	14800	185	200	0.12	1040	X015a	
IXFK 140N30P		140	0.0240	14800	185	200	0.12	1040	X020a	
IXFB 170N30P		170	0.0180	20	258	200	0.10	1250	X021a	

<b>IXFH 16N50P</b>		16	0.400	2480	43	200	0.42	300	X014a	
<b>IXFA 16N50P</b>		16	0.400	2480	43	200	0.42	300	X011b	
<b>IXFR 36N50P</b>		19	0.190	5500	93	200	0.75	156	X016a	X011b
<b>IXFH 22N50P</b>		22	0.270	2880	50	200	0.35	350	X014a	
<b>IXFR 44N50P</b>		24	0.150	5440	98	200	0.60	208	X016a	
<b>IXFH 26N50P</b>		26	0.230	3600	60	200	0.31	400	X014a	
<b>IXFH 30N50P</b>		30	0.200	4150	70	200	0.27	460	X014a	
<b>IXFT 30N50P</b>		30	0.200	4150	70	200	0.27	460	X019	X014a
<b>IXFH 36N50P</b>		36	0.170	5500	93	200	0.23	540	X014a	
<b>IXFT 36N50P</b>		36	0.170	5500	93	200	0.23	540	X019	
<b>IXFR 64N50P</b>		37	0.095	9700	150	200	0.42	300	X016a	
<b>IXFH 44N50P</b>		44	0.140	5440	98	200	0.19	650	X014a	
<b>IXFK 44N50P</b>		44	0.140	5440	98	200	0.19	650	X020a	X015a
<b>IXFT 44N50P</b>		44	0.140	5440	98	200	0.19	650	X019	
<b>IXFR 80N50P</b>		45	0.072	12700	197	200	0.35	360	X016a	
<b>IXFN 64N50P</b>		50	0.085	9700	150	200	0.20	625	X027a	
<b>IXFX 64N50P</b>		64	0.085	9700	150	200	0.15	830	X015a	
<b>IXFK 64N50P</b>		64	0.085	9700	150	200	0.15	830	X020a	
<b>IXFN 80N50P</b>		66	0.065	12700	195	200	0.18	700	X027a	X016a
<b>IXFL 100N50P</b>		68	0.052	20000	240	200	0.20	625	X022a	
<b>IXFX 80N50P</b>		80	0.065	12700	197	200	0.12	1040	X015a	
<b>IXFK 80N50P</b>		80	0.065	12700	197	200	0.12	1040	X020a	
<b>IXFN 100N50P</b>		90	0.049	20000	240	200	0.12	1040	X027a	
<b>IXFB 100N50P</b>		100	0.049	20000	240	200	0.10	1250	X021a	X019
<b>IXFP 10N60P</b>	600	10	0.740	1720	32	200	0.62	200	X005a	
<b>IXFA 10N60P</b>		10	0.740	1720	32	200	0.62	200	X011b	
<b>IXFP 14N60P</b>		14	0.550	2500	36	200	0.42	300	X005a	
<b>IXFH 14N60P</b>		14	0.550	2500	36	200	0.42	300	X014a	
<b>IXFA 14N60P</b>		14	0.550	2500	36	200	0.42	300	X011b	
<b>IXFR 30N60P</b>		15	0.250	3820	85	200	0.75	166	X016a	X020a
<b>IXFH 18N60P</b>		18	0.400	2500	50	200	0.35	360	X014a	
<b>IXFR 36N60P</b>		20	0.200	5800	102	200	0.60	208	X016a	
<b>IXFH 22N60P</b>		22	0.350	3600	58	200	0.31	400	X014a	
<b>IXFH 26N60P</b>		26	0.270	4150	72	200	0.27	460	X014a	
<b>IXFT 26N60P</b>		26	0.270	4150	72	200	0.27	460	X019	X021a
<b>IXFH 30N60P</b>		30	0.240	4000	82	200	0.25	500	X014a	
<b>IXFT 30N60P</b>		30	0.240	4000	82	200	0.25	500	X019	
<b>IXFR 48N60P</b>		32	0.150	8860	150	200	0.42	300	X016a	
<b>IXFR 64N60P</b>		36	0.105	12000	200	200	0.35	360	X016a	
<b>IXFH 36N60P</b>		36	0.190	5800	102	200	0.19	650	X014a	X022a
<b>IXFK 36N60P</b>		36	0.190	5800	102	200	0.19	650	X020a	
<b>IXFT 36N60P</b>		36	0.190	5800	102	200	0.19	650	X019	
<b>IXFN 48N60P</b>		40	0.140	8860	150	200	0.20	625	X027a	
<b>IXFX 48N60P</b>		48	0.135	8860	150	200	0.15	830	X015a	
<b>IXFK 48N60P</b>		48	0.135	8860	150	200	0.15	830	X020a	X027a
<b>IXFN 64N60P</b>		50	0.096	12000	200	200	0.18	700	X027a	<b>227B</b>
<b>IXFL 82N60P</b>		55	0.078	23000	240	200	0.20	625	X022a	
<b>IXFX 64N60P</b>		64	0.096	12000	200	200	0.12	1040	X015a	
<b>IXFK 64N60P</b>		64	0.096	12000	200	200	0.12	1040	X020a	
<b>IXFN 82N60P</b>		72	0.075	23000	240	200	0.12	1040	X027a	
<b>IXFB 82N60P</b>		82	0.075	23000	240	200	0.10	1250	X021a	

IXFP 10N80P		10	1.100	2050	40	250	0.42	300	X005a	X011b
IXFH 10N80P		10	1.100	2050	40	250	0.42	300	X014a	
IXFA 10N80P		10	1.100	2050	40	250	0.42	300	X011b	
IXFQ 10N80P		10	1.100	2050	40	250	0.42	300	X017a	
IXFH 12N80P		12	0.850	2800	51	250	0.35	360	X014a	X014a
IXFR 24N80P		13	0.420	7200	105	250	0.60	208	X016a	
IXFH 14N80P		14	0.720	3900	61	250	0.31	400	X014a	X015a
IXFT 14N80P		14	0.720	3900	61	250	0.31	400	X019	
IXFQ 14N80P		14	0.720	3900	61	250	0.31	400	X017a	
IXFH 16N80P		16	0.600	4000	70	250	0.27	460	X014a	
IXFT 16N80P		16	0.600	4000	70	250	0.27	460	X019	
IXFR 32N80P		20	0.290	8800	150	250	0.42	300	X016a	X016a
IXFH 20N80P		20	0.520	4685	86	250	0.25	500	X014a	
IXFT 20N80P		20	0.520	4685	86	250	0.25	500	X019	
IXFH 24N80P		24	0.400	5800	100	250	0.19	650	X014a	
IXFK 24N80P		24	0.400	7200	105	250	0.19	650	X020a	
IXFT 24N80P		24	0.400	5800	100	250	0.19	650	X019	
IXFR 44N80P		26	0.190	12000	200	250	0.35	360	X016a	X017a
IXFN 32N80P		29	0.270	8820	150	250	0.20	625	X027a	
IXFX 32N80P		32	0.270	8800	150	250	0.15	830	X015a	X019
IXFK 32N80P		32	0.270	8800	150	250	0.15	830	X020a	
IXFN 44N80P		39	0.190	18000	200	250	0.18	694	X027a	
IXFL 60N80P		40	0.150	18000	250	250	0.20	625	X022a	
IXFX 44N80P		44	0.190	12000	198	250	0.12	1200	X015a	X020a
IXFK 44N80P		44	0.190	12000	198	250	0.12	1200	X020a	
IXFN 60N80P		53	0.140	18000	250	250	0.12	1040	X027a	
IXFB 60N80P		60	0.140	18000	250	250	0.10	1250	X021a	
IXFR 18N90P	900	10.5	0.660	5230	97	300	0.62	200	X016a	X021a
IXFH 12N90P		12	0.900	3080	56	300	0.33	380	X014a	
IXFR 24N90P		13	0.460	7200	130	300	0.54	230	X016a	
IXFH 18N90P		18	0.600	5230	97	300	0.23	540	X014a	
IXFT 18N90P		18	0.600	5230	97	300	0.23	540	X019	
IXFR 40N90P		21	0.230	14000	230	300	0.42	300	X016a	X022a
IXFH 24N90P		24	0.420	7200	130	300	0.19	660	X014a	
IXFT 24N90P		24	0.420	7200	130	300	0.19	660	X019	
IXFK 32N90P		32	0.300	10600	215	300	0.13	960	X020a	
IXFX 32N90P		32	0.300	10600	215	300	0.13	960	X015a	
IXFN 40N90P		33	0.210	14000	230	300	0.18	695	X027a	
IXFX 40N90P		40	0.210	14000	230	300	0.13	960	X015a	
IXFK 40N90P		40	0.210	14000	230	300	0.13	960	X020a	
IXFN 52N90P		43	0.160	19000	308	300	0.14	890	X027a	X027a 227B
IXFB 52N90P		52	0.160	19000	308	300	0.10	1250	X021a	
IXFN 56N90P		56	0.145	23000	375	300	0.125	1000	X027a	

<b>IXFH 5N100P</b>		5	2.80	1830	33.4	200	0.50	250	X014a	
<b>IXFA 5N100P</b>		5	2.80	1830	33.4	200	0.50	250	X011b	
<b>IXFA 7N100P</b>		7	1.90	2590	47	300	0.42	300	X011b	X011b
<b>IXFH 7N100P</b>		7	1.90	2590	47	300	0.42	300	X014a	
<b>IXFP 7N100P</b>		7	1.90	2590	47	300	0.42	300	X005a	
<b>IXFH 10N100P</b>		10	1.40	3030	56	300	0.33	380	X014a	
<b>IXFR 20N100P</b>		11	0.64	7300	126	300	0.54	230	X016a	X014a
<b>IXFH 12N100P</b>		12	1.05	4080	80	300	0.27	463	X014a	
<b>IXFR 26N100P</b>		15	0.43	11900	197	300	0.43	290	X016a	
<b>IXFH 15N100P</b>		15	0.76	5140	97	300	0.23	543	X014a	
<b>IXFR 32N100P</b>		18	0.34	14200	225	300	0.39	320	X016a	
<b>IXFH 20N100P</b>		20	0.57	7300	126	300	0.19	660	X014a	X015a
<b>IXFT 20N100P</b>		20	0.57	7300	126	300	0.19	660	X019	
<b>IXFL 44N100P</b>		22	0.24	19000	305	300	0.35	357	X022e	
<b>IXFN 26N100P</b>		23	0.39	11900	197	300	0.21	595	X027a	
<b>IXFX 26N100P</b>		26	0.39	11900	197	300	0.16	780	X015a	
<b>IXFK 26N100P</b>		26	0.39	11900	197	300	0.16	780	X020a	X016a
<b>IXFN 32N100P</b>		27	0.32	14200	225	300	0.18	690	X027a	
<b>IXFL 38N100P</b>		29	0.23	24000	350	300	0.24	520	X022e	
<b>IXFX 32N100P</b>		32	0.32	14200	225	300	0.13	960	X015a	
<b>IXFK 32N100P</b>		32	0.32	14200	225	300	0.13	960	X020a	X019
<b>IXFN 44N100P</b>		37	0.22	19000	305	300	0.14	890	X027a	
<b>IXFN 38N100P</b>		38	0.21	24000	350	300	0.125	1000	X027a	
<b>IXFB 44N100P</b>		44	0.22	19000	305	300	0.10	1250	X021a	
<b>IXFL 40N110P</b>	1100	21	0.28	19000	310	300	0.35	357	X022e	X020a
<b>IXFL 36N110P</b>		26	0.26	23000	350	300	0.24	520	X022e	
<b>IXFN 40N110P</b>		34	0.26	19000	310	300	0.14	890	X027a	
<b>IXFB 40N110P</b>		40	0.26	19000	310	300	0.10	1250	X021a	
<b>IXFP 6N120P</b>	1200	6	2.40	2830	92	300	0.50	250	X005a	X021a
<b>IXFH 6N120P</b>		6	2.40	2830	92	300	0.50	250	X014a	
<b>IXFA 6N120P</b>		6	2.40	2830	92	300	0.50	250	X011b	
<b>IXFR 16N120P</b>		9	1.04	6900	120	300	0.54	230	X016a	
<b>IXFH 12N120P</b>		12	1.35	5400	103	300	0.23	543	X014a	
<b>IXFR 20N120P</b>		13	0.63	12900	193	300	0.43	290	X016a	X022a
<b>IXFR 26N120P</b>		15	0.50	14000	225	300	0.39	320	X016a	
<b>IXFH 16N120P</b>		16	0.95	6900	120	300	0.19	660	X014a	
<b>IXFT 16N120P</b>		16	0.95	6900	120	300	0.19	660	X019	
<b>IXFL 30N120P</b>		18	0.38	19000	310	300	0.35	357	X022e	
<b>IXFX 20N120P</b>		20	0.57	11100	193	300	0.16	780	X015a	X022e IS
<b>IXFN 20N120P</b>		20	0.57	11100	193	300	0.21	595	X027a	
<b>IXFK 20N120P</b>		20	0.57	11100	193	300	0.16	780	X020a	
<b>IXFN 26N120P</b>		23	0.46	14000	225	300	0.18	695	X027a	X027a
<b>IXFL 32N120P</b>		24	0.34	21000	360	300	0.24	520	X022e	227B
<b>IXFX 26N120P</b>		26	0.46	14000	225	300	0.13	960	X015a	
<b>IXFK 26N120P</b>		26	0.46	14000	225	300	0.13	960	X020a	
<b>IXFB 30N120P</b>		30	0.35	22500	310	300	0.10	1250	X021a	
<b>IXFN 30N120P</b>		30	0.35	19000	310	300	0.14	890	X027a	
<b>IXFN 32N120P</b>		32	0.31	21000	360	300	0.125	1000	X027a	

IXTH 450P2	500	16	0.330	2530	43	400	0.42	300	X014a	
IXTP 450P2		16	0.330	2530	43	400	0.42	300	X005a	
IXTQ 450P2		16	0.330	2530	43	400	0.42	300	X017a	X011b
IXTA 460P2		24	0.270	2890	48	400	0.26	480	X011b	
IXTH 460P2		24	0.270	2890	48	400	0.26	480	X014a	
IXTP 460P2		24	0.270	2890	48	400	0.26	480	X005a	
IXTQ 460P2		24	0.270	2890	48	400	0.26	480	X017a	X014a
IXTQ 470P2		42	0.145	5400	88	400	0.15	830	X017a	
IXTQ 480P2		52	0.120	6800	108	400	0.13	960	X017a	

### PolarP2™ HiPerFET™ MOSFETs with Fast Intrinsic Diode

IXFQ 24N50P2	500	24	0.270	2890	48	200	0.26	480	X017a	X015a
IXFH 42N50P2		42	0.145	5300	92	250	0.15	830	X014a	
IXFT 42N50P2		42	0.145	5300	92	250	0.15	830	X019	
IXFH 52N50P2		52	0.120	6800	113	250	0.13	960	X014a	X016c
IXFT 52N50P2		52	0.120	6800	113	250	0.13	960	X019	
IXFN 94N50P2		68	0.055	13700	220	250	0.16	780	X027a	
IXFK 94N50P2		94	0.055	14200	228	250	0.10	1300	X020a	
IXFX 94N50P2		94	0.055	14200	228	250	0.10	1300	X015a	X017a
IXFB 120N50P2		120	0.043	19000	300	300	0.07	1890	X021a	

### PolarP3™ HiPerFET™ Power MOSFETs

Part Type	V <sub>DSS</sub> V	I <sub>D(cont)</sub> Chip T <sub>C</sub> = 25°C A	R <sub>DS(on)</sub> T <sub>J</sub> = 25°C Ω	C <sub>iss</sub> typ. pF	Q <sub>g</sub> typ. nC	t <sub>rr</sub> max. (typ.) ns	R <sub>thJC</sub> K/W	P <sub>D</sub> W	Fig. No.
IXFP 36N30P3	300	36	0.1100	2040	30	-125	0.36	347	X005a
IXFA 36N30P3		36	0.1100	2040	30	-125	0.36	347	X011b
IXFH 94N30P3		94	0.0360	5510	102	250	0.12	1040	X014a
IXFQ 94N30P3		94	0.0360	5510	102	250	0.12	1040	X017a
IXFT 94N30P3		94	0.0360	5510	102	250	0.12	1040	X019
IXFL 210N30P3		108	0.0160	16200	268	250	0.24	520	X022a
IXFK 120N30P3		120	0.0270	8630	150	250	0.11	1130	X020a
IXFX 120N30P3		120	0.0270	8630	150	250	0.11	1130	X015a
IXFK 150N30P3		150	0.0190	12100	197	250	0.10	1300	X020a
IXFX 150N30P3		150	0.0190	12100	197	250	0.10	1300	X015a
IXFN 210N30P3		192	0.0145	16200	268	250	0.08	1500	X027a
IXFB 210N30P3		210	0.0145	16200	268	250	0.07	1890	X021a
IXFJ 26N50P3	500	14	0.2650	2220	42	250	0.69	180	X016c
IXFA 16N50P3		16	0.3600	1515	29	250	0.38	330	X011b
IXFH 16N50P3		16	0.3600	1515	29	250	0.38	330	X014a
IXFP 16N50P3		16	0.3600	1515	29	250	0.38	330	X005a
IXFA 20N50P3		20	0.3000	1800	36	250	0.36	380	X011b
IXFH 20N50P3		20	0.3000	1800	36	250	0.36	380	X014a
IXFP 20N50P3		20	0.3000	1800	36	250	0.36	380	X005a

IXFP 26N50P3		26	0.230	2220	42	250	0.250	500	X005a	
IXFQ 26N50P3		26	0.230	2220	42	250	0.250	500	X017a	X011b
IXFH 34N50P3		34	0.170	3260	60	250	0.180	695	X014a	
IXFQ 34N50P3		34	0.170	3260	60	250	0.180	695	X017a	
IXFH 60N50P3		60	0.100	6250	96	250	0.120	1040	X014a	
IXFQ 60N50P3		60	0.100	6250	96	250	0.120	1040	X017a	X014a
IXFT 60N50P3		60	0.100	6250	96	250	0.120	1040	X019	
IXFL 132N50P3		63	0.043	18600	250	250	0.240	520	X022a	
IXFK 78N50P3		78	0.068	9900	147	250	0.110	1130	X020a	
IXFX 78N50P3		78	0.068	9900	147	250	0.110	1130	X015a	X015a
IXFK 98N50P3		98	0.050	13100	197	250	0.096	1300	X020a	
IXFX 98N50P3		98	0.050	13100	197	250	0.096	1300	X015a	
IXFN 132N50P3		112	0.039	18600	250	250	0.083	1500	X027a	
IXFB 132N50P3		132	0.039	18600	250	250	0.066	1890	X021a	
IXFA 14N60P3	600	14	0.540	1480	25	250	0.380	327	X011b	X016a
IXFH 14N60P3		14	0.540	1480	25	250	0.380	327	X014a	
IXFP 14N60P3		14	0.540	1480	25	250	0.380	327	X005a	
IXFA 16N60P3		16	0.440	1830	36	250	0.360	347	X011b	
IXFH 16N60P3		16	0.440	1830	36	250	0.360	347	X014a	X017a
IXFP 16N60P3		16	0.440	1830	36	250	0.360	347	X005a	
IXFA 22N60P3		22	0.360	2600	38	250	0.250	500	X011b	
IXFH 22N60P3		22	0.360	2600	38	250	0.250	500	X014a	
IXFP 22N60P3		22	0.360	2600	38	250	0.250	500	X005a	X019
IXFQ 22N60P3		22	0.360	2600	38	250	0.250	500	X017a	
IXFH 28N60P3		28	0.260	3560	50	250	0.180	695	X014a	
IXFQ 28N60P3		28	0.260	3560	50	250	0.180	695	X017a	
IXFH 42N60P3		42	0.185	5150	78	250	0.150	830	X014a	X020a
IXFR 80N60P3		48	0.076	13100	190	250	0.230	540	X016a	
IXFH 50N60P3		50	0.145	6300	94	250	0.120	1040	X014a	
IXFQ 50N60P3		50	0.145	6300	94	250	0.120	1040	X017a	
IXFT 50N60P3		50	0.145	6300	94	250	0.120	1040	X019	
IXFK 64N60P3		64	0.095	9900	145	250	0.110	1130	X020a	X021a
IXFX 64N60P3		64	0.095	9900	145	250	0.110	1130	X015a	
IXFN 80N60P3		66	0.077	13100	190	250	0.130	960	X027a	
IXFK 80N60P3		80	0.070	13100	190	250	0.096	1300	X020a	X022a
IXFX 80N60P3		80	0.070	13100	190	250	0.096	1300	X015a	
IXFN 110N60P3		90	0.056	18000	245	250	0.083	1500	X027a	
IXFB 110N60P3		110	0.056	18000	245	250	0.066	1890	X021a	

## PolarP3™ Power MOSFET

with Current & Temperature Sensing in SMPD Package

X031a

Part Type	V <sub>DSS</sub>	I <sub>D(cont)</sub> Chip T <sub>C</sub> = 25°C	R <sub>DS(on)</sub> T <sub>J</sub> = 25°C	C <sub>iss</sub>	Q <sub>g</sub>	t <sub>rr</sub>	R <sub>thJC</sub>	P <sub>D</sub>	Fig. No.
	V	A	Ω	typ. pF	typ. nC	typ. ns	K/W	W	
MMIX 1T132N50P3	500	63	0.043	18600	267	600	0.24	520	X031a

## 150 V Ultra Junction X4-Class Power MOSFETs

➤ IXTA 100N15X4	150	100	0.0115	3970	74	90	0.40	375	X011b	X005a
➤ IXTP 100N15X4		100	0.0115	3970	74	90	0.40	375	X005a	
➤ IXTH 130N15X4		130	0.0085	4770	87	93	0.31	400	X014a	
➤ IXTP 130N15X4		130	0.0085	4770	87	93	0.31	400	X005a	
➤ IXTA 130N15X4		130	0.0080	4770	87	93	0.31	400	X011b	X007a
➤ IXTA 130N15X4-7		130	0.0080	4770	87	93	0.31	400	X012c	
➤ IXTH 150N15X4		150	0.0072	5500	105	100	0.31	480	X014a	
➤ IXTP 150N15X4		150	0.0072	5500	105	100	0.31	480	X005a	
➤ IXTA 150N15X4		150	0.0069	5500	105	100	0.31	480	X011b	X011b
➤ IXTA 150N15X4-7		150	0.0069	5500	105	100	0.31	480	X012c	
➤ IXTH 240N15X4		240	0.0044	8900	195	130	0.16	940	X014a	
➤ IXTT 240N15X4HV		240	0.0044	8900	195	130	0.16	940	X019a	X012c
➤ IXTK 400N15X4		400	0.0031	14500	430	175	0.10	1500	X020a	
➤ IXTN 400N15X4		400	0.0031	14500	430	175	0.14	1070	X027a	
➤ IXTX 400N15X4		400	0.0031	14500	430	175	0.10	1500	X015a	

## 200 V X3-Class HiPerFET™ Power MOSFETs with Fast Body Diodes

IXFA 36N20X3	200	36	0.0450	1425	21	75	0.73	170	X011b	X014a
IXFP 36N20X3		36	0.0450	1425	21	75	0.73	170	X005a	
IXFP 36N20X3M		36	0.0450	1425	21	75	3.50	36	X007a	
IXFY 36N20X3		36	0.0450	1425	21	75	0.73	170	X004	X015a
IXFA 50N20X3		50	0.0300	2100	33	70	0.52	240	X011b	
IXFP 50N20X3		50	0.0300	2100	33	70	0.52	240	X005a	
IXFP 50N20X3M		50	0.0300	2100	33	70	3.70	34	X007a	
IXFA 72N20X3		72	0.0200	3780	55	95	0.39	320	X011b	
IXFP 72N20X3		72	0.0200	3780	55	95	0.39	320	X005a	X017a
IXFP 72N20X3M		72	0.0200	3780	55	95	3.50	36	X007a	
IXFQ 72N20X3		72	0.0200	3780	55	95	0.39	320	X017a	
IXFA 90N20X3		90	0.0128	5420	78	95	0.32	390	X011b	
IXFH 90N20X3		90	0.0128	5420	78	95	0.32	390	X014a	
IXFP 90N20X3		90	0.0128	5420	78	95	0.32	390	X005a	X019a
IXFP 90N20X3M		90	0.0128	5420	78	95	3.50	36	X007a	
IXFQ 90N20X3		90	0.0128	5420	78	95	0.32	390	X017a	
IXFH 140N20X3		140	0.0096	7660	127	105	0.26	480	X014a	
IXFQ 140N20X3		140	0.0096	7660	127	105	0.26	480	X017a	X020a
IXFT 140N20X3HV		140	0.0096	7660	127	105	0.26	480	X019a	
IXFN 220N20X3		160	0.0062	13600	204	128	0.32	390	X027a	
IXFH 180N20X3		180	0.0075	10300	154	120	0.17	735	X014a	
IXFT 180N20X3HV		180	0.0075	10300	154	120	0.17	735	X019a	X027a
IXFH 220N20X3		220	0.0062	13600	204	128	0.14	890	X014a	227B
IXFK 220N20X3		220	0.0062	13600	204	128	0.14	890	X020a	
IXFT 220N20X3HV		220	0.0062	13600	204	128	0.14	890	X019a	
IXFK 300N20X3		300	0.0040	23800	375	172	0.10	1250	X020a	
IXFN 300N20X3		300	0.0035	23800	375	172	0.18	695	X027a	
IXFX 300N20X3		300	0.0040	23800	375	172	0.10	1250	X015a	



<b>IXFP 30N25X3</b>	30	0.0600	1450	21	82	0.73	170	X005a	
<b>IXFP 30N25X3M</b>	30	0.0600	1450	21	82	3.50	36	X007a	
<b>IXFY 30N25X3</b>	30	0.0600	1450	21	82	0.73	170	X004	
<b>IXFA 44N25X3</b>	44	0.0400	2200	33	87	0.52	240	X011b	X005a
<b>IXFJ 80N25X3</b>	44	0.0180	5430	83	120	1.20	104	X016c	
<b>IXFP 44N25X3</b>	44	0.0400	2200	33	87	0.52	240	X005a	
<b>IXFP 44N25X3M</b>	44	0.0400	2220	33	87	3.70	34	X007a	
<b>IXFA 60N25X3</b>	60	0.0230	3610	50	95	0.39	320	X011b	
<b>IXFP 60N25X3</b>	60	0.0230	3610	50	95	0.39	320	X005a	X007a
<b>IXFP 60N25X3M</b>	60	0.0230	3610	50	95	3.50	36	X007a	
<b>IXFQ 60N25X3</b>	60	0.0230	3610	50	95	0.39	320	X017a	
<b>IXFA 80N25X3</b>	80	0.0160	5430	83	120	0.32	390	X011b	
<b>IXFH 80N25X3</b>	80	0.0160	5430	83	120	0.32	390	X014a	
<b>IXFP 80N25X3</b>	80	0.0160	5430	83	120	0.32	390	X005a	X011b
<b>IXFQ 80N25X3</b>	80	0.0160	5430	83	120	0.32	390	X017a	
<b>IXFH 120N25X3</b>	120	0.0120	7870	122	140	0.26	480	X014a	
<b>IXFQ 120N25X3</b>	120	0.0120	7870	122	140	0.26	480	X017a	
<b>IXFT 120N25X3HV</b>	120	0.0120	7870	122	140	0.26	480	X019a	
<b>IXFH 150N25X3</b>	150	0.0090	10400	154	140	0.17	735	X014a	X014a
<b>IXFT 150N25X3HV</b>	150	0.0090	10400	154	140	0.17	735	X019a	
<b>IXFH 170N25X3</b>	170	0.0074	13500	190	140	0.14	890	X014a	
<b>IXFK 170N25X3</b>	170	0.0074	13500	190	140	0.14	890	X020a	
<b>IXFN 170N25X3</b>	170	0.0074	13500	190	135	0.32	390	X027a	
<b>IXFT 170N25X3HV</b>	170	0.0074	13500	190	140	0.14	890	X019a	X015a
<b>IXFK 240N25X3</b>	240	0.0050	23800	345	177	0.10	1250	X020a	
<b>IXFN 240N25X3</b>	240	0.0045	23800	345	165	0.18	695	X027a	
<b>IXFX 240N25X3</b>	240	0.0050	23800	345	177	0.10	1250	X015a	

X020a

TO-264



X019a

TO-268AAHV



X016c

X027a  
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X017a

<b>IXFP 26N30X3</b>	26	0.0660	1465	22	105	0.73	170	X005a	
<b>IXFY 26N30X3</b>	26	0.0660	1465	22	105	0.73	170	X004	
<b>IXFA 38N30X3</b>	38	0.0500	2240	35	90	0.52	240	X011b	
<b>IXFP 38N30X3</b>	38	0.0500	2240	35	90	0.52	240	X005a	
<b>IXFP 38N30X3M</b>	38	0.0500	2440	35	90	3.70	34	X007a	
<b>IXFA 56N30X3</b>	56	0.0270	3750	56	115	0.39	320	X011b	X005a
<b>IXFH 56N30X3</b>	56	0.0270	3750	56	115	0.39	320	X014a	
<b>IXFP 56N30X3</b>	56	0.0270	3750	56	115	0.39	320	X005a	
<b>IXFP 56N30X3M</b>	56	0.0270	3750	56	115	3.50	36	X007a	
<b>IXFA 72N30X3</b>	72	0.0190	5400	82	100	0.32	390	X011b	
<b>IXFH 72N30X3</b>	72	0.0190	5400	82	100	0.32	390	X014a	
<b>IXFP 72N30X3</b>	72	0.0190	5400	82	100	0.32	390	X005a	
<b>IXFP 72N30X3M</b>	72	0.0190	5400	82	100	3.50	36	X007a	
<b>IXFQ 72N30X3</b>	72	0.0190	5400	82	100	0.32	390	X017a	X007a
<b>IXFH 100N30X3</b>	100	0.0135	7660	122	130	0.26	48	X014a	
<b>IXFT 100N30X3HV</b>	100	0.0135	7660	122	130	0.26	480	X019a	
<b>IXFH 120N30X3</b>	120	0.0110	10500	170	145	0.17	735	X014a	
<b>IXFT 120N30X3HV</b>	120	0.0110	10500	170	145	0.17	735	X019a	
<b>IXFH 150N30X3</b>	150	0.0083	13100	254	167	0.14	890	X014a	
<b>IXFK 150N30X3</b>	150	0.0083	13100	254	167	0.14	890	X020a	X011b
<b>IXFT 150N30X3HV</b>	150	0.0083	13100	254	167	0.14	890	X019a	
<b>IXFK 210N30X3</b>	210	0.0055	24200	375	190	0.10	1250	X020a	
<b>IXFN 210N30X3</b>	210	0.0046	24200	375	190	0.18	695	X027a	
<b>IXFX 210N30X3</b>	210	0.0055	24200	375	190	0.10	1250	X015a	

X014a

**TO-247AD**

X015a

**PLUS247**X027a  
227B

X017a

**TO-3P**

X019a

**TO-268AAHV**

<b>IXTY 2N65X2</b>		2	2.300	180	4.3	137	2.27	55	X004	
<b>IXTA 4N65X2</b>		4	0.850	455	8.3	160	1.56	80	X011b	X005a
<b>IXTP 4N65X2</b>		4	0.850	455	8.3	160	1.56	80	X005a	
<b>IXTY 4N65X2</b>		4	0.850	455	8.3	160	1.56	80	X004	
<b>IXTA 8N65X2</b>		8	0.500	800	12	200	0.83	150	X011b	
<b>IXTP 8N65X2</b>		8	0.500	800	12	200	0.83	150	X005a	X007a
<b>IXTP 8N65X2M</b>		8	0.550	800	12	200	3.90	32	X007a	
<b>IXTY 8N65X2</b>		8	0.500	800	12	200	0.83	150	X004	
<b>IXTA 12N65X2</b>		12	0.300	1100	17.7	270	0.69	180	X011b	
<b>IXTH 12N65X2</b>		12	0.300	1100	17.7	270	0.69	180	X014a	X011b
<b>IXTP 12N65X2</b>		12	0.300	1100	17.7	270	0.69	180	X005a	
<b>IXTP 12N65X2M</b>		12	0.300	1100	17.7	270	3.10	40	X007a	
<b>IXTA 20N65X2</b>		20	0.185	1450	27	350	0.43	290	X011b	
<b>IXTH 20N65X2</b>		20	0.185	1450	27	350	0.43	290	X014a	X014a
<b>IXTP 20N65X2</b>		20	0.185	1450	27	350	0.43	290	X005a	
<b>IXTP 20N65X2M</b>		20	0.185	1450	27	350	3.50	36	X007a	
<b>IXTA 24N65X2</b>		24	0.145	2060	36	390	0.32	390	X011b	
<b>IXTH 24N65X2</b>		24	0.145	2060	36	390	0.32	390	X014a	X015a
<b>IXTP 24N65X2</b>		24	0.145	2060	36	390	0.32	390	X005a	
<b>IXTP 24N65X2M</b>		24	0.145	2060	36	390	3.37	37	X007a	
<b>IXTA 30N65X2</b>		30	0.120	2260	44	355	0.27	460	X011b	
<b>IXTP 30N65X2</b>		30	0.120	2260	44	355	0.27	460	X014a	X016a
<b>IXTH 30N65X2</b>		30	0.120	2260	44	355	0.27	460	X014a	
<b>IXTA 34N65X2</b>		34	0.096	3000	54	390	0.23	540	X011b	
<b>IXTA 34N65X2</b>		34	0.096	3000	54	390	0.23	540	X011b	X019a
<b>IXTH 34N65X2</b>		34	0.096	3000	54	390	0.23	540	X014a	
<b>IXTP 34N65X2</b>		34	0.096	3000	54	390	0.23	540	X005a	
<b>IXTT 34N65X2HV</b>		34	0.096	3000	54	390	0.23	540	X019a	
<b>IXTH 48N65X2</b>		48	0.065	4300	76	400	0.19	660	X014a	X020a
<b>IXTR 102N65X2</b>		54	0.033	10900	152	450	0.38	330	X016a	
<b>IXTH 62N65X2</b>		62	0.050	5800	100	445	0.16	780	X014a	
<b>IXTN 102N65X2</b>		76	0.030	10900	152	450	0.21	595	X027a	X027a
<b>IXTH 80N65X2</b>		80	0.038	7800	137	465	0.14	890	X014a	<b>227B</b>
<b>IXTK 102N65X2</b>		102	0.030	10900	152	450	0.12	1040	X020a	
<b>IXTX 102N65X2</b>		102	0.030	10900	152	450	0.12	1040	X015a	
<b>IXTK 120N65X2</b>		120	0.023	13600	230	505	0.10	1250	X020a	
<b>IXTX 120N65X2</b>		120	0.023	13600	230	505	0.10	1250	X015a	

<b>IXFP 8N65X2</b>	8	0.450	790	11	105	0.83	150	X005a	X005a
<b>IXFY 8N65X2</b>	8	0.450	790	11	105	0.83	150	X004	
<b>IXFA 12N65X2</b>	12	0.310	1134	18.5	155	0.69	180	X011b	
<b>IXFH 12N65X2</b>	12	0.310	1134	18.5	155	0.69	180	X014a	
<b>IXFP 12N65X2</b>	12	0.310	1134	18.5	155	0.69	180	X005a	X007a
<b>IXFP 12N65X2M</b>	5.6	0.310	1134	18.5	155	3.10	40	X007a	
<b>IXFA 18N65X2</b>	18	0.200	1520	29	135	0.43	290	X011b	
<b>IXFH 18N65X2</b>	18	0.200	1520	29	135	0.43	290	X014a	
<b>IXFP 18N65X2</b>	18	0.200	1520	29	135	0.43	290	X005a	X011b
<b>IXFP 18N65X2M</b>	18	0.200	1520	29	135	3.50	36	X007a	
<b>IXFA 22N65X2</b>	22	0.145	2190	37	145	0.32	390	X011b	
<b>IXFH 22N65X2</b>	22	0.145	2190	37	145	0.32	390	X014a	X014a
<b>IXFP 22N65X2</b>	22	0.145	2190	37	145	0.32	390	X005a	
<b>IXFP 22N65X2M</b>	22	0.145	2190	37	145	3.37	37	X007a	
<b>IXFA 34N65X2</b>	34	0.100	3230	56	164	0.23	540	X011b	
<b>IXFH 34N65X2</b>	34	0.100	3230	56	164	0.23	540	X014a	X015a
<b>IXFP 34N65X2</b>	34	0.100	3230	56	164	0.23	540	X005a	
<b>IXFP 34N65X2M</b>	34	0.100	3230	56	164	3.10	40	X007a	
<b>IXFH 46N65X2</b>	46	0.069	4570	98	180	0.19	660	X014a	
<b>IXFH 60N65X2</b>	60	0.052	6300	108	180	0.16	780	X014a	X019a
<b>IXFH 60N65X2-4</b>	60	0.052	6300	108	180	0.16	780	X014d	
<b>IXFT 60N65X2HV</b>	60	0.052	6300	108	180	0.16	780	X019a	
<b>IXFN 100N65X2</b>	78	0.030	10800	183	200	0.21	595	X027a	
<b>IXFH 80N65X2</b>	80	0.038	8300	140	200	0.14	890	X014a	X020a
<b>IXFH 80N65X2-4</b>	80	0.038	8300	140	200	0.14	890	X014d	
<b>IXFK 80N65X2</b>	80	0.038	8300	140	200	0.14	890	X020a	
<b>IXFT 80N65X2HV</b>	80	0.038	8300	140	200	0.14	890	X019a	
<b>IXFK 100N65X2</b>	100	0.030	10800	183	200	0.12	1040	X020a	X021a
<b>IXFX 100N65X2</b>	100	0.030	10800	183	200	0.12	1040	X015a	
<b>IXFN 120N65X2</b>	108	0.024	14000	240	220	0.14	890	X027a	
<b>IXFK 120N65X2</b>	120	0.024	14000	240	220	0.10	1250	X020a	X027a 227B
<b>IXFX 120N65X2</b>	120	0.024	14000	240	220	0.10	1250	X015a	
<b>IXFN 150N65X2</b>	145	0.017	21000	355	260	0.12	1040	X027a	
<b>IXFB 150N65X2</b>	150	0.017	21000	355	260	0.08	1560	X021a	
<b>IXFN 170N65X2</b>	170	0.013	27000	434	270	0.107	1170	X027a	
<b>IXFN 170N65X2</b>	170	0.013	27000	434	270	0.107	1170	X027a	

IXTP 4N70X2		4	0.850	386	11.8	186	1.56	80	X005a	
IXTP 4N70X2M		4	0.850	386	11.8	186	4.16	30	X007a	
IXTU 4N70X2		4	0.850	386	11.8	186	1.56	80	X003	X004
IXTY 4N70X2		4	0.850	386	11.8	186	1.56	80	X004	
IXTA 8N70X2		8	0.500	800	12	200	0.83	150	X011b	
IXTP 8N70X2		8	0.500	800	12	200	0.83	150	X005a	
IXTP 8N70X2M		8	0.550	800	12	200	3.90	32	X007a	X005a
IXTU 8N70X2		8	0.500	800	12	200	0.83	150	X003	
IXTY 8N70X2		8	0.500	800	12	200	0.83	150	X004	
IXTA 12N70X2		12	0.300	960	19	270	0.69	180	X011b	
IXTH 12N70X2		12	0.300	960	19	270	0.69	180	X014a	
IXTP 12N70X2		12	0.300	960	19	270	0.69	180	X005a	X007a
IXTP 12N70X2M		12	0.300	960	19	270	3.10	40	X007a	

### 850 V X-Class HiPerFET™ Power MOSFETs with Fast Body Diodes

IXFA 4N85X	850	3.5	2.500	247	7	170	0.830	150	X011b	
IXFP 4N85X		3.5	2.500	247	7	170	0.830	150	X005a	X011b
IXFP 4N85XM		3.5	2.500	247	7	170	3.570	35	X007a	
IXFY 4N85X		3.5	2.500	247	7	170	0.830	150	X004	
IXFA 8N85XHV		8	0.850	654	17	125	0.630	200	X011c	
IXFP 8N85X		8	0.850	654	17	125	0.630	200	X005a	X011c
IXFP 8N85XM		8	0.850	654	17	125	3.780	33	X007a	
IXFQ 8N85X		8	0.850	654	17	125	0.630	200	X017a	
IXFJ 20N85X		9.5	0.360	1660	63	190	1.130	110	X016c	
IXFA 14N85XHV		14	0.550	1043	30	116	0.270	460	X011c	
IXFH 14N85X		14	0.550	1043	30	116	0.270	460	X014a	
IXFP 14N85X		14	0.550	1043	30	116	0.270	460	X005a	X014a
IXFP 14N85XM		14	0.550	1043	30	116	3.300	38	X007a	
IXFA 20N85XHV		20	0.330	1660	63	190	0.230	540	X011c	
IXFH 20N85X		20	0.330	1660	63	190	0.230	540	X014a	
IXFP 20N85X		20	0.330	1660	63	190	0.230	540	X005a	
IXFH 30N85X		30	0.230	2460	68	160	0.180	695	X014a	X015a
IXFT 30N85XHV		30	0.230	2460	68	160	0.180	695	X019a	
IXFH 40N85X		40	0.145	3700	98	200	0.145	860	X014a	
IXFT 40N85XHV		40	0.145	3700	98	200	0.145	860	X019a	
IXFH 50N85X		50	0.105	4480	152	218	0.140	890	X014a	
IXFK 50N85X		50	0.105	4480	152	218	0.140	890	X020a	X016c
IXFT 50N85XHV		50	0.105	4480	152	218	0.140	890	X019a	
IXFN 66N85X		65	0.065	8900	230	250	0.150	830	X027a	
IXFK 66N85X		66	0.065	8900	230	250	0.100	1250	X020a	
IXFX 66N85X		66	0.065	8900	230	250	0.100	1250	X015a	X017a
IXFB 90N85X		90	0.041	13300	340	250	0.070	1785	X021a	
IXFN 90N85X		90	0.041	13300	340	250	0.104	1200	X027a	
IXFN 110N85X		110	0.033	17000	425	205	0.107	1170	X027a	

➤ IXFH 26N100X	26	0.320	3290	113	220	0.145	860	X019a	
➤ IXFH 32N100X	32	0.220	4075	130	200	0.140	890	X014a	
➤ IXFK 32N100X	32	0.220	4075	130	200	0.140	890	X020a	
➤ IXFT 32N100XHV	32	0.220	4075	130	200	0.140	890	X019a	
➤ IXFN 52N100X	44	0.125	6725	245	260	0.150	830	X027a	
➤ IXFK 52N100X	52	0.125	6725	245	260	0.100	1250	X020a	
➤ IXFX 52N100X	52	0.125	6725	245	260	0.100	1250	X015a	
➤ IXFN 70N100X	65	0.089	9150	350	310	0.104	1200	X027a	X015a
➤ IXFB 70N100X	70	0.089	9160	350	310	0.070	1785	X021a	
➤ IXFN 74N100X	74	0.066	17000	425	290	0.107	1170	X027a	

X019a

**TO-268AAHV**



X020a

**TO-264**



X021a

**PLUS264**



X027a  
227B

**SOT-**

**miniBLOC**



IXFT 30N30Q3		30	0.080	3100	63	250	0.18	690	X019	
IXFT 70N30Q3		70	0.054	4735	98	250	0.15	830	X019	
IXFH 70N30Q3		70	0.054	4735	98	250	0.15	830	X014a	
IXFR 44N50Q3	500	25	0.154	4800	93	250	0.41	300	X016a	
IXFT 30N50Q3		30	0.200	3200	62	250	0.18	690	X019	X015a
IXFH 30N50Q3		30	0.200	3200	62	250	0.18	690	X014a	
IXFH 44N50Q3		44	0.140	4800	93	250	0.15	830	X014a	
IXFT 44N50Q3		44	0.140	4800	93	250	0.15	830	X019	
IXFR 64N50Q3		45	0.094	6950	145	250	0.25	500	X016a	
IXFR 80N50Q3		50	0.072	10000	200	250	0.22	570	X016a	
IXFN 80N50Q3		63	0.065	10000	200	250	0.16	780	X027a	X016a
IXFK 64N50Q3		64	0.085	6950	145	250	0.13	1000	X020a	
IXFX 64N50Q3		64	0.085	6950	145	250	0.13	1000	X015a	
IXFX 80N50Q3		80	0.065	10000	200	250	0.10	1250	X015a	
IXFK 80N50Q3		80	0.065	10000	200	250	0.10	1250	X020a	
IXFN 100N50Q3		82	0.049	13800	255	250	0.13	960	X027a	
IXFB 100N50Q3		100	0.049	13800	255	250	0.08	1560	X021a	
IXFR 48N60Q3	600	32	0.154	7020	140	300	0.25	500	X016a	
IXFR 64N60Q3		42	0.104	9930	190	300	0.22	568	X016a	
IXFK 48N60Q3		48	0.140	7020	140	300	0.13	1000	X020a	X019
IXFX 48N60Q3		48	0.140	7020	140	300	0.13	1000	X015a	
IXFK 64N60Q3		64	0.095	9930	190	300	0.10	1250	X020a	
IXFX 64N60Q3		64	0.095	9930	190	300	0.10	1250	X015a	
IXFN 82N60Q3		66	0.075	13500	275	300	0.13	960	X027a	
IXFB 82N60Q3		82	0.075	13500	275	300	0.08	1560	X021a	
IXFR 32N80Q3	800	24	0.300	6940	140	300	0.25	500	X016a	
IXFK 32N80Q3		32	0.270	6940	140	300	0.125	1000	X020a	X020a
IXFX 32N80Q3		32	0.270	6940	140	300	0.125	1000	X015a	
IXFN 44N80Q3		37	0.190	10950	185	300	0.16	780	X027a	
IXFX 44N80Q3		44	0.190	10950	185	300	0.10	1250	X015a	
IXFK 44N80Q3		44	0.190	10950	185	300	0.10	1250	X020a	
IXFN 62N80Q3		49	0.140	13600	270	300	0.13	960	X027a	
IXFB 62N80Q3		62	0.140	13600	270	300	0.08	1560	X021a	
IXFR 15N100Q3	1000	10	1.200	3250	64	250	0.31	400	X016a	
IXFT 15N100Q3		15	1.050	3250	64	250	0.18	690	X019	X021a
IXFH 15N100Q3		15	1.050	3250	64	250	0.18	690	X014a	
IXFH 18N100Q3		18	0.660	4890	90	300	0.15	830	X014a	
IXFT 18N100Q3		18	0.660	4890	90	300	0.15	830	X019	
IXFR 24N100Q3		18	0.490	7200	140	300	0.25	500	X016a	
IXFR 32N100Q3		23	0.350	10900	195	300	0.22	570	X016a	
IXFK 24N100Q3		24	0.440	7200	140	300	0.125	1000	X020a	X027a 227B
IXFX 24N100Q3		24	0.440	7200	140	300	0.125	1000	X015a	
IXFN 32N100Q3		28	0.320	10900	195	300	0.16	780	X027a	
IXFK 32N100Q3		32	0.320	10900	195	250	0.10	1250	X020a	
IXFX 32N100Q3		32	0.320	10900	195	250	0.10	1250	X015a	
IXFN 44N100Q3		38	0.220	13600	264	300	0.13	960	X027a	
IXFB 44N100Q3		44	0.220	13600	264	300	0.08	1560	X021a	
IXFN 40N110Q3	1100	35	0.260	14000	300	-434	0.13	960	X027a	
IXFB 40N110Q3		40	0.260	14000	300	-434	0.08	1560	X021a	



IXTA 1N200P3HV		1	40	646	23.5	2300	1.00	125	X011c	
IXTH 3N200P3HV		3	8	1860	70	420	0.24	520	X014c	
IXTT 3N200P3HV		3	8	1860	70	420	0.24	520	X019a	
IXTF 6N200P3		4	4.2	3700	143	520	0.58	215	X024c	
IXTX 6N200P3HV		6	4	3700	143	520	0.13	960	X015c	
IXTH 06N220P3HV	2200	0.6	80	290	10.4	1100	1.20	104	X014c	X014a
IXTH 1R8N220P3HV		1.8	21.5	965	31	1300	0.64	194	X014c	
IXTA 02N250HV	2500	0.2	450	116	7.4	1500	1.50	83	X011c	
IXTH 02N250		0.2	450	116	7.4	1500	1.50	83	X014a	
IXTH 05N250P3HV		0.5	110	303	10.5	1200	1.20	104	X014c	
IXTF 1N250		1	40	1660	41	2500	1.13	110	X024c	
IXTH 1R4N250P3		1.4	28	960	33	1800	0.64	195	X014a	X014c
IXTH 1N250		1.5	40	1660	41	2500	0.50	250	X014a	
IXTT 1N250HV		1.5	40	1660	41	2500	0.50	250	X019a	
IXTN 5N250		5	8.8	8560	200	1200	0.18	700	X027a	
IXTK 5N250		5	8.8	8560	200	1200	0.13	960	X020a	
IXTX 5N250		5	8.8	8560	200	1200	0.13	960	X015a	
IXTH 04N300P3HV	3000	0.4	190	283	13	1100	1.20	104	X014c	
IXTT 1N300P3HV		1	50	895	30.6	1800	0.64	195	X019a	X015a
IXTH 1N300P3HV		1	50	895	30.6	1800	0.64	195	X014c	
IXTF 2N300P3		1.6	21	1890	73	400	0.77	160	X024c	
IXTH 2N300P3HV		2	21	1890	73	400	0.24	520	X014c	
IXTT 2N300P3HV		2	21	1890	73	400	0.24	520	X019a	
IXTX 4N300P3HV		4	12.5	3680	139	420	0.13	960	X015c	
IXTH 02N450HV	4500	0.2	625	246	10.6	1600	1.10	113	X014c	X015c
IXTF 02N450		0.2	625	246	10.6	1600	1.60	78	X024c	
IXTT 02N450HV		0.2	625	246	10.6	1600	1.10	113	X019a	
IXTF 1N450		0.9	80	1700	46	1750	0.77	165	X024c	
IXTT 1N450HV		1	80	1700	46	1750	0.24	520	X019a	
IXTH 1N450HV		1	80	1700	46	1750	0.24	520	X014c	
IXTF 1R4N450		1.4	40	3300	88	660	0.65	190	X024c	
IXTX 1R4N450HV		1.4	40	3300	88	660	0.13	960	X015c	X019a
IXTL 2N450		2	20	6860	180	1750	0.56	220	X022e	
IXTL 2N470	4700	2	20	6860	180	1750	0.56	220	X022e	

X027a

SOT-227BminiBLOC



X024c ISOPLUS i4-PAC™



X022e ISOPLUS264/i5-Pak



X020a

<b>IXTH 3N120</b>		3.00	4.5	1050	39	700	0.80	100	X014a
<b>IXTA 3N120</b>		3.00	4.5	1050	39	700	0.62	200	X011b
<b>IXTA 3N120HV</b>		3.00	4.5	1050	39	700	0.62	200	X011c
<b>IXTH 6N120</b>		6.00	2.4	1950	56	850	0.42	300	X014a
<b>IXTT 6N120</b>		6.00	2.4	1950	56	850	0.42	300	X019
<b>IXTA 3N150HV</b>	1500	3.00	7.3	1375	38.6	900	0.50	110	X011c
<b>IXTH 3N150</b>		3.00	7.3	1375	38.6	900	0.50	250	X014a
<b>IXTJ 3N150</b>		2.50	8	1375	38.6	900	1.13	250	X016c
<b>IXTA 4N150HV</b>		4.00	6	1576	44.5	900	0.45	280	X011c
<b>IXTH 4N150</b>		4.00	6	1576	44.5	900	0.45	280	X014a
<b>IXTJ 4N150</b>		2.50	6	1576	44.5	900	1.13	110	X016c
<b>IXTT 4N150HV</b>		4.00	6	1576	44.5	900	0.45	280	X019a
<b>IXTH 6N150</b>		6.00	3.5	2230	67	1500	0.23	540	X014a
<b>IXTJ 6N150</b>		3.00	3.85	2230	67	1500	1.00	125	X016c
<b>IXTT 6N150</b>		6.00	3.5	2230	67	1500	0.23	540	X014a
<b>IXTT 12N150HV</b>		12.00	2	3720	106	1200	0.14	890	X019a

X011b

X011c

X016c

**ISO247™**

X014a

**TO-247AD**

X019a

**TO-268AAHV**

X019

**TO-268AA**

IXTH 140N075L2		140	0.011	9300	275	200	0.23	540	X014a	X011b
IXTT 140N075L2HV		140	0.011	9300	275	200	0.23	540	X019a	
IXTN 240N075L2		225	0.007	19000	546	206	0.17	735	X027a	
IXTK 240N075L2		240	0.007	19000	546	206	0.13	960	X020a	
IXTX 240N075L2		240	0.007	19000	546	206	0.13	960	X015a	
IXTA 64N10L2	100	64	0.032	3620	100	180	0.35	357	X011b	X014a
IXTH 64N10L2		64	0.032	3620	100	180	0.35	357	X014a	
IXTP 64N10L2		64	0.032	3620	100	180	0.35	357	X005a	
IXTH 75N10L2		75	0.021	8100	215	180	0.31	400	X014a	
IXTT 75N10L2		75	0.021	8100	215	180	0.31	400	X019	
IXTH 110N10L2		110	0.018	10500	260	230	0.21	600	X014a	X015a
IXTT 110N10L2		110	0.018	10500	260	230	0.21	600	X019	
IXTN 200N10L2		178	0.011	23000	540	245	0.15	830	X027a	
IXTX 200N10L2		200	0.011	23000	540	245	0.12	1040	X015a	
IXTK 200N10L2		200	0.011	23000	540	245	0.12	1040	X020a	
IXTH 60N20L2	200	60	0.045	10500	255	330	0.23	540	X014a	X017a
IXTT 60N20L2		60	0.045	10500	255	330	0.23	540	X019	
IXTQ 60N20L2		60	0.045	10500	255	330	0.23	540	X017a	
IXTN 110N20L2		100	0.024	23000	500	420	0.17	735	X027a	
IXTX 110N20L2		110	0.024	23000	500	420	0.13	960	X015a	
IXTK 110N20L2		110	0.024	23000	500	420	0.13	960	X020a	X019
➤ IXTA 30N25L2	250	30	0.140	3200	130	315	0.35	355	X011b	
➤ IXTH 30N25L2		30	0.140	3200	130	315	0.35	355	X014a	
➤ IXTP 30N25L2		30	0.140	3200	130	315	0.35	355	X005a	
➤ IXTH 44N25L2		44	0.075	5740	256	366	0.31	400	X014a	
➤ IXTT 44N25L2HV		44	0.075	5740	256	366	0.31	400	X019a	X019
IXTH 58N25L2		58	0.064	9200	330	400	0.23	540	X014a	
IXTX 90N25L2		90	0.033	23000	640	266	0.13	960	X015a	
IXTN 90N25L2		90	0.033	23000	640	266	0.17	735	X027a	
IXTK 90N25L2		90	0.033	23000	640	266	0.13	960	X020a	
IXTH 38N30L2	300	38	0.100	7200	260	420	0.31	400	X014a	X019a
IXTT 38N30L2		38	0.100	7200	260	420	0.31	400	X019	
IXTH 50N30L2		50	0.072	9300	330	430	0.23	540	X014a	
IXTK 80N30L2		80	0.038	19100	660	485	0.13	960	X020a	
IXTN 80N30L2		80	0.038	19100	660	485	0.17	735	X027a	
IXTX 80N30L2		80	0.038	19100	660	485	0.13	960	X015a	X020a X027a 227B
IXTA 15N50L2	500	15	0.480	4080	123	570	0.42	300	X011b	
IXTP 15N50L2		15	0.480	4080	123	570	0.42	300	X005a	
IXTH 15N50L2		15	0.480	4080	123	570	0.42	300	X014a	
IXTH 30N50L2		30	0.200	8100	240	500	0.31	400	X014a	
IXTT 30N50L2		30	0.200	8100	240	500	0.31	400	X019	
IXTQ 30N50L2		30	0.200	8100	240	500	0.31	400	X017a	
IXTH 40N50L2		40	0.170	10400	320	500	0.23	540	X014a	
IXTT 40N50L2		40	0.170	10400	320	500	0.23	540	X019	
IXTQ 40N50L2		40	0.170	10400	320	500	0.23	540	X017a	
IXTN 60N50L2		53	0.100	24000	610	980	0.17	735	X027a	
IXTX 60N50L2		60	0.100	24000	610	980	0.13	960	X015a	
IXTK 60N50L2		60	0.100	24000	610	980	0.13	960	X020a	
IXTH 30N60L2	600	30	0.240	10700	335	710	0.23	540	X014a	X017a
IXTT 30N60L2		30	0.240	10700	335	710	0.23	540	X019	
IXTQ 30N60L2		30	0.240	10700	335	710	0.23	540	X017a	

<b>IXTH 16N20D2</b>	200	16.00	0.073	-4	5500	607	208	695	X014a		
<b>IXTT 16N20D2</b>		16.00	0.073	-4	5500	607	208	695	X019		
<b>IXTP 08N50D2</b>	500	0.80	4.6	-4	312	11	12.7	60	X005a	X005a	
<b>IXTY 08N50D2</b>		0.80	4.6	-4	312	11	12.7	60	X004		
<b>IXTA 08N50D2</b>		0.80	4.6	-4	312	11	12.7	60	X011b		
<b>IXTP 1R6N50D2</b>		1.60	2.3	-4	645	16.5	23.7	100	X005a		
<b>IXTY 1R6N50D2</b>		1.60	2.3	-4	645	16.5	23.7	100	X004		
<b>IXTA 1R6N50D2</b>		1.60	2.3	-4	645	16.5	23.7	100	X011b		
<b>IXTP 3N50D2</b>		3.00	1.5	-4	1070	24	40	125	X005a		
<b>IXTA 3N50D2</b>		3.00	1.5	-4	1070	24	40	125	X011b		
<b>IXTP 6N50D2</b>		6.00	0.5	-4	2800	64	96	300	X005a		
<b>IXTH 6N50D2</b>		6.00	0.5	-4	2800	64	96	300	X014a		
<b>IXTA 6N50D2</b>		6.00	0.5	-4	2800	64	96	300	X011b		
<b>IXTH 16N50D2</b>		16.00	0.24	-4	5250	130	199	695	X014a		
<b>IXTT 16N50D2</b>	16.00	0.24	-4	5250	130	199	695	X019			
<b>IXTP 08N100D2</b>	1000	0.80	21	-4	325	6.5	14.6	60	X005a	X011b	
<b>IXTY 08N100D2</b>		0.80	21	-4	325	6.5	14.6	60	X004		
<b>IXTA 08N100D2</b>		0.80	21	-4	325	6.5	14.6	60	X011b		
<b>IXTA 08N100D2HV</b>		0.80	21	-4	325	6.5	14.6	60	X011c		
<b>IXTP 1R6N100D2</b>		1.60	10	-4.5	645	11	27	100	X005a		
<b>IXTY 1R6N100D2</b>		1.60	10	-4.5	645	11	27	100	X004		
<b>IXTA 1R6N100D2</b>		1.60	10	-4.5	645	11	27	100	X011b		
<b>IXTP 3N100D2</b>		3.00	5.5	-4.5	1020	17	37.5	125	X005a		
<b>IXTA 3N100D2</b>		3.00	5.5	-4.5	1020	17	37.5	125	X011b		
<b>IXTA 3N100D2HV</b>		3.00	6	-4.5	1020	17	37.5	125	X011c		
<b>IXTP 6N100D2</b>		6.00	2.2	-4.5	2650	41	95	300	X005a		X011c
<b>IXTH 6N100D2</b>		6.00	2.2	-4.5	2650	41	95	300	X014a		
<b>IXTA 6N100D2</b>	6	2.2	-4.5	2650	41	95	300	X011b			
<b>IXTT 10N100D2</b>	10	1.5	-4.5	5320	70	200	695	X019			
<b>IXTH 10N100D2</b>	10	1.5	-4.5	5320	70	200	695	X014a			
<b>IXTT 2N170D2</b>	1700	2	6.5	-4	3650	80	110	568	X019		
<b>IXTH 2N170D2</b>		2	6.5	-4	3650	80	110	568	X014a		

X019

TO-268AA



X014a

TO-247AD



<b>IXTR 32P60P</b>		-18	0.385	11100	196	480	0.40	310	X016a	
<b>IXTH 16P60P</b>		-16	0.720	5120	92	440	0.27	460	X014a	
<b>IXTT 16P60P</b>		-16	0.720	5120	92	440	0.27	460	X019	
<b>IXTR 16P60P</b>		-10	0.790	5120	92	440	0.66	190	X016a	X011b
<b>IXTX 40P50P</b>	-500	-40	0.230	11.5	205	477	0.14	890	X015a	
<b>IXTN 40P50P</b>		-40	0.230	11500	205	477	0.14	890	X027a	
<b>IXTK 40P50P</b>		-40	0.230	11500	205	477	0.14	890	X020a	
<b>IXTR 40P50P</b>		-22	0.260	11500	205	477	0.40	312	X016a	X014a
<b>IXTH 20P50P</b>		-20	0.450	5120	103	406	0.27	460	X014a	
<b>IXTT 20P50P</b>		-20	0.450	5120	103	406	0.27	460	X019	
<b>IXTR 20P50P</b>		-13	0.490	5120	103	406	0.66	190	X016a	
<b>IXTP 10P50P</b>		-10	1.000	2670	50	414	0.50	300	X005a	
<b>IXTH 10P50P</b>		-10	1.000	2670	50	414	0.50	300	X014a	X015a
<b>IXTA 10P50P</b>		-10	1.000	2670	50	414	0.50	300	X011b	
<b>IXTQ 10P50P</b>		-10	1.000	2670	50	414	0.50	300	X017a	
<b>IXTX 90P20P</b>	-200	-90	0.044	12000	205	315	0.14	890	X015a	
<b>IXTN 90P20P</b>		-90	0.044	12000	205	315	0.14	890	X027a	
<b>IXTK 90P20P</b>		-90	0.044	12000	205	315	0.14	890	X020a	
<b>IXTR 90P20P</b>		-53	0.048	12000	205	315	0.40	312	X016a	X016a
<b>IXTH 48P20P</b>		-48	0.085	5400	103	260	0.27	462	X014a	
<b>IXTT 48P20P</b>		-48	0.085	5400	103	260	0.27	462	X019	
<b>IXTR 48P20P</b>		-30	0.093	5400	103	260	0.66	190	X016a	
<b>IXTP 26P20P</b>		-26	0.170	2740	56	240	0.42	300	X005a	X017a
<b>IXTH 26P20P</b>		-26	0.170	2740	56	240	0.42	300	X014a	
<b>IXTA 26P20P</b>		-26	0.170	2740	56	240	0.42	300	X011b	
<b>IXTQ 26P20P</b>		-26	0.170	2740	56	240	0.42	300	X017a	
<b>IXTP 36P15P</b>	-150	-36	0.110	3100	55	228	0.42	300	X005a	
<b>IXTH 36P15P</b>		-36	0.110	3100	55	228	0.42	300	X014a	X019
<b>IXTA 36P15P</b>		-36	0.110	3100	55	228	0.42	300	X011b	
<b>IXTQ 36P15P</b>		-36	0.110	3100	55	228	0.42	300	X017a	
<b>IXTR 36P15P</b>		-22	0.120	2950	55	150	1.00	150	X016a	
<b>IXTX 170P10P</b>	-100	-170	0.012	12600	240	176	0.14	890	X015a	X020a
<b>IXTN 170P10P</b>		-170	0.012	12600	240	176	0.14	890	X027a	
<b>IXTK 170P10P</b>		-170	0.012	12600	240	176	0.14	890	X020a	
<b>IXTR 170P10P</b>		-108	0.013	12600	240	176	0.40	312	X016a	
<b>IXTH 90P10P</b>		-90	0.025	5800	120	144	0.27	462	X014a	
<b>IXTT 90P10P</b>		-90	0.025	5800	120	144	0.27	462	X019	X027a 227B
<b>IXTR 90P10P</b>		-57	0.027	5800	120	144	0.66	190	X016a	
<b>IXTP 52P10P</b>		-52	0.050	2845	60	120	0.42	300	X005a	
<b>IXTH 52P10P</b>		-52	0.050	2845	60	120	0.42	300	X014a	
<b>IXTA 52P10P</b>		-52	0.050	2845	60	120	0.42	300	X011b	
<b>IXTQ 52P10P</b>		-52	0.050	2845	60	120	0.42	300	X017a	

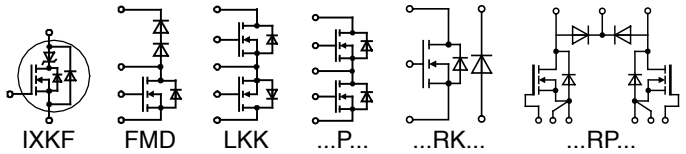
IXTH 68P20T		-68	0.055	33400	380	245	0.22	568	X014a	X005a
IXTT 68P20T		-68	0.055	33400	380	245	0.22	568	X019	
IXTR 68P20T		-44	0.064	33400	380	245	0.46	270	X016a	
IXTA 32P20T		-32	0.130	14500	185	190	0.42	300	X011b	
IXTP 32P20T		-32	0.130	14500	185	190	0.42	300	X005a	
IXTH 32P20T		-32	0.130	14500	185	190	0.42	300	X014a	
IXTQ 32P20T		-32	0.130	14500	185	190	0.42	300	X017a	
IXTP 44P15T	-150	-44	0.065	13400	175	140	0.42	298	X005a	X011b
IXTH 44P15T		-44	0.065	13400	175	140	0.42	298	X014a	
IXTA 44P15T		-44	0.065	13400	175	140	0.42	298	X011b	X014a
IXTQ 44P15T		-44	0.065	13400	175	140	0.42	298	X017a	
IXTP 15P15T		-15	0.240	3650	48	116	0.83	150	X005a	
IXTY 15P15T		-15	0.240	3650	48	116	0.83	150	X004	
IXTA 15P15T		-15	0.240	3650	48	116	0.83	150	X011b	
IXTP 10P15T		-10	0.350	2210	36	120	1.50	83	X005a	
IXTY 10P15T		-10	0.350	2210	36	120	1.50	83	X004	
IXTA 10P15T		-10	0.350	2210	36	120	1.50	83	X011b	
IXTK 210P10T	-100	-210	0.008	69500	740	-200	0.12	1040	X020a	X015a
IXTN 210P10T		-210	0.008	69500	740	-201	0.15	830	X027a	
IXTX 210P10T		-210	0.008	69500	740	-202	0.12	1040	X015a	
IXTR 210P10T		-195	0.008	69500	740	-203	0.32	390	X016a	
IXTH 140P10T		-140	0.012	31400	400	130	0.22	568	X014a	X016a
IXTT 140P10T		-140	0.012	31400	400	130	0.22	568	X019	
IXTR 140P10T		-90	0.013	31400	400	130	0.46	270	X016a	
IXTP 76P10T		-76	0.025	13700	197	70	0.42	298	X005a	X017a
IXTH 76P10T		-76	0.025	13700	197	70	0.42	298	X014a	
IXTA 76P10T		-76	0.025	13700	197	70	0.42	298	X011b	
IXTP 26P10T		-26	0.090	3820	52	70	0.83	150	X005a	
IXTY 26P10T		-26	0.090	3820	52	70	0.83	150	X004	
IXTA 26P10T		-26	0.090	3820	52	70	0.83	150	X011b	
IXTP 18P10T		-18	0.120	2100	39	62	1.50	83	X005a	
IXTY 18P10T		-18	0.120	2100	39	62	1.50	83	X004	
IXTA 18P10T		-18	0.120	2100	39	62	1.50	83	X011b	
IXTP 96P085T	-85	-96	0.013	13100	180	55	0.42	298	X005a	
IXTH 96P085T		-96	0.013	13100	180	55	0.42	298	X014a	
IXTA 96P085T		-96	0.013	13100	180	55	0.42	298	X011b	
IXTP 24P085T		-24	0.065	2090	41	40	1.50	83	X005a	
IXTA 24P085T		-24	0.065	2090	41	40	1.50	83	X011b	
IXTP 120P065T	-65	-120	0.010	13200	185	53	0.42	298	X005a	X020a
IXTH 120P065T		-120	0.010	13200	185	53	0.42	298	X014a	
IXTA 120P065T		-120	0.010	13200	185	53	0.42	298	X011b	
IXTP 28P065T		-28	0.045	2030	46	31	1.50	83	X005a	
IXTA 28P065T		-28	0.045	2030	46	31	1.50	83	X011b	
IXTP 140P05T	-50	-140	0.009	13500	200	53	0.42	298	X005a	X027a 227B
IXTH 140P05T		-140	0.009	13500	200	53	0.42	298	X014a	
IXTA 140P05T		-140	0.009	13500	200	53	0.42	298	X011b	
IXTP 48P05T		-48	0.030	3660	53	30	0.83	150	X005a	
IXTY 48P05T		-48	0.030	3660	53	30	0.83	150	X004	
IXTA 48P05T		-48	0.030	3660	53	30	0.83	150	X011b	
IXTP 32P05T		-32	0.039	1975	46	26	1.50	83	X005a	
IXTY 32P05T		-32	0.039	1975	46	26	1.50	83	X004	
IXTA 32P05T		-32	0.039	1975	46	26	1.50	83	X011b	

<b>IXKR 40N60C</b>		38	0.070	250	0.45	2500	X016a
○ <b>IXKN 40N60C</b>		40	0.070	250	0.43	2500	X027a
○ <b>IXKN 75N60C</b>		75	0.036	500	0.22	2500	X027a
<b>IXKR 25N80C</b>	800	25	0.150	170	0.50	2500	X016a
<b>C5 Series</b>							
○ <b>IXKH 35N60C5</b>	600	35	0.100	60	0.35	-	X014a
○ <b>IXKR 47N60C5</b>		47	0.045	150	0.45	2500	X016a
○ <b>IXKH 70N60C5</b>		70	0.045	150	0.20	-	X014a
<b>IXKT 70N60C5</b>		66	0.045	150	0.23	-	X019

X010a

X014a

X016a



Part Type	$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$ max.	$Q_g$ typ.	$R_{thJC}$	Config.	Fig. No.
◇ Under Development							
○ Not for new design		$T_C = 25^\circ C$	$T_J = 25^\circ C$				
➤ New	V	A	$\Omega$	nC	K/W		

X016c

### Configurations in i4-PAC™

<b>IXKF 40N60SCD1</b>	600	38	0.070	250	0.45	single	X024c
<b>FMD 15-06KC5</b>		15	0.165	40	1.10	boost	X024a
○ <b>FMD 40-06KC</b>		38	0.070	250	0.45		

X019

### Configuration in ISOPLUS264™ Package

○ <b>LKK 47-06C5</b>	600	2 x 47	0.045	150	0.45	dual	X022c
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X020a

### Configurations in SMPD Package

<b>MKE 38RK600DFELB</b>	600	50	0.045	150	0.40	buck/boost	X030a
<b>MKE 38P600LB</b>	600	50	0.040	150	0.40	phase leg	
◇ <b>MKH 17RP650DCGLB</b>	650	22	0.110	118	0.90	dual boost	

X022c

### X2 Class MOSFETs in SMPD Package

➤ <b>MXB 40RK600DFELB</b>	600	53	0.052	108	0.32	buck/boost	X030a
➤ <b>MXB 40P650LB</b>	650	53	0.052	108	0.32	phase leg	



X030a SMPD-B



X027a

SOT-227B  
miniBLOC

X024c ISOPLUS i4-PAC™

X024a I

# SiC MOSFETs

Part Type	$V_{DSS}$	$I_D$ $T_C = 25^\circ\text{C}$	$I_D$ $T_C = 100^\circ\text{C}$	$R_{DS(on)}$ typ. $T_J = 25^\circ\text{C}$	$C_{iss}$ typ	$Q_g$ typ	$R_{thJC}$	Fig. No.	Pa Out on pa		
◇ Under Development	V	A	A	$m\Omega$	pF	nC	K/W				
◇ LSIC1MO120E0025	1200	90	60	25	4465	250	0.30	L014a	L012b		
◇ LSIC1MO120E0040		65	50	40	2825	160	0.42				
LSIC1MO120E0080		39	25	80	1825	95	0.70				
LSIC1MO120E0120		27	18	120	1125	80	0.90				
LSIC1MO120E0160		22	14	160	870	57	1.00				
◇ LSIC1MO120G0025	1200	90	60	25	4465	250	0.30	L014d	L014d		
◇ LSIC1MO120G0040		65	50	40	2825	160	0.42				
◇ LSIC1MO120G0080		39	25	80	1825	95	0.70				
◇ LSIC1MO120G0120		27	18	120	1125	80	0.90				
◇ LSIC1MO120G0160		22	14	160	870	57	1.00				
◇ LSIC1MO120T0080	1200	39	25	80	1825	95	0.70	L012b	L014d		
◇ LSIC1MO120T0120		27	18	120	1125	80	0.90				
◇ LSIC1MO120T0160		22	14	160	870	57	1.00				
◇ LSCI1MO120N0025	1200	90	60	25	4465	250	0.42	L027a	L014d		
LSIC1MO170E1000		1700	5	3.5	750	200	15			2.30	L014a
➤ LSIC1MO170T0750			5	3.5	750	200	15			2.30	
◇ LSIC1MO170H0750	5		3.5	750	200	15	2.30				

L027a  
227B

SOT-  
miniBLOC



L019a

TO-268AA (HV)



L014a

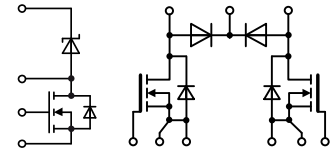


➤ LSIC2SD065A20A		20	135	45.0	1.5	63	1.10		
➤ LSIC2SD065C06A		6	152	18.5	1.5	20	2.00	L004a	
➤ LSIC2SD065C08A		8	150	23.0	1.5	29	1.70		
➤ LSIC2SD065C10A		10	147	27.0	1.5	30	1.50		
➤ LSIC2SD065C16A		16	140	38.0	1.5	48	1.20		
➤ LSIC2SD065C20A		20	135	45.0	1.5	63	1.10		
➤ LSIC2SD065D06A		6	152	18.5	1.5	20	2.00	X011c	L005b
➤ LSIC2SD065D08A		8	150	23.0	1.5	29	1.70		
➤ LSIC2SD065D10A		10	147	27.0	1.5	30	1.50		
➤ LSIC2SD065D16A		16	140	38.0	1.5	48	1.20		
➤ LSIC2SD065D20A		20	135	45.0	1.5	63	1.10		
➤ LSIC2SD065E12CCA		6/12*	152	18.5/37*	1.5	20	2.0/1.00*	L014a	
➤ LSIC2SD065E16CCA		8/16*	150	23/46*	1.5	29	1.7/0.85*		
➤ LSIC2SD065E20CCA		10/20*	147	27/54*	1.5	30	1.5/0.75*		
➤ LSIC2SD065E32CCA		16/32*	140	38/76*	1.5	48	1.2/0.60*		
➤ LSIC2SD065E40CCA		20/40*	135	45/90*	1.5	63	1.1/0.55*		
✧ LSIC2SB065B10A		10	147	27.0	1.5	30	TBD	L014b	X011c
✧ LSIC2SD065B16A		16	140	38.0	1.5	48	TBD		
✧ LSIC2SB065B20A		20	135	45.0	1.5	63	TBD		
✧ LSIC2SB065B32A		32	150	70.0	1.5	TBD	TBD		
✧ LSIC2SB065B40A		40	150	85.0	1.5	TBD	TBD		
✧ LSIC2SD065N40PA		20/40*	135	45/90*	1.5	63	TBD	L027a	
✧ LSIC2SD065N80PA		40/80*	150	80/160*	1.5	TBD	TBD		
✧ LSIC2SD065N128PA		64/128*	150	110/220*	1.5	TBD	TBD		
LSIC2SD120A05	1200	5	158	17.5	1.5	30	1.50	L005b	L014a
LSIC2SD120A08		8	154	24.5	1.5	47	1.20		
LSIC2SD120A10		10	151	28.0	1.5	57	1.10		
LSIC2SD120A15		15	150	44.0	1.5	92	0.70		
LSIC2SD120A20		20	150	54.5	1.5	115	0.60		
LSIC2SD120C05		5	159	18.1	1.5	30	1.50	L004a	
LSIC2SD120C08		8	154	24.5	1.5	47	1.20		
LSIC2SD120C10		10	156	33.0	1.5	57	0.85		
LSIC2SD120D10		10	151	28.0	1.5	57	1.10	X011c	
LSIC2SD120D15		15	150	44.0	1.5	92	0.70		L014b
LSIC2SD120D20		20	150	54.5	1.5	115	0.60		
✧ LSIC2SB120B10A		10	151	28.0	1.5	57	TBD	L014b	
✧ LSIC2SB120B20A		20	135	45.0	1.5	115	TBD		
✧ LSIC2SB120B30A		30	150	54.0	1.5	129	TBD		
✧ LSIC2SB120B40A		40	150	65.0	1.5	145	TBD		
➤ LSIC2SD120N40PA		20/40*	150	45/90*	1.5	230	0.80/1.60*	L027a	L027a
➤ LSIC2SD120N80PA		40/80*	150	80/160*	1.5	290	0.60/1.20*		<b>227B</b>
➤ LSIC2SD120N120PA		60/120*	121	110/220*	1.5	360	0.40/0.80*		
LSIC2SD120E10CC		5/10*	158	17.5/35.0*	1.5	30	0.75/1.50*	L014a	
LSIC2SD120E15CC		8/16*	154	24.5/49.0*	1.5	47	0.60/1.20*		
LSIC2SD120E20CC		10/20*	151	28.0/56.0*	1.5	57	0.55/1.10*		
LSIC2SD120E30CC		15/30*	152	43.8/87.6*	1.5	92	0.35/0.70*		
LSIC2SD120E40CC		20/40*	150	54.5/109*	1.5	115	0.30/0.60*		
✧ LSIC2SB170B10A	1700	10	150	30.0	1.5	57	TBD	L014b	
✧ LSIC2SB170B25A		25	150	61.0	1.5	122	TBD		
✧ LSIC2SB170B50A		50	150	143.0	1.5	392	0.20		

\* per Leg

IXFN 50N120SK <sup>1)</sup>		48	38	40	1695	115	0.60	
IXFN 70N120SK <sup>1)</sup>		68	55	25	2790	160	0.45	X027a
MCB 60H1200TZ		90	70	25	2790	160	0.27	X019a
➤ IXFN 90N170SK <sup>1)</sup>	1700	90	67	23	7340	376	0.22	X027a
<b>Phase Leg</b>								
➤ MCB 20P1200LB	1200	22	17.5	80	950	62	1.60	X030a
➤ MCB 30P1200LB		37	29.5	40	1895	115	1.00	
➤ MCB 40P1200LB		58	43	25	2790	160	0.60	
◆ MCB 60P1200TLB *		77	62	25	2790	161	0.35	
◆ MCB 35P1700TLB *	1700	47	35	45	3670	188	0.40	

<sup>1)</sup> Kelvin source gate connection; \* NTC included



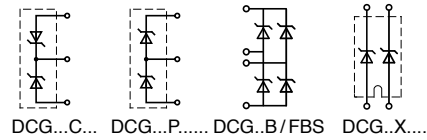
### Boost Circuits

Type	Circuit and Technology	V <sub>DSS</sub> max V	I <sub>D80</sub> T <sub>C</sub> = 80°C A	R <sub>DS(on)</sub> typ Ω	I <sub>F80</sub> Boost Diode A	Fig. No.
◆ under development						
➤ New						
➤ MXB 12R650DCGFC	X2 Class Boost + SiC Diode	650	12	0.15 (max)	11,5	X024a
◆ MKH 17RP650DCGLB	Dual Boost Superjunction <sup>1)</sup> + SiC		2 x 16	0.11 (max)	2 x 16	X030a

<sup>1)</sup> Powered by Infineon CoolMOS™ superjunction bare die C6

## Silicon Carbide Schottky Diodes

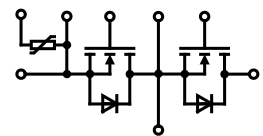
No reverse recovery



Type	V <sub>RRM</sub>	I <sub>F80</sub> per diode	I <sub>FAV</sub> d = 0.5	@ T <sub>C</sub>	V <sub>F</sub> typ., T <sub>VJ</sub> = 175°C	@ I <sub>F</sub>	R <sub>thJC</sub>	Fig. No.
◆ Under development								
➤ New	V	A	A	°C	V	A	K/W	
<b>Dual</b>								
➤ DCG 160X650NA	650	105	2x 80	80	1.35	50	0.47	X027a
◆ DCG 40X1200LB	1200	19.5	2x 14.5	80	2.20	20	1.90	X030a
DCG 45X1200NA		30	2x 22	80	2.20	20	1.10	X027a
DCG 85X1200NA		59	2x 43	80	2.20	40	0.57	
DCG 100X1200NA		66	2x 49	80	2.25	50	0.51	
DCG 130X1200NA		88	2x 64	80	2.30	60	0.39	
<b>Common Cathode</b>								
➤ DCG 20C1200HR	1200	13	2x 10	80	2.20	10	3.00	X016c
➤ DCG 35C1200HR		23	2x 17	80	2.20	20	1.80	
<b>Phase Leg</b>								
➤ DCG 10P1200HR	2x 1200	13	10	80	2.20	10	3.00	X016c
➤ DCG 17P1200HR		23	17	80	2.20	20	1.80	
<b>Full Bridge</b>								
➤ DCG 20B650LB	650	16	10.5	80	2.0	10	2.10	X030a
FBS 10-12SC	1200	6.0	4.5	80	2.6	5	7.00	X024a
◆ DCG 20B1200LB		12.5	9.2	80	2.0	20	3.30	X030a

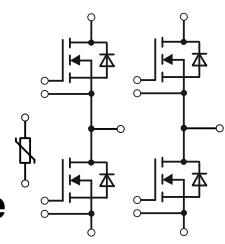
Part Type	$V_{DSS}$	$I_{D25}$ $T_C = 25^\circ\text{C}$	$I_{D80}$ $T_C = 80^\circ\text{C}$	$R_{DSon}$ typ. $T_J = 25^\circ\text{C}$	$t_r$	$t_f$	$R_{thJC}$	Fig. No.
○ Not for new design	V	A	A	$m\Omega$	ns	ns	K/W	
<b>Single Switch Module</b>								
○ VMO 1200-01F		1245	930	1.35	200	500	0.039	X130d

X130d



Part Type	$V_{DSS}$	$I_{D25}$ $T_C = 25^\circ\text{C}$	$I_{D80}$ $T_C = 80^\circ\text{C}$	$R_{DSon}$ typ. $T_J = 25^\circ\text{C}$	$t_r$	$t_f$	$R_{thJC}$	Fig. No.
◇ under development	V	A	A	$m\Omega$	ns	ns	K/W	
<b>MOSFET Modules – Phase Leg Configuration</b>								
VMM 90-09F	900	85	65	65	180	140	0.08	X130e
◇ MMPA 60P1000TLA	1000	108	80	58			0.06	

X130e



### X2-Class HiPerFET™ Full Bridge MOSFET Module

Part Type	$V_{DSS}$	$I_{D25}$ $T_C = 25^\circ\text{C}$	$I_{D80}$ $T_C = 80^\circ\text{C}$	$R_{DSon}$ max. $T_J = 25^\circ\text{C}$	$t_r$	$t_f$	$R_{thJC}$	Fig. No.
◇ under development	V	A	A	$m\Omega$	ns	ns	K/W	
◇ MMXB 95HX650PTED	650	130	96	20			0.17	X112a

X112a



⚡ under development ○ Not for new design ➤ New	Circuit and Technology	max V	T <sub>C</sub> = 25°C A	max Ω	Boost Diode V	Rectifier V	Fig. No.	Other parts
<b>MOSFET</b>								
<b>FMD 15-06KC5</b>	C	Superjunction CP <sup>1)</sup>	600	15	0.165	-	X024a	X024a
○ <b>FMD 40-06KC</b>	C	Superjunction C3 <sup>1)</sup>		38	0.070	-		
➤ <b>MXB 12R650DCGFC</b>	B	X2 Class + SiC	650	16	0.150	650	-	
<b>MKE 38RK600DFELB</b>	F	Superjunction CP <sup>1)</sup>		50	0.045	600		X030a
✧ <b>MXB 40RK600DFELB</b>	F	X2 Class	650	68	0.038	-		
✧ <b>MKH 17RP650DCGLB</b>	D	Superjunction C6 <sup>1)</sup> + SiC		22	0.110	-		
○ <b>VUM 24-05N</b>	A+B	HiPerFET™	500	35	0.120	600	800	X105b
○ <b>VUM 33-05N</b>				47	0.120		1200	
<b>VUM 33-06PH</b>	A+B	Polar	600	50	0.120	600	1600	

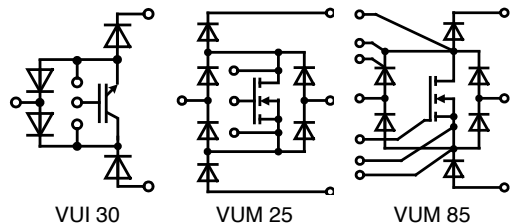
➤ New	Type	Circuit and Technology	V <sub>RRM</sub> V	I <sub>DAV</sub> A	@ T <sub>C</sub> °C	Fig. No.	Other parts
<b>Rectifier</b>							
	<b>FBO 16-12N<sup>2)</sup></b>	A Standard	1200	22	90	X024a	X105b
	<b>FBO 40-12N<sup>2)</sup></b>			40	90		
	<b>DLA 100B800LB<sup>3)4)</sup></b>	A low V <sub>F</sub>	800	124	135	X030a	
➤	<b>DMA 120B800LB</b>			130	90		
	<b>DLA 100B1200LB<sup>3)</sup></b>	A low V <sub>F</sub>	1200	124	135		

- <sup>1)</sup> Powered by Infineon CoolMOS™ superjunction bare die  
<sup>2)</sup> Recommended in combination with FMD and FID  
<sup>3)</sup> Recommended in combination with MKE, MKG and MXB  
<sup>4)</sup> AEC-Q-101

## 3-phase PFC

### “Vienna Rectifier” circuit

- wide input voltage range
- sinusoidal mains input currents in phase with mains
- boost converter operation:
  - input: 3~ AC mains without neutral conductor
  - output: stabilized DC link with center point
- one module used per phase



① contact factory	Type	PN / kW 3 ~ 400V. T <sub>C</sub> = 80°C	Configuration	Fig. No.	Other parts
	<b>VUM 25-05E</b> ①	10	Vienna rectifier current	X103	
	<b>VUM 85-05A</b> ①	30	Vienna rectifier current	X104	
	<b>VUI 30-12N1</b> ①	15	IGBT stage for buck @ boost PWM converter	X103	

only as good as their associated free-wheeling diodes. At increasing switching frequencies, the proper functioning and efficiency of the power switch, aside from conduction losses, is determined by the turn-off behavior of the diode (characterized by  $Q_{rr}$ ,  $I_{RM}$  and  $t_{rr}$  - Fig. 1). With optimized ultra-fast switching diodes, the development engineer has various possibilities: either higher pulse rate or higher current load or smaller heatsink or more conservative operation due to „cooler“ chips.

The reverse current characteristic following the peak reverse current  $I_{RM}$  is another very important property. The slope of the decaying reverse current  $di_r/dt$  results from design parameters (technology and diffusion of the diode chips). In a circuit this current slope, in conjunction with parasitic inductances (e.g. connecting leads), causes over-voltage spikes and high frequency interference voltages. The higher the

blocking voltages makes it possible to apply these diodes as output rectifiers in switch-mode power supplies (SMPS) as well as protective and free-wheeling diodes for power switches in inverters.

## Diodes for General Purpose Applications

### Rectifier Diodes

Diodes of the DS-series (anode on stud) and of the DSI-series (cathode on stud) are mainly used for rectifying 50 or 60 Hz mains currents. Discrete diodes in plastic and metal housings and also different diode bridges are available for standard line voltages (from 110 V to 690 V AC).

### Avalanche Diodes

Avalanche diodes or surge-voltage-proof rectifier diodes of the series DSA (anode on stud) and DSAI (cathode on stud) differ from standard diodes of the series DS and DSI in the following

control of the avalanche is important to ensure doping of the middle zone of the chip and suitable junction and passivation at the PN-junctions are exposed surface (high field strength). Because of this ruggedness, periodically occurring surge surges in the blocking state frequently can do without overvoltage net-work. avalanche diodes are used in high voltage applications. avalanche breakdown characteristic ensure dynamic voltage distribution across each device. In none of the series are overstressed by reverse voltage. All high voltage modules manufactured are assembled with avalanche

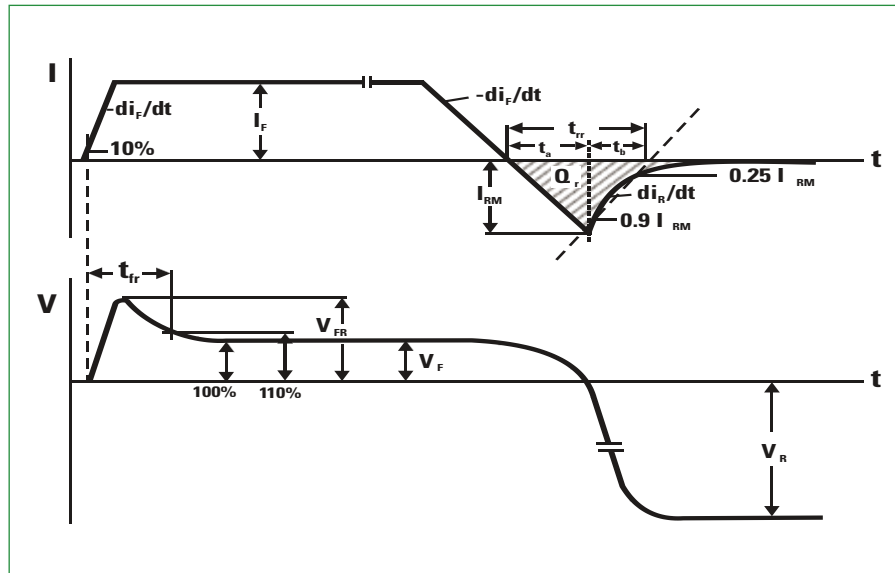


Fig. 1: Current and voltage during turn-on and turn-off switching of fast diodes

<b>DSB 30C30PB</b>		2x 15	130	0.44	15	150	1.75	X005a	
<b>DSB 60C30PB</b>		2x 30	130	0.49	30	150	0.85	X005a	
<b>DSB 60C30HB</b>		2x 30	125	0.47	30	150	0.95	X014a	X005a
<b>DSB 10I45PM</b>	45	10	115	0.52	10	150	4.50	X007b	
<b>DSA 20C45PB</b>		2x 10	155	0.62	10	175	2.40	X005a	
<b>DSA 15I45PA</b>		15	155	0.63	15	175	1.75	X005b	
<b>DSA 15IM45UC</b>		15	150	0.63	15	175	2.00	X004	
<b>DSA 15IM45IB</b>		15	155	0.63	15	175	1.75	X008a	X005b
<b>DSB 15IM45IB</b>		15	125	0.55	15	150	1.75	X008a	
<b>DSA 30C45PB</b>		2x 15	155	0.63	15	175	1.75	X005a	
<b>DSA 30C45PC</b>		2x 15	155	0.63	15	175	1.75	X011b	
<b>DSB 30C45PB</b>		2x 15	125	0.55	15	150	1.75	X005a	X007a
<b>DSA 30C45HB</b>		2x 15	155	0.62	15	175	1.75	X014a	
<b>DSB 30C45HB</b>		2x 15	125	0.54	15	150	1.75	X014a	
<b>DSA 60C45PB</b>		2x 30	150	0.67	30	175	0.85	X005a	
<b>DSB 60C45PB</b>		2x 30	125	0.60	30	150	0.85	X005a	X007b
<b>DSA 60C45HB</b>		2x 30	150	0.66	30	175	0.95	X014a	
<b>DSB 60C45HB</b>		2x 30	125	0.58	30	150	0.95	X014a	
<b>DSA 80C45HB</b>		2x 40	150	0.69	40	175	0.70	X014a	
<b>DSB 80C45HB</b>		2x 40	120	0.59	40	150	0.70	X014a	
<b>DSA 300I45NA</b>		300	95	0.70	300	150	0.20	X027a	X008a T
➤ <b>DSA 20C60PB</b>	60	2x 10	155	0.70	10	175	2.40	X005a	
<b>DSA 20C60PN</b>		2x 10	140	0.70	10	175	4.50	X007a	
<b>DSB 20C60PN</b>		2x 10	110	0.62	10	150	4.50	X007a	
<b>DSA 30C60PB</b>		2x 15	150	0.72	15	175	1.75	X005a	X011b
<b>DSB 30C60PB</b>		2x 15	125	0.64	15	150	1.75	X005a	
<b>DSA 60C60PB</b>		2x 30	150	0.77	30	175	0.85	X005a	
<b>DSB 60C60PB</b>		2x 30	125	0.69	30	150	0.85	X005a	
<b>DSA 60C60HB</b>		2x 30	150	0.75	30	175	0.95	X014a	
<b>DSB 60C60HB</b>		2x 30	125	0.67	30	150	0.95	X014a	X014a
<b>DSA 10I100PM</b>	100	10	135	0.71	10	175	4.50	X007b	
<b>DSA 10IM100UC</b>		10	150	0.71	10	175	3.00	X004	
<b>DSA 20C100PB</b>		2x 10	155	0.71	10	175	2.40	X005a	
<b>DSA 20C100PN</b>		2x 10	135	0.71	10	175	4.50	X007a	X017a
<b>DSA 30C100PB</b>		2x 15	150	0.73	15	175	1.75	X005a	
<b>DSA 30C100PN</b>		2x 15	120	0.73	15	175	4.25	X007a	
<b>DSA 30C100HB</b>		2x 15	150	0.72	15	175	1.75	X014a	
<b>DSA 30C100QB</b>		2x 15	150	0.72	15	175	1.75	X017a	
<b>DSA 50C100HB</b>		2x 25	155	0.72	25	175	0.95	X014a	X027a 227B
<b>DSA 50C100QB</b>		2x 25	155	0.72	25	175	0.95	X017a	
<b>DSA 30I100PA</b>		30	150	0.78	30	175	0.85	X005b	
<b>DSA 60C100PB</b>		2x 30	150	0.78	30	175	0.85	X005a	
<b>DSA 70C100HB</b>		2x 35	150	0.74	35	175	0.70	X014a	
<b>DSA 80C100PB</b>		2x 40	150	0.80	40	175	0.60	X005a	
<b>DSA 300I100NA</b>		300	90	0.79	300	150	0.20	X027a	

<b>DSA 20C150PB</b>		2x 10	135	0.73	10	175	2.40	X005a	
<b>DSA 20C150PN</b>		2x 10	135	0.73	10	175	4.50	X007a	
<b>DSA 15IM150UC</b>		15	155	0.75	15	175	2.00	X004	
<b>DSA 30C150PB</b>		2x 15	150	0.75	15	175	1.75	X005a	
<b>DSA 30C150PC</b>		2x 15	150	0.75	15	175	1.75	X011b	X005a
<b>DSA 30C150HB</b>		2x 15	150	0.74	15	175	1.75	X014a	
<b>DSA 50C150HB</b>		2x 25	155	0.74	25	175	0.95	X014a	
<b>DSA 30I150PA</b>		30	150	0.80	30	175	0.85	X005b	
<b>DSA 60C150PB</b>		2x 30	150	0.80	30	175	0.85	X005a	
<b>DSA 70C150HB</b>		2x 35	150	0.77	35	175	0.70	X014a	
<b>DSA 120C150QB</b>		2x 60	150	0.80	60	175	0.40	X017a	X005b
<b>DSA 120X150LB</b>		2x 60	150	0.80	60	175	0.80	X030a	
<b>DSA 240X150NA</b>		2x 120	95	0.85	120	150	0.40	X027a	
<b>DSA 20C200PB</b>	200	2x 10	155	0.75	10	175	2.40	X005a	
<b>DSA 15IM200UC</b>		15	145	0.78	15	175	2.00	X004	
<b>DSA 30C200IB</b>		2x 15	150	0.78	15	175	1.75	X008a	
<b>DSA 30C200PB</b>		2x 15	150	0.78	15	175	1.75	X005a	X007a
<b>DSA 30C200PC</b>		2x 15	150	0.78	15	175	1.75	X011b	
<b>DSA 70C200HB</b>		2x 35	150	0.79	35	175	0.70	X014a	
<b>DSA 90C200HB</b>		2x 45	145	0.86	45	175	0.55	X014a	
<b>DSA 90C200HR</b>		2x 45	140	0.79	45	175	0.70	X016c	
<b>DSA 120X200LB</b>		2x 60	150	0.87	60	175	0.80	X030a	X008a T
<b>DSA 240X200LB</b>		2x 120	150	0.87	120	175	0.40	X030a	
<b>DSA 240X200NA</b>		2x 120	90	0.87	120	150	0.40	X027a	
<b>DSA 300I200NA</b>		300	80	0.88	300	150	0.20	X027a	

X016c

**ISO247™**

X014a

**TO-247AD**

X011b

X017a

**TO-3P**

X030a

**SMPD-B**X027a  
**227B**

DSSK 40-0015B		2x 20	130	0.32	20	150	1.40	X014a	
DSSK 70-0015B		2x 35	130	0.35	35	150	1.10	X014a	
DSS 6-0025BS	25	6	140	0.30	6	150	3.00	X004	X005a
DSS 25-0025B		25	125	0.45	25	150	1.40	X005b	
DSSK 18-0025BS		2x 10	140	0.37	10	150	1.70	X011b	
DSSK 38-0025B		2x 20	130	0.40	20	150	1.40	X005a	
DSSK 38-0025BS		2x 20	130	0.40	20	150	1.40	X011b	
DSSK 48-0025B		2x 25	130	0.35	20	150	1.20	X005a	X005b
DSSK 50-0025B		2x 25	125	0.43	25	150	1.40	X014a	
DSSK 80-0025B		2x 40	130	0.39	40	150	0.80	X014a	
DSSK 48-003B	30	2x 25	130	0.35	20	150	1.20	X005a	
DSSK 48-003BS		2x 25	130	0.35	20	150	1.20	X011b	
DSSK 70-003B		2x 35	125	0.39	35	150	1.10	X014a	X010b
DSSK 80-003B		2x 40	130	0.39	40	150	0.80	X014a	
DSS 6-0045AS	45	6	165	0.50	6	175	3.00	X004	
DSS 10-0045B		10	135	0.46	10	150	1.70	X005b	
DSS 16-0045A		16	160	0.56	16	175	1.40	X005b	
DSS 16-0045AS		16	160	0.56	16	175	1.40	X011b	
DSS 25-0045A		25	155	0.56	25	175	1.10	X005b	X011b
DSS 60-0045B		60	105	0.57	60	150	0.80	X014b	
DSSK 20-0045B		2x 10	135	0.46	10	150	1.70	X005a	
DSSK 28-0045BS		2x 15	135	0.43	15	150	1.40	X011b	
DSSK 60-0045A		2x 30	150	0.58	30	175	1.10	X014a	
DSSK 60-0045B		2x 30	125	0.45	30	150	1.10	X014a	X014a
DSSK 80-0045B		2x 40	125	0.46	40	150	0.80	X014a	
DSS 2x61-0045A		2x 60	110	0.65	60	150	0.80	X027a	
DSS 2x81-0045B		2x 80	85	0.63	80	150	0.80	X027a	
DSS 2x121-0045B		2x 120	100	0.59	120	150	0.40	X027a	
① DSS 2x160-0045A		2x 160	90	0.72	160	150	0.40	X027b	
FUS 45-0045B		45	90	0.54	15	150	3.10	X024a	X014b
DSS 10-006A	60	10	160	0.65	10	175	1.70	X005b	
DSSK 28-006BS		2x 15	135	0.52	15	150	1.40	X011b	
DSSK 40-006B		2x 20	135	0.46	20	150	1.10	X014a	
DSSK 80-006B		2x 40	120	0.51	40	150	0.80	X014a	
DSSK 80-006BR		2x 40	120	0.51	40	150	0.80	X016a	
DSSK 40-008B	80	2x 20	130	0.52	20	150	1.10	X014a	X016a
DSSS 35-008AR	2x 80	35	150	0.68	35	175	0.80	X016a	
DSSK 70-008A		2x 35	150	0.64	35	175	0.80	X014a	
DSSK 70-008AR		2x 35	150	0.64	35	175	0.80	X016a	
DSS 2x111-008A		2x 110	105	0.72	100	150	0.40	X027a	
DSS 10-01A	100	10	160	0.66	10	175	1.70	X005b	
DSS 10-01AS		10	160	0.66	10	175	1.70	X011b	X024a
DSS 16-01A		16	155	0.65	16	175	1.40	X005b	
DSS 16-01AS		16	155	0.65	16	175	1.40	X011b	
DSS 20-01AC		20	140	0.80	20	175	1.70	X010b	
DSSS 30-01AR	2x 100	30	155	0.63	30	175	0.80	X016a	
DSSK 16-01A		2x 8	165	0.63	8	175	1.70	X005a	
DSSK 16-01AS		2x 8	165	0.63	8	175	1.70	X011b	X027a/b
DSSK 28-01AS		2x 15	160	0.64	15	175	1.40	X011b	UI
DSSK 30-01A		2x 15	160	0.63	15	175	1.40	X014a	
DSSK 50-01A		2x 25	155	0.64	25	175	1.10	X014a	
DSS 2x41-01A		2x 40	110	0.70	40	150	1.10	X027a	
DSS 2x61-01A		2x 60	105	0.74	60	150	0.80	X027a	
① DSS 2x160-01A		2x 160	80	0.81	160	150	0.40	X027b	

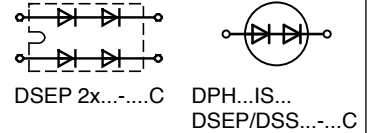
① Non isolated base plate



<b>DSSK 60-015A</b>		2x 30	155	0.66	30	175	0.8	X014a
<b>DSSK 60-015AR</b>		2x 30	155	0.66	30	175	0.8	X016a
<b>DSS 2x101-015A</b>		2x 100	110	0.77	100	150	0.4	X027a
<b>DSSK 10-018A</b>	180	2x 5	165	0.60	5	175	1.7	X005a
<b>DSSK 30-018A</b>		2x 15	150	0.74	15	175	1.7	X014a
<b>DSSK 60-02A</b>	200	2x 30	155	0.70	30	175	0.8	X014a
<b>DSSK 60-02AR</b>		2x 30	155	0.70	30	175	0.8	X016a
<b>DSS 2x101-02A</b>		2x 100	105	0.84	100	150	0.4	X027a

## HiPerDyn™ FRED

Series connected diodes for high switching frequencies; packages isolated (2500 V<sub>RMS</sub>)

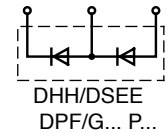


Type	V <sub>RRM</sub> V	I <sub>FAV</sub> A	@ T <sub>C</sub> d = 0.5 °C	V <sub>F</sub> V	@ T <sub>VJ</sub> I <sub>F</sub> = I <sub>FAV</sub> °C	t <sub>rr</sub> typ. ns	I <sub>RM</sub> typ. A	@ -di/dt A/μs	T <sub>VJM</sub> °C	R <sub>thJC</sub> K/W	Fig. No.
<b>DSS 17-06CR *</b>	600	17	95	2.71	125	45	2.0	100	175	1.40	X016b
<b>DPH 30IS600HI</b>		30	140	1.89	150	35	3.0	200	175	0.55	X016a
<b>DSEP 15-12CR</b>	1200	15	135	2.67	150	15	10.0	600	175	1.00	X016b
<b>DSEP 30-12CR</b>		30	120	3.18	150	15	5.5	600	175	0.60	X016b
<b>DSEP 2x25-12C</b>	1200	2x 25	90	2.95	150	15	5.5	600	150	0.60	X027a
<b>DPJ 50XS1800NA</b>	1800	2x 25	90	4.33	150	15	4.0	600	150	0.40	X016b

\* series connected Schottky Diodes

## Dual Ultrafast Diodes

Series connected diodes for high switching frequencies with middle connection; packages isolated (2500 V<sub>RMS</sub>)



Type	V <sub>RRM</sub> V	I <sub>FAV</sub> A	@ T <sub>C</sub> d = 0.5 °C	V <sub>F</sub> V	@ T <sub>VJ</sub> I <sub>F</sub> = I <sub>FAV</sub> °C	t <sub>rr</sub> typ. ns	I <sub>RM</sub> typ. A	@ -di/dt A/μs	T <sub>VJM</sub> °C	R <sub>thJC</sub> K/W	Fig. No.
<b>DPG 30P300PJ</b>	2x 300	30	135	0.99	150	35	3	200	175	1.05	X010a
<b>DPG 10P400PJ</b>	2x 400	10	145	1.03	150	45	4	200	175	2.50	X010a
<b>DPG 30P400PJ</b>		30	135	1.05	30	45	4	200	175	1.05	X010a
<b>DSEE 15-12CC</b>	2x 600	15	100	1.50	125	35	4	100	175	1.60	X010a
<b>DSEE 29-12CC</b>		30	90	1.75	125	30	4	100	175	0.90	X010a
<b>DPF 30P600HR</b>		30	130	1.27	150	35	17	600	175	0.90	X016c
① <b>DSEE 30-12A</b>		30	90	1.78	125	30	4	100	175	0.90	X014a
<b>DSEE 55-24N1F</b>	2x 1200	60	110	1.56	150	75	35	600	175	0.60	X024b
<b>DHH 55-36N1F</b>	2x 1800	60	50	2.06	125	230	60	800	150	0.60	X024b

① Non isolated base plate

<b>DPG 20C200PN</b>		2x 10	125	140	0.98	10	35	3	200	175	4.40	X007a	X005a	
<b>DPG 15I200PA</b>		15	140	240	1.01	15	35	3	200	175	1.70	X005b		
<b>DPG 30C200PB</b>		2x 15	140	240	1.01	15	35	3	200	175	1.70	X005a		
<b>DPG 30C200PC</b>		2x 15	140	240	1.01	15	35	3	130	175	1.70	X011b		
<b>DPG 30C200HB</b>		2x 15	140	240	1.00	15	35	3	200	175	1.70	X014a		X005b
<b>DPF 60C200HB</b>		2x 30	130	400	0.98	30	35	4	200	175	0.95	X014a		
<b>DPF 60C200HJ</b>		2x 30	130	560	0.88	30	35	4	200	175	1.05	X016a		
<b>DPG 60C200HB</b>		2x 30	135	360	1.06	30	35	3	200	175	0.95	X014a		X007a
<b>DPG 60C200QB</b>		2x 30	135	360	1.06	30	35	3	200	175	0.95	X017a		
<b>DPF 80C200HB</b>		2x 40	140	560	0.95	40	35	4	200	175	0.70	X014a		
<b>DPF 60I200HA</b>		60	135	650	0.98	60	35	4	200	175	0.55	X014b		
<b>DPF 240X200NA</b>		2x 120	120	1800	0.90	120	35	4	200	175	0.45	X027a		
<b>DPG 10I300PA</b>	300	10	145	140	0.98	10	35	3	200	175	2.30	X005b		X007b
<b>DPG 10IM300UC</b>		10	150	140	0.98	10	35	3	200	175	2.30	X004		
<b>DPG 20C300PB</b>		2x 10	145	140	0.98	10	35	3	200	175	2.30	X005a	X010a	
<b>DPG 20C300PN</b>		2x 10	125	140	0.98	10	35	3	200	175	4.40	X007a		
<b>DPG 15I300PA</b>		15	140	240	1.01	15	35	3	200	175	1.70	X005b		
<b>DPG 30C300PB</b>		2x 15	140	240	1.01	15	35	3	200	175	1.70	X005a		
<b>DPG 30C300PC</b>		2x 15	140	240	1.01	15	35	3	200	175	1.70	X011b		
<b>DPG 30C300HB</b>		2x 15	140	240	1.00	15	35	3	200	175	1.70	X014a	X011b	
<b>DPF 30I300PA</b>		30	145	390	0.98	30	55	6	200	175	0.85	X005b		
<b>DPG 30I300HA</b>		30	135	360	1.06	30	35	3	200	175	0.95	X014b		
<b>DPG 30I300PA</b>		30	140	360	1.08	30	35	3	200	175	0.85	X005b	X014a	
<b>DPG 30IM300PC</b>		30	140	360	1.08	30	35	3	200	175	0.85	X011b		
<b>DPG 30P300PJ</b>	2x 300	30	135	450	0.99	30	35	3	200	175	1.05	X010a	X014a	
<b>DPF 60C300HB</b>		2x 30	140	400	0.97	30	55	6	200	175	0.95	X014a		
<b>DPG 60C300HB</b>		2x 30	135	360	1.06	30	35	3	200	175	0.95	X014a	X014b	
<b>DPG 60C300HJ</b>		2x 30	135	450	0.96	30	35	3	200	175	1.05	X016a		
<b>DPG 60C300PC</b>		2x 30	140	360	1.08	30	35	3	200	175	0.85	X011b		
<b>DPG 60C300QB</b>		2x 30	135	360	1.06	30	35	3	200	175	0.95	X017a		
<b>DPG 80C300HB</b>		2x 40	135	450	1.07	40	35	3	200	175	0.70	X014a		
<b>DPG 60I300HA</b>		60	125	450	1.10	60	35	3.5	200	175	0.55	X014b	X016a	
<b>DPG 60IM300PC</b>		60	135	450	1.14	60	35	3.5	200	175	0.45	X011b		
<b>DPG 120C300QB</b>		2x 60	125	450	1.10	60	35	3.5	200	175	0.55	X017a		
<b>DPG 10I400PA</b>	400	10	145	150	1.03	10	45	4	200	175	2.30	X005b	X016a	
<b>DPG 10I400PM</b>		10	120	150	1.03	10	45	4	200	175	4.40	X007b		
<b>DPG 10P400PJ</b>	2x 400	10	145	130	1.03	10	45	4	200	175	2.50	X010a	X016b	
<b>DPG 20C400PB</b>		2x 10	145	150	1.03	10	45	4	200	175	2.30	X005a		
<b>DPG 20C400PC</b>		2x 10	145	150	1.03	10	45	4	200	175	2.30	X011b		
<b>DPG 20C400PN</b>		2x 10	120	150	1.03	10	45	4	200	175	4.40	X007a		
<b>DPG 15I400PM</b>		15	90	190	1.14	15	45	4	200	175	4.20	X007b		
<b>DPG 30C400PB</b>		2x 15	140	190	1.14	15	45	4	200	175	1.70	X005a	X017a	
<b>DPG 30C400HB</b>		2x 15	140	190	1.13	15	45	4	200	175	1.70	X014a		
<b>DPG 30I400HA</b>		30	135	360	1.13	30	45	4	200	175	0.95	X014b		
<b>DPG 30IM400PC</b>		30	145	300	1.16	30	45	4	200	175	0.85	X011b		
<b>DPG 30P400PJ</b>	2x 400	10	135	400	1.05	30	45	4	200	175	1.05	X010a		X027a
<b>DPG 60C400HB</b>		2x 30	135	360	1.13	30	45	4	200	175	0.95	X014a		
<b>DPG 60C400QB</b>		2x 30	135	360	1.13	30	45	4	200	175	0.95	X017a		
<b>DPG 80C400HB</b>		2x 40	135	400	1.14	40	45	4	200	175	0.70	X014a		
<b>DPG 60I400HA</b>		60	120	450	1.22	60	45	4	200	175	0.55	X014b		
<b>DPF 60IM400HB</b>		60	130	600	1.09	60	60	6	200	175	0.55	X014a		
<b>DPG 60IM400QB</b>		60	120	450	1.22	60	45	4	200	175	0.55	X017a		
<b>DPF 240X400NA</b>		2x 120	120	1100	0.95	120	60	6	200	175	0.45	X027a		
<b>DPH 30IS600HI</b>	600	30	140	450	1.89	30	35	3	200	175	0.55	X016b		

DSEP 8-06A			10	145	50	1.42	10	35	3.5	100	175	2.50	X005b
DSEP 8-06B			10	130	50	1.85	10	30	2.0	100	175	2.50	X005b
DSEP 15-06A			15	140	110	1.35	15	35	4.0	100	175	1.60	X005b
DSEP 15-06AS			15	140	110	1.35	15	35	4.0	100	175	1.60	X011b
DSEP 15-06B			15	130	110	1.59	15	25	2.0	100	175	1.60	X005b
DSEP 15-06BS			15	130	110	1.59	15	25	2.0	100	175	1.60	X011b
DSEP 29-06A			30	135	250	1.26	30	35	5.5	100	175	0.90	X005b
DSEP 29-06AS			30	135	250	1.26	30	35	5.5	100	175	0.90	X011b
DSEP 29-06B			30	120	250	1.63	30	30	3.0	100	175	0.90	X005b
DPG 30I600PM			15	95	250	1.63	30	25	4.5	200	175	3.50	X007b
DSEP 30-06A			30	135	250	1.25	30	35	5.5	100	175	0.90	X014b
DSEP 30-06B			30	120	250	1.61	30	30	3.0	100	175	0.90	X014b
DSEP 30-06BR			30	100	250	1.61	30	30	3.0	100	175	1.10	X016b
DSEP 60-06A			60	110	600	1.39	60	35	5.5	100	175	0.65	X014b
DSEP 60-06AT			60	110	600	1.39	60	35	5.5	100	175	0.65	X019
DSEP 75-06AR			75	115	1000	1.38	75	35	6.5	200	175	0.50	X016a
DSEP 8-12A	1200		10	130	40	1.96	10	40	4.0	100	175	2.50	X005b
DSEP 12-12A			15	130	90	1.87	15	40	4.5	100	175	1.60	X005b
DSEP 12-12AZ			15	130	90	1.87	15	40	4.5	100	175	1.60	X011c
DSEP 12-12B			15	130	90	2.06	15	35	3.0	100	175	1.60	X005b
DSEP 12-12BZ			15	130	90	2.06	15	35	3.0	100	175	1.60	X011c
DSEP 29-12A			30	120	200	1.81	30	40	8.5	100	175	0.90	X005b
DSEP 29-12B			30	100	200	2.31	30	35	5.0	100	175	0.90	X005b
DSEP 30-12A			30	115	200	1.79	30	40	8.5	100	175	0.90	X014b
DSEP 30-12B			30	100	200	2.30	30	35	5.0	100	175	0.90	X014b
DSEP 30-12AR			30	100	200	1.79	30	40	8.5	100	175	1.10	X016b
DSEP 60-12A			60	85	500	1.81	60	40	8.5	100	175	0.65	X014b
DSEP 60-12B			60	110	500	2.20	60	35	-	100	175	0.45	X014b
DSEP 60-12AR			60	60	500	1.81	60	40	8.5	100	175	0.80	X016b
DSEP 60-12AZ			60	115	500	1.81	60	40	8.5	100	175	0.45	X019a
DSEP 90-12AZ			90	105	800	1.79	90	40	8.5	100	175	0.35	X019a
DSEC 16-06A	600	2x	10	145	50	1.42	10	35	3.5	100	175	2.50	X005a
DSEC 16-06AC		2x	8	85	50	1.20	10	35	3.5	100	175	3.00	X010a
DSEC 29-06AC		2x	15	140	110	1.34	15	35	4.0	100	175	1.60	X010a
DSEC 30-06A		2x	15	140	110	1.34	15	35	4.0	100	175	1.60	X014a
DSEC 30-06B		2x	15	130	110	1.58	15	25	2.0	100	175	1.60	X014a
DSEC 59-06BC		2x	30	105	200	1.56	30	30	4.0	100	175	1.10	X010a
DSEC 60-06A		2x	30	135	250	1.25	30	35	5.5	100	175	0.90	X014a
DSEC 60-06B		2x	30	120	250	1.61	30	30	3.0	100	175	0.90	X014a
DSEC 16-12A	1200	2x	10	130	40	1.96	10	40	4.0	100	175	2.50	X005a
DSEC 16-12AS		2x	10	130	40	1.96	10	40	4.0	100	175	2.50	X011b
DSEC 30-12A		2x	15	115	90	1.86	15	40	4.5	100	175	1.60	X014a
DSEC 60-12A		2x	30	115	200	1.79	30	40	8.5	100	175	0.90	X014a
DSEC 120-12AK		2x	60	85	500	1.81	60	40	7.0	100	175	0.65	X020a
DSEP 2x31-03A	300	2x	30	110	300	0.90	30	30	4.5	100	150	1.15	X027a
DSEP 2x61-03A		2x	60	75	600	1.26	60	30	4.0	100	150	0.85	X027a
DSEP 2x91-03A		2x	90	70	1000	1.10	90	30	4.5	100	150	0.60	X027a
DSEP 2x31-06A	600	2x	30	95	250	1.23	30	35	5.5	100	150	1.15	X027a
DSEP 2x31-06B		2x	30	75	250	1.59	30	30	3.0	100	150	1.15	X027a
DSEP 2x61-06A		2x	60	65	600	1.48	60	35	5.5	100	150	0.85	X027a
DSEP 2x91-06A		2x	90	55	1000	1.39	90	35	8.0	100	150	0.60	X027a
DSEP 2x31-12A	1200	2x	30	70	200	1.77	30	40	8.5	100	150	1.15	X027a
DSEP 2x60-12A		2x	60	80	800	1.52	60	40	8.0	100	150	0.60	X027a
DSEP 2x61-12A		2x	60	80	800	1.52	60	40	8.0	100	150	0.60	X027a
DSEP 2x61-12B		2x	60	80	800	2.00	60	35	-	100	150	0.60	X027a
DSEP 2x101-04A	400	2x	100	45	1000	1.22	125	30	5.5	100	150	0.60	X027a
① DSEC 240-04A		2x	120	75	2000	1.00	120	30	5.5	100	150	0.45	X027b
① DSEC 240-06A	600	2x	120	75	2000	1.26	120	35	8.0	100	150	0.40	X027b

① Non isolated base plate

<b>DHG 10C600PB</b>		2x 5	105	40	2.17	5		2	100		3.15	X005a	
<b>DHG 10I600PA</b>		10	95	80	2.18	10		4	200		1.80	X005b	
<b>DHG 10I600PM</b>		10	25	80	2.18	10		4	200		4.00	X007b	
<b>DHG 20C600PB</b>		2x 10	95	80	2.18	10		4	200		1.80	X005a	
<b>DHG 20C600QB</b>		2x 10	95	80	2.17	10		4	200		1.80	X017a	
<b>DHG 20I600PA</b>		20	100	150	2.21	20		8	400		0.80	X005b	X005b
<b>DHG 20I600HA</b>		20	95	150	2.19	20		8	400		0.90	X014b	
<b>DHG 40C600HB</b>		2x 20	95	150	2.19	20		8	400		0.90	X014a	
<b>DHG 30I600PA</b>		30	95	200	2.24	30		12	600		0.60	X005b	
<b>DHG 30IM600PC</b>		30	95	200	2.22	30		12	600		0.60	X011b	
<b>DHG 30I600HA</b>		30	85	200	2.21	30		12	600		0.70	X014b	X007b
<b>DHG 60C600HB</b>		2x 30	85	200	2.21	30		12	600		0.70	X014a	
<b>DHG 60I600HA</b>		60	95	430	2.10	60		24	1200		0.30	X014b	
<b>DHG 50X650NA</b>	650	2x 25	70	200	2.03	25	35	12	600	150	1.20	X027a	
<b>DHG 100X650NA</b>		2x 50	80	430	2.00	50		20	1200		0.60	X027a	
<b>DHG 10I1200PA</b>	1200	10	95	65	2.13	10	75	8	350	150	1.80	X005b	
<b>DHG 10I1200PM</b>		10	30	65	2.13	10		8	350		4.00	X007b	
<b>DHG 20C1200PB</b>		2x 10	95	65	2.13	10		8	350		1.80	X005a	X011b
<b>DHG 20I1200PA</b>		20	105	135	2.16	20		19	750		0.80	X005b	
<b>DHG 20I1200HA</b>		20	95	135	2.14	20		19	750		0.90	X014b	
<b>DHG 40C1200HB</b>		2x 20	95	135	2.14	20		19	750		0.90	X014a	
<b>DHG 50X1200NA</b>		2x 25	70	180	2.00	25		25	1000		1.20	X027a	
<b>DHG 30I1200HA</b>		30	90	180	2.16	30		25	1000		0.70	X014b	X014a
<b>DHG 100X1200NA</b>		2x 50	65	430	2.05	50		50	2500		0.60	X027a	
<b>DHG 60I1200HA</b>		60	95	430	2.22	60		50	2500		0.30	X014b	
<b>DHG 10I1800PA</b>	1800	10	85	65	2.30	10	300	8	200	150	2.15	X005b	
<b>DHG 10IM1800UZ</b>		10	100	60	2.33	10		13	250		1.50	X004a	
<b>DH 20-18A</b>		20	95	150	2.35	20		22	400		0.90	X014b	
<b>DH 40-18A</b>		40	100	400	2.08	40		50	750		0.45	X014b	X014b
<b>DH 60-14A</b>	1400	60	100	700	2.03	60	230	60	800	150	0.30	X014b	
<b>DH 60-16A</b>	1600											X014b	
<b>DH 60-18A</b>	1800											X014b	
<b>DHH 55-36N1F</b>	2x 1800	60	50	700	2.03	60	230	60	800	150	0.60	X024b	
<b>DH 2x60-18A</b>	1800	2x 60	55	700	2.02	60	230	60	800	150	0.60	X027a	
<b>DH 2x61-18A</b>		2x 60	55	700	2.02	60		60	800		0.60	X027a	X017a
<b>DHG 55I3300FE</b>	3300	50	80	600	3.40	60	1650	55	500	150	0.45	X024e	
<b>DHG 40I4500KO</b>	4500	43	80	600	3.50	50	1450	80	800	150	0.50	X022f	

X027a  
227B

**SOT-**

**miniBLOC**



X024e **ISOPLUS i4-PAC™**



X024b **ISOPLUS i4-PAC™**



X02

<b>DSEI 8-06AS</b>	600		8	115	16	100	1.30	8	35	2.5	64	2.50	X011b	
<b>DFE 10I600PM</b>	600		10	100	16	100	1.30	10	35	2.5	64	4.20	X007b	
<b>DSEI 12-06A</b>	600		14	100	25	100	1.50	16	35	4.0	100	2.00	X005b	
<b>DSEI 12-06AS</b>	600		14	100	25	100	1.50	16	35	4.0	100	2.00	X011b	
<b>DSEI 12-10A</b>	1000		12	100	25	75	2.10	12	50	6.5	100	1.60	X005b	X007b
<b>DSEI 12-12A</b>	1200		11	100	25	75	2.20	12	50	6.5	100	1.60	X005b	
<b>DSEI 12-12AZ</b>	1200		11	100	25	75	2.20	12	50	6.5	100	1.60	X011c	
<b>DSEI 20-12A</b>	1200		17	85	70	130	1.87	12	40	7.0	100	1.60	X005b	
<b>DSEI 25-06A</b>	600		25	110	35	240	1.55	25	35	9.0	200	1.20	X005b	
<b>DSEI 19-06AS</b>	600		20	65	25	100	1.50	16	35	4.0	100	2.00	X011b	
<b>DSEI 25-06AS</b>	600		25	110	35	240	1.55	25	35	9.0	200	1.20	X011b	X011b
<b>DSEI 36-06AS</b>	600		37	85	70	300	1.40	37	35	10.0	240	1.00	X011b	
<b>DFE 25I600HA</b>	600		25	110	70	240	1.52	25	35	9.0	200	1.20	X014b	
<b>DSEI 30-06A</b>	600		37	85	70	300	1.40	37	35	10.0	240	1.00	X014b	
<b>DSEI 30-10A</b>	1000		30	85	70	200	2.00	36	35	16.0	240	0.90	X014b	
<b>DSEI 30-10AR</b>	1000		30	85	70	200	2.00	36	35	16.0	240	0.90	X016b	X011c
<b>DSEI 30-12A</b>	1200		26	85	70	200	2.20	30	40	16.0	240	0.90	X014b	
<b>DSEK 60-02A</b>	200	2x	34	115	50	325	0.85	30	35	4.0	100	1.00	X014a	
<b>DSEK 60-02AR</b>	200	2x	34	115	50	325	0.85	30	35	4.0	100	1.00	X016a	
<b>DSEK 60-06A</b>	600	2x	30	85	50	300	1.40	37	35	10.0	240	1.00	X014a	
<b>DSEK 60-12A</b>	1200	2x	26	85	50	200	2.20	30	40	16.0	240	0.90	X014a	X014a
<b>DSEI 60-02A</b>	200		69	85	98	600	0.88	60	35	8.0	200	0.75	X014b	
<b>DSEI 60-06A</b>	600		60	70	100	550	1.50	70	35	19.0	480	0.75	X014b	
<b>DSEI 60-10A</b>	1000		60	60	100	500	1.80	60	35	32.0	480	0.66	X014b	
<b>DSEI 60-12A</b>	1200		52	60	100	500	2.00	60	40	32.0	480	0.66	X014b	
<b>DSEI 120-06A</b>	600		126	70	100	600	1.12	70	35	17.0	200	0.35	X014b	X014b
<b>DSEI 120-12A</b>	1200		109	60	100	600	1.55	70	40	25.0	200	0.35	X014b	
<b>DSEI 120-12AZ</b>	1200		109	60	100	600	1.55	70	40	25.0	200	0.35	X019a	

X019a

**TO-268AAHV**

X017b

**TO-3P**

X016b

**ISOPLUS247™**

X016a

<b>DSEI 2x30-04C</b>	400	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a
<b>DSEI 2x30-06C</b>	600	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a
<b>DSEI 2x30-10B</b>	1000	2x 30	50	70	200	2.00	30	35	16	240	1.25	X027a
<b>DSEI 2x30-12B</b>	1200	2x 28	50	70	200	2.20	30	40	16	240	1.25	X027a
<b>DSEI 2x31-04C</b>	400	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a
<b>DSEI 2x31-06C</b>	600	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a
<b>DSEI 2x31-10B</b>	1000	2x 30	50	70	200	2.00	30	35	16	240	1.25	X027a
<b>DSEI 2x31-12B</b>	1200	2x 28	50	70	200	2.20	30	40	16	240	1.25	X027a
<b>DSEI 2x61-02A</b>	200	2x 71	85	100	950	0.88	60	35	8	200	0.80	X027a
<b>DSEI 2x60-04C</b>	400	2x 60	70	100	550	1.50	60	35	19	480	0.70	X027a
<b>DSEI 2x61-04C</b>	400	2x 60	70	100	550	1.50	60	35	19	480	0.70	X027a
<b>DSEI 2x61-06C</b>	600	2x 60	70	100	550	1.50	60	35	19	480	0.70	X027a
<b>DSEI 2x61-10B</b>	1000	2x 60	50	100	500	1.80	60	35	32	480	0.70	X027a
<b>DSEI 2x61-12B</b>	1200	2x 52	50	100	450	2.15	60	40	32	480	0.70	X027a
<b>DSEI 2x61-06P</b>	600	2x 60	70	100	550	1.50	60	35	19	480	0.70	X101
<b>DSEI 2x61-12P</b>	1200	2x 52	50	100	450	2.15	60	40	32	540	0.70	X101
<b>DSEI 2x121-02A</b>	200	2x 123	70	150	1200	0.95	120	35	12	200	0.50	X027a
<b>DSEI 2x101-06A</b>	600	2x 96	70	150	1200	1.17	100	35	19	200	0.50	X027a
<b>DFE 240X600NA</b>	600	2x 120	80	150	1200	1.20	120	35	27	600	0.40	X027a
<b>DFE 250X600NA</b>	600	2x 125	80	150	1300	1.16	125	35	27	600	0.40	X027a
<b>DSEI 2x101-12A</b>	1200	2x 91	50	130	900	1.61	100	40	24	200	0.50	X027a
<b>DSEI 2x101-06P</b>	600	2x 96	70	150	1200	1.17	100	40	19	200	0.50	X102
<b>DSEI 2x101-12P</b>	1200	2x 91	50	130	900	1.61	100	40	24	200	0.50	X102
<b>DSEI 2x161-02P</b>	200	2x 165	70	270	1200	1.05	200	35	20	200	0.29	X102
<b>DSEI 2x161-06P</b>	600	2x 147	70	270	1200	1.40	200	35	45	200	0.29	X102
<b>DSEI 2x161-12P</b>	1200	2x 128	70	270	1200	1.75	200	40	48	200	0.29	X102

X027a  
227B

X027d

① non isolated base plate

X102

**ECO-PAC 2**



See data sheet for pin arrangement

X101

**ECO-PAC 1**



See data sheet for pin arrangement

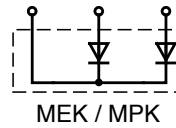
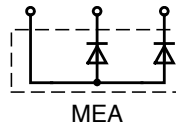
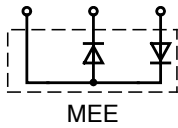
<b>MEO 500-06DA</b>	600	514	726	1.41	250	132	800						
<b>MEO 450-12DA</b>	1200	453	640	1.76	450	165	800						
<b>MEK 75-12DA</b>	1200	2x 75	107	1200	1.85	100	250	33	200	0.450	280	X125e	
<b>MEA 75-12DA</b>	1200	2x 75											
<b>MEE 75-12DA</b>	2x 1200	75											
<b>MEK 95-06DA</b>	600	2x 95	142	1200	1.36	100	250	21	200	0.450	280		
<b>MEA 95-06DA</b>	600	2x 95											
<b>MEE 95-06DA</b>	2x 600	95											
<b>MEK 250-12DA</b>	1200	2x 260	367	2400	1.54	260	450	83	400	0.143	875	X126c	
<b>MEA 250-12DA</b>	1200	2x 260											
<b>MEE 250-12DA</b>	2x 1200	260											
<b>MEK 300-06DA</b>	600	2x 304	430	2400	1.19	260	250	66	400	0.143	875		
<b>MEA 300-06DA</b>	600	2x 304											
<b>MEE 300-06DA</b>	2x 600	304											
<b>MEK 350-02DA</b>	200	2x 356	503	2400	0.92	260	150	15	200	0.143	875		

### HiPerFRED™

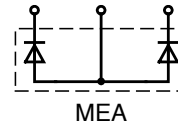
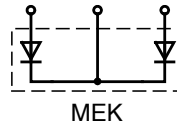
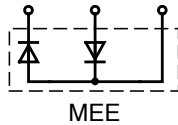
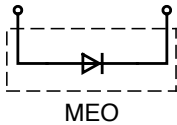
<b>MEK 150-04DA</b>	400	2x 150	100	200	1200	1.40*	300	300	11	100	0.350	360	X125e
<b>MEK 600-04DA</b>	400	2x 575	80	800	3000	1.10	400	220	80	900	0.110	1100	X126c
<b>MPK 95-06DA</b>	600	2x 95	110	200	1200	1.40	100	35	5.5	100	0.575	215	X125e

\*  $T_{VJM} = 150^{\circ}\text{C}$

Diode connections for Fig. X125 (TO-240)

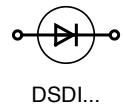


Diode connections for Fig. X126 (Y4: 34 mm package)



## SemiFast Diodes

$I_{FAV} = 60 \text{ A}$



Type	$V_{RRM}$ V	$I_{FAV}$ A		$@ T_C$ $^{\circ}\text{C}$	$I_{FRMS}$ A	$I_{FSM}$ 10 ms 45 $^{\circ}\text{C}$ A	$V_F$ V		$@ I_F$ A	$t_{rr}$ typ. ns	$I_{RM}$ A		$-di/dt$ A/ $\mu\text{s}$	$R_{thJC}$ K/W	Fig. No.
		$d = 0.5$					$T_{VJ} = 125^{\circ}\text{C}$				$T_{VJ} = 100^{\circ}\text{C}$				
<b>DSDI 60-14A</b>	1400	63	60	100	500	4.1	70	300	60	500	0.4	X014b			
<b>DSDI 60-16A</b>	1600														
<b>DSDI 60-18A</b>	1800														



<b>DSA 1-16D</b>	1600												X201	X004
<b>DSA 1-18D</b>	1800												X201	
<b>DLA 5P800UC</b>	2x 800	5	140	-	20	40	0.74	44.0	175	5.50	0.50		X004	X004a
<b>DSP 8-08S</b>	2x 800	8	160	-	25	100	0.79	33.0	175	1.50	0.25	X011b		
<b>DSP 8-12S</b>	2x 1200											X011b		
<b>DSP 8-08A</b>	2x 800	2x 800	2x 1200	-	25	100	0.79	33.0	175	1.50	0.25	X005a		
<b>DSP 8-12A</b>	2x 1200											X005a		
<b>DSP 8-08AS</b>	2x 800	2x 800	2x 1200	-	25	100	0.79	33.0	175	1.50	0.25	X011a		
<b>DSP 8-12AS</b>	2x 1200											X011a		
<b>DLA 10IM800UC</b>	800	10	100	-	20	80	0.80	22.0	175	3.15	0.50	X004	X004a	
<b>DLA 20IM800PC</b>		20	100	-	35	200	0.80	19.0	175	1.80	0.25	X011b		
<b>DMA 10IM1200UZ</b>	1200	10	150	-	20	120	0.82	37.0	175	1.50	0.50	X004a	X004a	
<b>DMA 10IM1600UZ</b>	1600											X004a		
<b>DMA 10P1200UZ</b>	1200	10	140	-	20	100	0.90	37.0	175	2.00	0.50	X004a	X005a	
<b>DMA 10P1600UZ</b>	1600											X004a		
<b>DMA 10I1600PA</b>	1600	10	150	-	20	120	0.82	37.0	175	1.50	0.50	X005b	X005b	
<b>DMA 10IM1600PZ</b>	1600											0.25		X011c
<b>DMA 10P1600PZ</b>	2x 1600	2x 1600	2x 1800	-	25	150	0.81	32.0	175	1.50	0.25	X011c		
<b>DMA 10P1800PZ</b>	2x 1800											X011c		
<b>DAA 10EM1800PZ</b>	1800	10	150	1.6	25	150	0.81	32.0	175	1.50	0.25	X011c	X005b	
<b>DAA 10P1800PZ</b>	2x 1800	10	150	1.6	25	150	0.82	37.0	175	1.50	0.25	X011c		
<b>DMA 10P1200HR</b>	2x 1200	10	145	-	25	120	0.81	34.0	175	2.00	0.25	X016c	X016c	
<b>DMA 10P1600HR</b>	2x 1600											X016c		
<b>DSP 25-12A</b>	2x 1200	25	135	-	70	300	0.81	13.8	175	0.90	0.25	X014a	X014a	
<b>DSP 25-16A</b>	2x 1600											X014a		
<b>DSP 25-12AT</b>	2x 1200	2x 1200	2x 1600	-	70	300	0.81	13.8	175	0.90	0.15	X019	X019	
<b>DSP 25-16AT</b>	2x 1600											X019		
<b>DSP 25-16AR</b>	2x 1600	25	110	-	70	300	0.81	13.8	175	1.50	0.25	X016a	X011a	
<b>DSI 30-08A</b>	800	30	130	-	35	300	0.82	14.9	175	0.90	0.50	X005b		
<b>DSI 30-12A</b>	1200											X005b		
<b>DSI 30-16A</b>	1600											X005b		
<b>DSI 30-08AS</b>	800	30	130	-	35	300	0.82	14.9	175	0.90	0.25	X011b		
<b>DSI 30-12AS</b>	1200											X011b		
<b>DSI 30-16AS</b>	1600											X011b		

X014a

**TO-247AD**

X011c

**TO-263ABHV**

X011b

X016a

**ISOPLUS247™**

X201

FP-case



X016c

**ISO247™**

X019



DMA 30E1800HA	1800	30	140	-	70	370	0.88	12.1	175	0.70	0.25	X014b
DMA 30P1200HB	2x 1200	30	130	-	70	370	0.81	12.7	175	0.80	0.25	X014a
DMA 30P1600HB	2x 1600											X014a
DMA 30P1600HR	2x 1600	30	105	-	50	300	0.82	13.5	175	1.30	0.25	X016c
DNA 30ER2200IY	2200	30	140	-	35	370	0.88	12.9	175	0.70	0.50	X008b
DNA 30E2200PA												X005b
DNA 30E2200PZ											0.25	X011c
DNA 30EM2200PZ												X011c
DNA 30E2200FE	2200	30	100	-	70	370	0.88	12.2	175	1.35	0.20	X024e
DLA 40IM800PC	800	40	130	-	35	300	0.81	8.0	175	0.80	0.25	X011b
DSI 45-08A	800	45	130	-	70	480	0.81	9.1	175	0.55	0.25	X014b
DSI 45-12A	1200											X014b
DSI 45-16A	1600											X014b
DSP 45-12A	2x 1200	45	130	-	70	480	0.81	9.1	175	0.55	0.25	X014a
DSP 45-12AZ												0.15
DSP 45-16A	2x 1600	45	130	-	70	480	0.81	9.1	175	0.55	0.25	X014a
DSP 45-16AZ												0.15
DSP 45-18A	2x 1800	45	130	-	70	480	0.81	9.1	175	0.55	0.25	X014a
DSI 45-16AR	1600	45	100	-	70	480	0.81	9.1	175	0.90	0.25	X016b
DSIK 45-16AR	1600	2x 45										X016a
DSP 45-16AR	2x 1600	45										X016a
DMA 50I800HA	800	50	130	-	70	500	0.81	8.6	175	0.45	0.25	X014b
DMA 50I1200HA	1200											X014b
DMA 50I1600HA	1600											X014b
DMA 50P1200HR	2x 1200	50	105	-	70	500	0.82	9.0	175	0.70	0.25	X016c
DMA 50P1200HB	2x 1200	50	130	-	70	500	0.81	8.6	175	0.45	0.25	X014a
DMA 50P1600HB	2x 1600											X014a
DLA 60I1200HA	1200	60	150	-	70	850	0.77	4.2	175	0.30	0.25	X014b
DMA 80IM1600HB	1600	80	125	-	70	1300	0.82	4.8	175	0.35	0.25	X014a
DLA 100IM1200TZ	1200	100	105	-	70	1300	0.85	4.6	175	0.35	0.15	X019a
DSI 2x55-12A	1200	2x 60	95	-	120	800	0.83	6.2	150	0.60	0.10	X027a
DSI 2x55-16A	1600											X027a
DNA 120E2200KO	2200	120	125	-	70	2000	0.75	3.8	175	0.25	0.15	X022f
DMA 150E1600NA	1600	150	90	-	150	3000	0.83	2.0	150	0.25	0.10	X027a
DMA 200X1600NA	1600	2x100	100	-	150	1500	0.80	4.0	150	0.30	0.10	X027a
DMA 200XA1600NA												X027a
DAA 200X1800NA	1800	2x100	100	-	150	1500	0.80	4.0	150	0.30	0.10	X027a
DAA 200XA1800NA												X027a

X027a

SOT-227B  
miniBLOC

X016c

ISO247™



X016b

ISOPLUS247™



X016a

X024e ISOPLUS i4-PAC™



X022f

ISOPLUS264™

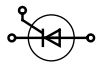


X019a

○ DSA 2-16A	1800																
○ DSA 2-18A	1800																
○ DSA 9-12F	1200	11	100	4.5	18	250	0.85	15.0	180	2.00	1.00	⌞	X204	X204 D (DO-4)			
○ DSA 9-16F	1600																
○ DSA 9-18F	1800																
○ DS 17-12A	1200	25	125	-	40	370	0.85	8.0	180	1.50	0.60	⌞	X205	X205 D (DO-4)			
○ DSA 17-12A	1200	25	125	7	40	370	0.85	8.0	180	1.50	0.60						
○ DSA 17-16A	1600																
○ DSA 17-18A	1800																
○ DSI 17-12A	1200	25	125	-	40	370	0.85	8.0	180	1.50	0.60	⌞	X205	X205 D (DO-4)			
○ DSAI 17-12A	1200	25	100	7	40	370	0.85	8.0	180	1.50	0.60						
○ DSAI 17-16A	1600																
○ DSAI 17-18A	1800																
○ DS 35-12A	1200	49	100	-	80	650	0.85	4.5	180	1.05	0.20	⌞	X206a	X206a			
○ DSA 35-12A	1200	49	100	11	80	650	0.85	4.5	180	1.05	0.20						
○ DSA 35-16A	1600																
○ DSA 35-18A	1800																
○ DSI 35-12A	1200	49	100	-	80	650	0.85	4.5	180	1.05	0.20	⌞	X206a	X206a			
○ DSAI 35-12A	1200	49	100	11	80	650	0.85	4.5	180	1.05	0.20						
○ DSAI 35-16A	1600																
○ DSAI 35-18A	1800																
○ DS 75-12B	1200	110	100	-	160	1400	0.75	2.0	180	0.50	0.40	⌞	X207	X207			
○ DSA 75-12B	1200	110	100	20	160	1400	0.75	2.0	180	0.50	0.40						
○ DSA 75-16B	1600																
○ DSA 75-18B	1800																
○ DSI 75-12B	1200	110	100	-	160	1400	0.75	2.0	180	0.50	0.40	⌞	X207	X207			
○ DSAI 75-12B	1200	110	100	20	160	1400	0.75	2.0	180	0.50	0.40						
○ DSAI 75-16B	1600																
○ DSAI 75-18B	1800																

## Phase Control Thyristors

$$I_{TAV} = 25 - 63 \text{ A}$$



Type	$V_{RRM}$ $V_{DRM}$ V	$I_{TAV}$ $T_C = 85^\circ\text{C}$ A	$I_{T(RMS)}$ A	$I_{TSM}$ 45°C 10 ms A	$(dv/dt)_{cr}$ V/ $\mu\text{s}$	$V_{TO}$ V	$r_T$ m $\Omega$	$T_{VJM}$ °C	$R_{thJC}$ K/W	$R_{thCH}$ K/W	Fig. No.
○ CS 23-08io2	800	25	50	450	1000	1.00	10.0	125	1.00	0.60	X209
○ CS 23-12io2	1200										
○ CS 23-16io2	1600										
○ CS 35-08io4	800	63	120	1200	1000	0.85	3.5	125	0.40	0.20	X210
○ CS 35-12io4	1200										
○ CS 35-14io4	1400										

# Phase Control Thyristors



CLB...

$$I_{TAV} = 5 - 30 \text{ A}$$

Type	$V_{RRM}$	$I_{TAV}$	@ $T_c$	$I_{T(RMS)}$	$I_{TSM}$	$(dv/dt)_{cr}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.	Pa
	$V_{DRM}$												
	V	A	°C	A	A	V/ $\mu$ s	V	m $\Omega$	°C	K/W	K/W		
CLA 5E1200UC CLA 5E1200PZ	1200	5	135	8	70	500	0.89	85.0	150	1.50	0.50	X004 X011c	X004
CLA 15E1200NPB CLA 15E1200NPZ	1200	15	120	33	170	500	0.89	30.0	150	0.95	0.50	X005a X011c	
CLA 16E800PN CLA 16E1200PN	800 1200	10	90	16	180	500	0.81	24.0	150	4.00	0.50	X007a X007a	X005a
CS 19-08ho1 CS 19-12ho1 CS 19-08ho1S CS 19-12ho1S	800 1200 800 1200	20	110	31	160	500	0.86	22.0	150	0.70	0.50	X005a X005a X011b X011b	X007a
CMA 20E1600PB CMA 20E1600PZ	1600	20	115	31	180	500	0.92	28.0	150	0.70	0.50	X005a X011c	
CS 20-12io1 CS 20-14io1 CS 20-16io1	1200 1400 1600	20	130	31	260	1000	0.87	17.3	150	0.60	0.25	X014a X014a X014a	X011b
CS 20-22moF1 CS 20-25mo1F	2200 2500	18	85	28	200	2500	0.97	17.0	125	0.92	0.15	X024c X024c	
CS 20-25moT1	2500	18	85	28	200	2500	0.97	17.0	125	0.80	0.15	X019	X011c
CS 22-08io1M CS 22-12io1M	800 1200	16	90	25	300	500	0.86	13.2	150	2.50	0.50	X007a X007a	X011c
CLA 30E1200PB CLA 30E1200PC CLA 30E1200NPZ ➤ CLA 100E1200TZ ★ CLB 30I1200PZ	1200	30	115	47	300	500	0.86	13.2	150	0.50	0.50	X005a 0.25 X011b X011c	X014a
CLA 30E1200HB ★ CLB 30I1200HB	1200	30	120	47	300	500	0.86	12.5	150	0.50	0.25	X014a X014a	X016c
CMA 30E1600PB CMA 30E1600PZ CMA 30E1600PN	1600 1600 1600	30 30 30	115 115 40	47 47 47	260 260 260	500 500 500	0.92 0.92 0.92	18.0 18.0 18.0	150 150 150	0.75 0.75 2.50	0.50 0.25 0.50	X005a X011c X007a	X016c
CS 30-12io1 CS 30-14io1 CS 30-16io1	1200 1400 1600	30	120	47	400	1000	0.87	14.2	150	0.50	0.25	X014a X014a X014a	X019
CMA 30P1600FC	2x 1600	30	90	47	400	1000	0.87	14.2	150	1.00	0.25	X024a	
CLA 40E1200NPZ	1200	40	125	63	520	500	0.85	9.9	150	0.40	0.25	X011c	
CLA 40E1200NHB	1200	40	120	63	520	500	0.85	9.2	150	0.50	0.25	X014a	
CLA 40E1200HR	1200	40	95	63	650	1000	0.85	7.9	150	0.80	0.25	X016c	X024c
★ CLB 40I1200PZ	1200	40	125	63	520	500	0.85	9.9	150	0.40	0.25	X011c	
CLA 40P1200FC	2x 1200	40	95	63	650	1000	0.86	7.9	150	0.80	0.20	X024a	
CMA 40E1600HR	1600	40	90	63	550	1000	0.81	9.8	150	0.80	0.25	X016c	

★ Anode gated

<b>CS 45-08io1</b>	800	45	110	71	520	1000	0.88	11.0	150	0.40	0.25	X014a	X005a
<b>CS 45-12io1</b>	1200											X014a	
<b>CS 45-16io1</b>	1600											X014a	
<b>CS 45-16io1R</b>	1600	45	80	71	520	1000	0.88	11.0	150	0.80	0.25	X016a	
<b>CLA 50E1200HB</b>	1200	50	125	79	650	1000	0.88	7.7	150	0.25	0.25	X014a	X011b
<b>CLA 50E1200TC</b>											0.15	X019	
<b>CMA 50E1600HB</b>	1600	50	110	79	550	1000	0.83	9.6	150	0.40	0.25	X014a	
<b>CMA 50E1600QB</b>												X017a	
<b>CMA 50E1600TZ</b>											0.15	X019a	
<b>CMA 50P1600FC</b>	2x 1600		90	79	720	1000	0.88	6.7	150	0.70	0.20	X024a	
<b>CS 60-12io1</b>	1200	60	110	75	1400	1000	0.82	5.3	140	0.32	0.15	X015a	X011c
<b>CS 60-14io1</b>	1400											X015a	
<b>CS 60-16io1</b>	1600											X015a	
➤ <b>CS 60-16io1R</b>	1600	60	90	75	1400	1000	0.82	5.3	140	0.45	0.15	X016a	
<b>CLA 80E1200HF</b>	1200	80	115	126	900	1000	0.88	6.3	150	0.20	0.25	X015a	X014a
<b>CMA 80E1600HB</b>	1600	80	115	126	720	1000	0.90	6.4				X014a	
<b>CLA 100E1200HB</b>	1200	100	105	160	1100	1000	0.82	5.2	150	0.20	0.15	X014a	
<b>CLA 100E1200KB</b>												X020a	
➤ <b>CLA 100E1200TZ</b>												X019a	

## Fast Phase Control Thyristors

<b>CLE 20E1200PC</b>	1200	20	115	31	160	500	0.92	24	150	0.70	0.25	X011b	
<b>CME 30E1600PZ</b>	1600	30	105	47	280	500	0.96	25	150	0.50	0.25	X011c	
<b>CLF 20E1200PB</b>	1200	20	110	31	150	500	0.96	26	150	0.70	0.50	X005a	
<b>CLE 30E1200PB</b>	1200	30	115	47	270	500	0.92	14	150	0.50	0.50	X005a	X016a
<b>CLE 40E1200HB</b>	1200	40	130	63	600	1000	0.97	9	150	0.25	0.25	X014a	
<b>CNE 60E2200TZ</b>	2200	60	80	94	720	1000	1.90	12.6	150	0.30	0.15	X019a	
<b>CLE 90UH1200TLB</b>	1200	90	90	-	350	500	0.92	13	150	0.90	0.40	X030a	

## Triode - Reverse Conducting Thyristor

Type	$V_{RRM}$	$V_{VRMS}$	$I_{TAV}$	@ $T_c$	$I_{TSM}$ 10 ms 45°C	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	V	V	A	°C	A	V	mΩ	°C	K/W	K/W	
<b>CLA 20EF1200PB</b>	1200	400	20	115	120	0.90	25	150	0.65	0.50	X005a
<b>CLA 20EF1200PZ</b>											X011c

X030a

**SMPD-B**



X024a **ISOPLUS i4-PAC™**



X020a


**TO-264**




X0

➤ New	V	A	A	C	A	A	C	U	U	U
<b>S8X5ECSR</b>	800	0.3	0.5	85	20	0.1	125	L006a	L001	
<b>S6X8BBSR</b>	600	0.51	0.8	80	10	0.2	125	L015		
<b>S8X8TSR</b>	800	0.51	0.8	60	8	0.2	125	L001		
<b>S601ERP</b>	600	0.64	1	90	25	10	125	L006a		
<b>S602ECSR</b>	600	0.95	1.5	65	14	0.1	125	L006a		
<b>S602TSR</b>	600	0.95	1.5	95	12.5	0.2	125	L001		
<b>S802ECSR</b>	800	0.95	1.5	65	20	0.1	125	L006a	L002	
<b>S6002TSR</b>	600	1.2	2	95	22.5	0.2	125	L001		
<b>SJ6004DS2R</b>	600	2.5	4	130	25	0.2	150	L004	L002a	
<b>S6004DS2R</b>	600	2.5	4	95	25	0.2	125	L004		
<b>SJ6008DS2R</b>	600	5.1	8	120	83	0.2	150	L004		
<b>SJ6008DR</b>	600	5.1	8	125	83	15	150	L004		
<b>S8008DR</b>	800	5.1	8	110	83	15	125	L004		
<b>SJ6012DR</b>	600	7.6	12	125	100	20	150	L004		
<b>SJ6012NR</b>	600	7.6	12	135	100	20	150	L011b	L004	
<b>S8015LTP</b>	800	9.5	15	90	188	30	125	L005c		
➤ <b>SV6016R2TP</b>	600	10	16	135	188	10	150	L005a		
➤ <b>SV6020R2TP</b>	600	12.8	20	130	225	10	150	L005a		
<b>SJ6025L2TP</b>	600	16	25	100	300	10	150	L005c		
<b>SJ6025R2TP</b>	600	16	25	125	300	10	150	L005a		
➤ <b>SV6025L2TP</b>	600	16	25	100	300	10	150	L005c	L005a	
➤ <b>SV6025R2TP</b>	600	16	25	125	300	10	150	L005a		
<b>S8025LTP</b>	800	16	25	75	300	35	125	L005c		
<b>S8025RTP</b>	800	16	25	100	300	35	125	L005a		
<b>SK025NR</b>	1000	16	25	100	300	35	125	L011b		
<b>SJ6040N2R</b>	600	25	40	120	430	15	150	L011b		
<b>SJ6040LTP</b>	600	25	40	55	430	40	150	L005c	L005c	
<b>SJ6040RTP</b>	600	25	40	120	430	40	150	L005a		
<b>S8040RTP</b>	800	25	40	100	430	40	125	L005a		
<b>S8055RTP</b>	800	35	55	90	550	40	125	L005a		
<b>S8065JTP</b>	800	41	65	75	800	50	125	L002a		
<b>SK065KTP</b>	1000	41	65	75	800	50	125	L002		

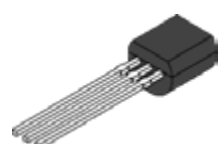
L015      **SOT-23**




L011b      **TO-263AB**



L006b      **TO-92 (GAK)**



L006a



kes possible the mount-down of any number of the same or different modules on a common heatsink. It is feasible to use standard housings with appropriate accessories for designing compact power converter operating from AC mains up to 690 V.


## Plastic Housing with DCB Substrate

IXYS has succeeded in simplifying the conventional multilayer module construction by the DCB (Direct Copper Bonding) technique.

Other features are:

- top-side electrical terminals with captured nuts;
- series-connected diode/diode, thyristor/ diode and thyristor/thyristor modules;
- easy assembly.

All thyristor modules with DCB ceramic base contacts are available in

ting screws available on request). The module housing is designed for adequate clearance and creepage distance resulting in  recognition by Underwriters Laboratories, Inc., USA for all types.

## New Generation Silicon Chips

All chips are designed by applying separation diffusion processes such that the zones responsible for the surface field strength are located at the upper chip side. This results in the capability of soldering the entire chip area onto the DCB ceramic substrate without a molybdenum strain buffer, which in turn leads to good stability of the chips as well as to large area heat dissipation if a load is applied. All zones at the edges which are decisive for the blocking stability are coated with passivation glasses the coefficient of expansion of which match that of silicon. Silicon chips increasingly use planar technology with guard rings and channel stoppers to reduce electrical surface fields. This chip design supercedes

of the chips possess deposited metal layers the improved properties

- Excellent long-term blocking currents and stages,
- increased life time of soldered connections
- high power cycles ( $\geq 50\ 000$ ).

The thyristor/diode optimized with regard off parameters: decreased lifetime results in charges QS, which significantly reduces required snubbers for overvoltage protection. Cost reduction and efficiency are the key characteristics. By using silicon chips, improved firing characteristics by specifying a high "not to fire" IGD result in a substantially less susceptible This leads to greater operation and higher equipment.

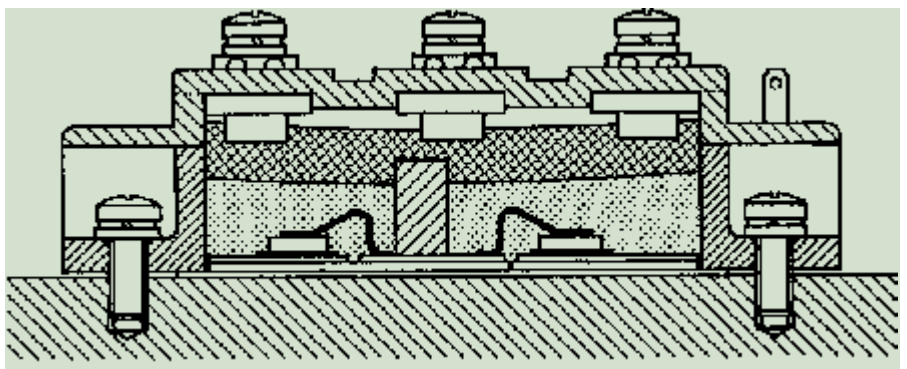


Fig. 1: Principal cross section of an IXYS module with DCB technology

<b>MDMA 25P1600TG</b>	1600								
<b>MDMA 25P1800TG</b>	1800								
<b>MDNA 25P2200TG</b>	2200								
<b>MDD 26-08N1B</b>	800	36	100	650	0.80	6.10	150	1.00	0.20
<b>MDD 26-12N1B</b>	1200								
<b>MDD 26-14N1B</b>	1400								
<b>MDD 26-16N1B</b>	1600								
<b>MDD 26-18N1B</b>	1800								
<b>MDMA 35P1200TG</b>	1200	35	100	500	0.83	7.30	150	0.90	0.20
<b>MDMA 35P1600TG</b>	1600								
<b>MDMA 35P1800TG</b>	1800								
<b>MDNA 35P2200TG</b>	2200								
<b>MDD 44-08N1B</b>	800	59	100	1150	0.80	4.30	150	0.59	0.20
<b>MDD 44-12N1B</b>	1200								
<b>MDD 44-14N1B</b>	1400								
<b>MDD 44-16N1B</b>	1600								
<b>MDD 44-18N1B</b>	1800								
<b>MDMA 50P1200TG</b>	1200	50	100	850	0.85	5.70	150	0.65	0.20
<b>MDMA 50P1600TG</b>	1600								
<b>MDMA 50P1800TG</b>	1800								
<b>MDNA 50P2200TG</b>	2200								
<b>MDD 56-08N1B</b>	800	71	100	1400	0.80	3.00	150	0.51	0.20
<b>MDD 56-12N1B</b>	1200								
<b>MDD 56-14N1B</b>	1400								
<b>MDD 56-16N1B</b>	1600								
<b>MDD 56-18N1B</b>	1800								
<b>MDMA 65P1200TG</b>	1200	65	100	1100	0.81	4.30	150	0.50	0.20
<b>MDMA 65P1600TG</b>	1600								
<b>MDMA 65P1800TG</b>	1800								
<b>MDNA 65P2200TG</b>	2200								
<b>MDD 72-08N1B</b>	800	99	100	1700	0.80	2.30	150	0.35	0.20
<b>MDD 72-12N1B</b>	1200								
<b>MDD 72-14N1B</b>	1400								
<b>MDD 72-16N1B</b>	1600								
<b>MDD 72-18N1B</b>	1800								
<b>MDMA 85P1200TG</b>	1200	85	100	1500	0.79	3.50	150	0.35	0.20
<b>MDMA 85P1600TG</b>	1600								
<b>MDMA 85P1800TG</b>	1800								
<b>MDNA 85P2200TG</b>	2200								

X125e







<b>MDD 255-16N1</b>	1600										
<b>MDD 255-18N1</b>	1800										
<b>MDD 255-20N1</b>	2000										
<b>MDD 255-22N1</b>	2200										
<b>MDMA 280P1600YD</b>	1600	280	100	10500	0.74	1.00	150	0.130	0.06	X126c	
➤ <b>MDNA 280P2200YD</b>	2200										X129c
➤ <b>MDMA 300P1600PTSF</b>	1600	300	100	8000	0.78	1.30	150	0.100	0.05	X143a	
<b>MDNA 300P2200PTSF</b>	2200										
<b>MDD 310-12N1</b>	1200	305	100	11500	0.75	0.63	150	0.129	0.04	X129c	
<b>MDD 310-14N1</b>	1400										
<b>MDD 310-16N1</b>	1600										
<b>MDD 310-18N1</b>	1800										
<b>MDD 310-20N1</b>	2000										
<b>MDD 310-22N1</b>	2200										
<b>MDD 312-12N1</b>	1200	310	100	10500	0.80	0.60	150	0.120	0.04	X131c	
<b>MDD 312-14N1</b>	1400										
<b>MDD 312-16N1</b>	1600										
<b>MDD 312-18N1</b>	1800										
<b>MDD 312-20N1</b>	2000										
<b>MDD 312-22N1</b>	2200										
<b>MDMA 380P1600KC</b>	1600	380	100	11000	0.75	0.53	150	0.110	0.04		
<b>MDMA 380P1800KC</b>	1800										
<b>MDNA 380P2200KC</b>	2200										
<b>MDMA 425P1600PTSF</b>	1600	425	100	10000	0.77	1.01	150	0.070	0.04	X143a	
<b>MDNA 425P2200PTSF</b>	2200										
<b>MDO 500-12N1</b>	1200	560	85	15000	0.80	0.38	140	0.072	0.02	X132b	
<b>MDO 500-14N1</b>	1400										
<b>MDO 500-16N1</b>	1600										
<b>MDO 500-18N1</b>	1800										
<b>MDO 500-20N1</b>	2000										
<b>MDO 500-22N1</b>	2200										
<b>MDO 600-16N1</b>	1600	608	85	15000	0.76	0.32	140	0.072	0.02		
<b>MDMA 600P1600PTSF</b>	1600	600	100	15000	0.78	0.67	150	0.050	0.03	X143a	
<b>MDNA 600P2200PTSF</b>	2200										X143a
<b>MDMA 700P1600CC</b>	1600	700	100	20000	0.78	0.35	150	0.055	0.02	X142c	
<b>MDMA 700P1800CC</b>	1800										
<b>MDNA 700P2200CC</b>	2200										

For more single and dual diode modules with higher current, please see pages 177 - 179

See data

<b>MCD 26-12io1B</b>	1200												X125b
<b>MCD 26-14io1B</b>	1400												
<b>MCD 26-16io1B</b>	1600												
<b>MCD 26-08io8B</b>	800	27	85	50	520	0.85	11.0	125	0.88	0.20			X125d
<b>MCD 26-12io8B</b>	1200												
<b>MCD 26-14io8B</b>	1400												
<b>MCD 26-16io8B</b>	1600												
<b>MCMA 35PD1200TB</b>	1200	35	85	55	520	0.87	9.8	140	0.90	0.20			X125b
<b>MCMA 35PD1600TB</b>	1600												
<b>MCD 40-12io6</b>	1200	40	85	63	500	0.87	10.5	150	0.70	0.10			X027a
<b>MCD 40-16io6</b>	1600												
<b>MCD 44-08io1B</b>	800	49	85	77	1150	0.85	5.3	125	0.53	0.20			X125b
<b>MCD 44-12io1B</b>	1200												
<b>MCD 44-14io1B</b>	1400												
<b>MCD 44-16io1B</b>	1200												
<b>MCD 44-18io1B</b>	1600												
<b>MCD 44-08io8B</b>	800	49	85	77	1150	0.85	5.3	125	0.53	0.20			X125d
<b>MCD 44-12io8B</b>	1200												
<b>MCD 44-14io8B</b>	1400												
<b>MCD 44-16io8B</b>	1600												
<b>MCD 44-18io8B</b>	1800												
<b>MCNA 40PD2200TB</b>	2200	40	85	63	500	0.84	11.4	140	0.70	0.20			X125b
<b>MCMA 50PD1200TB</b>	1200	50	85	79	800	0.89	5.3	140	0.70	0.20			
<b>MCMA 50PD1600TB</b>	1600												
<b>CLA 60PD1200NA</b>	1200	60	100	94	1100	0.79	4.8	150	0.55	0.10			X027a
<b>MCD 56-08io1B</b>	800	60	85	100	1500	0.85	3.7	125	0.45	0.20			X125b
<b>MCD 56-12io1B</b>	1200												
<b>MCD 56-14io1B</b>	1400												
<b>MCD 56-16io1B</b>	1600												
<b>MCD 56-18io1B</b>	1800												
<b>MCD 56-08io8B</b>	800	60	85	100	1500	0.85	3.7	125	0.45	0.20			X125d
<b>MCD 56-12io8B</b>	1200												
<b>MCD 56-14io8B</b>	1400												
<b>MCD 56-16io8B</b>	1600												
<b>MCD 56-18io8B</b>	1800												
<b>MCNA 55PD2200TB</b>	2200	55	85	86	800	0.90	9.0	150	0.50	0.20			X125b
<b>MCMA 65PD1200TB</b>	1200	65	85	105	1150	0.85	4.8	140	0.50	0.20			
<b>MCMA 65PD1600TB</b>	1600												
<b>MCMA 65PD1800TB</b>	1800												
<b>CMA 80PD1600NA</b>	1600	80	80	126	1070	0.86	5.5	150	0.45	0.10			X027a

MCD 72-14io1B	1400											
MCD 72-16io1B	1600											
MCD 72-18io1B	1800											
MCD 72-08io8B	800	85	85	180	1700	0.85	3.2	125	0.30	0.20	X125d	
MCD 72-12io8B	1200											
MCD 72-14io8B	1400											
MCD 72-16io8B	1600											
MCD 72-18io8B	1800											
MCNA 75PD2200TB	2200	75	85	118	1050	0.90	6.5	140	0.38	0.20	X125b	X125d
MCMA 85PD1200TB	1200	85	85	135	1500	0.85	3.9	140	0.38	0.20		
MCMA 85PD1600TB	1600											
MCMA 85PD1800TB	1800											
CLA 100PD1200NA	1200	100	85	150	1500	0.83	3.7	150	0.35	0.10	X027a	
MCD 94-20io1B	2000	104	85	180	1700	0.85	3.2	125	0.22	0.20	X125b	
MCD 94-22io1B	2200											
MCD 95-08io1B	800	116	85	180	2250	0.85	2.4	125	0.22	0.20		
MCD 95-12io1B	1200											
MCD 95-14io1B	1400											
MCD 95-16io1B	1600											
MCD 95-18io1B	1800											
MCD 95-16io1	1600										X125y	
MCD 95-08io8B	800	116	85	180	2250	0.85	2.4	125	0.22	0.20	X125d	
MCD 95-12io8B	1200											
MCD 95-14io8B	1400											
MCD 95-16io8B	1600											
MCD 95-18io8B	1800											
MCNA 95PD2200TB	2200	95	85	149	1400	0.90	5.0	140	0.30	0.20	X125b	X126b
MCMA 110PD1200TB	1200	110	85	170	1900	0.85	3.3	140	0.30	0.20		
MCMA 110PD1600TB	1600											
MCMA 110PD1800TB	1800											
MCNA 120PD2200TB	2200	120	85	190	1700	0.90	3.7	140	0.22	0.20		
MCNA 120PD2200TB-NI											X125y	
MCMA 140PD1200TB	1200	140	85	200	2400	0.85	2.8	140	0.22	0.20	X125b	
MCMA 140PD1600TB	1600											
MCMA 140PD1800TB	1800											
MCMA 140PD1600TB-NI	1600										X125y	X027a
MCD 132-08io1	800	130	85	300	4750	0.80	1.5	125	0.23	0.10	X126b	
MCD 132-12io1	1200											
MCD 132-14io1	1400											
MCD 132-16io1	1600											
MCD 132-18io1	1800											

MCD 162-08io1	800	181	85	300	6000	0.88	1.15	125	0.155	0.07	
MCD 162-12io1	1200										
MCD 162-14io1	1400										
MCD 162-16io1	1600										
MCD 162-18io1	1800										
MCNA 180PD2200YB	2200	180	85	280	5400	0.85	1.80	140	0.170	0.09	
MCMA 200PD1600SA	1600	200	85	314	6000	0.81	1.60	140	0.150	0.08	X141b
MCD 200-14io1	1400	216	85	340	8000	0.80	1.40	125	0.130	0.05	X126b
MCD 200-16io1	1600										
MCD 200-18io1	1800										
MCNA 220PD2200YB	2200	220	85	345	7200	0.84	1.50	140	0.130	0.07	
MCD 224-20io1	2000	240	85	400	8000	0.80	0.76	130	0.139	0.04	X131b
MCD 224-22io1	2200										
MCD 225-12io1	1200	221	85	400	8000	0.80	0.76	130	0.157	0.04	
MCD 225-14io1	1400										
MCD 225-16io1	1600										
MCD 225-18io1	1800										
➤ MCNA 250PD2200PTSF	2200	250	85	400	5900	0.76	2.20	150	0.100	0.05	X143a
MCD 255-12io1	1200	250	85	450	9000	0.80	0.68	130	0.140	0.04	X131b
MCD 255-14io1	1400										
MCD 255-16io1	1600										
MCD 255-18io1	1800										
MCMA 260PD1600YB	1600	260	85	408	8300	0.81	1.23	140	0.130	0.08	X126b
MCMA 260PD1800YB	1800										
MCMA 265PD1600KB	1600	260	85	408	8500	0.80	0.75	140	0.160	0.04	X131b
MCMA 265PD1800KB	1800										
➤ MCMA 280PD1600PTSF	1600	280	85	440	7000	0.83	1.57	150	0.100	0.05	X143a
MCD 310-08io1	800	320	85	500	9200	0.80	0.82	140	0.112	0.04	X129b
MCD 310-12io1	1200										
MCD 310-14io1	1400										
MCD 310-16io1	1600										
MCD 310-18io1	1800										
MCD 310-20io1	2000	320	85	500	8000	0.80	0.82	140	0.112	0.04	
MCD 310-22io1	2200										
MCD 312-12io1	1200	320	85	520	9200	0.80	0.68	140	0.120	0.04	X131b
MCD 312-14io1	1400										
MCD 312-16io1	1600										
MCD 312-18io1	1800										
➤ MCNA 360PD2200PTSF	2200	360	85	570	8400	0.74	1.57	150	0.070	0.04	X143a
MCMA 400PD1600PTSF	1600	400	85	630	10000	0.82	1.14	150	0.070	0.04	
➤ MCNA 500PD2200PTSF	2200	500	85	790	11000	0.75	1.11	150	0.050	0.03	
MCMA 550PD1600PTSF	1600	550	85	864	13000	0.82	0.80	150	0.050	0.03	
MCNA 650PD2200CB	2200	650	85	1020	16000	0.75	0.63	140	0.045	0.02	X142b
MCMA 700PD1600CB	1600	700	85	1100	19000	0.82	0.40	140	0.050	0.02	
MCMA 700PD1800CB	1800										

For more thyristor / diode modules with higher current, please see pages 175, 176 and 179

<b>MCC 19-16io1B</b>	1600	18	85	40	400	0.85	18.0	125	1.30	0.2	X125c	X125a
<b>MCC 19-08io8B</b>	800											
<b>MCC 19-12io8B</b>	1200											
<b>MCC 19-14io8B</b>	1400											
<b>MCC 19-16io8B</b>	1600	21	85	33	320	0.85	15.0	125	1.10	0.2	X125c	X125a
<b>MCC 21-08io8B</b>	800											
<b>MCC 21-12io8B</b>	1200											
<b>MCC 21-14io8B</b>	1400											
<b>MCC 21-16io8B</b>	1600	25	85	40	400	0.87	13.0	140	1.20	0.2	X125a	X125a
<b>MCMA 25P1200TA</b>	1200											
<b>MCMA 25P1600TA</b>	1600											
<b>MCC 26-08io1B</b>	800											
<b>MCC 26-12io1B</b>	1200	27	85	50	520	0.85	11.0	125	0.88	0.2	X125c	X125c
<b>MCC 26-14io1B</b>	1400											
<b>MCC 26-16io1B</b>	1600											
<b>MCC 26-14io1</b>	1400											
<b>MCC 26-08io8B</b>	800	27	85	50	520	0.85	11.0	125	0.88	0.2	X125c	X125c
<b>MCC 26-12io8B</b>	1200											
<b>MCC 26-14io8B</b>	1400											
<b>MCC 26-16io8B</b>	1600											
<b>MCMA 35P1200TA</b>	1200	35	85	55	520	0.87	9.8	140	0.90	0.2	X125a	X125a
<b>MCMA 35P1600TA</b>	1600											
<b>MCC 44-08io1B</b>	800											
<b>MCC 44-12io1B</b>	1200											
<b>MCC 44-14io1B</b>	1400	49	85	77	1150	0.85	5.3	125	0.53	0.2	X125c	X125c
<b>MCC 44-16io1B</b>	1600											
<b>MCC 44-18io1B</b>	1800											
<b>MCC 44-08io8B</b>	800											
<b>MCC 44-12io8B</b>	1200	49	85	77	1150	0.85	5.3	125	0.53	0.2	X125c	X125c
<b>MCC 44-14io8B</b>	1400											
<b>MCC 44-16io8B</b>	1600											
<b>MCC 44-18io8B</b>	1800											
<b>MCNA 40P2200TA</b>	2200	40	85	63	500	0.84	11.4	140	0.70	0.2	X125a	X125a
<b>MCMA 50P1200TA</b>	1200											
<b>MCMA 50P1600TA</b>	1600											
<b>MCC 56-08io1B</b>	800											
<b>MCC 56-12io1B</b>	1200	60	85	100	1500	0.85	3.7	125	0.45	0.2	X125z	X125z
<b>MCC 56-14io1B</b>	1400											
<b>MCC 56-16io1B</b>	1600											
<b>MCC 56-18io1B</b>	1800											
<b>MCC 56-14io1</b>	1400	60	85	100	1500	0.85	3.7	125	0.45	0.2	X125z	X125z
<b>MCC 56-08io8B</b>	800											
<b>MCC 56-12io8B</b>	1200											
<b>MCC 56-16io8B</b>	1600											
<b>MCC 56-18io8B</b>	1800	60	85	100	1500	0.85	3.7	125	0.45	0.2	X125c	X125c
<b>MCC 56-12io8B</b>	1200											
<b>MCC 56-14io8B</b>	1400											
<b>MCC 56-18io8B</b>	1800											

<b>MCMA 65P1800TA</b>	1800											
<b>MCC 72-08io1B</b>	800	85	85	180	1700	0.85	3.2	125	0.30	0.2		
<b>MCC 72-12io1B</b>	1200											
<b>MCC 72-14io1B</b>	1400											
<b>MCC 72-16io1B</b>	1600											
<b>MCC 72-18io1B</b>	1800											
<b>MCC 72-08io8B</b>	800	85	85	180	1700	0.85	3.2	125	0.30	0.2	X125c	
<b>MCC 72-12io8B</b>	1200											
<b>MCC 72-14io8B</b>	1400											
<b>MCC 72-16io8B</b>	1600											
<b>MCC 72-18io8B</b>	1800											
<b>MCNA 75P2200TA</b>	2200	75	85	118	1050	0.90	6.5	140	0.38	0.2	X125a	
<b>MCMA 85P1200TA</b>	1200	85	85	135	1500	0.85	3.9	140	0.38	0.2		
<b>MCMA 85P1600TA</b>	1600											
<b>MCMA 85P1800TA</b>	1800											
<b>MCC 94-20io1B</b>	2000	104	85	180	1700	0.85	3.2	125	0.22	0.2		
<b>MCC 94-22io1B</b>	2200											
<b>MCC 94-24io1B</b>	2400											
<b>MCC 95-08io1B</b>	800	116	85	180	2250	0.83	2.4	125	0.22	0.2		
<b>MCC 95-12io1B</b>	1200											
<b>MCC 95-14io1B</b>	1400											
<b>MCC 95-16io1B</b>	1600											
<b>MCC 95-18io1B</b>	1800											
<b>MCC 95-14io1</b>	1400										X125z	
<b>MCC 95-16io1</b>	1600											
<b>MCC 95-08io8B</b>	800	116	85	180	2250	0.85	2.4	125	0.22	0.2	X125c	
<b>MCC 95-12io8B</b>	1200											
<b>MCC 95-14io8B</b>	1400											
<b>MCC 95-16io8B</b>	1600											
<b>MCC 95-18io8B</b>	1800											
<b>MCNA 95P2200TA</b>	2200	95	85	149	1400	0.90	5.0	140	0.30	0.2	X125a	
<b>MCMA 110P1200TA</b>	1200	110	85	170	1900	0.85	3.3	140	0.30	0.2		
<b>MCMA 110P1600TA</b>	1600											
<b>MCMA 110P1800TA</b>	1800											
<b>MCMA 110P1600VA</b>	1600										X103	
<b>MCNA 120P2200TA</b>	2200	120	85	190	1700	0.90	3.7	140	0.22	0.2	X125a	
<b>MCMA 140P1200TA</b>	1200	140	85	220	2400	0.85	2.8	140	0.22	0.2		
<b>MCMA 140P1400TA</b>	1400											
<b>MCMA 140P1600TA</b>	1600											
<b>MCMA 140P1800TA</b>	1800											
<b>MCC 132-08io1</b>	800	130	85	300	4750	0.80	1.5	125	0.23	0.1	X126a	
<b>MCC 132-12io1</b>	1200											
<b>MCC 132-14io1</b>	1400											
<b>MCC 132-16io1</b>	1600											
<b>MCC 132-18io1</b>	1800											

MCC 161-22io1	2200											X126a
MCC 162-08io1	800	181	85	300	6000	0.88	1.15	125	0.155	0.07		X126a
MCC 162-12io1	1200											
MCC 162-14io1	1400											
MCC 162-16io1	1600											
MCC 162-18io1	1800											
MCNA 180P2200YA	2200	180	85	280	5400	0.85	1.80	140	0.170	0.09		X126a
MCMA 200P1600SA	1600	200	90	314	6000	0.81	1.60	140	0.150	0.08		X141a
➤ MCMA 200P1600YA	1600	200	85	315	6000	0.83	1.43	140	0.170	0.09		X126a
➤ MCMA 200P1800YA-MI	1800											X126z
MCC 200-14io1	1400	216	85	340	8000	0.80	1.40	125	0.130	0.05		X126a
MCC 200-16io1	1600											
MCC 200-18io1	1800											
MCK 200-18io1	1800	216	85	340	8000	0.80	1.40	125	0.130	0.05		X126a
MCNA 220P2200YA	2200	220	85	345	7200	0.84	1.50	140	0.130	0.07		X126a
MCC 224-20io1	2000	240	85	400	8000	0.80	0.76	130	0.139	0.04		X131a
MCC 224-22io1	2200											
MCC 224-24io1	2400											
MCC 225-12io1	1200	221	85	400	8000	0.80	0.76	130	0.157	0.04		X131a
MCC 225-14io1	1400											
MCC 225-16io1	1600											
MCC 225-18io1	1800											
➤ MCNA 250P2200PTSF	2200	250	85	400	5900	0.76	2.20	150	0.100	0.05		X143a
MCC 255-12io1	1200	250	85	450	9000	0.80	0.68	130	0.140	0.04		X131a
MCC 255-14io1	1400											
MCC 255-16io1	1600											
MCC 255-18io1	1800											
MCMA 260P1600YA	1600	260	85	408	8300	0.81	1.23	140	0.130	0.08		X126a
MCMA 260P1800YA	1800											
MCMA 265P1600KA	1600	260	85	408	8500	0.80	0.75	140	0.160	0.04		X131a
MCMA 265P1800KA	1800											
➤ MCMA 280P1600PTSF	1600	280	85	440	7000	0.83	1.57	150	0.100	0.05		X143a
MCC 310-08io1	800	320	85	500	9200	0.80	0.82	140	0.112	0.04		X129a
MCC 310-12io1	1200											
MCC 310-14io1	1400											
MCC 310-16io1	1600											
MCC 310-18io1	1800											
MCC 312-12io1	1200	320	85	520	9200	0.80	0.68	140	0.120	0.04		X131a
MCC 312-14io1	1400											
MCC 312-16io1	1600											
MCC 312-18io1	1800											
➤ MCNA 360P2200PTSF	2200	360	85	570	8400	0.74	1.57	150	0.070	0.04		X143a
➤ MCMA 400P1600PTSF	1600	400	85	630	10000	0.82	1.14	150	0.070	0.04		
➤ MCNA 500P2200PTSF	2200	500	85	790	11000	0.75	1.11	150	0.050	0.03		
➤ MCMA 550P1600PTSF	1600	550	85	860	13000	0.82	0.80	150	0.050	0.03		
MCNA 650P2200CA	2200	650	85	1020	16000	0.75	0.63	140	0.045	0.02		X142a
MCMA 700P1600CA	1600	700	85	1100	19000	0.82	0.40	140	0.050	0.02		
MCMA 700P1800CA	1800											
MCMA 700P1600NCA	1600	700	85	1100	19000	0.82	0.40	140	0.050	0.02		
MCMA 700P1800NCA	1800											

For more dual thyristor modules with higher current, please see pages 173 and 179

See data

<b>MCO 50-12io1</b>	1200	57	80	90	740	0.88	6.00	150	0.720	0.20	
<b>MCO 50-16io1</b>	1600										
<b>MCO 75-12io1</b>	1200	80	80	125	1070	0.85	5.50	150	0.450	0.10	
<b>MCO 75-16io1</b>	1600										
<b>MCO 100-12io1</b>	1200	101	80	160	1400	0.85	4.50	150	0.350	0.10	
<b>MCO 100-16io1</b>	1600										
<b>MCO 150-12io1</b>	1200	158	80	250	2000	0.84	3.50	150	0.200	0.10	
<b>MCO 150-16io1</b>	1600										
<b>MCO 450-20io1</b>	2000	464	85	750	15000	0.77	0.42	130	0.072	0.02	X132a
<b>MCO 450-22io1</b>	2200										
<b>MCO 500-12io1</b>	1200	560	85	880	17000	0.80	0.38	140	0.072	0.02	
<b>MCO 500-14io1</b>	1400										
<b>MCO 500-16io1</b>	1600										
<b>MCO 500-18io1</b>	1800										
<b>MCO 600-16io1</b>	1600	600	85	940	15000	0.81	0.40	140	0.065	0.02	
<b>MCO 600-18io1</b>	1800										
<b>MCO 600-20io1</b>	2000										
<b>MCO 600-22io1</b>	2200										
<b>VCO 132-12io7</b>	1200	130	85	200	3600	0.80	1.65	150	0.250	0.10	X102
<b>VCO 132-16io7</b>	1600										
<b>VCO 180-12io7</b>	1200	180	90	280	4500	0.75	1.23	150	0.170	0.06	
<b>VCO 180-16io7</b>	1600										

For more single thyristor modules with higher current, please see page 174

X027a

**SOT-227B  
miniBLOC**



X132a

**Y1**



X102

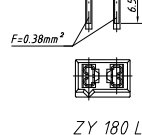
**EC**



See data sheet for pin



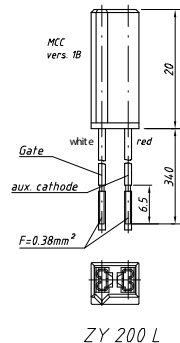
Type **ZY 180 R** (R = Right for pin pair 6/7)



For module-type TO-240 package MCC/MCD/  
MCMA/MCNA 19 up to 120 and 140 (version 1):  
Keyed Gate Cathode twin plugs with wire  
length = 340 / 460 mm;  
gate = white, cathode = red

Type **ZY 200 L** (L = Left for pin pair 4/5)

Type **ZY 200 R** (R = Right for pin pair 6/7)

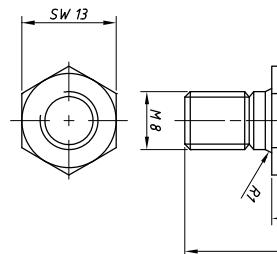


For ZY 180 and ZY 200: UL 758 Style 3751

For module types MCC/MCD/MDD 310  
Threaded spacer for higher Anode /  
Cathode construction:

Type **ZY 250** (material brass)

**Not for new design**



## Design Information

### For Thyristors, Diodes, Thyristor / Diode Modules and Rectifier Bridges

#### Surge current

The 60 Hz value of  $I_{TSM}$  is 10% higher than the 50 Hz value  
The  $I_{TSM}$  value at  $T_{VJM}$  is 10% to 15% lower than the 45°C value

#### Limiting $I^2t$

50 Hz:  $I^2t [A^2s] = I_{TSM} [A] \cdot I_{TSM} [A] \cdot 0.005 [s]$ ; use rated  $I_{TSM}$  value (10 ms)  
60 Hz:  $I^2t [A^2s] = I_{TSM} [A] \cdot I_{TSM} [A] \cdot 0.0042 [s]$ ; use 60-Hz-value of  $I_{TSM}$

#### Forward current

The average current ratings in tables are mostly specified for temperature  
conditions of:  $T_A = 45^\circ C$ ,  $T_C = 85^\circ C$  or  $T_C = 100^\circ C$ .

For other temperature conditions the current ratings can be calculated using  
following formulas applicable up to 400 Hz.

$$I_{TAV} = \frac{-V_{TO} + \sqrt{V_{TO}^2 + 4 \cdot k^2 \cdot r_T \cdot P}}{2 \cdot k^2 \cdot r_T} \quad \text{where} \quad P = \frac{T_{VJM} - T_C}{R_{thJC}} \quad \text{or} \quad P = \dots$$

$$I_{TAV} [A], P [W]; V_{TO} [V]; r_T [\Omega], T_{VJM} [^\circ C], T_C [^\circ C], T_A [^\circ C], R_{thJC} [K/W], R_{thJA} [K/W]$$

$k^2 = 1$  for DC current

$k^2 = 2.5$  for sinusoidal half wave current

$k^2 = 3$  for 120° rectangular current

$k^2 = 6$  for 60° rectangular current

The average forward current is limited by the RMS current value  $I_{T(RMS)}$ .  
When the **calculated** value  $I_{TAV}$  is higher than  $I_{T(RMS)} / k$ , replace it by  $I_{TAV} = I_{T(RMS)} / k$

VBE 20-06NO7	600	44	85	110	1.15	15.0	150	1.00	0.30	X027a
VBE 26-12NO7	1200	32	85	90	1.32	30.0	150	1.60	0.30	
VBE 55-06NO7	600	68	100	250	0.98	8.0	150	0.90	0.30	
VBE 55-12NO7	1200	59	85	200	1.31	15.0	150	0.90	0.30	X027a
VBE 60-06A	600	60	100	250	0.98	8.2	150	1.15	0.10	
VBE 60-12A	1200	60	70	200	1.31	14.0	150	1.15	0.10	X030a
DHG 40B1200LB	1200	34	80	150	1.35	42.0	175	1.50	0.50	
DPG 60B600LB	600	60	100	250	0.85	17.0	175	1.10	0.40	X024a
FBE 22-06N1	600	22	115	50	1.04	24.0	175	3.00	0.20	
VBE 100-06NO7	600	100	85	600	1.09	4.3	150	0.80	0.20	X102
VBE 100-12NO7	1200	100	70	500	1.07	8.2	150	0.80	0.20	
DCG 20B650LB *	650	21	80	250	0.74	118.0	175	2.10	0.70	X030a
◇ DCG 20B1200LB *	1200	18	80	60	0.68	133.0	175	3.30	0.85	
FBS 10-12SC *	1200	9	80	100	-	-	175	7.00	3.50	X024a

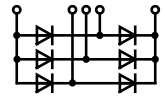
\* SiC-Diodes

X027a

X027a

X030a

X101



### 3-phase, B6U

FUS 45-0045B	45	45	130	150	0.30	14.8	150	3.00	0.20	X024a
DHG 60U1200LB	1200	60	80	200	1.35	2.9	150	1.20	0.40	X030a
VUE 50-12NO1	1200	50	85	200	1.65	18.2	150	1.20	0.30	X103
VUE 22-06NO7	600	34	85	50	1.18	22.0	150	2.50	0.30	X101
VUE 22-12NO7	1200	24	85	40	1.39	55.0	150	2.50	0.30	
VUE 35-06NO7	600	56	85	110	1.13	13.0	150	1.60	0.30	
VUE 35-12NO7	1200	40	85	90	1.32	30.0	150	1.60	0.30	
VUE 75-06NO7	600	86	100	250	0.98	8.0	150	0.90	0.30	
VUE 75-12NO7	1200	74	85	200	1.31	15.0	150	0.90	0.30	
FUE 30-12N1	1200	30	120	90	0.97	48.0	175	2.30	0.20	
VUE 130-06NO7	600	130	85	600	1.09	4.3	150	0.80	0.20	X102
VUE 130-12NO7	1200	130	70	500	1.07	8.2	150	0.80	0.20	

See data

X102

See data

X103

See data

## Rectifier Bridges incorporating Fast Diodes

Power switching semiconductors are used in inverter systems with DC-Link. Due to high switching frequencies, harmonics and line distortion may be generated. It is important that the new designs reduce these influences and fulfill the EMI filtering requirements according to EMI/EMC VDE 0871 and other.

The noise level can be reduced by up to **10dB** when the input rectifier is equipped with semi-fast diodes and is therefore optimised for turn off; resulting in a lower peak recovery current compared to non-optimised and normal rectifier diodes.

The noise level can be further reduced approximately **5dB** when using rectifier bridges equipped with Epitaxial Diodes (FRED) like module types VUE (three phase bridge) or VUE (three phase bridge). However, this is more expensive but may be necessary in some applications to meet the VDE or other standards.

This behaviour has a direct influence on the design of the filter networks with its capacitors and inductors. Size and costs can be reduced.

More detailed information is available in the note D98005E „Input Rectifiers with Semi-fast Diodes“ on [www.ixys.com](http://www.ixys.com).

<b>FBO 16-12N</b>	1200	400	20	130	150	0.81	32.0	175	3.00	3.20	-	X024a
<b>VBO 21-08NO7</b>	800	250	20	115	120	0.84	28.8	150	2.50	2.90	-	X101
<b>VBO 21-12NO7</b>	1200	400										
<b>VBO 22-08NO8</b>	800	250	14	85	380	0.77	14.2	150	8.00	9.00	-	X116b
<b>VBO 22-12NO8</b>	1200	400										
<b>VBO 22-16NO8</b>	1600	500										
<b>VBO 22-18NO8</b>	1800	575										
<b>GBO 25-12NO1</b>	1200	400	25	105	370	0.74	16.3	175	4.30	4.80	-	X025a
<b>GBO 25-16NO1</b>	1600	500										
<b>VBO 25-08NO2</b>	800	250	38	85	370	0.85	8.0	150	2.80	3.20	-	X115
<b>VBO 25-12NO2</b>	1200	400										
<b>VBO 25-16NO2</b>	1600	500										
<b>VBO 30-08NO7</b>	800	250	25	85	400	0.80	12.9	150	4.70	4.80	-	X119b
<b>VBO 30-12NO7</b>	1200	400										
<b>VBO 30-16NO7</b>	1600	500										
<b>VBO 30-18NO7</b>	1800	575										
<b>VBO 36-08NO8</b>	800	250	18	85	550	0.76	9.1	150	7.00	8.00	-	X116b
<b>VBO 36-12NO8</b>	1200	400										
<b>VBO 36-16NO8</b>	1600	500										
<b>VBO 36-18NO8</b>	1800	575										
<b>FBO 40-12N</b>	1200	400	40	130	300	0.79	14.0	175	1.50	1.70	-	X024a
<b>VBO 40-08NO6</b>	800	250	40	115	320	0.81	12.1	150	1.30	1.40	-	X027a
<b>VBO 40-12NO6</b>	1200	400										
<b>VBO 40-16NO6</b>	1600	500										
<b>VBO 50-08NO7</b>	800	250	45	85	750	0.76	6.9	150	2.70	3.10	-	X120b
<b>VBO 50-12NO7</b>	1200	400										
<b>VBO 50-16NO7</b>	1600	500										
<b>VBO 50-18NO7</b>	1800	575										
<b>VBO 52-08NO7</b>	800	250	60	115	550	0.78	8.1	150	1.10	1.50	-	X122b
<b>VBO 52-12NO7</b>	1200	400										
<b>VBO 52-16NO7</b>	1600	500										
<b>VBO 52-18NO7</b>	1800	575										
<b>VBO 54-08NO7</b>	800	250	55	105	300	0.82	12.2	150	1.10	1.50	-	X101
<b>VBO 54-12NO7</b>	1200	400										
<b>VBO 54-16NO7</b>	1600	500										
<b>VBO 68-08NO7</b>	800	250	70	105	550	0.81	7.8	150	0.90	1.30	-	X101
<b>VBO 68-12NO7</b>	1200	400										
<b>VBO 68-16NO7</b>	1600	500										
<b>VBO 72-08NO7</b>	800	250	70	110	750	0.78	6.0	150	0.90	1.30	-	X122b
<b>VBO 72-12NO7</b>	1200	400										
<b>VBO 72-16NO7</b>	1600	500										
<b>VBO 72-18NO7</b>	1800	575										

X025a

X027a

X101

See data sheet

X115

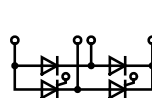
X116b

X119b

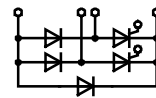
X120b

X122b

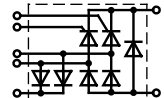
VBO 88-08NO7	800	250	90	115	1000	0.80	4.6	150	0.60	0.90	X030a
VBO 88-12NO7	1200	400									
VBO 88-16NO7	1600	500									
DLA 100B800LB	800	400	124	80	400	0.75	4.2	175	1.00	1.45	X101
DLA 100B1200LB	1200										
DMA 120B800LB	800	250	130	90	500	0.88	6.4	175	0.80	1.30	X121b
VBO 105-08NO7	800	250	100	100	1500	0.78	4.8	150	0.80	1.10	
VBO 105-12NO7	1200	400									
VBO 105-16NO7	1600	500									X102
VBO 125-08NO7	800	250	125	105	1800	0.76	3.6	150	0.60	0.90	
VBO 125-12NO7	1200	400									
VBO 125-16NO7	1600	500									X123e
VBO 130-08NO7	800	250	130	110	1800	0.77	3.4	150	0.50	0.70	
VBO 130-12NO7	1200	400									
VBO 130-16NO7	1600	500									
VBO 130-18NO7	1800	575									X103
VBO 160-08NO7	800	250	160	110	2800	0.74	2.4	150	0.40	0.55	
VBO 160-12NO7	1200	400									
VBO 160-16NO7	1600	500									
VBO 160-18NO7	1800	575									



VGO



VHF



VHFD

Type	$V_{RRM}$	$V_{VRMS}$	$I_{dAV}$	@ $T_H$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thJH}$	Fig. No.
	V	V	A	°C	10 ms, 45°C	V	mΩ	°C	K/W	K/W	
<b>1~ Half Controlled Rectifier Bridges with free wheeling diode, B2HKF</b>											
VHF 15-08io5	800	250	15	85	190	1.00	40.0	125	2.40	3.00	X117a
VHF 15-12io5	1200	400									
VHF 15-16io5	1600	500									
VHF 25-08io7	800	250	32	$T_C = 85^\circ C$	200	0.85	27.0	125	1.30	1.80	X101
VHF 25-12io7	1200	400									
VHF 28-08io5	800	250	28	85	300	0.90	15.0	125	1.40	2.00	X117a
VHF 28-12io5	1200	400									
VHF 28-16io5	1600	500									
VHF 36-08io5	800	250	36	85	320	0.85	13.0	125	1.15	1.55	X117a
VHF 36-12io5	1200	400									
VHF 36-16io5	1600	500									
VHFD 37-08io1	800	250	36	85	320	0.85	13.0	125	1.20	1.55	X103
VHFD 37-12io1	1200	400									
VHFD 37-16io1	1600	500									
<b>1~ Half Controlled Rectifier Bridge, B2HZ</b>											
VGO 36-16io7	1600	500	36	85	320	0.85	13.0	125	1.40	2.00	X101



VUO 60-16NO3	1600	500											
VUO 60-18NO3	1800	575											
VUO 62-08NO7	800	250	60	120	550	0.78	8.1	150	1.10	1.50	X122a	X101	
VUO 62-12NO7	1200	400											
VUO 62-14NO7	1400	440											
VUO 62-16NO7	1600	500											
VUO 62-18NO7	1800	575											
VUO 64-16NO7	1600	500	60	120	550	0.78	8.1	150	1.10	1.50	X122c		
VUO 68-08NO7	800	250	70	105	300	0.82	12.2	150	1.10	1.50	X101		
VUO 68-12NO7	1200	400											
VUO 68-16NO7	1600	500											
○ VUO 70-16NO7	1600	500	70	100	550	0.80	8.0	150	1.45	1.90	X118d	See data X102	
VUO 80-08NO1	800	250	80	110	600	0.81	7.8	150	1.10	1.40	X103		
VUO 80-12NO1	1200	400											
VUO 80-14NO1	1400	440											
VUO 80-16NO1	1600	500											
VUO 80-18NO1	1800	575										X117b	
VUO 82-08NO7	800	250	90	115	750	0.78	6.0	150	0.90	1.30	X122a		
VUO 82-12NO7	1200	400											
VUO 82-14NO7	1400	440											
VUO 82-16NO7	1600	500											
VUO 82-18NO7	1800	575										X118d	
VUO 84-16NO7	1600	500	90	115	750	0.78	6.0	150	0.90	1.30	X122c		
VUO 86-08NO7	600	125	90	105	550	0.81	7.8	150	0.90	1.30	X101	X121a	
VUO 86-12NO7	1200	400											
VUO 86-16NO7	1600	500											
DMA 90U1800LB	1800	575	90	110	350	0.81	12.7	175	1.10	1.50	X030a		
DNA 90U2200LB	2200	690										X122a	
VUO 98-08NO7	800	250	105	115	750	0.81	5.9	150	0.70	1.00	X102		
VUO 98-12NO7	1200	400											
VUO 98-16NO7	1600	500											
VUO 105-12NO7	1200	400	120	105	1500	0.78	4.8	150	0.80	1.10	X121a	X122c	
VUO 105-16NO7	1600	500											
VUO 105-18NO7	1800	575											
VUO 110-08NO7	800	250	125	110	1200	0.79	4.5	150	0.70	1.00	X123c	X123c	
VUO 110-12NO7	1200	400											
VUO 110-16NO7	1600	500											
VUO 110-18NO7	1800	575											
➤ MDMA 120U1600VA	1600	500	120	110	850	0.79	5.9	150	0.65	0.85	X103		
➤ MDMA 150U1600VA	1600	500	150	110	1100	0.83	4.7	150	0.50	0.70			

<b>VUO 122-12NO7</b>	1200	400										
<b>VUO 122-16NO7</b>	1600	500										
<b>VUO 125-12NO7</b>	1200	400	150	110	1800	0.76	3.6	150	0.60	0.90	X121a	
<b>VUO 125-16NO7</b>	1600	500										
<b>VUO 125-18NO7</b>	1800											
<b>DNA 90YA2200NA</b>	2200	690	90	85	370	0.86	11.4	150	1.20	1.30	X027a	
<b>DNA 90YC2200NA</b>												
<b>DMA 150YA1600NA</b>	1600	500	150	95	700	0.82	6.3	150	0.60	0.70		
<b>DMA 150YC1600NA</b>												
<b>DMA 200YA1600NA</b>			200	100	1000	0.86	4.4	150	0.45	0.55		
<b>DMA 200YC1600NA</b>												
<b>DMA 240YA1600NA</b>			240	100	1300	0.86	4.0	150	0.35	0.45		
<b>DMA 240YC1600NA</b>												
<b>VUO 160-08NO7</b>	800	250	175	110	1800	0.77	3.4	150	0.50	0.70	X123c	
<b>VUO 160-12NO7</b>	1200	400										
<b>VUO 160-16NO7</b>	1600	500										
<b>VUO 160-18NO7</b>	1800	575										
<b>VUO 162-16NO7</b>	1600	500	175	110	1800	0.77	3.4	150	0.50	0.70	X123h	
<b>VUO 190-08NO7</b>	800	250	240	110	2800	0.74	2.4	150	0.40	0.55	X123c	
<b>VUO 190-12NO7</b>	1200	400										
<b>VUO 190-16NO7</b>	1600	500										
<b>VUO 190-18NO7</b>	1800	575										
<b>VUO 192-16NO7</b>	1600	500	240	110	2800	0.74	2.4	150	0.40	0.55	X123h	
<b>MDNA 240U2200ED</b>	2200	690	240	90	1500	0.79	5.1	150	0.35	0.45	X112	
<b>MDMA 450U1600PTEH</b>	1600	450	500	85	2400	0.82	2.7	150	0.20	0.10	X113a	
<b>MDMA 660U1600PTEH</b>	1600	500	660	85	5000	0.77	1.8	150	0.15	0.075		
<b>MDNA 660U2200PTEH</b>	2200	690										
<b>MDMA 900U1600PTEH</b>	1600	500	900	85	8000	0.76	1.4	150	0.10	0.05		

X123h

PWS-E Flat



X123c

PWS-E



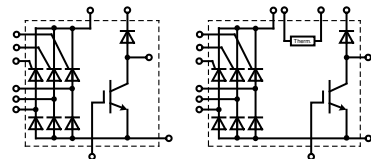
X121a

VUB 72-16NOXT	1600									
VUI 72-16NOXT	1600	75	110	1200	40	-	-	-		X103
VUB 116-16NOXT	1600	120	105	1200	84	1200	32	150	X112	
VUB 120-16NOX	1600	180	90	1200	140	1200	32	300	X104	
VUB 120-16NOXT										
VUB 135-22NO1	2200	150	105	1700	80	1700	33	900	X112	
VUB 145-16NOXT	1600	150	105	1200	140	1200	32	300		See data
VUB 160-16NOX	1600	180	90	1200	175	1200	32	150	X104	
VUB 160-16NOXT										
MDMA 210UB1600PTED	1600	210	85	1200	84	1200	59	350	X112a	
MDNA 210UB2200PTED	2200	210	85	1700	100	1700	54	550		
➤ MDNA 210UB2200TED									X112	X104
MDMA 240UB1600ED	1600	240	85	1200	140	1200	59	350	X112	
MDMA 280UB1600PTED	1600	280	85	1200	140	1200	59	350	X112a	
MDNA 280UB2200PTED	2200	280	85	1700	100	1700	54	550		
MDMA 360UB1600PTED	1600	360	85	1200	175	1200	90	350		
MDNA 360UB2200PTED	2200	360	85	1700	145	1700	83	550		See data
MDMA 450UB1600PTED	1600	450	85	1200	175	1200	90	350		
➤ MDMA 450UB1600PTEH	1600	450	85	1200	175	1200	90	350	X113a	

X103  
See data  
X104  
See data  
X112

## 3~ Half Controlled Rectifier Bridges

with IGBT and Fast Diode for Brake Unit



X112a

Type	Rectifier			IGBT		Fast Diode			Fig. No.
	$V_{RRM}$ V	$I_{dAV}$ A	@ $T_c$ °C	$V_{CES}$ V	$I_{C80}$ A	$V_{RRM}$ V	$I_{F(AV)}$ A	$t_{rr}$ ns	
➤ New									
VVZB 120-16ioX	1600	180	85	1200	140	1200	32	300	X104
MCNA 120UI2200TED	2200	117	80	1700	80	1700	50	550	X112
➤ MCNA 120UI2200PED	2200	120	80	1700	80	1700	50	550	X112a
VVZB 135-16ioXT	1600	150	85	1200	84	1200	32	150	X112
VVZB 170-16ioXT	1600	180	85	1200	140	1200	32	300	X112
MCMA 240UI1600ED	1600	240	80	1200	140	1200	59	350	X112
MCMA 240UI1600PED									X112a
MCMA 245UI1600ED	1600	240	80	1200	175	1200	90	350	X112

X113a  
See data



<b>VUC 36-12go2</b>	1200	400	34	85	Dio.	300	1.20	16	125	1.40	2.00	X105a
					Thy.	400	0.85	10	125	0.90	1.10	
<b>VUC 36-16go2</b>	1600	500	34	85	Dio.	300	1.20	16	125	1.40	2.00	X105a
					Thy.	400	0.85	10	125	0.90	1.10	
<b>MDMA 60UC1600VC</b>	1600	500	60	110	Dio.	350	0.83	11.5	150	1.30	1.60	X105c
					Thy.	800	0.89	5.3	140	0.70	0.90	
➤ <b>MDMA 360UC1600TED</b>	1600	500	360	85	Dio.	1900	0.82	3.4	150	0.25	0.35	X112
					Thy.	2400	0.84	3.1		0.17	0.25	

X101

Type	$V_{RRM}$	$V_{VRMS}$	$I_{dAVM}$	@ $T_H$	$I_{FSM/TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thJH}$	Fig. No.
○ Not for new design	V	V	A	°C	A	V	mΩ	°C	K/W	K/W	

See data

### 3~ Half Controlled Rectifier Bridges, B6HK

<b>VVZ 39-08ho7</b>	800	250	39	85	200	0.85	27.0	125	1.30	1.80	X101
<b>VVZ 39-12ho7</b>	1200	400									
<b>VVZ 40-12io1</b>	1200	400	34	100	320	0.85	15.0	125	1.00	1.60	X105a
<b>VVZ 40-16io1</b>	1600	500									
<b>CLE 90UH1200TLB</b>	1200	400	90	90	350	0.92	13.0	150	0.90	1.30	X030a
<b>VVZ 110-12io7</b>	1200	400	110	85	1150	0.85	6.0	125	0.65	0.80	X123b
<b>VVZ 175-12io7</b>	1200	400	167	85	1500	0.85	3.5	125	0.46	0.55	
<b>VVZ 175-16io7</b>	1600	500									
<b>MCMA 450UH1600TEH</b>	1600	500	450	90	2400	0.84	3.1	150	0.17	0.25	X113

X105a

### 3~ Half Controlled Rectifier Bridges with free wheeling diode, B6HKF

<b>MCMA 120UJ1800ED</b>	1800	575	117	80	500	0.89	13.6	150	0.65	0.75	X112
○ <b>VVZF 70-16io7</b>	1600	500	70	85	550	0.85	11.0	125	0.90	1.10	X118c

X105c

### 3~ Full Controlled Rectifier Bridges, B6C

<b>VTO 39-08ho7</b>	800	250	39	85	200	0.85	27.0	125	1.30	1.80	X101
<b>VTO 39-12ho7</b>	1200	400									

X112

X123b

PWS-E



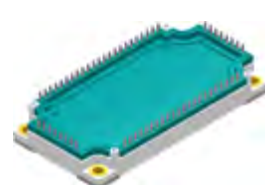
X118c

FO-T-A



X113

E3-Pack



See data sheet for pin arrangement

See data sh

1~	MMO 74-12io6	1200	400	88	95	600	0.87	10.5	150	0.70	0.80	
	MMO 74-16io6	1600	500									
	MMO 90-12io6	1200	400	110	95	800	0.88	6.0	150	0.60	0.70	
	MMO 90-14io6	1400	440									
	MMO 90-16io6	1600	500									
	CLA 110MB1200NA	1200	400	110	110	1100	0.78	4.9	150	0.55	0.65	
	MMO 110-12io7	1200	400	112	85	1000	0.85	5.6	150	0.80	0.92	X101
	MMO 110-14io7	1400	440									
	MMO 140-12io7	1200	400	130	85	1150	0.85	5.2	150	0.70	0.82	
	MMO 140-16io7	1600	500									
2~	MMO 175-12io7	1200	400	175	85	1500	0.85	3.7	150	0.50	0.62	
	MMO 175-16io7	1600	500									
	MMO 230-12io7	1200	400	230	85	2250	0.80	2.4	125	0.26	0.46	X102
	MMO 230-16io7	1600	500									
	VW 2x60-12io1	1200	400	2x 60	85	520	0.85	11.0	125	0.92	1.22	X103
	VW 2x60-14io1	1400	440									
3~	VW 2x60-16io1	1600	500									
	VVO 35-08ho7	800	250	3x 35	85	200	0.85	27.0	125	1.30	1.80	X101
	VVO 35-12ho7	1200	400									

X101

See data

X102

See data

X103

X132a

X191a

X1016c

## TRIAC 1~

$I_{RMS} = 30 - 650 A$

...MT...



CLA 30MT1200NPB	1200	400	33	120	170	0.89	30.5	150	0.95	1.45	X005a
CLA 30MT1200NPZ										1.20	X011c
CLA 40MT1200NPB	1200	400	44	110	180	0.89	27.9	150	0.80	1.30	X005a
CLA 40MT1200NPZ										1.05	X011c
CLA 40MT1200NHB											X014a
CLA 40MT1200NHR				95					1.30	1.55	X016c
CLA 60MT1200NHB	1200	400	66	120	380	0.86	12.5	150	0.55	0.80	X014a
CLA 60MT1200NTZ										0.70	X019a
CLA 60MT1200NHR				100					0.90	1.15	X016c
CMA 60MT1600NHB	1600	500	66	115	260	0.90	16.6	150	0.55	0.80	X014a
CMA 60MT1600NHR				90					0.90	1.15	X016c
CLA 80MT1200NHB	1200	400	88	120	480	0.85	9.2	150	0.40	0.65	X014a
CLA 80MT1200NHR				100					0.65	0.90	X016c
CMA 80MT1600NHB	1600	400	88	115	400	0.90	12.0	150	0.40	0.65	X014a
CMA 80MT1600NHR		500		95					0.65	0.90	X016c
MCMA 650MT1400NKD	1400	440	650	85	9600	0.81	0.68	140	0.12	0.04	X132a
MCMA 650MT1800NKD	1800	575									X132a

X005a

TO-220AB



X011c

TO-263ABHV



X014a

TO-247AD

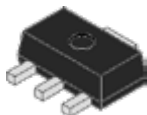


X1016c

LX807MTRP	600	0.8	90	8	5-5-5-7	125	L001
L0103NERP	800	1	50	10	3-3-3-5	125	L006
L0107NTRP	800	1	90	10	5-5-5-7	125	L001
L0109NERP	800	1	50	10	10-10-10-10	125	L006
LJ6004D8RP	600	4	135	40	10-10-10-20	150	L004
QJ6004D4RP	600	4	135	40	25-25-25-50	150	L004
Q8004D4RP	800	4	110	46	25-25-25-50	125	L004
QJ6006DH4RP	600	6	130	60	35-35-35	150	L004
Q8006RH4TP	800	6	100	80	35-35-35	125	L005a
QJ6008DH4RP	600	8	120	70	35-35-35	150	L004
Q8008LH4TP	800	8	90	83	35-35-35	125	L005c
Q6012LH1LEDTP	600	12	90	110	40461	125	L005c
QJ8012LH5TP	800	12	120	110	50-50-50	150	L005c
Q8015LTP	800	15	80	167	50-50-50-100	125	L005c
QJ6016NH2RP	600	16	130	167	40461	150	L011b
QJ6016RH3TP	600	16	130	167	20-20-20	150	L005a
QJ6016LH4TP	600	16	115	167	35-35-35	150	L005c
QJ6016NH6RP	600	16	130	167	80-80-80	150	L011b
QJ8016NH4RP	800	16	132	167	35-35-35	150	L011b
QJ8016LH6TP	800	16	110	167	80-80-80	150	L005c
QJ6025NH5RP	600	25	120	208	50-50-50	150	L011b
QJ6025RH5TP	600	25	120	208	50-50-50	150	L005a
QJ6025LH5TP	600	25	90	208	50-50-50	150	L005c
QJ6025KH6TP	600	25	110	208	80-80-80	150	L002
QJ8025LH5TP	800	25	90	208	50-50-50	150	L005c
Q8025K6TP	800	25	85	208	80-80-80	125	L002
QJ8025NH5RP	800	25	120	208	50-50-50	150	L011b
➤ QJ8030LH4TP	800	30	105	290	35-35-35	150	L005c
Q6035NH5RP	600	35	90	290	50-50-50	125	L011b
Q8040K3TP	800	40	75	335	35-35-35-70	125	L002
QK040K4TP	1000	40	75	335	50-50-50-120	125	L002
Q8040K5TP	800	40	75	335	50-50-50	125	L002
QK040J7TP	1000	40	75	335	100-100-100	125	L002a
➤ QJ8040KH5TP	800	40	100	420	50-50-50	150	L002

L016

SOT-89



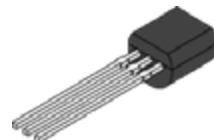
L011b

TO-263AB



L006

TO-92



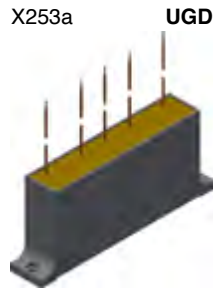
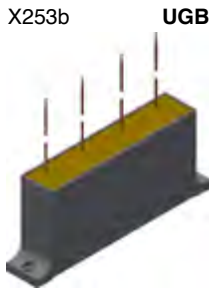
L005c

<b>UGB 3132AD</b>	4800	1.3	60	-	-	150	-	-	X252
<b>UGB 6124AG</b>	10500	1.0	50	-	-	150	-	-	X253b
<b>UGD 6123AG</b>	7200	1.8	50	-	-	150	-	-	X253a
<b>UGD 8124AG</b>	10500	1.2							

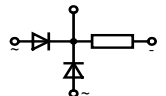
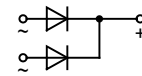
Data according to IEC 60747-2/6

① for oil-cooling with cooling plate,  $T_A = 35^\circ\text{C}$

② for natural air cooling without cooling plate,  $T_A = 45^\circ\text{C}$



## Braking Rectifier Assemblies



VGf 0136 AH

VGf 0136 AB

Type	$V_{VRMS}$ typ. V	$V_{dAV}$ typ. V	$I_{dAVM}$ typ. A	$I_{dAVM}$ max. A	$V_{RRM}$ max. V	$I_{FSM}$ max. A	$I^2t$ max. A <sup>2</sup> s	Fig. No.	Pa Out on pa
<b>VGB 0124AY7a</b>	380	340	1.0	1.0	1400	60	28	X254	
<b>VGf 0136AB</b>	1000	440	1.2	1.5	2800	80	40	X255	



IXBOD 1-10	1000										
IXBOD 1-12R	1200 ±50	< 15	30	4-8	100	0.90	200	>1500	20	X202	
IXBOD 1-12RD											
IXBOD 1-13R	1300										
IXBOD 1-13RD											
IXBOD 1-14R	1400										
IXBOD 1-14RD											
IXBOD 1-15R	1500										X201
IXBOD 1-15RD											
IXBOD 1-16R	1600										
IXBOD 1-16RD											
IXBOD 1-17R	1700										
IXBOD 1-17RD											
IXBOD 1-18R	1800										
IXBOD 1-18RD											
IXBOD 1-19R	1900										
IXBOD 1-19RD											
IXBOD 1-20R	2000										
IXBOD 1-20RD											
IXBOD 1-21R	2100 ±50	< 15	30	4-8	100	0.90	200	>2500	20		
IXBOD 1-21RD											
IXBOD 1-22R	2200										
IXBOD 1-22RD											
IXBOD 1-23R	2300										
IXBOD 1-23RD											
IXBOD 1-24R	2400										
IXBOD 1-24RD											
IXBOD 1-25R	2500										X202
IXBOD 1-25RD											
IXBOD 1-26R	2600 ±100										
IXBOD 1-26RD											
IXBOD 1-28R	2800										
IXBOD 1-28RD											
IXBOD 1-30R	3000										
IXBOD 1-30RD											
IXBOD 1-32R	3200										
IXBOD 1-32RD											
IXBOD 1-34R	3400 ±100	< 15	30	4-8	100	0.90	200	>3500	20		
IXBOD 1-36R	3600										
IXBOD 1-38R	3800										
IXBOD 1-40R	4000										
IXBOD 1-42R	4200										

① Leads soldered on PCB board,  $T_{stg}$  and  $T_{vj} = -40 \dots +125^{\circ}\text{C}$

## Break-Over-Diodes Sets

We deliver also:

- Special selection of more than 2 pcs IXBOD1-... for every break down voltage of  $V_{BO} > 2000 \text{ V}$

- Example

type designation IXBOD Set SA05/00  
 $V_{BO} = 4700 \text{ V} \pm 100 \text{ V}$

(we deliver 5 pcs single selected IXBOD1-... in one plastic bag)

Customers use these products on PCB connected in series with parallel resistor  $R = 10 \text{ M}\Omega$  across each IXBOD

# Fast Break-Over Diodes



Version

Type	$V_{BO}$ $T_{VJ} = 25\text{ °C}$ $K_T = 0.7 \cdot 10^{-3}\text{ K}^{-1}$ V	$I_{BO}$ mA	$I_H$ $T_{VJ} = 25\text{ °C}$ mA	$V_H$ V	$I_D$ $T_{VJ} = 125\text{ °C}$ $V_D = 0.8 \cdot V_{BO}$ $\mu\text{A}$	$I_{AVM}$ ① $T_{amb} = 50\text{ °C}$ A	$I_{SM}$ A	dv/dt V/ $\mu\text{s}$	$R_{thJA}$ K/W	Fig. No.	Pa Ou on pa
IXBOD 2-01	100	15	20	4-8	200	0.90	250	>1000	60	X201	X201
IXBOD 2-02	200 $\pm 10\%$										
IXBOD 2-03	300 $\cdot V_{BO}$										
IXBOD 2-04	400										
IXBOD 2-05	500 $\pm 50$	15	20	4-8	200	0.90	250	>1500	20	X202	
IXBOD 2-06	600										
IXBOD 2-07	700										
IXBOD 2-08	800										
IXBOD 2-09	900										
IXBOD 2-10	1000										
IXBOD 2-11	1100										
IXBOD 2-12	1200										
IXBOD 2-13	1300										
IXBOD 2-14	1400										
IXBOD 2-15R	1500 $\pm 50$	15	20	4-8	200	0.90	250	>1500	20	X202	
IXBOD 2-15RD	1500										
IXBOD 2-16R	1600										
IXBOD 2-16RD	1600										
IXBOD 2-17R	1700										
IXBOD 2-17RD	1700										
IXBOD 2-18R	1800										
IXBOD 2-18RD	1800										
IXBOD 2-19R	1900										
IXBOD 2-19RD	1900										
IXBOD 2-20R	2000										
IXBOD 2-20RD	2000										
IXBOD 2-21R	2100										
IXBOD 2-21RD	2100										
IXBOD 2-22R	2200										
IXBOD 2-22RD	2200										
IXBOD 2-23R	2300										
IXBOD 2-23RD	2300										
IXBOD 2-24R	2400										
IXBOD 2-24RD	2400										
IXBOD 2-25R	2500										
IXBOD 2-25RD	2500										
IXBOD 2-26R	2600 $\pm 100$	15	20	4-8	200	0.90	250	>1500	20	X202	X202
IXBOD 2-26RD	2600										
IXBOD 2-27R	2700										
IXBOD 2-27RD	2700										
IXBOD 2-28R	2800										
IXBOD 2-28RD	2800										

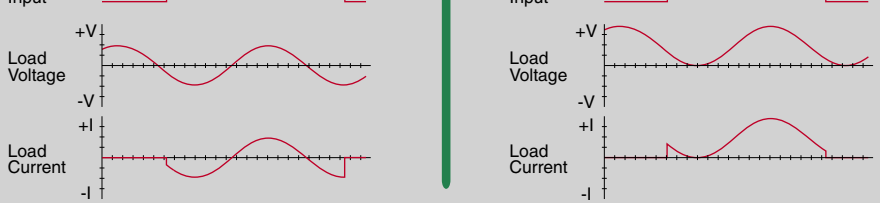


<b>IXBOD 2-30R</b>	3000								
<b>IXBOD 2-30RD</b>									
<b>IXBOD 2-31R</b>	3100								
<b>IXBOD 2-31RD</b>									
<b>IXBOD 2-32R</b>	3200								
<b>IXBOD 2-32RD</b>									
<b>IXBOD 2-33R</b>	3300								
<b>IXBOD 2-33RD</b>									
<b>IXBOD 2-34R</b>	3400								
<b>IXBOD 2-34RD</b>									
<b>IXBOD 2-35R</b>	3500								
<b>IXBOD 2-35RD</b>									
<b>IXBOD 2-36R</b>	3600								
<b>IXBOD 2-36RD</b>									
<b>IXBOD 2-37R</b>	3700								
<b>IXBOD 2-37RD</b>									
<b>IXBOD 2-38R</b>	3800								
<b>IXBOD 2-38RD</b>									
<b>IXBOD 2-39R</b>	3900								
<b>IXBOD 2-39RD</b>									
<b>IXBOD 2-40R</b>	4000								
<b>IXBOD 2-40RD</b>									
<b>IXBOD 2-41R</b>	4100								
<b>IXBOD 2-41RD</b>									
<b>IXBOD 2-42R</b>	4200								
<b>IXBOD 2-42RD</b>									
<b>IXBOD 2-43R</b>	4300 ±100	15	20	4-8	200	0.90	250	>3500	20
<b>IXBOD 2-44R</b>	4400								
<b>IXBOD 2-45R</b>	4500								
<b>IXBOD 2-46R</b>	4600								
<b>IXBOD 2-47R</b>	4700								
<b>IXBOD 2-48R</b>	4800								
<b>IXBOD 2-49R</b>	4900								
<b>IXBOD 2-50R</b>	5000								
<b>IXBOD 2-51R</b>	5100								
<b>IXBOD 2-52R</b>	5200								
<b>IXBOD 2-53R</b>	5300								
<b>IXBOD 2-54R</b>	5400								
<b>IXBOD 2-55R</b>	5500								
<b>IXBOD 2-56R</b>	5600								

① Leads soldered on PCB board,  $T_{stg}$  and  $T_{VJ} = -40 \dots +125^{\circ}\text{C}$

X202





All waveforms are into a resistive load

**Type BI** relays conduct load current in both directions.

**Type BI+** relays, in BI configuration, conduct load current in both directions.

**Type UNI** relays conduct load current from the positive terminal to the negative terminal only.

**Type BI+** relays, in UNI configuration with output MOSFETs wired in parallel, enable higher load current from positive terminal to negative terminal only.

The accompanying SSR tables reference these types (BI, BI+, & UNI) for all devices listed.

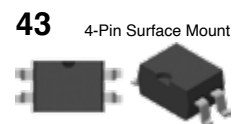
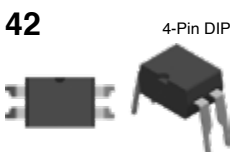
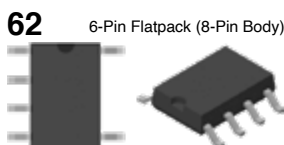
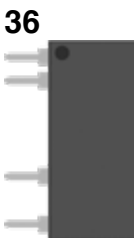
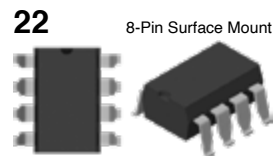
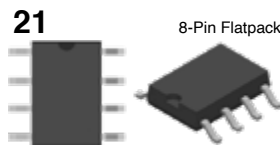
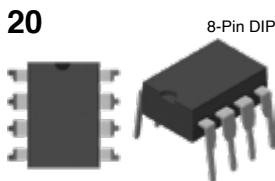
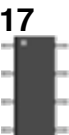
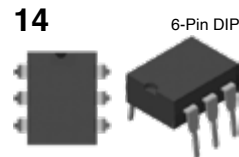
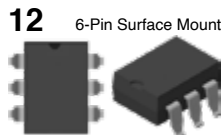
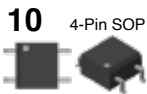
- **Replace electromechanical relays**
- **Replace mechanical switches**
- **Implement computer control of electromechanical circuits**

**Applications:**

- Telecommunications/ data communications
- Instrumentation
- Multiplexers
- Data acquisition/ electronic switching
- Meters (Watt-hour, water, gas)
- Medical equipment (patient/equipment isolation)
- Security
- Industrial controls

**Features:**

- Low drive current
- High reliability
- No EMI/RFI generated
- Arc-free with no contact wear
- AC or DC switching
- Current limiting
- FCC compatible
- Low off-state leakage





CPC1008N	BI	100	150	8	2	2 / 1	1500	1
CPC1009N	BI	100	150	8	2	2 / 0.5	1500	0.0
CPC1010N	BI	250	170	11.5	2	3 / 3	1500	1
CPC1014N	BI	60	400	2	2	2 / 1	1500	1
CPC1016N	BI	100	100	16	2	2 / 1	1500	1
CPC1017N	BI	60	100	16	1	10 / 10	1500	1
CPC1018N	BI	60	600	0.8	1	3 / 2	1500	1
CPC1019N	BI	60	750	0.6	2	3 / 3	1500	1
CPC1020N	BI	30	1200	0.25	2	3 / 3	1500	1
CPC1025N	BI	400	120	30	2	2 / 1	1500	1
CPC1030N	BI	350	120	30	2	2 / 1	1500	1
CPC1035N	BI	350	100	35	2	2 / 1	1500	1
CPC1225N	BI	400	120	30	2	2 / 1	1500	1
CPC1230N	BI	350	120	30	2	2 / 1	1500	1
CPC1317	BI	70	150	16	1	2.5 / 2.5	3750	1
CPC1330	BI	350	120	30	2	2 / 1	5000	1
CPC1335	BI	350	100	35	1	10 / 10	3750	1
CPC1390	BI	400	140	22	2	1 / 1	5000	1
CPC1393	BI	600	90	50	2	5 / 5	5000	1
CPC1394	BI	600	120	35	2	5 / 3	5000	1
CPC1510	BI+	250	200	15	2	2 / 2	3750	1
CPC1511	BI	230	450	4	2.5	4 / 2	3750	1
CPC1540	BI+	350	120	25	2	2 / 2	3750	1
CPC1560	BI+	60	300	5.6	1.1	0.1 / 0.4	3750	1
CPC1563	BI+	600	120	35	2	2 / 2	3750	1
CPC1593	BI+	600	120	35	2	2 / 2	3750	1
LCA100	BI+	350	120	25	5	5 / 5	3750	1
LCA100L	BI+	350	120	25	5	5 / 5	3750	1
LCA110	BI+	350	120	35	2	3 / 3	3750	1
LCA110L	BI+	350	120	35	2	3 / 3	3750	1
LCA120	BI+	250	170	20	5	3 / 3	3750	1
LCA120L	BI+	250	150	20	5	3 / 3	3750	1
LCA125	BI+	300	170	16	5	5 / 5	3750	1
LCA125L	BI+	300	170	20	5	5 / 5	3750	1

LCA127	Bl+	250	200	10	5	5 / 5	3750	1
LCA127L	Bl+	250	170	15	5	5 / 5	3750	1
LCA129	Bl+	250	170	20	2	8 / 8	3750	1
LCA182	Bl+	350	120	35	0.25	3 / 3	3750	1
LCA701	Bl+	100	1500	0.3	2	4 / 1	3750	1
LCA710	Bl+	60	1000	0.5	10	2.5 / 0.25	3750	1
LCA712	Bl+	60	1000	0.5	10	2.5 / 0.35	3750	0.0
LCA715	Bl+	60	2200	0.15	5	2.5 / 0.25	3750	1
LCA717	Bl+	30	2000	0.15	2	3 / 3	3750	1
OMA160	Bl+	250	50	100	10	0.125 / 0.125	3750	0.02
PLA110	Bl+	400	150	22	5	1 / 0.5	3750	1
PLA110L	Bl+	400	150	25	5	1 / 0.25	3750	1
PLA132	Bl+	60	600	1	2	5 / 2	3750	1
PLA134	Bl+	100	350	3	5	5 / 5	3750	1
PLA140	Bl+	400	250	8	5	3 / 1	3750	1
PLA140L	Bl+	400	200	13	5	5 / 3	3750	1
PLA143	Bl+	600	100	50	2	5 / 5	4000	1
PLA150	Bl+	250	250	7	5	2.5 / 0.5	3750	1
PLA160	Bl+	300	50	100	10	0.05 / 0.05	3750	0.02
PLA170	Bl+	800	100	50	5	5 / 5	3750	1
PLA171	Bl	800	100	50	2	5 / 5	5000	1
PLA172P	Bl	800	100	50	2	5 / 5	5000	1
PLA190	Bl+	400	150	22	5	1 / 0.5	5000	1
PLA191	Bl+	400	250	8	5	3 / 1	5000	1
PLA192	Bl+	600	150	22	5	5 / 5	5000	1
PLA193	Bl+	600	100	50	5	5 / 5	5000	1
PLA194	Bl+	600	130	35	2	3 / 2	5000	1
XCA170	Bl+	350	100	50	5	5 / 5	3750	1

<b>CPC2014N</b>	BI	60	400	2	2	2 / 1	1500	1
<b>CPC2017N</b>	BI	60	120	16	1	3 / 3	1500	1
<b>CPC2025N</b>	BI	400	120	30	2	2 / 1	1500	1
<b>CPC2030N</b>	BI	350	120	30	2	2 / 1	1500	1
<b>LAA100</b>	BI	350	120	25	5	5 / 5	3750	1
<b>LAA100L</b>	BI	350	120	25	5	5 / 5	3750	1
<b>LAA108</b>	BI	100	300	8	2	3 / 3	3750	1
<b>LAA110</b>	BI	350	120	35	5	3 / 3	3750	1
<b>LAA110L</b>	BI	350	120	35	5	3 / 3	3750	1
<b>LAA120</b>	BI	250	170	20	5	5 / 5	3750	1
<b>LAA120L</b>	BI	250	150	25	5	5 / 5	3750	1
<b>LAA125</b>	BI	350	170	16	5	5 / 5	3750	1
<b>LAA125L</b>	BI	350	150	18	5	5 / 5	3750	1
<b>LAA127</b>	BI	250	200	10	5	5 / 5	3750	1
<b>LAA127L</b>	BI	250	170	10	5	5 / 5	3750	1
<b>LAA710</b>	BI	60	1000	0.5	10	2.5 / 0.25	3750	1
<b>OAA160</b>	BI	250	50	100	6	0.125 / 0.125	3750	0.0
<b>PAA110</b>	BI	400	150	22	5	1 / 0.25	3750	1
<b>PAA110L</b>	BI	400	150	25	5	1 / 0.5	3750	1
<b>PAA127</b>	BI	280	200	10	3	0.5 / 0.5	3750	0.0
<b>PAA132</b>	BI	60	600	1	2	5 / 2	3750	1
<b>PAA140</b>	BI	400	250	8	5	3 / 1	3750	1
<b>PAA140L</b>	BI	400	200	13	5	5 / 3	3750	1
<b>PAA150</b>	BI	250	250	7	5	2.5 / 0.5	3750	1
<b>PAA190</b>	BI	400	150	22	5	1 / 0.5	5000	1
<b>PAA191</b>	BI	400	250	8	5	3 / 1	5000	1
<b>PAA193</b>	BI	600	100	50	5	5 / 5	5000	10
<b>XAA117</b>	BI	60	150	16	1	5 / 5	3750	1
<b>XAA170</b>	BI	350	100	50	5	5 / 5	3750	1

		$V_p$	mA	$I_{on}$	$I_{off}$	ms	$V_{rms}$	$I_{rms}$	$\mu A$
CPC1106N	BI	60	75	10	0.5	10 / 10	1500	1	
CPC1114N	BI	60	400	2	2	2 / 5	1500	1	
CPC1117N	BI	60	150	16	1	10 / 10	1500	1	
CPC1125N	BI	400	100	35	2	2 / 2	1500	5	
CPC1130N	BI	350	120	30	2	2 / 2	1500	5	
CPC1135N	BI	350	120	35	2	2 / 2	1500	5	
CPC1150N	BI	350	120	50	2	1 / 2	1500	5	
CPC1231N	BI	350	120	30	2	2 / 2	1500	5	
CPC1333	BI	350	130	30	2	2 / 3	5000	1	
LCB110	BI+	350	120	35	5	3 / 3	3750	1	
LCB111	BI+	350	120	35	2	5 / 5	3750	1	
LCB120	BI+	250	170	20	5	5 / 5	3750	1	
LCB126	BI+	250	170	15	5	5 / 5	3750	1	
LCB127	BI+	250	200	10	5	5 / 5	3750	1	
LCB710	BI+	60	1000	0.6	2	3 / 3	3750	1	
LCB716	BI+	60	500	2	2	3 / 3	3750	1	
LCB717	BI+	30	1500	0.3	2	2 / 5	3750	1	
PLB150	BI+	250	250	7	5	1 / 2.5	3750	1	
PLB171	BI	800	80	55	2	5 / 5	5000	1	
PLB190	BI+	400	130	25	2	1 / 2.5	5000	1	
XCB170	BI+	350	100	50	5	5 / 5	3750	1	

## 1-Form-B Relays: Dual Single-Pole

Part Number	Relay Type	Blocking Voltage $V_p$	Load Current mA	On Resistance $\Omega$	Input Control Current mA	Switching Speeds $t_{on} / t_{off}$ ms	Isolation Voltage $V_{rms}$	Off-State Leakage $\mu A$
CPC2125N	BI	400	100	35	2	2 / 2	1500	5
LBB110	BI	350	120	35	5	3 / 3	3750	1
LBB120	BI	250	170	20	5	5 / 5	3750	1
LBB126	BI	250	170	15	5	5 / 5	3750	1
LBB127	BI	250	200	10	5	5 / 5	3750	1
PBB150	BI	250	250	7	5	2.5 / 2.5	3750	1
PBB190	BI	400	130	25	2	1 / 2.5	5000	1
XBB170	BI	350	100	50	5	5 / 5	3750	1

CPC2317N	BI	60	120	16	1	3 / 3	1500	1 / 1
CPC2330N	BI	350	120	30	2	3 / 3	1500	1 / 5
LBA110	BI	350	120	35	2	3 / 3	3750	1 / 1
LBA110L	BI	350	120	35	5	3 / 3	3750	1 / 1
LBA120	BI	250	170	20	5	5 / 5	3750	1 / 1
LBA120L	BI	250	150	25	5	5 / 5	3750	1 / 1
LBA127	BI	250	200	10	5	5 / 5	3750	1 / 1
LBA127L	BI	250	150	15	5	5 / 5	3750	1 / 1
LBA710	BI	60	1000	0.6	2	5 / 5	3750	1 / 1
LBA716	BI	60	1000	0.4	2	5 / 5	3750	1 / 1
PBA150	BI	250	250	7	5	2.5 / 2.5	3750	1 / 1

## 1-Form-A Relays: Single-Pole, Unidirectional (DC-only)

Part Number	Relay Type	Blocking Voltage $V_p$	Load Current mA	On Resistance $\Omega$	Input Control Current mA	Switching Speeds $t_{on} / t_{off}$ ms	Isolation Voltage $V_{rms}$	Off-State Leakage $\mu A$
CPC1002N	UNI	60	700	0.55	2	5 / 2	1500	1
CPC1004N	UNI	100	300	4	2	3 / 1	1500	1

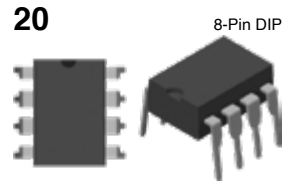
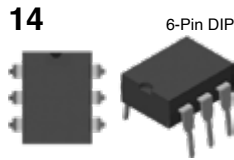
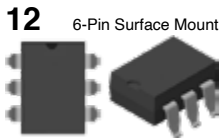
## 2-Form-A Relays: Double-Pole, Single-Throw

Part Number	Relay Type	Blocking Voltage $V_p$	Load Current mA	On Resistance $\Omega$	Input Control Current mA	Switching Speeds $t_{on} / t_{off}$ ms	Isolation Voltage $V_{rms}$	Off-State Leakage $\mu A$
LCA210	BI	350	85	35	8	3 / 3	3750	1
LCA210L	BI	350	85	35	8	4 / 4	3750	1
LCA220	BI	250	120	20	10	5 / 5	3750	1

## 1-Form-C Relays: Common Input, Single-Pole, Double-Throw

Part Number	Relay Type	Blocking Voltage $V_p$	Load Current mA	On Resistance $\Omega$	Input Control Current mA	Switching Speeds $t_{on} / t_{off}$ ms	Isolation Voltage $V_{rms}$	Off-State Leakage $\mu A$
LCC110	BI	350	120	35	8	4 / 4	3750	1
LCC120	BI	250	170	20	10	5 / 5	3750	1

- Ideal for use in electromagnetically noisy environments
- Resumes normal operation after faults are removed

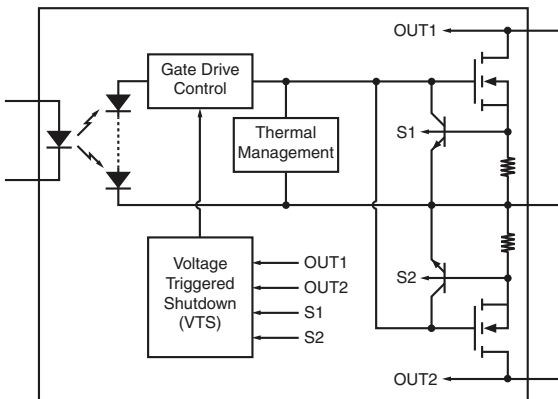


Part Number	Blocking Voltage (V <sub>p</sub> )	Input Control Current (mA)	On-Resistance (Maximum)		Load Current (Maximum)		Current Limit (Maximum)		VTS <sup>1)</sup> Threshold (V <sub>TH</sub> ) (V)	Switching Speed t <sub>on</sub> / t <sub>off</sub> (ms)	Isol. Vol.
			Configuration		Configuration		Configuration				
			DC (Ω)	AC (Ω)	DC (mA)	AC (mA)	DC (mA <sub>p</sub> )	AC (mA <sub>p</sub> )			
➤ <b>CPC1510</b>	250	2	3.75	15	350	200	920	450	-	2 / 2	3
<b>CPC1511</b>	230	2.5	-	4	-	450	-	1400	-	4 / 2	3
<b>CPC1540</b>	350	2	6.75	25	250	120	570	285	100 <sup>1)</sup>	2 / 2	3
<b>CPC1560</b>	60	1.1	1.4	5.6	600	300	1500	900	-	0.1 / 0.4	3
➤ <b>CPC1561</b>	60	2.5	-	0.245	-	1000 <sup>2)</sup>	-	3000	-	2.5 / 0.5	3
<b>CPC1563</b>	600	2	11.75	35	250	120	570	285	100 <sup>1)</sup>	2 / 2	3
<b>CPC1593</b>	600	2	11.75	35	250	120	570	285	17.5 <sup>1)</sup>	2 / 2	3

<sup>1)</sup> Deactivates the switch when the load voltage exceeds the V<sub>TH</sub> threshold while the switch is in current limit.

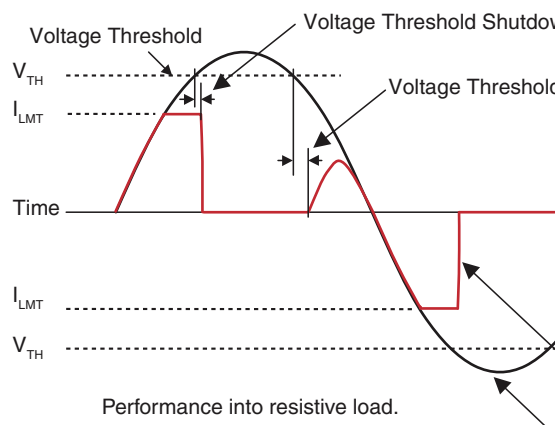
<sup>2)</sup> Load current rating at up to 60°C

### CPC1540, CPC1563, CPC1593



### Applications:

- Telephony hook switch
- VoIP gateways
- I/O subsystems
- Electronic switching
- Medical equipment (patient/equipment isolation)
- Security
- Industrial controls



CPC1907B	BI	60	6.00	-	-	0.06	5	5 / 1	5000
CPC1908J	BI	60	3.50	8.50	15	0.30	10	20 / 5	2500
CPC1909J	BI	60	6.50	15	15	0.10	10	25 / 10	2500
CPC1916Y	BI	100	2.50	-	-	0.34	10	5 / 3	2500
CPC1918J	BI	100	5.25	13	15	0.10	10	25 / 10	2500
CPC1926Y	BI	250	0.70	-	-	1.40	10	10 / 10	2500
CPC1927J	BI	250	2.70	6.70	15	0.20	10	25 / 10	2500
CPC1967J	BI	400	1.35	3.35	13.15	0.85	10	20 / 5	2500
CPC1968J	BI	500	2.00	5	15	0.35	10	20 / 5	2500
CPC1973Y	BI	400	0.35	-	-	5	10	5 / 3	2500
CPC1977J	BI	600	1.25	3.10	12.25	1	10	20 / 5	2500
CPC1978J	BI	800	0.75	1.85	7.25	2.30	10	20 / 5	2500
CPC1979J	BI	600	1.40	3.50	14.50	0.75	10	25 / 5	2500
CPC1981Y	BI	1000	0.18	-	-	18	10	10 / 5	2500
CPC1983B	BI	600	0.50	-	-	6	5	5 / 2	5000
CPC1983Y	BI	600	0.50	-	-	6	5	5 / 2	2500
CPC1983YE	BI	600	0.50	-	-	6	5	5 / 2	4000
➤ CPC1984Y	BI	600	1	-	-	0.66	5	10 / 2	4000
CPC1986J	BI	1000	0.65	1.60	6.50	3	10	20 / 5	2500
CPC1988J	BI	1000	0.90	2.25	9.40	2.50	10	20 / 5	2500

### Dual 1-Form-A Power Relay: Bidirectional

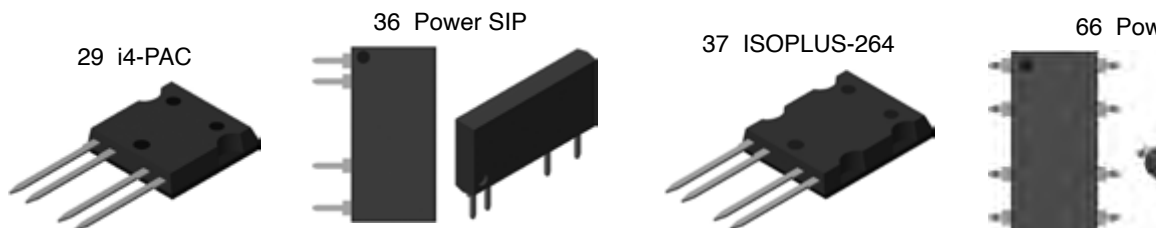
CPC2907B	BI	60	2	-	-	0.15	5	2.5/0.25	4000
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### 1-Form-A Power Relays: Single-Pole, Unidirectional

CPC1706Y	UNI	60	4	-	-	0.09	5	5 / 2	2500
CPC1708J	UNI	60	4	11.85	24	0.08	10	20 / 5	2500
CPC1709J	UNI	60	9	22.8	32	0.05	10	20 / 5	2500
CPC1718J	UNI	100	6.75	17.5	32	0.075	10	20 / 5	2500
CPC1726Y	UNI	250	1	-	-	0.75	10	5 / 2	2500
CPC1727J	UNI	250	3.4	8.6	20	0.09	10	20 / 5	2500
CPC1777J	UNI	600	1.5	4.6	15	0.5	10	20 / 5	2500
CPC1779J	UNI	600	1.65	4.12	15	0.4	10	20 / 5	2500
CPC1786J	UNI	1000	0.65	1.75	6.9	2	10	20 / 5	2500
CPC1788J	UNI	1000	1	2.45	10.3	1.25	10	20 / 5	2500

### 1-Form-B Power Relay: Single-Pole, Unidirectional

CPC1705Y	UNI	60	3.25	-	-	0.09	5	2 / 12	2500
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	$V_p$	$A_{rms}$	mA	Hz	$V_p$
<b>CPC1943</b>	400	0.50	5	20 - 500	37
<b>CPC1945G</b>	400	1	5	20 - 400	37
<b>CPC1945Y</b>	400	1	5	20 - 400	37
<b>CPC1961 Dual</b>	600	0.25 <sup>1)</sup>	5	20 - 500	37
<b>CPC1963</b>	600	0.50	5	20 - 500	37
<b>CPC1965G</b>	600	1	5	20 - 400	37
<b>CPC1965Y</b>	600	1	5	20 - 400	37
<b>CPC1972</b>	800	0.25	5	20 - 500	37
<b>PD1201</b>	400	1	5	20 - 500	37
<b>PD2401</b>	500	1	5	20 - 500	37
<b>PD2601</b>	600	1	5	20 - 500	37
<b>PM1204</b>	400	0.50	5	20 - 500	37
<b>PM1205</b>	500	0.50	5	20 - 500	37
<b>PM1206</b>	600	0.50	5	20 - 500	37
<b>PS1201</b>	400	1	5	20 - 500	37
<b>PS2401</b>	500	1	5	20 - 500	37
<b>PS2601</b>	600	1	5	20 - 500	37

<sup>1)</sup> Maximum continuous load current of a single pole or the sum of the load currents with both poles open

2 4-Pin DIP (16-Pin Body)



12 6-Pin Surface Mount



14 6-Pin



15 6-Pin Power DIP



16 6-Pin Power DIP SMD



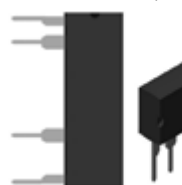
20 8-Pin DIP



22 8-Pin Surface Mount



23 4-Pin SIP (8-Pin)



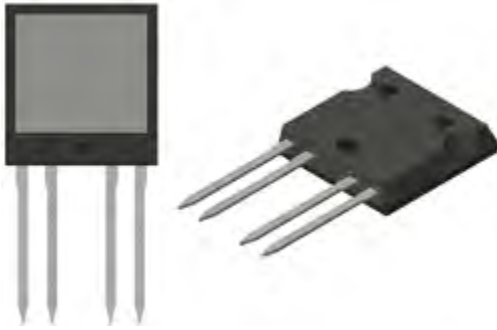


<b>CPC1964DX</b>	600	3	-	-	5	20 - 500	37
<b>CPC1966</b>	600	3	-	-	5	20 - 500	37
<b>CPC1966B</b>	800	3	-	-	5	20 - 500	50
<b>CPC1966BX8 <sup>1)</sup></b>	800	3	-	-	5	20 - 500	37
<b>CPC1966YX6 <sup>1)</sup></b>	600	3	-	-	5	20 - 500	37
<b>CPC1966YX8 <sup>1)</sup></b>	800	3	-	-	5	20 - 500	37
<b>CPC1976</b>	600	2	-	-	5	20 - 500	37
<b>CPC1976YX6 <sup>1)</sup></b>	600	2	-	-	5	20 - 500	37
<b>CPC1998J</b>	800	5	20	50	5	20 - 500	25
<b>CPC40055ST</b>	800	5	20	40	5	20 - 500	25

<sup>1)</sup> **Rapid turn-on (non-zero-cross)**

Rapid turn-on devices turn on when the control input goes true regardless of the load voltage phase, and turn off when the load current

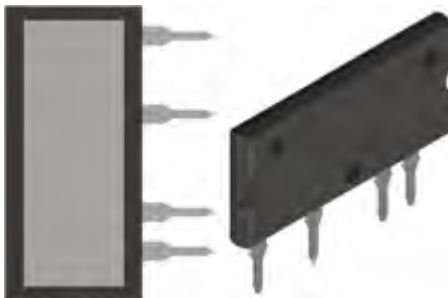
29 i4-PAC



36 Power SIP



64 Super SIP



66 Power SOIC



IX4427	DUAL	1.5	8.0	N	-	-	54, 56
IX4428	DUAL	1.5	8.0	F	-	-	54, 56
> IX4310T	SINGLE	2	3.0	D	-	4.2	52
IXD_602	DUAL	2	4.0	F, I, N	-	-	20, 53, 54, 56
IXD_604	DUAL	4	2.5	F, I, N, D	•	-	20, 53, 54, 56
IX4340	DUAL	5	1.5	D	•	$V_{CC} \leq 3.8$	53, 54, 92
IXD_609	SINGLE	9	1.0	I, N, D	•	-	20, 53, 54, 56, 57, 58
IXD_614	SINGLE	14	0.8	I, N, D	•	-	20, 53, 57, 58
IXD_630	SINGLE	30	0.4	I, N, D	•	$V_{CC} \leq 12.5$	57, 58
IXD_630M	SINGLE	30	0.4	I, N, D	•	$V_{CC} \leq 9$	57, 58

## AEC-Q100 Qualified Low-Side Gate Drivers

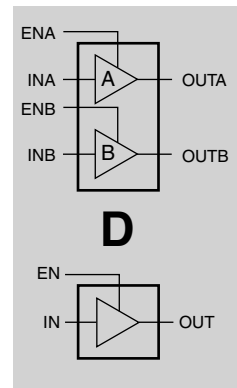
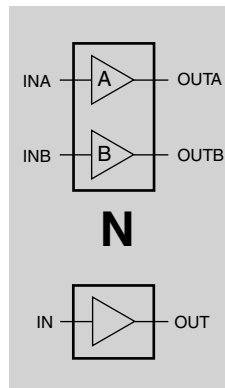
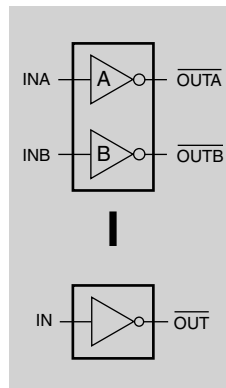
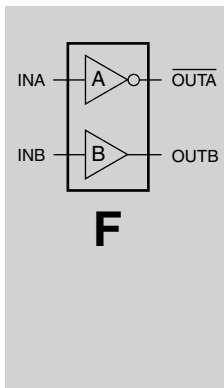
Part No.	Output Type	$I_{PEAK}$ $T_C = 25^\circ C$	Output Resistance	Logic Config.	Enable Function	Under-voltage Lockout	Fig. No.
> New		$A_p$	$\Omega$			V	
IXD_604SI	DUAL	4	2.5	F, I, N, D	•		53
IXD_604SIA	DUAL	4	2.5	F, I, N, D	•		54
> IX4340NE	DUAL	5	1.5	D	•	$V_{CC} \leq 3.8$	53
IXD_609SI	SINGLE	9	1.0	I, N, D	•		53
IXD_614SI	SINGLE	14	0.8	I, N, D	•		53

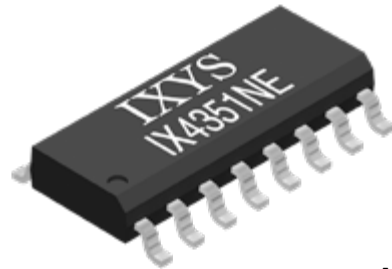
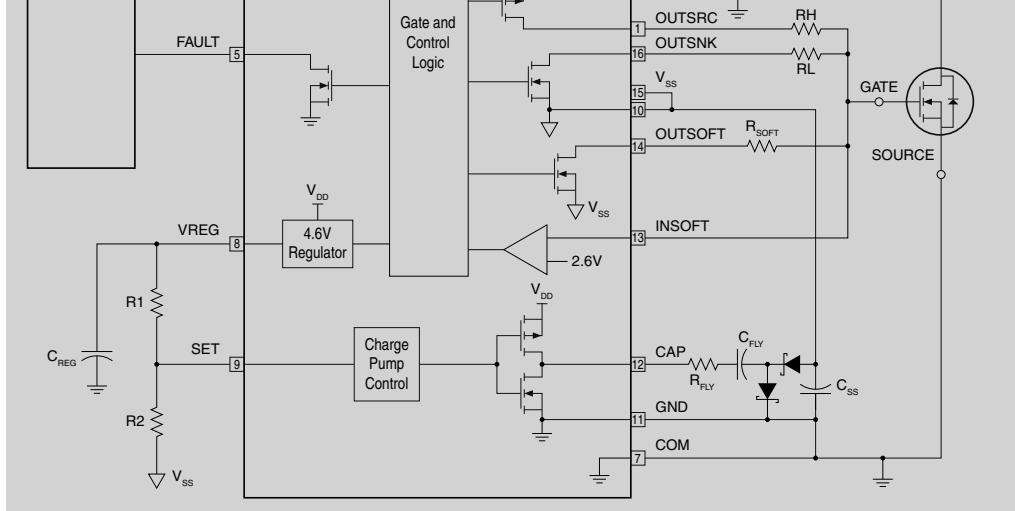
### Features:

- 1.5A to 30A Peak Source / Sink Drive Current
- Wide Operating Voltage Range
- -40°C to +125°C Extended Operating Temperature Range
- Logic Input Withstands Negative Swing of up to -5V
- Matched Rise and Fall Times
- Low Propagation Delay Time
- Low Output Impedance

### Applications:

- Efficient Power MOSFET and IGBT Switching
- Switch Mode Power Supplies
- Motor Controls
- DC to DC Converters
- Class-D Switching Amplifiers
- Pulse Transformer Driver





### Features:

- Separate 9A peak source and sink outputs
- Operating voltage range: -10V to +25V
- Internal negative charge pump regulator for selectable negative gate drive bias
- Desaturation detection with soft shutdown sink driver
- TTL and CMOS compatible input
- Under Voltage lockout (UVLO)
- Thermal shutdown
- Open drain fault output

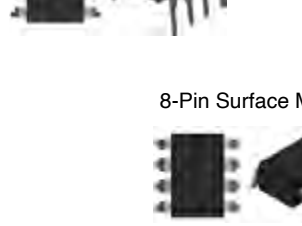
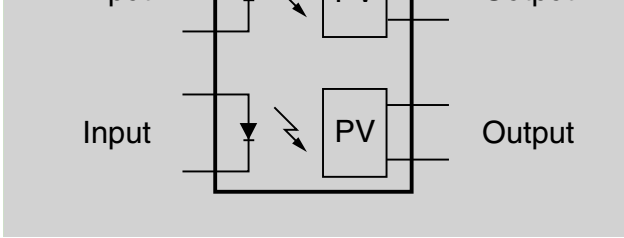
### Applications:

- Driving SiC MOSFETs and IGBTs
- On-board charger and DC-DC converters
- Industrial inverters
- PFC, AC/DC and DC/DC converters

The IX4351NE is designed specifically to drive SiC MOSFETs and high power IGBTs. Separate 9A source and sink outputs allow for tailored turn-on and turn-off timing while minimizing switching losses. An internal negative charge pump regulator provides a selectable negative gate drive bias for improved  $dV/dt$  immunity and faster turn-off.

Desaturation detection circuitry detects an over current condition of the SiC MOSFET and initiates a soft turn-off to prevent a potentially damaging  $dV/dt$  event. The logic input is TTL and CMOS compatible; this input does not need to be pulled up with a negative gate drive bias voltage. Protection features include UVLO detection and thermal shutdown. An open drain output signals a fault condition to the microcontroller.

The IX4351NE is rated for operational temperature range of  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ , and is available in a thermally enhanced power SOIC package.



8-Pin Surface M

**Features:**

- Isolated 5.5V to 12V Photovoltaic Output
- Floating Outputs for Parallel or Series Configuration

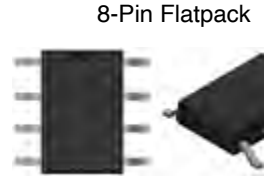
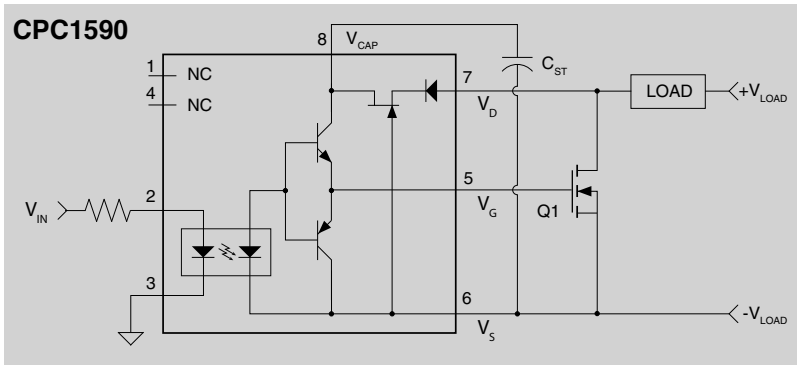
**Applications:**

- MOSFET Driver
- Isolated Floating Power Source

Part No.	Input Control Current mA	Nominal Open-Circuit Voltage $V_{OC}$ V	Nominal Short-Circuit Current $I_{SC}$ $\mu A$	Switching Speeds $t_{on} / t_{off}$ ms	Isolation Voltage $V_{rms}$	Package
FDA215	5	5.5	2.5	5 / 5	3750	8-Pin DIP, 8
FDA217	5	11.75	4.5	2 / 0.5	3750	8-Pin DIP, 8

## Optically Isolated Load-Biased Gate Drivers

The CPC1580 and CPC1590 are high speed, optically isolated Gate Driver ICs. On-chip circuitry charges an external capacitor voltage which eliminates the need for an external IC power supply. These Gate Drivers are ideal for low duty cycle switching devices are provided in an 8-pin flatpack package.



8-Pin Flatpack

**Features:**

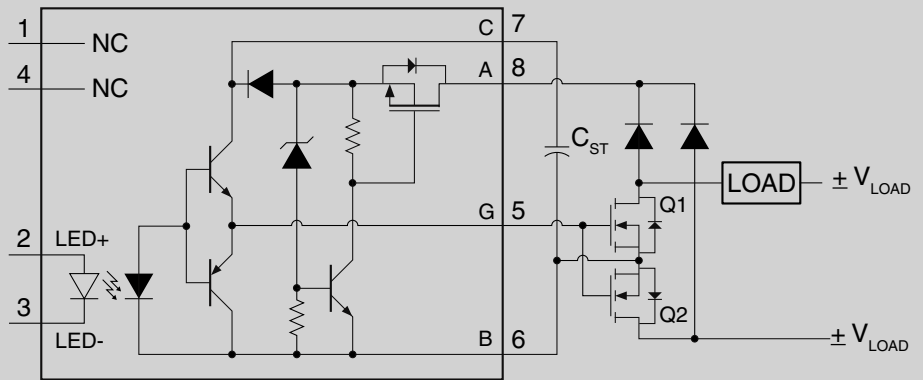
- No External IC Power Supply
- Low Drive Power Requirements (TTL/CMOS Compatible)
- Load Voltages up to 200V
- Fast Switching Speed - On: 40 $\mu s$  / Off: 400 $\mu s$

**Applications:**

- Instrumentation
- Multiplexers
- I/O Subsystems
- Meters (Watt-Hour, Water, Gas)
- Medical Equipment (Patient / ECG)
- Security
- Industrial Controls

Part No.	Input Control Current (mA)	Gate Voltage @ $I_F = 5mA$ ( $V_G$ )	Blocking Voltage ( $V_P$ )	Regulated Capacitor Voltage $V_{CAP(max)}$ (V)	Switching Speeds $t_{on} / t_{off}$ ( $\mu s$ )
CPC1580	2.5	7.5 - 12	65	$V_{DS} - 0.2$	40 / 400
CPC1590	2.5	7.5 - 12	200	16	40 / 400

## CPC1596



### Features:

- Requires No Load-side Power Supply
- Drives External Power MOSFET
- Only 2.5mA Input LED Current to Drive External MOSFET
- 3750V<sub>rms</sub> Input-to-Output Isolation

### Applications:

Optically Isolated AC or DC Relays for

- Industrial Controls
- Instrumentation
- Medical Equipment Isolation
- Electronic Switching
- I/O Subsystems
- Appliances

- Bandwidth 40kHz
- in Photovoltaic Mode
- High Gain Stability
- Low Input / Output Capacitance
- Low Power Consumption
- 0.01% Servo Linearity
- THD 87dB Typical

Part No.	Servo Gain $K_1 = I_1/I_F$	Forward Gain $K_2 = I_2/I_F$	Transfer Gain $K_3 = K_2/K_1$	Input Control Current	Isolation Voltage
	Min / Max	Min / Max	Min / Max	(mA)	( $V_{rms}$ )
LOC110	0.004 / 0.03	0.004 / 0.03	0.668 / 1.179	2 - 10	3750
LOC111	0.008 / 0.03	0.006 / 0.03	0.733 / 1.072	2 - 10	3750
LOC112	0.004 / 0.03	0.004 / 0.03	0.733 / 1.072	2 - 10	3750
LOC117	0.008 / 0.03	0.006 / 0.03	0.887 / 1.072	2 - 10	3750
LOC210	0.004 / 0.03	0.004 / 0.03	0.773 / 1.072	2 - 10	3750
LOC211	0.008 / 0.03	0.006 / 0.03	0.773 / 1.072	2 - 10	3750

16-Pin SOIC

4



8-Pin DIP

20



8-Pin Flatpack

21

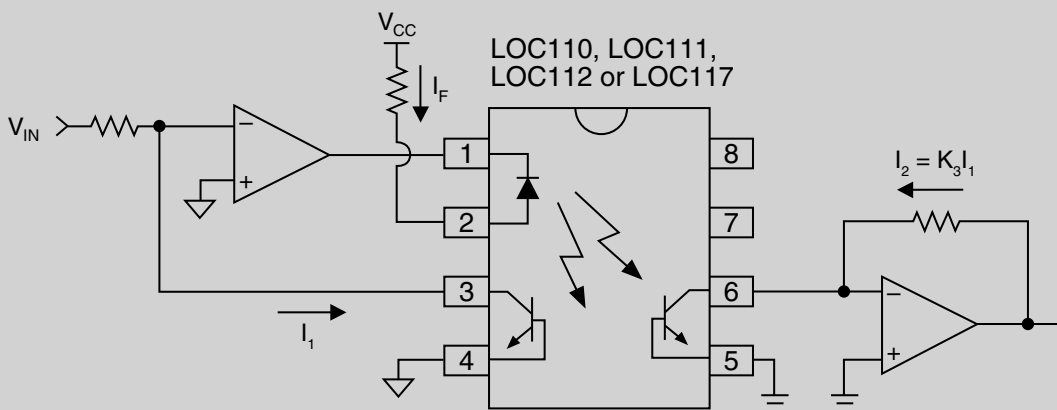


8-Pin Surface



## Two Fundamental Operating Configurations:

### Isolation Amplifier (Photovoltaic Mode)



#### Photoconductive Mode:

- Wide Bandwidth (>200kHz)
- 8-bit Linearity

#### Photovoltaic Mode:

- 14-bit Linearity
- 40kHz Bandwidth

CPC3701	60	1	-1.4	-3.1	600	
CPC3703	250	4	-1.6	-3.9	360	
CPC3708	350	14	-2.0	-3.6	130	SO
CPC3710	250	10	-1.6	-3.9	220	
CPC3714	350	14	-1.6	-3.9	240	
CPC3720	350	22	-1.6	-3.9	130	
CPC3730	350	35	-1.6	-3.9	140	
CPC3902	250	2.5	-1.4	-3.1	400	SO
CPC3909	400	6	-1.4	-3.1	300	SO
CPC3960	600	44	-1.4	-3.1	100	
CPC3980	800	45	-1.4	-3.1	100	
CPC3982	800	380	-1.4	-3.1	20	

SOT-23



SOT-89



SOT-223

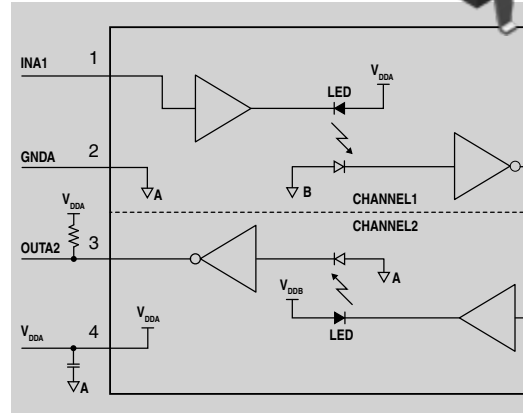


- Isolates one signal in each direction
- Operates from 2.7V to 5.5V
- Buffered inputs - no external LED drive required
- Hysteresis at inputs for noise rejection
- Slew-limited drivers reduce EMI
- 3750V<sub>rms</sub> galvanic isolation from input to output
- Power down to Hi-Z does not load outputs
- 5 Mbaud data rate

### Applications:

- Isolated signal monitoring and control
- Power-over-Ethernet, POE
- Power supply high-side interface
- Logic level translation
- Microprocessor system interface
- Inter integrated circuit (I<sup>2</sup>C) interface
- Serial peripheral interface
- Full duplex communication
- Isolated line receiver
- Isolated data acquisition systems

CPC5001



## Dual Speed Digital Optical Isolator: CPC5002

3750V<sub>rms</sub> galvanic isolation from input to output  
 Passes DC signals - no refresh clock needed

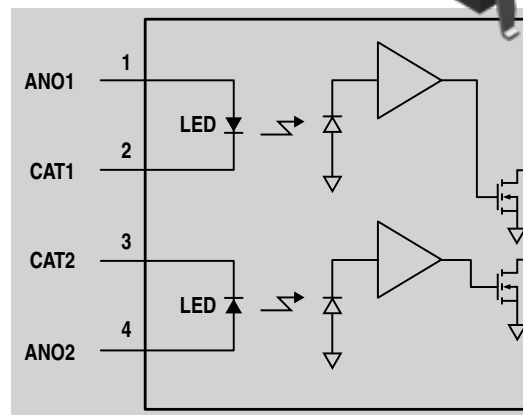
### Features:

- Dual optics isolate two signals
- **10 Mbaud** data rate
- Operates over 2.7V < V<sub>DD</sub> < 5.5V
- Power down to Hi-Z does not load outputs
- Low-power CMOS reduces supply current
- LED drive current only 1.5mA

### Applications:

- Isolated line receiver
- Ground loop elimination
- ADC/DAC digital noise isolation
- 4-wire I<sup>2</sup>C bus isolation

CPC5002

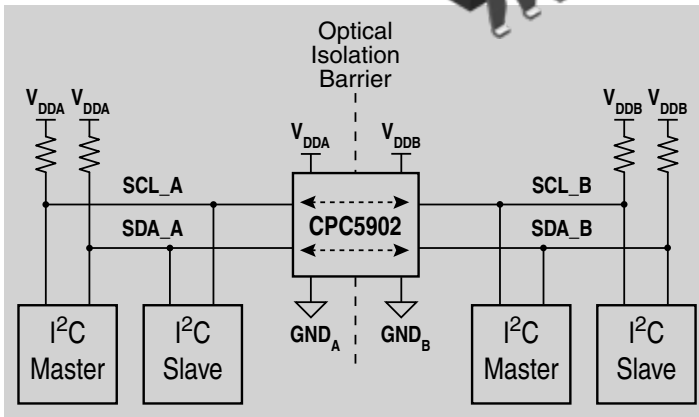
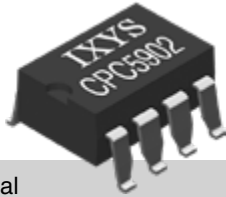




## Applications:

- Power-over-Ethernet (POE)
- I<sup>2</sup>C bus length extender
- Isolated control and signal monitoring
- Power supply high-side interface
- I<sup>2</sup>C logic level translation

CPC5902



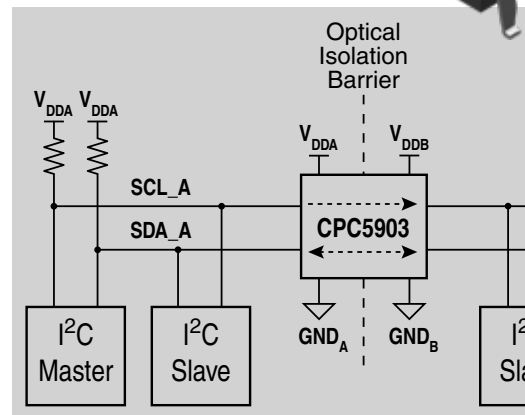
## Features:

- Extends and isolates I<sup>2</sup>C interfaces
- Supports standard and fast mode
- Side B fast-mode compliant:  $V_{DDB} > 4.5V$
- Supports I<sup>2</sup>C clock stretching
- No internal clock - low EM & RF
- Operates on 2.7V to 5.5V
- Supports DC logic level buffering
- Glitch-free operation
- Power down to Hi-Z does not load
- Slew-limited drivers reduce EMI
- Immune to external EMI & RF en
- High voltage isolation

## Features:

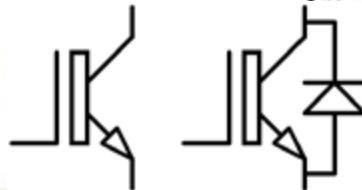
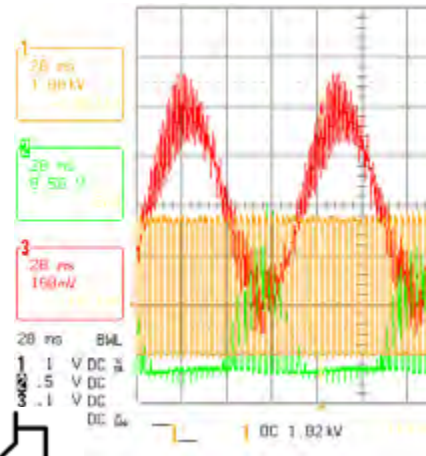
- Extends and isolates I<sup>2</sup>C interfaces
- Supports standard and fast mode I<sup>2</sup>C (400kpbs)
- Side B fast-mode compliant:  $V_{DDB} > 4.5V$
- No internal clock - low EM & RF generation
- Operates on 2.7V to 5.5V
- Supports DC logic level buffering without refresh
- Glitch-free operation
- Power down to Hi-Z does not load I<sup>2</sup>C bus
- Slew-limited drivers reduce EMI
- Immune to external EMI & RF emissions
- High voltage isolation

CPC5903



See Application Note TB-101 “Optically Isolating an I<sup>2</sup>C Interface”

- Replacement of devices in assembly type XA3370ZX12WRs
- Possible failure modes in press-pack devices
- Recommended clamps for capsule semiconductors
- Guidance for soldering leads to thyristors, GTO thyristors and IGBT's
- Device mounting instruction
- Stocking & handling requirements for press-pack and module devices
- Recommended maximum force for module gate terminals
- Press releases
- Quality documents
- IXYS UK product nomenclatures
- An IGBT in DC Breaker application



# Stud Types

Part No.	$V_{RRM}$	$I_{FAV}$	$I_{FSM}$	$I^2t$	$V_{TO}$	$r_T$	$T_{JM}$	$R_{thJC}$		Fig. No.
	V	A	A	A <sup>2</sup> s	V	mΩ	°C	d.c. 180° sine K/W	120° Rect. K/W	
<b>W0428RE250</b>	2500	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W39
<b>W0428RE280</b>	2800	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W39
<b>W0428RE320</b>	3200	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W39
<b>W0428RF250</b>	2500	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W24
<b>W0428RF280</b>	2800	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W24
<b>W0428RF320</b>	3200	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W24
<b>W0428SE250</b>	2500	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W39
<b>W0428SE280</b>	2800	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W39
<b>W0428SE320</b>	3200	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W39
<b>W0428SF250</b>	2500	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W24
<b>W0428SF280</b>	2800	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W24
<b>W0428SF320</b>	3200	428	5500	151 x 10 <sup>3</sup>	0.926	0.739	150	0.1300	0.1530	W24
<b>W0503RC160</b>	1600	503	5500	151 x 10 <sup>3</sup>	0.990	0.740	180	0.1300	0.1530	W24
<b>W0503RC200</b>	2000	503	5500	151 x 10 <sup>3</sup>	0.990	0.740	180	0.1300	0.1530	W24
<b>W0503RC240</b>	2400	503	5500	151 x 10 <sup>3</sup>	0.990	0.740	180	0.1300	0.1530	W24
<b>W0503SC160</b>	1600	503	5500	151 x 10 <sup>3</sup>	0.990	0.740	180	0.1300	0.1530	W24
<b>W0503SC200</b>	2000	503	5500	151 x 10 <sup>3</sup>	0.990	0.740	180	0.1300	0.1530	W24
<b>W0503SC240</b>	2400	503	5500	151 x 10 <sup>3</sup>	0.990	0.740	180	0.1300	0.1530	W24
<b>W0735RA120</b>	1200	735	9000	405 x 10 <sup>3</sup>	0.790	0.342	190	0.1300	0.1530	W23
<b>W0735RA150</b>	1500	735	9000	405 x 10 <sup>3</sup>	0.790	0.342	190	0.1300	0.1530	W23
<b>W0735SA120</b>	1200	735	9000	405 x 10 <sup>3</sup>	0.790	0.342	190	0.1300	0.1530	W23
<b>W0735SA150</b>	1500	735	9000	405 x 10 <sup>3</sup>	0.790	0.342	190	0.1300	0.1530	W23
<b>W1263YC200KER</b>	2000	675	11000	405 x 10 <sup>3</sup>	0.870	0.330	175	0.1249	0.1359	W114
<b>W1263YC250KER</b>	2500	675	11000	405 x 10 <sup>3</sup>	0.870	0.330	175	0.1249	0.1359	W114
<b>W1263YC200KES</b>	2000	675	11000	405 x 10 <sup>3</sup>	0.870	0.330	175	0.1249	0.1359	W114
<b>W1263YC250KES</b>	2500	675	11000	405 x 10 <sup>3</sup>	0.870	0.330	175	0.1249	0.1359	W114



W114 Weight 650 g



W39 Weight 250 g

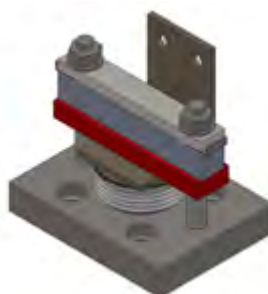
Standard part replacements to the obsolete flat-base power silicon diodes types KBN/R, KCN/R & KDN/R.  
For other voltages and thyristor options please consult factory

Part No.	Old square base part no.	Base polarity	$V_{RRM}$ V	$I_{FAV}$ $T_C = 100^\circ C$ A	$I_{FSM}$ kA	$I^2t$ A <sup>2</sup> s	$V_T$ V	$r_T$ mΩ	$R_{th}$ K/W
① W1185LC450KBR	SW45KBR515	Anode	4500	435	10.2	$520 \times 10^3$	1.000	0.575	0.085
① W1185LC450KBN	SW45KBN515	Cathode	4500	380	10.2	$520 \times 10^3$	1.000	0.575	0.101
① W1411LC360KBR	SW36KBR595	Anode	3600	505	12.2	$744 \times 10^3$	0.900	0.388	0.085
① W1411LC360KBN	SW36KBN595	Cathode	3600	445	12.2	$744 \times 10^3$	0.900	0.388	0.101
① W1524LC300KBR	SW30KBR636	Anode	3000	540	13.4	$898 \times 10^3$	0.870	0.323	0.085
① W1524LC300KBN	SW30KBN636	Cathode	3000	470	13.4	$898 \times 10^3$	0.870	0.323	0.101
① W1748LC220KBR	SW22KBR805	Anode	2200	660	13.5	$911 \times 10^3$	0.870	0.280	0.085
① W1748LC220KBN	SW22KBN805	Cathode	2200	582	13.5	$911 \times 10^3$	0.870	0.280	0.101
① W2058LC120KBR	SW12KBR935	Anode	1200	760	16.1	$1.30 \times 10^6$	0.790	0.192	0.085
① W2058LC120KBN	SW12KBN935	Cathode	1200	665	16.1	$1.30 \times 10^6$	0.790	0.192	0.101
W1185LC450KCR	SW45KBR515	Anode	4500	455	10.2	$520 \times 10^3$	1.000	0.575	0.080
W1185LC450KCN	SW45KBN515	Cathode	4500	395	10.2	$520 \times 10^3$	1.000	0.575	0.097
W1411LC360KCR	SW36KBR595	Anode	3600	530	13.2	$756 \times 10^3$	0.900	0.388	0.080
W1411LC360KCN	SW36KBN595	Cathode	3600	460	12.3	$759 \times 10^3$	0.900	0.388	0.097
W1524LC300KCR	SW30KBR635	Anode	3000	565	13.4	$898 \times 10^3$	0.870	0.323	0.080
W1524LC300KCN	SW30KBN636	Cathode	3000	490	13.4	$898 \times 10^3$	0.870	0.323	0.097
W1748LC220KCR	SW22KBR805	Anode	2200	690	13.5	$911 \times 10^3$	0.870	0.280	0.080
W1748LC220KCN	SW22KBN805	Cathode	2200	600	13.5	$911 \times 10^3$	0.870	0.280	0.097
W2058LC120KCR	SW12KBR935	Anode	1200	800	16.1	$1.30 \times 10^6$	0.790	0.192	0.080
W2058LC120KCN	SW12KBN935	Cathode	1200	690	16.1	$1.30 \times 10^6$	0.790	0.192	0.097
W3082MC450KDR	SB45KDR680	Anode	4500	1115	26.6	$3.54 \times 10^6$	0.923	0.192	0.037
W3082MC450KDN	SB45KDN680	Cathode	4500	1030	26.6	$3.54 \times 10^6$	0.923	0.192	0.041
W3708MC350KDR	SB35KDR820	Anode	3500	1240	33.7	$5.68 \times 10^6$	0.958	0.112	0.037
W3708MC350KDN	SB35KDN820	Cathode	3500	1145	33.7	$5.68 \times 10^6$	0.958	0.112	0.041
W3842MC280KDR	SB28KDR950	Anode	2800	1325	33.5	$5.61 \times 10^6$	0.831	0.118	0.037
W3842MC280KDN	SB28KDN950	Cathode	2800	1225	33.5	$5.61 \times 10^6$	0.831	0.118	0.041
W5636MC150KDR	SB15KDR14C	Anode	1500	2035	43.9	$9.64 \times 10^6$	0.698	0.059	0.037
W5636MC150KDN	SB15KDN14C	Cathode	1500	1875	43.9	$9.64 \times 10^6$	0.698	0.059	0.041

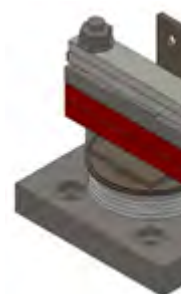
① = assembly supplied either as kit of parts or sub-assembly with selected diode or thyristor



WC64



WC65



WC66

<b>W0642WC200</b>	2000	680	5500	151 x 10 <sup>3</sup>	1.070	0.676	190	0.0900	0.0980	W1
<b>W0642WC240</b>	2400	680	5500	151 x 10 <sup>3</sup>	1.070	0.676	190	0.0900	0.0980	W1
<b>W0790LG650</b>	6500	790	6000	180 x 10 <sup>3</sup>	0.919	1.249	150	0.0394	0.0445	W120
<b>W0790LG720</b>	7200	790	6000	180 x 10 <sup>3</sup>	0.919	1.249	150	0.0394	0.0445	W120
<b>W0880LC650</b>	6500	880	6000	180 x 10 <sup>3</sup>	0.919	1.249	150	0.0330	0.0400	W4
<b>W0880LC720</b>	7200	880	6000	180 x 10 <sup>3</sup>	0.919	1.249	150	0.0330	0.0400	W4
<b>W0925LG500</b>	5000	925	7200	259 x 10 <sup>3</sup>	1.000	0.702	150	0.0394	0.0445	W120
<b>W0925LG560</b>	5600	925	7200	259 x 10 <sup>3</sup>	1.000	0.702	150	0.0394	0.0445	W120
<b>W0925LG600</b>	6000	925	7200	259 x 10 <sup>3</sup>	1.000	0.702	150	0.0394	0.0445	W120
<b>W0944WC120</b>	1200	944	9000	405 x 10 <sup>3</sup>	0.790	0.342	190	0.0900	0.0980	W1
<b>W0944WC150</b>	1500	944	9000	405 x 10 <sup>3</sup>	0.790	0.342	190	0.0900	0.0980	W1
<b>W1032LC500</b>	5000	1032	7200	259 x 10 <sup>3</sup>	1.000	0.702	150	0.0330	0.0400	W4
<b>W1032LC560</b>	5600	1032	7200	259 x 10 <sup>3</sup>	1.000	0.702	150	0.0330	0.0400	W4
<b>W1032LC600</b>	6000	1032	7200	259 x 10 <sup>3</sup>	1.000	0.702	150	0.0330	0.0400	W4
<b>W1060LG420</b>	4200	1060	9200	423 x 10 <sup>3</sup>	1.000	0.575	160	0.0394	0.0445	W120
<b>W1060LG450</b>	4500	1060	9200	423 x 10 <sup>3</sup>	1.000	0.575	160	0.0394	0.0445	W120
<b>W1074YC200</b>	2000	1074	10800	583 x 10 <sup>3</sup>	0.920	0.390	160	0.0500	0.0610	W2
<b>W1074YC260</b>	2600	1074	10800	583 x 10 <sup>3</sup>	0.920	0.390	160	0.0500	0.0610	W2
<b>W1074YC320</b>	3200	1074	10800	583 x 10 <sup>3</sup>	0.920	0.390	160	0.0500	0.0610	W2
<b>W1074YH200</b>	2000	1074	10800	583 x 10 <sup>3</sup>	0.920	0.390	160	0.0500	0.0610	W3
<b>W1074YH260</b>	2600	1074	10800	583 x 10 <sup>3</sup>	0.920	0.390	160	0.0500	0.0610	W3
<b>W1074YH320</b>	3200	1074	10800	583 x 10 <sup>3</sup>	0.920	0.390	160	0.0500	0.0610	W3
<b>W1185LC420</b>	4200	1185	9200	423 x 10 <sup>3</sup>	1.000	0.575	160	0.0330	0.0393	W4
<b>W1185LC450</b>	4500	1185	9200	423 x 10 <sup>3</sup>	1.000	0.575	160	0.0330	0.0393	W4
<b>W1260LG320</b>	3200	1260	10600	562 x 10 <sup>3</sup>	0.900	0.388	160	0.0394	0.0445	W120
<b>W1260LG360</b>	3600	1260	10600	562 x 10 <sup>3</sup>	0.900	0.388	160	0.0394	0.0445	W120
<b>W1263YC160</b>	1600	1263	11700	684 x 10 <sup>3</sup>	0.870	0.330	175	0.0500	0.0610	W2
<b>W1263YC220</b>	2200	1263	11700	684 x 10 <sup>3</sup>	0.870	0.330	175	0.0500	0.0610	W2
<b>W1263YC250</b>	2500	1263	11700	684 x 10 <sup>3</sup>	0.870	0.330	175	0.0500	0.0610	W2
<b>W1263YH160</b>	1600	1263	11700	684 x 10 <sup>3</sup>	0.870	0.330	175	0.0500	0.0610	W3
<b>W1263YH200</b>	2000	1263	11700	684 x 10 <sup>3</sup>	0.870	0.330	175	0.0500	0.0610	W3
<b>W1263YH250</b>	2500	1263	11700	684 x 10 <sup>3</sup>	0.870	0.330	175	0.0500	0.0610	W3
<b>W1360LG240</b>	2400	1360	12700	800 x 10 <sup>3</sup>	0.870	0.323	160	0.0394	0.0445	W120
<b>W1360LG300</b>	3000	1360	12700	800 x 10 <sup>3</sup>	0.870	0.323	160	0.0394	0.0445	W120
<b>W1411LC320</b>	3200	1411	10600	562 x 10 <sup>3</sup>	0.900	0.388	160	0.0330	0.0393	W4
<b>W1411LC360</b>	3600	1411	10600	562 x 10 <sup>3</sup>	0.900	0.388	160	0.0330	0.0393	W4
<b>W1520NC500</b>	5000	1478	12000	720 x 10 <sup>3</sup>	0.904	0.552	150	0.0220	0.0255	W5
<b>W1520NC600</b>	6000	1478	12000	720 x 10 <sup>3</sup>	0.904	0.552	150	0.0220	0.0255	W5
<b>W1524LC240</b>	2400	1524	12700	800 x 10 <sup>3</sup>	0.870	0.323	160	0.0330	0.0393	W4
<b>W1524LC300</b>	3000	1524	12700	800 x 10 <sup>3</sup>	0.870	0.323	160	0.0330	0.0393	W4
<b>W1730JK240</b>	2400	1730	12700	800 x 10 <sup>3</sup>	0.870	0.323	160	0.0270	0.0314	W113
<b>W1730JK280</b>	2800	1730	12700	800 x 10 <sup>3</sup>	0.870	0.323	160	0.0270	0.0314	W113

<b>W1856NC480</b>	4800	1856	16000	128 x 10 <sup>3</sup>	0.975	0.348	160	0.0220	0.0255	W5
<b>W1975MC650</b>	6500	1975	18000	1.62 x 10 <sup>5</sup>	0.950	0.510	150	0.0140	0.0158	W54
<b>W1975MC680</b>	6800	1975	18000	1.62 x 10 <sup>6</sup>	0.950	0.510	150	0.0140	0.0158	W54
<b>W1975MC720</b>	7200	1975	18000	1.62 x 10 <sup>6</sup>	0.950	0.510	150	0.0140	0.0158	W54
<b>W1980JK180</b>	1800	1980	15400	1.18 x 10 <sup>6</sup>	0.870	0.280	175	0.0270	0.0314	W113
<b>W1980JK220</b>	2200	1980	15400	1.18 x 10 <sup>6</sup>	0.870	0.280	175	0.0270	0.0314	W113
<b>W2054NC420</b>	4200	2054	19000	1.81 x 10 <sup>6</sup>	0.800	0.300	160	0.0220	0.0274	W5
<b>W2054NC450</b>	4500	2054	19000	1.81 x 10 <sup>6</sup>	0.800	0.300	160	0.0220	0.0274	W5
<b>W2058LC100</b>	1000	2058	19500	1.90 x 10 <sup>6</sup>	0.790	0.192	175	0.0330	0.0393	W4
<b>W2058LC120</b>	1200	2058	19500	1.90 x 10 <sup>6</sup>	0.790	0.192	175	0.0330	0.0393	W4
<b>W2058LC140</b>	1400	2058	19500	1.90 x 10 <sup>6</sup>	0.790	0.192	175	0.0330	0.0393	W4
<b>W2115MC520</b>	5200	2122	19000	1.81 x 10 <sup>6</sup>	1.074	0.405	150	0.0140	0.0158	W54
<b>W2115MC560</b>	5600	2122	19000	1.81 x 10 <sup>6</sup>	1.074	0.405	150	0.0140	0.0158	W54
<b>W2115MC600</b>	6000	2122	19000	1.81 x 10 <sup>6</sup>	1.074	0.405	150	0.0140	0.0158	W54
<b>W2134NC360</b>	3600	2134	20000	2.00 x 10 <sup>6</sup>	0.865	0.260	160	0.0220	0.0255	W5
<b>W2134NC400</b>	4000	2134	20000	2.00 x 10 <sup>6</sup>	0.865	0.260	160	0.0220	0.0255	W5
<b>W2340JK120</b>	1200	2340	19500	1.90 x 10 <sup>6</sup>	0.790	0.192	175	0.0270	0.0314	W113
<b>W2340JK150</b>	1500	2340	19500	1.90 x 10 <sup>6</sup>	0.790	0.192	175	0.0270	0.0314	W113
<b>W2624NC240</b>	2400	2624	28000	3.92 x 10 <sup>6</sup>	0.780	0.160	160	0.0220	0.0255	W5
<b>W2624NC280</b>	2800	2624	28000	3.92 x 10 <sup>6</sup>	0.780	0.160	160	0.0220	0.0255	W5
<b>W2624ND240</b>	2400	2624	28000	3.92 x 10 <sup>6</sup>	0.780	0.160	160	0.0220	0.0255	W37
<b>W2624ND280</b>	2800	2624	28000	3.92 x 10 <sup>6</sup>	0.780	0.160	160	0.0220	0.0255	W37
<b>W2820VC420</b>	4200	2820	26200	3.43 x 10 <sup>6</sup>	1.300	0.147	160	0.0160	0.0190	W6
<b>W2820VC450</b>	4500	2820	26200	3.43 x 10 <sup>6</sup>	1.300	0.147	160	0.0160	0.0190	W6
<b>W2820VF420</b>	4200	2820	26200	3.43 x 10 <sup>6</sup>	1.300	0.147	160	0.0160	0.0190	W43
<b>W2820VF450</b>	4500	2820	26200	3.43 x 10 <sup>6</sup>	1.300	0.147	160	0.0160	0.0190	W43
<b>W2830HE520</b>	5200	2830	32000	5.12 x 10 <sup>6</sup>	0.910	0.260	150	0.0123	0.0133	W123
<b>W2830HE560</b>	5600	2830	32000	5.12 x 10 <sup>6</sup>	0.910	0.260	150	0.0123	0.0133	W123
<b>W2830HE600</b>	6000	2830	32000	5.12 x 10 <sup>6</sup>	0.910	0.260	150	0.0123	0.0133	W123
➤ <b>W2840QA180</b>	1800	2840	20000	2.00 x 10 <sup>6</sup>	0.940	0.139	180	0.0230	0.0255	W117
➤ <b>W2840QA220</b>	2200	2840	20000	2.00 x 10 <sup>6</sup>	0.940	0.139	180	0.0230	0.0255	W117
➤ <b>W2865HA680</b>	6800	2862	32400	5.25 x 10 <sup>6</sup>	0.982	0.308	150	0.0105	0.0116	W121
➤ <b>W2865HA720</b>	7200	2862	32400	5.25 x 10 <sup>6</sup>	0.982	0.308	150	0.0105	0.0116	W121
<b>W2899MC460</b>	4600	2899	25400	3.23 x 10 <sup>6</sup>	0.996	0.222	160	0.0140	0.0158	W54
<b>W2899MC480</b>	4800	2899	25400	3.23 x 10 <sup>6</sup>	0.996	0.222	160	0.0140	0.0158	W54
<b>W3082MC420</b>	4200	3120	26000	3.38 x 10 <sup>6</sup>	0.923	0.192	160	0.0140	0.0160	W54
<b>W3082MC450</b>	4500	3120	26000	3.38 x 10 <sup>6</sup>	0.923	0.192	160	0.0140	0.0160	W54
<b>W3090HA520</b>	5200	3110	32000	5.12 x 10 <sup>6</sup>	0.910	0.260	150	0.0105	0.0116	W121
<b>W3090HA560</b>	5600	3110	32000	5.12 x 10 <sup>6</sup>	0.910	0.260	150	0.0105	0.0116	W121
<b>W3090HA600</b>	6000	3110	32000	5.12 x 10 <sup>6</sup>	0.910	0.260	150	0.0105	0.0116	W121
○ <b>W3128VC360</b>	3600	3128	30000	4.50 x 10 <sup>6</sup>	0.875	0.158	160	0.0160	0.0190	W6
○ <b>W3128VC400</b>	4000	3128	30000	4.50 x 10 <sup>6</sup>	0.875	0.158	160	0.0160	0.0190	W6
○ <b>W3128VF360</b>	3600	3128	30000	4.50 x 10 <sup>6</sup>	0.875	0.158	160	0.0160	0.0190	W43
○ <b>W3128VF400</b>	4000	3128	30000	4.50 x 10 <sup>6</sup>	0.875	0.158	160	0.0160	0.0190	W43

<b>W3270NC220</b>	2200	3270	28000	3.92 x 10 <sup>6</sup>	0.826	0.104	175	0.0220	0.0255	W5
<b>W3305QK240</b>	2400	3305	18500	1.71 x 10 <sup>6</sup>	0.910	0.150	175	0.0170	0.0207	WD2
<b>W3305QK280</b>	2800	3305	18500	1.71 x 10 <sup>6</sup>	0.910	0.150	175	0.0170	0.0207	WD2
➤ <b>W3409NK240</b>	2400	3409	28000	3.92 x 10 <sup>6</sup>	0.780	0.160	160	0.0145	0.0171	WD8
➤ <b>W3409NK280</b>	2800	3409	28000	3.92 x 10 <sup>6</sup>	0.780	0.160	160	0.0145	0.0171	WD8
<b>W3455QK200</b>	2000	3455	20000	2.00 x 10 <sup>6</sup>	0.940	0.139	180	0.0170	0.0207	WD2
<b>W3455QK220</b>	2200	3455	20000	2.00 x 10 <sup>6</sup>	0.940	0.139	180	0.0170	0.0207	WD2
<b>W3477MC360</b>	3600	3470	28200	3.98 x 10 <sup>6</sup>	0.908	0.146	160	0.0140	0.0158	W54
<b>W3477MC400</b>	4000	3470	28200	3.98 x 10 <sup>6</sup>	0.908	0.146	160	0.0140	0.0158	W54
<b>W3630TJ650</b>	6500	3630	35000	6.125 x 10 <sup>6</sup>	0.916	0.262	150	0.0080	0.0085	W89
<b>W3630TJ720</b>	7200	3630	35000	6.125 x 10 <sup>6</sup>	0.916	0.262	150	0.0080	0.0085	W89
<b>W3630TE650</b>	6500	3630	35000	6.125 x 10 <sup>6</sup>	0.916	0.262	150	0.0080	0.0085	W94
<b>W3630TE720</b>	7200	3630	35000	6.125 x 10 <sup>6</sup>	0.916	0.262	150	0.0080	0.0085	W94
<b>W3697VC220</b>	2200	3697	40000	8.00 x 10 <sup>6</sup>	0.860	0.100	160	0.0160	0.0190	W6
<b>W3697VC280</b>	2800	3697	40000	8.00 x 10 <sup>6</sup>	0.860	0.100	160	0.0160	0.0190	W6
<b>W3697VF220</b>	2200	3697	40000	8.00 x 10 <sup>6</sup>	0.860	0.100	160	0.0160	0.0190	W43
<b>W3697VF280</b>	2800	3697	40000	8.00 x 10 <sup>6</sup>	0.860	0.100	160	0.0160	0.0190	W43
<b>W3708MC320</b>	3200	3753	30000	4.50 x 10 <sup>6</sup>	0.958	0.112	160	0.0140	0.0158	W54
<b>W3708MC350</b>	3500	3753	30000	4.50 x 10 <sup>6</sup>	0.958	0.112	160	0.0140	0.0158	W54
○ <b>W3743ZC400</b>	4000	3750	35000	6.13 x 10 <sup>6</sup>	0.976	0.170	160	0.0110	0.0132	W7
○ <b>W3743ZC450</b>	4500	3750	35000	6.13 x 10 <sup>6</sup>	0.976	0.170	160	0.0110	0.0132	W7
○ <b>W3743ZC500</b>	5000	3750	35000	6.13 x 10 <sup>6</sup>	0.976	0.170	160	0.0110	0.0132	W7
○ <b>W3743ZD400</b>	4000	3750	35000	6.13 x 10 <sup>6</sup>	0.976	0.170	160	0.0110	0.0132	W42
○ <b>W3743ZD450</b>	4500	3750	35000	6.13 x 10 <sup>6</sup>	0.976	0.170	160	0.0110	0.0132	W42
○ <b>W3743ZD500</b>	5000	3750	35000	6.13 x 10 <sup>6</sup>	0.976	0.170	160	0.0110	0.0132	W42
<b>W3841VC300</b>	3000	3841	39800	7.92 x 10 <sup>6</sup>	0.860	0.115	175	0.0160	0.0190	W6
<b>W3841VC340</b>	3400	3841	39800	7.92 x 10 <sup>6</sup>	0.860	0.115	175	0.0160	0.0190	W6
<b>W3841VF300</b>	3000	3841	39800	7.92 x 10 <sup>6</sup>	0.860	0.115	175	0.0160	0.0190	W43
<b>W3841VF340</b>	3400	3841	39800	7.92 x 10 <sup>6</sup>	0.860	0.115	175	0.0160	0.0190	W43
<b>W3842MC240</b>	2400	3842	35100	6.1 <sup>6</sup> x 10 <sup>6</sup>	0.831	0.118	160	0.0140	0.0158	W54
<b>W3842MC280</b>	2800	3842	35100	6.1 <sup>6</sup> x 10 <sup>6</sup>	0.831	0.118	160	0.0140	0.0158	W54
❖ <b>W3842MC28A</b>	2800	3842	35100	6.1 <sup>6</sup> x 10 <sup>6</sup>	0.831	0.118	160	0.0140	0.0158	W54
<b>W3864QK120</b>	1200	3864	22200	2.4 <sup>6</sup> x 10 <sup>6</sup>	0.861	0.109	180	0.0170	0.0210	WD2
<b>W3864QK150</b>	1500	3864	22200	2.4 <sup>6</sup> x 10 <sup>6</sup>	0.861	0.109	180	0.0170	0.0210	WD2
<b>W3864QK180</b>	1800	3864	22200	2.4 <sup>6</sup> x 10 <sup>6</sup>	0.861	0.109	180	0.0170	0.0210	WD2
<b>W4096ZC420</b>	4200	4096	41700	8.70 x 10 <sup>6</sup>	0.730	0.158	160	0.0110	0.0132	W7
<b>W4096ZC450</b>	4500	4096	41700	8.70 x 10 <sup>6</sup>	0.730	0.158	160	0.0110	0.0132	W7
<b>W4096ZD420</b>	3400	4096	41700	8.70 x 10 <sup>6</sup>	0.730	0.158	160	0.0110	0.0132	W42
<b>W4096ZD450</b>	4500	4096	41700	8.70 x 10 <sup>6</sup>	0.730	0.158	160	0.0110	0.0132	W42
<b>W4205TJ520</b>	5200	4205	45000	10.1 x 10 <sup>6</sup>	0.850	0.190	150	0.0080	0.0085	W89
<b>W4205TJ560</b>	5600	4205	45000	10.1 x 10 <sup>6</sup>	0.850	0.190	150	0.0080	0.0085	W89
<b>W4205TJ600</b>	6000	4205	45000	10.1 x 10 <sup>6</sup>	0.850	0.190	150	0.0080	0.0085	W89
<b>W4205TE520</b>	5200	4205	45000	10.1 x 10 <sup>6</sup>	0.850	0.190	150	0.0080	0.0085	W94
<b>W4205TE560</b>	5600	4205	45000	10.1 x 10 <sup>6</sup>	0.850	0.190	150	0.0080	0.0085	W94
<b>W4205TE600</b>	6000	4205	45000	10.1 x 10 <sup>6</sup>	0.850	0.190	150	0.0080	0.0085	W94
➤ <b>W4295NK200</b>	2000	4295	28000	3.92 x 10 <sup>6</sup>	0.826	0.104	175	0.0145	0.0171	WD8



➤ W4534ND030	300	4534	40000	$8.00 \times 10^6$	0.765	0.052	190	0.0220	0.0255	W37
➤ W4534ND060	600	4534	40000	$8.00 \times 10^6$	0.765	0.052	190	0.0220	0.0255	W37
➤ W4550HA360	3600	4550	35000	$6.13 \times 10^6$	0.812	0.123	160	0.0105	0.0116	W121
➤ W4550HA400	4000	4550	35000	$6.13 \times 10^6$	0.812	0.123	160	0.0150	0.0116	W121
W4693QK050	500	4693	31500	$4.98 \times 10^6$	0.904	0.057	180	0.0170	0.0207	WD2
W4693QK080	800	4693	31500	$4.98 \times 10^6$	0.904	0.057	180	0.0170	0.0207	WD2
W4693QR050	500	4693	31500	$4.98 \times 10^6$	0.904	0.057	180	0.0170	0.0207	WD7
W4693QR080	800	4693	31500	$4.98 \times 10^6$	0.904	0.057	180	0.0170	0.0207	WD7
○ W4713HL300	3000	4713	56000	$15.70 \times 10^6$	0.807	0.090	160	0.0120	0.0132	WD5
○ W4713HL350	3500	4713	56000	$15.70 \times 10^6$	0.807	0.090	160	0.0120	0.0132	WD5
○ W4713HM300	3000	4713	56000	$15.70 \times 10^6$	0.807	0.090	160	0.0120	0.0132	WD6
○ W4713HM350	3500	4713	56000	$15.70 \times 10^6$	0.807	0.090	160	0.0120	0.0132	WD6
W4767MC180	1800	4755	38000	$7.22 \times 10^6$	0.827	0.083	175	0.0140	0.0158	W54
W4767MC220	2200	4755	38000	$7.22 \times 10^6$	0.827	0.083	175	0.0140	0.0158	W54
W5092ZC320	3200	5092	58000	$16.8 \times 10^6$	0.874	0.079	160	0.0110	0.0132	W7
W5092ZC350	3500	5092	58000	$16.8 \times 10^6$	0.874	0.079	160	0.0110	0.0132	W7
W5092ZD320	3200	5092	58000	$16.8 \times 10^6$	0.874	0.079	160	0.0110	0.0132	W42
W5092ZD350	3500	5092	58000	$16.8 \times 10^6$	0.874	0.079	160	0.0110	0.0132	W42
W5130MK240	2400	5130	42000	$8.82 \times 10^6$	0.910	0.070	175	0.0130	0.0149	WD3
W5130MK280	2800	5130	42000	$8.82 \times 10^6$	0.910	0.070	175	0.0130	0.0149	WD3
W5139TJ450	4500	5139	55000	$15.10 \times 10^6$	0.826	0.136	160	0.0080	0.0085	W89
W5139TJ480	4800	5139	55000	$15.10 \times 10^6$	0.826	0.136	160	0.0080	0.0085	W89
W5139TE450	4500	5139	55000	$15.10 \times 10^6$	0.826	0.136	160	0.0080	0.0085	W94
W5139TE480	4800	5139	55000	$15.10 \times 10^6$	0.826	0.136	160	0.0080	0.0085	W94
W5282ZC240	2400	5282	60000	$18.00 \times 10^6$	0.970	0.064	160	0.0110	0.0132	W7
W5282ZC300	3000	5282	60000	$18.00 \times 10^6$	0.970	0.064	160	0.0110	0.0132	W7
W5282ZD240	2400	5282	60000	$18.00 \times 10^6$	0.970	0.064	160	0.0110	0.0132	W42
W5282ZD300	3000	5282	60000	$18.00 \times 10^6$	0.970	0.064	160	0.0110	0.0132	W42
W5334MK200	2000	5334	46800	$10.95 \times 10^6$	0.892	0.069	180	0.0130	0.0149	WD3
W5334MK220	2200	5334	46800	$10.95 \times 10^6$	0.892	0.069	180	0.0130	0.0149	WD3
W5636MC120	1200	5636	46000	$10.58 \times 10^6$	0.698	0.059	175	0.0140	0.0160	W54
W5636MC150	1500	5636	46000	$10.58 \times 10^6$	0.698	0.059	175	0.0140	0.0160	W54
W5696VC100	1000	5696	53000	$14.00 \times 10^6$	0.650	0.059	190	0.0160	0.0190	W6
W5696VC140	1400	5696	53000	$14.00 \times 10^6$	0.650	0.059	190	0.0160	0.0190	W6
W5696VF100	1000	5696	53000	$14.00 \times 10^6$	0.650	0.059	190	0.0160	0.0190	W43
W5696VF140	1400	5696	53000	$14.00 \times 10^6$	0.650	0.059	190	0.0160	0.0190	W43
W5715ED520	5200	5715	60600	$18.3^6 \times 10^6$	0.863	0.135	150	0.0060	0.0063	W112
W5715ED560	5600	5715	60600	$18.3^6 \times 10^6$	0.863	0.135	150	0.0060	0.0063	W112
W5715ED600	6000	5715	66000	$18.3^6 \times 10^6$	0.863	0.135	150	0.0060	0.0063	W112
W5838ZC180	1800	5838	64000	$20.50 \times 10^6$	0.800	0.074	175	0.0110	0.0132	W7
W5838ZC220	2200	5838	64000	$20.50 \times 10^6$	0.800	0.074	175	0.0110	0.0132	W7
W5838ZD180	1800	5838	64000	$20.50 \times 10^6$	0.800	0.074	175	0.0110	0.0132	W42
W5838ZD220	2200	5838	64000	$20.50 \times 10^6$	0.800	0.074	175	0.0110	0.0132	W42
W5984TJ360	3600	5984	62000	$19.20 \times 10^6$	0.758	0.097	160	0.0080	0.0085	W89
W5984TJ400	4000	5984	62000	$19.20 \times 10^6$	0.758	0.097	160	0.0080	0.0085	W89
W5984TE360	3600	5984	62000	$19.20 \times 10^6$	0.758	0.097	160	0.0080	0.0085	W94



<b>W6262ZC240</b>	2400	6262	67000	22.40 x 10 <sup>6</sup>	0.730	0.064	175	0.0110	0.0132	W7
<b>W6262ZD200</b>	2000	6262	67000	22.40 x 10 <sup>6</sup>	0.730	0.064	175	0.0110	0.0132	W42
<b>W6262ZD240</b>	2400	6262	67000	22.40 x 10 <sup>6</sup>	0.730	0.064	175	0.0110	0.0132	W42
<b>W6360EC520</b>	5200	6360	60600	18.36 x 10 <sup>6</sup>	0.863	0.135	150	0.0050	0.0054	W111
<b>W6360EC560</b>	5600	6360	60600	18.36 x 10 <sup>6</sup>	0.863	0.135	150	0.0050	0.0054	W111
<b>W6360EC600</b>	6000	6360	66000	18.36 x 10 <sup>6</sup>	0.863	0.135	150	0.0050	0.0054	W111
<b>W7032DB020</b>	200	8690	49500	12.30 x 10 <sup>6</sup>	0.700	0.029	170	0.0100	0.0136	W49
<b>W7032DB040</b>	400	8690	49500	12.30 x 10 <sup>6</sup>	0.700	0.029	170	0.0100	0.0136	W49
<b>W7045MC030</b>	300	7045	54000	14.60 x 10 <sup>6</sup>	0.793	0.033	190	0.0140	0.0158	W54
<b>W7045MC060</b>	600	7045	54000	14.60 x 10 <sup>6</sup>	0.793	0.033	190	0.0140	0.0158	W54
➤ <b>W8400ED320</b>	3200	8400	83000	34.40 x 10 <sup>6</sup>	0.817	0.061	160	0.0060	0.0063	W112
➤ <b>W8400ED350</b>	3500	8400	83000	34.40 x 10 <sup>6</sup>	0.817	0.061	160	0.0060	0.0063	W112
<b>W8405ZC100</b>	1000	8405	72000	25.90 x 10 <sup>6</sup>	0.670	0.038	190	0.0110	0.0132	W7
<b>W8405ZC140</b>	1400	8405	72000	25.90 x 10 <sup>6</sup>	0.670	0.038	190	0.0110	0.0132	W7
<b>W8405ZD100</b>	1000	8405	72000	25.90 x 10 <sup>6</sup>	0.670	0.038	190	0.0110	0.0132	W42
<b>W8405ZD140</b>	1400	8405	72000	25.90 x 10 <sup>6</sup>	0.670	0.038	190	0.0110	0.0132	W42
<b>W8570TJ180</b>	1800	8570	70200	24.60 x 10 <sup>6</sup>	0.690	0.050	175	0.0080	0.0085	W89
<b>W8570TJ220</b>	2200	8570	70200	24.60 x 10 <sup>6</sup>	0.690	0.050	175	0.0080	0.0085	W89
<b>W8570TE180</b>	1800	8570	70200	24.60 x 10 <sup>6</sup>	0.690	0.050	175	0.0080	0.0085	W94
<b>W8570TE220</b>	2200	8570	70200	24.60 x 10 <sup>6</sup>	0.690	0.050	175	0.0080	0.0085	W94
<b>W9830TJ120</b>	1200	9830	72000	25.90 x 10 <sup>6</sup>	0.670	0.043	190	0.0080	0.0085	W89
<b>W9830TJ150</b>	1500	9830	72000	25.90 x 10 <sup>6</sup>	0.670	0.043	190	0.0080	0.0085	W89
<b>W9830TE120</b>	1200	9830	72000	25.90 x 10 <sup>6</sup>	0.670	0.043	190	0.0080	0.0085	W94
<b>W9830TE150</b>	1500	9830	72000	25.90 x 10 <sup>6</sup>	0.670	0.043	190	0.0080	0.0085	W94
<b>W106CEC240</b>	2400	10650	92000	42.32 x 10 <sup>6</sup>	0.734	0.047	160	0.0050	0.0054	W111
<b>W106CEC280</b>	2800	10650	92000	42.32 x 10 <sup>6</sup>	0.734	0.047	160	0.0050	0.0054	W111
➤ <b>W108CED180</b>	1800	10815	94500	44.65 x 10 <sup>6</sup>	0.726	0.042	175	0.0060	0.0063	W112
➤ <b>W108CED220</b>	2200	10815	94500	44.65 x 10 <sup>6</sup>	0.726	0.042	175	0.0060	0.0063	W112
<b>W121CEC180</b>	1800	12100	94500	44.65 x 10 <sup>6</sup>	0.726	0.042	175	0.0050	0.0054	W111
<b>W121CEC220</b>	2200	12100	94500	44.65 x 10 <sup>6</sup>	0.726	0.042	175	0.0050	0.0054	W111



W111 Weight 1.6 kg



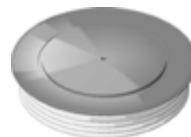
W94 Weight 1.6 kg

	V	$T_K = 55^\circ\text{C}$	10 ms ½ sine		$t_{rr}$ $\mu\text{s}$	$Q_{rr}$ $\mu\text{C}$	$@I_{FM}$ A	$@-di_f/dt$ A/ $\mu\text{s}$	$@T_{JM} = 150^\circ\text{C}$		$@T_{JM} = 150^\circ\text{C}$	180° sine	d.c.	Fig. No
		A	A	$V_R - \leq 60\% V_{RRM}$ A <sup>2</sup> s					V	m $\Omega$				
<b>M0588LC400</b>	4000	588	3955	$78.2 \times 10^3$	3.50	450	1000	60	2.320	1.770	150	0.0330	W4	
<b>M0588LC450</b>	4500	588	3955	$78.2 \times 10^3$	3.50	450	1000	60	2.320	1.770	150	0.0330	W4	
<b>M0790YC200</b>	2000	790	9000	$405 \times 10^3$	4.00	425	1000	60	1.272	0.584	150	0.0500	W2	
<b>M0790YC250</b>	2500	790	9000	$405 \times 10^3$	4.00	425	1000	60	1.272	0.584	150	0.0500	W2	
<b>M0790YH200</b>	2000	790	9000	$405 \times 10^3$	4.00	425	1000	60	1.272	0.584	150	0.0500	W3	
<b>M0790YH250</b>	2500	790	9000	$405 \times 10^3$	4.00	425	1000	60	1.272	0.584	150	0.0500	W3	
<b>M0914LC200</b>	2000	914	8500	$361 \times 10^3$	3.20	300	1000	60	1.768	0.653	150	0.0320	W4	
<b>M0914LC250</b>	2500	914	8500	$361 \times 10^3$	3.20	300	1000	60	1.768	0.653	150	0.0320	W4	
<b>M1010NC400</b>	4000	1010	9600	$461 \times 10^3$	3.20	1450	1000	200	1.700	1.030	150	0.0220	W5	
<b>M1010NC450</b>	4500	1010	9600	$461 \times 10^3$	3.20	1450	1000	200	1.700	1.030	150	0.0220	W5	
<b>M1010ND400</b>	4000	1010	9600	$461 \times 10^3$	3.20	1450	1000	200	1.700	1.030	150	0.0220	W37	
<b>M1010ND450</b>	4500	1010	9600	$461 \times 10^3$	3.20	1450	1000	200	1.700	1.030	150	0.0220	W37	
<b>M1163NC400</b>	4000	1163	10800	$583 \times 10^3$	6.40	1200	1000	60	1.500	0.770	150	0.0220	W5	
<b>M1163NC450</b>	4500	1163	10800	$583 \times 10^3$	6.40	1200	1000	60	1.500	0.770	150	0.0220	W5	
<b>M1163ND400</b>	4000	1163	10800	$583 \times 10^3$	6.40	1200	1000	60	1.500	0.770	150	0.0220	W37	
<b>M1163ND450</b>	4500	1163	10800	$583 \times 10^3$	6.40	1200	1000	60	1.500	0.770	150	0.0220	W37	
<b>M1502NC200</b>	2000	1502	17000	$1.45 \times 10^6$	3.50	350	1000	60	1.240	0.440	150	0.0220	W5	
<b>M1502NC250</b>	2500	1502	17000	$1.45 \times 10^6$	3.50	350	1000	60	1.240	0.440	150	0.0220	W5	
<b>M1502ND200</b>	2000	1502	17000	$1.45 \times 10^6$	3.50	350	1000	60	1.240	0.440	150	0.0220	W37	
<b>M1502ND250</b>	2500	1502	17000	$1.45 \times 10^6$	3.50	350	1000	60	1.240	0.440	150	0.0220	W37	
<b>M1583VC400</b>	4000	1583	24800	$3.08 \times 10^6$	5.00	2000	1000	200	1.693	0.525	150	0.0160	W6	
<b>M1583VC450</b>	4500	1583	24800	$3.08 \times 10^6$	5.00	2000	1000	200	1.693	0.525	150	0.0160	W6	
<b>M1583VF400</b>	4000	1583	24800	$3.08 \times 10^6$	5.00	2000	1000	200	1.693	0.525	150	0.0160	W43	
<b>M1583VF450</b>	4500	1583	24800	$3.08 \times 10^6$	5.00	2000	1000	200	1.693	0.525	150	0.0160	W43	
<b>M1609NC200</b>	2000	1609	17500	$1.53 \times 10^6$	3.20	800	1000	200	1.310	0.345	150	0.0220	W5	
<b>M1609NC260</b>	2600	1609	17500	$1.53 \times 10^6$	3.20	800	1000	200	1.310	0.345	150	0.0220	W5	
<b>M1609ND200</b>	2000	1609	17500	$1.53 \times 10^6$	3.20	800	1000	200	1.310	0.345	150	0.0220	W37	
<b>M1609ND260</b>	2600	1609	17500	$1.53 \times 10^6$	3.20	800	1000	200	1.310	0.345	150	0.0220	W37	
<b>M2273VC300</b>	3000	2273	28000	$3.92 \times 10^6$	8.50	2500	1000	60	1.239	0.244	150	0.0160	W6	
<b>M2273VC360</b>	3600	2273	28000	$3.92 \times 10^6$	8.50	2500	1000	60	1.239	0.244	150	0.0160	W6	
<b>M2273VF300</b>	3000	2273	28000	$3.92 \times 10^6$	8.50	2500	1000	60	1.239	0.244	150	0.0160	W43	
<b>M2273VF360</b>	3600	2273	28000	$3.92 \times 10^6$	8.50	2500	1000	60	1.239	0.244	150	0.0160	W43	
<b>M2325HA400</b>	4000	2325	28000	$3.92 \times 10^6$	5.40	2300	1000	200	1.581	0.402	150	0.0105	W121	
<b>M2325HA450</b>	4500	2325	28000	$3.92 \times 10^6$	5.40	2300	1000	200	1.581	0.402	150	0.0105	W121	

<b>M2408NC020</b>	200	2408	24000	2.88 x 10 <sup>6</sup>	1.90	250	1000	200	1.065	0.122	150	0.0220	W5
<b>M2408NC060</b>	600	2408	24000	2.88 x 10 <sup>6</sup>	1.90	250	1000	200	1.065	0.122	150	0.0220	W5
<b>M2408ND020</b>	200	2408	24000	2.88 x 10 <sup>6</sup>	1.90	250	1000	200	1.065	0.122	150	0.0220	W37
<b>M2408ND060</b>	600	2408	24000	2.88 x 10 <sup>6</sup>	1.90	250	1000	200	1.065	0.122	150	0.0220	W37
➤ <b>M2505MC220</b>	2200	2505	27000	3.65 x 10 <sup>6</sup>	7.60	1950	2000	60	0.991	0.162	125	0.0140	W54
➤ <b>M2505MC250</b>	2500	2505	27000	3.65 x 10 <sup>6</sup>	7.60	1950	2000	60	0.991	0.162	125	0.0140	W54
<b>M2639ZC360</b>	3600	2639	27520	3.79 x 10 <sup>6</sup>	8.50	2300	1000	60	1.380	0.290	150	0.0110	W7
<b>M2639ZC420</b>	4200	2639	27520	3.79 x 10 <sup>6</sup>	8.50	2300	1000	60	1.380	0.290	150	0.0110	W7
<b>M2639ZD360</b>	3600	2639	27520	3.79 x 10 <sup>6</sup>	8.50	2300	1000	60	1.380	0.290	150	0.0110	W42
<b>M2639ZD420</b>	4200	2639	27520	3.79 x 10 <sup>6</sup>	8.50	2300	1000	60	1.380	0.290	150	0.0110	W42
<b>M2698ZC250</b>	2500	2698	27800	3.86 x 10 <sup>6</sup>	6.20	1200	1000	60	1.000	0.330	150	0.0110	W7
<b>M2698ZC280</b>	2800	2698	27800	3.86 x 10 <sup>6</sup>	6.20	1200	1000	60	1.000	0.330	150	0.0110	W7
<b>M2698ZC350</b>	3500	2698	27800	3.86 x 10 <sup>6</sup>	6.20	1200	1000	60	1.000	0.330	150	0.0110	W7
<b>M2698ZD250</b>	2500	2698	27800	3.86 x 10 <sup>6</sup>	6.20	1200	1000	60	1.000	0.330	150	0.0110	W42
<b>M2698ZD280</b>	2800	2698	27800	3.86 x 10 <sup>6</sup>	6.20	1200	1000	60	1.000	0.330	150	0.0110	W42
<b>M2698ZD350</b>	3500	2698	27800	3.86 x 10 <sup>6</sup>	6.20	1200	1000	60	1.000	0.330	150	0.0110	W42
<b>M2837VC180</b>	1800	2837	31800	5.10 x 10 <sup>6</sup>	7.00	2100	1000	60	0.900	0.170	150	0.0160	W6
<b>M2837VC250</b>	2500	2837	31800	5.10 x 10 <sup>6</sup>	7.00	2100	1000	60	0.900	0.170	150	0.0160	W6
<b>M2837VF180</b>	1800	2837	31800	5.10 x 10 <sup>6</sup>	7.00	2100	1000	60	0.900	0.170	150	0.0160	W43
<b>M2837VF250</b>	2500	2837	31800	5.10 x 10 <sup>6</sup>	7.00	2100	1000	60	0.900	0.170	150	0.0160	W43
<b>M3770ZC200</b>	2000	3770	44000	9.68 x 10 <sup>6</sup>	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7
<b>M3770ZC240</b>	2400	3770	44000	9.68 x 10 <sup>6</sup>	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7
<b>M3770ZC300</b>	3000	3770	44000	9.68 x 10 <sup>6</sup>	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7
<b>M3770ZD200</b>	2000	3770	44000	9.68 x 10 <sup>6</sup>	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7
<b>M3770ZD240</b>	2400	3770	44000	9.68 x 10 <sup>6</sup>	7.00	2000	1000	60	1.190	0.118	150	0.0110	W42
<b>M3770ZD300</b>	3000	3770	44000	9.68 x 10 <sup>6</sup>	7.00	2000	1000	60	1.190	0.118	150	0.0110	W42



W54 Weight 530 g



W42 Weight 1.2 kg

	V	A	A	A <sup>2</sup> s	$\mu$ s	$\mu$ C	I <sub>FM</sub> A	-di <sub>F</sub> /dt A/ $\mu$ s	V	mW	°C	sine K/W	E <sub>1</sub>
<b>M0130RL200</b>	2000	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W20
<b>M0130RL250</b>	2500	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W20
<b>M0130SL200</b>	2000	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W20
<b>M0130SL250</b>	2500	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W20
<b>M0130RM200</b>	2000	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W21
<b>M0130RM250</b>	2500	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W21
<b>M0130SM200</b>	2000	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W21
<b>M0130SM250</b>	2500	130	2240	25.0 x 10 <sup>3</sup>	2.60	430	1000	150	1.290	1.540	125	0.3000	W21
<b>M0139RL120</b>	1200	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W20
<b>M0139RL180</b>	1800	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W20
<b>M0139SL120</b>	1200	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W20
<b>M0139SL180</b>	1800	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W20
<b>M0139RM120</b>	1200	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W21
<b>M0139RM180</b>	1800	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W21
<b>M0139SM120</b>	1200	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W21
<b>M0139SM180</b>	1800	139	2450	30.0 x 10 <sup>3</sup>	1.00	125	1000	100	1.240	1.280	125	0.3000	W21
<b>M0268RC200</b>	2000	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W24
<b>M0268RC250</b>	2500	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W24
<b>M0268SC200</b>	2000	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W24
<b>M0268SC250</b>	2500	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W24
<b>M0268RJ200</b>	2000	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W22
<b>M0268RJ250</b>	2500	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W22
<b>M0268SJ200</b>	2000	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W22
<b>M0268SJ250</b>	2500	268	4250	90.3 x 10 <sup>3</sup>	2.80	300	1000	150	1.210	1.200	125	0.1300	W22
<b>M0280RC200</b>	2000	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W24
<b>M0280RC250</b>	2500	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W24
<b>M0280SC200</b>	2000	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W24
<b>M0280SC250</b>	2500	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W24
<b>M0280RJ200</b>	2000	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W22
<b>M0280RJ250</b>	2500	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W22
<b>M0280SJ200</b>	2000	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W22
<b>M0280SJ250</b>	2500	280	4500	100 x 10 <sup>3</sup>	2.80	610	1000	150	1.280	0.920	125	0.1300	W22
<b>M0334RC120</b>	1200	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W24
<b>M0334RC200</b>	2000	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W24
<b>M0334SC120</b>	1200	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W24
<b>M0334SC200</b>	2000	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W24
<b>M0334RJ120</b>	1200	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W22
<b>M0334RJ200</b>	2000	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W22
<b>M0334SJ120</b>	1200	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W22
<b>M0334SJ200</b>	2000	334	4500	101 x 10 <sup>3</sup>	3.50	160	550	40	1.000	0.740	125	0.1300	W22
<b>M0336RA120</b>	1200	336	4500	101 x 10 <sup>3</sup>	3.00	140	550	40	1.020	0.700	125	0.1300	W23
<b>M0336RA140</b>	1400	336	4500	101 x 10 <sup>3</sup>	3.00	140	550	40	1.020	0.700	125	0.1300	W23
<b>M0336SA120</b>	1200	336	4500	101 x 10 <sup>3</sup>	3.00	140	550	40	1.020	0.700	125	0.1300	W23
<b>M0336SA140</b>	1400	336	4500	101 x 10 <sup>3</sup>	3.00	140	550	40	1.020	0.700	125	0.1300	W23

<b>M0225YH300</b>	3000	225	2000	20 x 10 <sup>3</sup>	3.00	220	550	40	1.900	4.160	150	0.1000	W3
<b>M0225YH360</b>	3600	225	2000	20 x 10 <sup>3</sup>	3.00	220	550	40	1.900	4.160	150	0.1000	W3
<b>M0225YH450</b>	4500	225	2000	20 x 10 <sup>3</sup>	3.00	220	550	40	1.900	4.160	150	0.1000	W3
<b>M0310YH300</b>	3000	310	4590	105 x 10 <sup>3</sup>	2.80	275	1000	100	1.490	2.060	150	0.1000	W3
<b>M0310YH350</b>	3500	310	4590	105 x 10 <sup>3</sup>	2.80	275	1000	100	1.490	2.060	150	0.1000	W3
<b>M0347WC160</b>	1600	347	4250	90.3 x 10 <sup>3</sup>	2.80	210	550	40	1.210	1.200	125	0.0900	W1
<b>M0347WC200</b>	2000	347	4250	90.3 x 10 <sup>3</sup>	2.80	210	550	40	1.210	1.200	125	0.0900	W1
<b>M0347WC250</b>	2500	347	4250	90.3 x 10 <sup>3</sup>	2.80	210	550	40	1.210	1.200	125	0.0900	W1
<b>M0358WC120</b>	1200	358	2450	30 x 10 <sup>3</sup>	1.40	125	1000	100	1.460	0.800	125	0.0900	W1
<b>M0358WC180</b>	1800	358	2450	30 x 10 <sup>3</sup>	1.40	125	1000	100	1.460	0.800	125	0.0900	W1
<b>M0367WC140</b>	1400	367	4500	101 x 10 <sup>3</sup>	3.30	300	550	40	1.280	0.920	125	0.0900	W1
<b>M0367WC220</b>	2200	367	4500	101 x 10 <sup>3</sup>	3.30	300	550	40	1.280	0.920	125	0.0900	W1
<b>M0367WC280</b>	2800	367	4500	101 x 10 <sup>3</sup>	3.30	300	550	40	1.280	0.920	125	0.0900	W1
<b>M0371YH350</b>	3500	371	4900	120 x 10 <sup>3</sup>	3.20	1260	1000	200	1.050	1.650	150	0.1000	W3
<b>M0371YH450</b>	4500	371	4900	120 x 10 <sup>3</sup>	3.20	1260	1000	200	1.050	1.650	150	0.1000	W3
<b>M0433WC120</b>	1200	433	4500	101 x 10 <sup>3</sup>	3.50	270	550	40	1.000	0.740	125	0.0900	W1
<b>M0433WC160</b>	1600	433	4500	101 x 10 <sup>3</sup>	3.50	270	550	40	1.000	0.740	125	0.0900	W1
<b>M0433WC200</b>	2000	433	4500	101 x 10 <sup>3</sup>	3.50	270	550	40	1.000	0.740	125	0.0900	W1
<b>M0437WC080</b>	800	437	4500	101 x 10 <sup>3</sup>	3.00	75	550	40	1.020	0.700	125	0.0900	W1
<b>M0437WC140</b>	1400	437	4500	101 x 10 <sup>3</sup>	3.00	75	550	40	1.020	0.700	125	0.0900	W1
<b>M0451YC120</b>	1200	451	4500	101 x 10 <sup>3</sup>	2.80	120	550	40	1.000	0.740	125	0.0850	W2
<b>M0451YC160</b>	1600	451	4500	101 x 10 <sup>3</sup>	2.80	120	550	40	1.000	0.740	125	0.0850	W2
<b>M0451YC200</b>	2000	451	4500	101 x 10 <sup>3</sup>	2.80	120	550	40	1.000	0.740	125	0.0850	W2
<b>M0659LC400</b>	4000	659	7620	290 x 10 <sup>3</sup>	4.20	800	1000	60	1.710	0.925	125	0.0330	W4
<b>M0659LC450</b>	4500	659	7620	290 x 10 <sup>3</sup>	4.20	800	1000	60	1.710	0.925	125	0.0330	W4
<b>M0710LC560</b>	5600	710	8400	353 x 10 <sup>3</sup>	4.00	2100	1000	200	1.450	0.875	125	0.0330	W4
<b>M0710LC600</b>	6000	710	8400	353 x 10 <sup>3</sup>	4.00	2100	1000	200	1.450	0.875	125	0.0330	W4
<b>M0736LC400</b>	4000	736	9000	405 x 10 <sup>3</sup>	5.20	1250	1000	60	1.606	0.700	125	0.0330	W4
<b>M0736LC450</b>	4500	736	9000	405 x 10 <sup>3</sup>	5.20	1250	1000	60	1.606	0.700	125	0.0330	W4
<b>M0759YC120</b>	1200	759	9500	450 x 10 <sup>3</sup>	2.00	80	550	50	1.130	0.380	125	0.0500	W2
<b>M0759YC160</b>	1600	759	9500	450 x 10 <sup>3</sup>	2.00	80	550	50	1.130	0.380	125	0.0500	W2
<b>M0759YH120</b>	1200	759	9500	450 x 10 <sup>3</sup>	2.00	80	550	50	1.130	0.380	125	0.0500	W3
<b>M0759YH160</b>	1600	759	9500	450 x 10 <sup>3</sup>	2.00	80	550	50	1.130	0.380	125	0.0500	W3
<b>M0859LC140</b>	1400	859	10000	500 x 10 <sup>3</sup>	3.00	280	800	50	1.170	0.320	125	0.0440	W4
<b>M0859LC160</b>	1600	859	10000	500 x 10 <sup>3</sup>	3.00	280	800	50	1.170	0.320	125	0.0440	W4
<b>M0859LC180</b>	1800	859	10000	500 x 10 <sup>3</sup>	3.00	280	800	50	1.170	0.320	125	0.0440	W4
<b>M0863LC260</b>	2600	863	10000	500 x 10 <sup>3</sup>	4.80	950	1000	60	1.308	0.538	125	0.0330	W4
<b>M0863LC300</b>	3000	863	10000	500 x 10 <sup>3</sup>	4.80	950	1000	60	1.308	0.538	125	0.0330	W4
<b>M0863LC360</b>	3600	863	10000	500 x 10 <sup>3</sup>	4.80	950	1000	60	1.308	0.538	125	0.0330	W4
<b>M0872LC140</b>	1400	872	10000	500 x 10 <sup>3</sup>	4.00	700	1000	60	1.090	0.340	125	0.0440	W4
<b>M0872LC180</b>	1800	872	10000	500 x 10 <sup>3</sup>	4.00	700	1000	60	1.090	0.340	125	0.0440	W4
<b>M0872LC210</b>	2100	872	10000	500 x 10 <sup>3</sup>	4.00	700	1000	60	1.090	0.340	125	0.0440	W4
<b>M0955LC200</b>	2000	955	11700	684 x 10 <sup>3</sup>	3.40	500	1000	60	1.440	0.330	125	0.0330	W4
<b>M0955LC250</b>	2500	955	11700	684 x 10 <sup>3</sup>	3.40	500	1000	60	1.440	0.330	125	0.0330	W4
<b>M0955JK200</b>	2000	1105	11700	684 x 10 <sup>3</sup>	3.40	500	1000	60	1.440	0.330	125	0.0270	W113
<b>M0955JK250</b>	2500	1105	11700	684 x 10 <sup>3</sup>	3.40	500	1000	60	1.440	0.330	125	0.0270	W113

<b>M1022LC120</b>	1200	1022	14000	980 x 10 <sup>3</sup>	3.00	375	1000	60	1.240	0.330	125	0.0330	W4
<b>M1022LC160</b>	1600	1022	14000	980 x 10 <sup>3</sup>	3.00	375	1000	60	1.240	0.330	125	0.0330	W4
<b>M1022LC200</b>	2000	1022	14000	980 x 10 <sup>3</sup>	3.00	375	1000	60	1.240	0.330	125	0.0330	W4
<b>M1080LC100</b>	1000	1080	13500	910 x 10 <sup>3</sup>	1.90	85	1000	60	1.125	0.314	125	0.0330	W4
<b>M1080LC120</b>	1200	1080	13500	910 x 10 <sup>3</sup>	1.90	85	1000	60	1.125	0.314	125	0.0330	W4
<b>M1102NC500</b>	5000	1102	13000	845 x 10 <sup>3</sup>	5.50	3300	1000	200	1.360	0.557	125	0.0220	W5
<b>M1102NC600</b>	6000	1102	13000	845 x 10 <sup>3</sup>	5.50	3300	1000	200	1.360	0.557	125	0.0220	W5
<b>M1102ND500</b>	5000	1102	13000	845 x 10 <sup>3</sup>	5.50	3300	1000	200	1.360	0.557	125	0.0220	W37
<b>M1102ND600</b>	6000	1102	13000	845 x 10 <sup>3</sup>	5.50	3300	1000	200	1.360	0.557	125	0.0220	W37
<b>M1104NC400</b>	4000	1104	13000	845 x 10 <sup>3</sup>	6.00	2100	1000	60	1.370	0.553	125	0.0220	W5
<b>M1104NC450</b>	4500	1104	13000	845 x 10 <sup>3</sup>	6.00	2100	1000	60	1.370	0.553	125	0.0220	W5
<b>M1104ND400</b>	4000	1104	13000	845 x 10 <sup>3</sup>	6.00	2100	1000	60	1.370	0.553	125	0.0220	W37
<b>M1104ND450</b>	4500	1104	13000	845 x 10 <sup>3</sup>	6.00	2100	1000	60	1.370	0.553	125	0.0220	W37
<b>M1242NC260</b>	2600	1242	16400	1.34 x 10 <sup>6</sup>	6.00	1500	1000	60	1.270	0.420	125	0.0220	W5
<b>M1242NC360</b>	3600	1242	16400	1.34 x 10 <sup>6</sup>	6.00	1500	1000	60	1.270	0.420	125	0.0220	W5
<b>M1242ND260</b>	2600	1242	16400	1.34 x 10 <sup>6</sup>	6.00	1500	1000	60	1.270	0.420	125	0.0220	W37
<b>M1242ND360</b>	3600	1242	16400	1.34 x 10 <sup>6</sup>	6.00	1500	1000	60	1.270	0.420	125	0.0220	W37
<b>M1494NC160</b>	1600	1494	19600	1.92 x 10 <sup>6</sup>	3.90	815	1000	60	1.150	0.265	125	0.0220	W5
<b>M1494NC250</b>	2500	1494	19600	1.92 x 10 <sup>6</sup>	3.90	815	1000	60	1.150	0.265	125	0.0220	W5
<b>M1494ND160</b>	1600	1494	19600	1.92 x 10 <sup>6</sup>	3.90	815	1000	60	1.150	0.265	125	0.0220	W37
<b>M1494ND250</b>	2500	1494	19600	1.92 x 10 <sup>6</sup>	3.90	815	1000	60	1.150	0.265	125	0.0220	W37
<b>M1494NK160</b>	1600	1975	19600	1.92 x 10 <sup>6</sup>	3.90	815	1000	60	1.150	0.265	125	0.0145	WD8
<b>M1494NK250</b>	2500	1975	19600	1.92 x 10 <sup>6</sup>	3.90	815	1000	60	1.150	0.265	125	0.0145	WD8
<b>M1565VC400</b>	4000	1565	19700	1.94 x 10 <sup>6</sup>	5.00	4000	1000	200	1.090	0.360	125	0.0180	W6
<b>M1565VC450</b>	4500	1565	19700	1.94 x 10 <sup>6</sup>	5.00	4000	1000	200	1.090	0.360	125	0.0180	W6
<b>M1565VF400</b>	4000	1565	19700	1.94 x 10 <sup>6</sup>	5.00	4000	1000	200	1.090	0.360	125	0.0180	W43
<b>M1565VF450</b>	4500	1565	19700	1.94 x 10 <sup>6</sup>	5.00	4000	1000	200	1.090	0.360	125	0.0180	W43
<b>M1858NC120</b>	1200	1858	25000	3.25 x 10 <sup>6</sup>	2.50	120	1000	60	1.127	0.127	125	0.0220	W5
<b>M1858NC160</b>	1600	1858	25000	3.25 x 10 <sup>6</sup>	2.50	120	1000	60	1.127	0.127	125	0.0220	W5
<b>M1858ND120</b>	1200	1858	25000	3.25 x 10 <sup>6</sup>	2.50	120	1000	60	1.127	0.127	125	0.0220	W37
<b>M1858ND160</b>	1600	1858	25000	3.25 x 10 <sup>6</sup>	2.50	120	1000	60	1.127	0.127	125	0.0220	W37
<b>M2322ZC300</b>	3000	2322	23000	2.64 x 10 <sup>6</sup>	6.50	3200	1000	150	1.670	0.186	125	0.0110	W7
<b>M2322ZC400</b>	4000	2322	23000	2.64 x 10 <sup>6</sup>	6.50	3200	1000	150	1.670	0.186	125	0.0110	W7
<b>M2322ZD300</b>	3000	2322	23000	2.64 x 10 <sup>6</sup>	6.50	3200	1000	150	1.670	0.186	125	0.0110	W42
<b>M2322ZD400</b>	4000	2322	23000	2.64 x 10 <sup>6</sup>	6.50	3200	1000	150	1.670	0.186	125	0.0110	W42
<b>M2413VC200</b>	2000	2413	32000	5.12 x 10 <sup>6</sup>	5.00	2500	1000	200	1.090	0.121	125	0.0160	W6
<b>M2413VC250</b>	2500	2413	32000	5.12 x 10 <sup>6</sup>	5.00	2500	1000	200	1.090	0.121	125	0.0160	W6
<b>M2413VF200</b>	2000	2413	32000	5.12 x 10 <sup>6</sup>	5.00	2500	1000	200	1.090	0.121	125	0.0160	W43
<b>M2413VF250</b>	2500	2413	32000	5.12 x 10 <sup>6</sup>	5.00	2500	1000	200	1.090	0.121	125	0.0160	W43
<b>M3560TJ420</b>	4200	3560	36000	6.48 x 10 <sup>6</sup>	7.00	4100	1000	150	1.253	0.137	125	0.0080	W89
<b>M3560TJ450</b>	4500	3560	36000	6.48 x 10 <sup>6</sup>	7.00	4100	1000	150	1.253	0.137	125	0.0080	W89
<b>M4305TJ240</b>	2400	4305	49000	12.0 x 10 <sup>6</sup>	5.00	2500	1000	150	1.104	0.087	125	0.0080	W89
<b>M4305TJ280</b>	2800	4305	49000	12.0 x 10 <sup>6</sup>	5.00	2500	1000	150	1.104	0.087	125	0.0080	W89

	V	A	A	A <sup>2</sup> s	A	μs	μC	A	A/μs	V	mΩ	°C
<b>F0240YC250</b>	2500	240	3100	48.1 x 10 <sup>3</sup>	40	2.00	100	550	40	2.271	2.853	15
<b>F0240YC300</b>	3000	240	3100	48.1 x 10 <sup>3</sup>	40	2.00	100	550	40	2.271	2.853	15
<b>F0240YH250</b>	2500	240	3100	48.1 x 10 <sup>3</sup>	40	2.00	100	550	40	2.271	2.853	15
<b>F0240YH300</b>	3000	240	3100	48.1 x 10 <sup>3</sup>	40	2.00	100	550	40	2.271	2.853	15
<b>F0300WC140</b>	1400	240	2700	36.5 x 10 <sup>3</sup>	530	3.00	70	550	40	1.760	2.210	12
<b>F0300WC180</b>	1800	240	2700	36.5 x 10 <sup>3</sup>	530	3.00	70	550	40	1.760	2.210	12
<b>F0800LC140</b>	1400	775	7630	291 x 10 <sup>3</sup>	380	1.10	200	1000	200	1.494	0.692	12
<b>F0800LC180</b>	1800	775	7630	291 x 10 <sup>3</sup>	380	1.10	200	1000	200	1.494	0.692	12
<b>F0900VC450</b>	4500	816	10450	546 x 10 <sup>3</sup>	120	3.80	230	1000	60	2.024	1.274	11
<b>F0900VC520</b>	5200	816	10450	546 x 10 <sup>3</sup>	120	3.80	230	1000	60	2.024	1.274	11
<b>F0900VF450</b>	4500	816	10450	546 x 10 <sup>3</sup>	120	3.80	230	1000	60	2.024	1.274	11
<b>F0900VF520</b>	5200	816	10450	546 x 10 <sup>3</sup>	120	3.80	230	1000	60	2.024	1.274	11
<b>F1000LC080</b>	800	826	8500	361 x 10 <sup>3</sup>	320	1.60	250	1000	800	1.530	0.547	12
<b>F1000LC120</b>	1200	826	8500	361 x 10 <sup>3</sup>	320	1.60	250	1000	800	1.530	0.547	12
<b>F1300NC45P</b>	4500	1346	20800	2.16 x 10 <sup>6</sup>	470	4.30	2150	1000	200	1.569	0.318	14
<b>F1300NC50P</b>	5000	1346	20800	2.16 x 10 <sup>6</sup>	470	4.30	2150	1000	200	1.569	0.318	14
<b>F1300NC55P</b>	5500	1346	20800	2.16 x 10 <sup>6</sup>	470	4.30	2150	1000	200	1.569	0.318	14
<b>F1400NC140</b>	1400	1093	17250	1.49 x 10 <sup>6</sup>	800	1.50	1000	1400	1000	1.618	0.388	12
<b>F1400NC180</b>	1800	1093	17250	1.49 x 10 <sup>6</sup>	800	1.50	1000	1400	1000	1.618	0.388	12
<b>F1500NC200</b>	2000	1054	13750	950 x 10 <sup>3</sup>	1065	1.50	1500	1500	2000	1.372	0.535	12
<b>F1500NC250</b>	2500	1054	13750	950 x 10 <sup>3</sup>	1065	1.50	1500	1500	2000	1.372	0.535	12
<b>F1600NC080</b>	800	1326	20000	2.0 x 10 <sup>6</sup>	480	2.30	700	1600	800	1.320	0.268	12
<b>F1600NC120</b>	1200	1326	20000	2.0 x 10 <sup>6</sup>	480	2.30	700	1600	800	1.320	0.268	12

Outlines on pages O-01...O-35



W1 Weight 70 g



W2 Weight 80 g



W3 Weight 140 g



W4



W5 Weight 510 g



W6 Weight 1 kg



W43 Weight 800 g

Not for new design	V	A	A	A <sup>2</sup> s	A	μs	μC	A	A/μs	V	mΩ	°C
> New	V	A	A	A <sup>2</sup> s	A	μs	μC	A	A/μs	V	mΩ	°C
E0330MF65F	6500	277	2790	38.9 x 10 <sup>3</sup>	400	1.2	550	330	1000	1.890	5.80	12
E0460QC45E	4500	533	6800	231 x 10 <sup>3</sup>	460	1.15	685	500	1000	2.246	2.716	14
E0660NC45E	4500	760	9160	420 x 10 <sup>3</sup>	700	1.1	1050	660	1500	2.194	1.814	14
E0660NH45E	4500	760	9160	420 x 10 <sup>3</sup>	700	1.1	1050	660	1500	2.194	1.814	14
E0770HF65F	6500	617	6973	243 x 10 <sup>3</sup>	600	0.9	735	770	2000	2.777	2.03	12
E1000TF65F	6500	820	8455	357 x 10 <sup>3</sup>	1000	1.2	1350	1000	2500	1.895	1.925	12
E1250HC45E	4500	1355	20500	2.11 x 10 <sup>6</sup>	1000	1.2	1850	1250	2000	2.072	1.166	14
E1375EF65F	6500	1125	12180	742 x 10 <sup>3</sup>	1600	1.1	2100	1375	3500	1.890	1.423	12
> E1500MC33E	3300	1580	17330	1.5 x 10 <sup>6</sup>	1380	1.85	2040	1500	2000	1.509	0.464	14
E1500NC36P	3600	1280	17050	1.45 x 10 <sup>6</sup>	1425	2.8	2750	1000	1000	1.417	0.656	14
E1500NC42P	4200	1280	17050	1.45 x 10 <sup>6</sup>	1425	2.8	2750	1000	1000	1.417	0.656	14
E1500NC48P	4800	1280	17050	1.45 x 10 <sup>6</sup>	1425	2.8	2750	1000	1000	1.417	0.656	14
E1500NH36P	3600	1280	17050	1.45 x 10 <sup>6</sup>	1425	2.8	2750	1000	1000	1.417	0.656	14
E1500NH42P	4200	1280	17050	1.45 x 10 <sup>6</sup>	1425	2.8	2750	1000	1000	1.417	0.656	14
E1500NH48P	4800	1280	17050	1.45 x 10 <sup>6</sup>	1425	2.8	2750	1000	1000	1.417	0.656	14
> E1680NC17F	1700	785	8355	349 x 10 <sup>3</sup>	950	0.45	540	1680	8500	1.364	0.584	12
E1800TC45E	4500	2215	29050	4.22 x 10 <sup>6</sup>	1490	1.15	2800	1800	3000	2.171	0.634	14
E2060FF65F	6500	1690	17400	1.51 x 10 <sup>6</sup>	2050	1.1	2800	2060	4500	1.845	0.951	12
E2400EC45E	4500	2490	32100	5.15 x 10 <sup>6</sup>	2130	1.22	3900	2400	4000	2.114	0.646	14
E3000EC45E	4500	3410	45700	10.5 x 10 <sup>6</sup>	3050	1.25	5000	3000	5000	2.124	0.339	14
E4000FD45E	4500	4210	54800	15.0 x 10 <sup>6</sup>	3650	1.5	5750	4000	5000	2.117	0.351	14



W5 Weight 510 g



W28 Weight 1.23 kg



W47 Weight 250 g



W54 Weight 530 g



W59 Weight 2.25 kg



W68 Weight 300 g



W97 Weight 1 kg



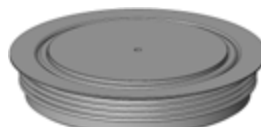
W99 Weight 500 g



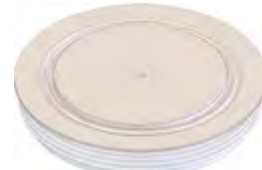
W100 Weight 500 g



W101 Weight 1.5 kg



W105 Weight 2.3 kg



W111 Weight 1.6 kg



The newest additions to IXYS UK's phase control thyristor range are the 96mm diameter die capsules. These devices use low temperature sintering technology offering better thermal and electromechanical capability and are available in ratings up to 6405A and voltage ratings up to 4500V.

## Stud Types

Part No.	$V_{DRM}$	$I_{TAV}$	$I_{TSM}$	$I^2t$	$V_{TO}$	$r_T$	$T_{JM}$	$R_{thJC}$		Fig. No.
	$V_{RRM}$	$T_C = 55^\circ C$	10 ms $\frac{1}{2}$ sine		@ $T_{JM}$			d.c.	120° Rect.	
	V	A	A	A <sup>2</sup> s	V	mΩ		K/W	K/W	
<b>N0180SH120</b>	1200	180	2450	$30.0 \times 10^3$	0.900	1.790	125	0.2300	0.2800	W17
<b>N0180SH160</b>	1600	180	2450	$30.0 \times 10^3$	0.900	1.790	125	0.2300	0.2800	W17
<b>N0335SC120</b>	1200	335	4650	$108 \times 10^3$	0.920	0.990	125	0.1200	0.1400	W18
<b>N0335SC160</b>	1600	335	4650	$108 \times 10^3$	0.920	0.990	125	0.1200	0.1400	W18
<b>N0416SC040</b>	400	416	6000	$180 \times 10^3$	0.850	0.535	125	0.1200	0.1400	W18
<b>N0416SC080</b>	800	416	6000	$180 \times 10^3$	0.850	0.535	125	0.1200	0.1400	W18

Outlines on pages  
O-01...O-35



W17 Weight 130 g



W18 Weight 280 g

<b>N0530YN220</b>	2200	530	6300	198 x 10 <sup>3</sup>	1.100	1.250	125	0.0480	0.0494	W91
<b>N0530YN250</b>	2500	530	6300	198 x 10 <sup>3</sup>	1.100	1.250	125	0.0480	0.0494	W91
<b>N0616LC400</b>	4000	616	5250	138 x 10 <sup>3</sup>	1.220	1.530	125	0.0320	0.0393	W10
<b>N0616LC450</b>	4500	616	5250	138 x 10 <sup>3</sup>	1.220	1.530	125	0.0320	0.0393	W10
<b>N0634LC380</b>	3800	634	7000	245 x 10 <sup>3</sup>	1.100	1.500	125	0.0320	0.0393	W10
<b>N0634LC420</b>	4200	634	7000	245 x 10 <sup>3</sup>	1.100	1.500	125	0.0320	0.0393	W10
<b>N0646LC300</b>	3000	646	5700	162 x 10 <sup>3</sup>	1.210	1.360	125	0.0320	0.0393	W10
<b>N0646LC360</b>	3600	646	5700	162 x 10 <sup>3</sup>	1.210	1.360	125	0.0320	0.0393	W10
<b>N0795YN140</b>	1400	795	9450	444 x 10 <sup>3</sup>	0.950	0.450	125	0.0480	0.0494	W91
<b>N0795YN180</b>	1800	795	9450	444 x 10 <sup>3</sup>	0.950	0.450	125	0.0480	0.0494	W91
<b>N0882NC400</b>	4000	882	7700	296 x 10 <sup>3</sup>	1.300	0.920	125	0.0240	0.0273	W11
<b>N0882NC450</b>	4500	882	7700	296 x 10 <sup>3</sup>	1.300	0.920	125	0.0240	0.0273	W11
<b>N0910LC200</b>	2000	910	9200	423 x 10 <sup>3</sup>	1.040	0.606	125	0.0320	0.0393	W10
<b>N0910LC260</b>	2600	910	9200	423 x 10 <sup>3</sup>	1.040	0.606	125	0.0320	0.0393	W10
<b>N0910LC280</b>	2800	910	9200	423 x 10 <sup>3</sup>	1.040	0.606	125	0.0320	0.0393	W10
<b>N1010NC300</b>	3000	1010	12100	732 x 10 <sup>3</sup>	1.170	0.687	125	0.0240	0.0273	W11
<b>N1010NC380</b>	3800	1010	12100	732 x 10 <sup>3</sup>	1.170	0.687	125	0.0240	0.0273	W11
➤ <b>N1052LC200</b>	2000	1052	13200	870 x 10 <sup>3</sup>	1.000	0.416	125	0.0320	0.0393	W10
➤ <b>N1052LC220</b>	2200	1052	13200	870 x 10 <sup>3</sup>	1.000	0.416	125	0.0320	0.0393	W10
<b>N1075LN180</b>	1800	1240	15750	1.24 x 10 <sup>6</sup>	0.850	0.320	130	0.0330	0.0371	W92
<b>N1132NC300</b>	3000	1132	14300	1.02 x 10 <sup>6</sup>	1.150	0.510	125	0.0240	0.0271	W11
<b>N1132NC340</b>	3400	1132	14300	1.02 x 10 <sup>6</sup>	1.150	0.510	125	0.0240	0.0271	W11
<b>N1132NC360</b>	3600	1132	14300	1.02 x 10 <sup>6</sup>	1.150	0.510	125	0.0240	0.0271	W11
<b>N1140LN140</b>	1400	1315	17500	1.53 x 10 <sup>6</sup>	0.820	0.280	130	0.0330	0.0371	W92
<b>N1159NC380</b>	3800	1159	14500	1.05 x 10 <sup>6</sup>	1.100	0.574	125	0.0220	0.0255	W11
<b>N1159NC420</b>	4200	1159	14500	1.05 x 10 <sup>6</sup>	1.100	0.574	125	0.0220	0.0255	W11
<b>N1174JK200</b>	2000	1174	13200	870 x 10 <sup>3</sup>	1.000	0.416	125	0.0270	0.0314	WP1
<b>N1174JK220</b>	2200	1174	13200	870 x 10 <sup>3</sup>	1.000	0.416	125	0.0270	0.0314	WP1
<b>N1263JK160</b>	1600	1263	15000	1.13 x 10 <sup>6</sup>	1.015	0.332	125	0.0270	0.0314	WP1
<b>N1263JK180</b>	1800	1263	15000	1.13 x 10 <sup>6</sup>	1.015	0.332	125	0.0270	0.0314	WP1
○ <b>N1351VC400</b>	4000	1351	17500	1.53 x 10 <sup>6</sup>	1.200	0.553	125	0.0170	0.0206	W12
○ <b>N1351VC450</b>	4500	1351	17500	1.53 x 10 <sup>6</sup>	1.200	0.553	125	0.0170	0.0206	W12
○ <b>N1351VF400</b>	4000	1351	17500	1.53 x 10 <sup>6</sup>	1.200	0.553	125	0.0170	0.0206	W62
○ <b>N1351VF450</b>	4500	1351	17500	1.53 x 10 <sup>6</sup>	1.200	0.553	125	0.0170	0.0206	W62
<b>N1366JK080</b>	800	1366	15900	1.26 x 10 <sup>6</sup>	0.985	0.270	125	0.0270	0.0314	WP1
<b>N1366JK120</b>	1200	1366	15900	1.26 x 10 <sup>6</sup>	0.985	0.270	125	0.0270	0.0314	WP1
<b>N1366JK140</b>	1400	1366	15900	1.26 x 10 <sup>6</sup>	0.985	0.270	125	0.0270	0.0314	WP1
○ <b>N1449QL200</b>	2000	1410	17300	1.50 x 10 <sup>6</sup>	1.060	0.317	125	0.0230	0.0272	WP6
○ <b>N1449QL220</b>	2200	1410	17300	1.50 x 10 <sup>6</sup>	1.060	0.317	125	0.0230	0.0272	WP6
<b>N1467NC200</b>	2000	1467	21500	2.31 x 10 <sup>6</sup>	1.000	0.272	125	0.0240	0.0271	W11
<b>N1467NC260</b>	2600	1467	21500	2.31 x 10 <sup>6</sup>	1.000	0.272	125	0.0240	0.0271	W11
<b>N1547NC160</b>	1600	1547	23300	2.71 x 10 <sup>6</sup>	0.920	0.252	125	0.0240	0.0271	W11
<b>N1547NC200</b>	2000	1547	23300	2.71 x 10 <sup>6</sup>	0.920	0.252	125	0.0240	0.0271	W11

<b>N1651QK220</b>	2200	1651	17300	1.50 x 10 <sup>6</sup>	1.060	0.317	125	0.0180	0.0217	WP2
○ <b>N1661VC300</b>	3000	1661	23000	2.65 x 10 <sup>6</sup>	1.040	0.350	125	0.0170	0.0206	W12
○ <b>N1661VC360</b>	3600	1661	23000	2.65 x 10 <sup>6</sup>	1.040	0.350	125	0.0170	0.0206	W12
○ <b>N1661VF300</b>	3000	1661	23000	2.65 x 10 <sup>6</sup>	1.040	0.350	125	0.0170	0.0206	W62
○ <b>N1661VF360</b>	3600	1661	23000	2.65 x 10 <sup>6</sup>	1.040	0.350	125	0.0170	0.0206	W62
<b>N1718NC120</b>	1200	1718	27200	3.70 x 10 <sup>6</sup>	0.979	0.169	125	0.0240	0.0271	W11
<b>N1718NC180</b>	1800	1718	27200	3.70 x 10 <sup>6</sup>	0.979	0.169	125	0.0240	0.0271	W11
<b>N1718NC200</b>	2000	1718	27200	3.70 x 10 <sup>6</sup>	0.979	0.169	125	0.0240	0.0271	W11
<b>N1725MC320</b>	3200	1725	20000	2.00 x 10 <sup>6</sup>	1.022	0.396	125	0.0150	0.0165	W70
<b>N1725MC360</b>	3600	1725	20000	2.00 x 10 <sup>6</sup>	1.022	0.396	125	0.0150	0.0165	W70
<b>N1802NC120</b>	1200	1802	29600	4.38 x 10 <sup>6</sup>	0.855	0.171	125	0.0240	0.0271	W11
<b>N1802NC160</b>	1600	1802	29600	4.38 x 10 <sup>6</sup>	0.855	0.171	125	0.0240	0.0271	W11
<b>N1806QK160</b>	1600	1806	19100	1.82 x 10 <sup>6</sup>	1.022	0.253	125	0.0180	0.0217	WP2
<b>N1806QK180</b>	1800	1806	19100	1.82 x 10 <sup>6</sup>	1.022	0.253	125	0.0180	0.0217	WP2
○ <b>N1817QL080</b>	800	1760	22000	2.42 x 10 <sup>6</sup>	0.955	0.177	125	0.0230	0.0272	WP6
○ <b>N1817QL120</b>	1200	1760	22000	2.42 x 10 <sup>6</sup>	0.955	0.177	125	0.0230	0.0272	WP6
○ <b>N1817QL140</b>	1400	1760	22000	2.42 x 10 <sup>6</sup>	0.955	0.177	125	0.0230	0.0272	WP6
○ <b>N2015ML200</b>	2000	2015	32400	5.25 x 10 <sup>6</sup>	0.883	0.210	125	0.0180	0.0201	WP5
○ <b>N2015ML220</b>	2200	2015	32400	5.25 x 10 <sup>6</sup>	0.883	0.210	125	0.0180	0.0201	WP5
<b>N2055MC260</b>	2600	2105	25800	3.33 x 10 <sup>6</sup>	0.970	0.240	125	0.0150	0.0165	W70
<b>N2055MC280</b>	2800	2105	25800	3.33 x 10 <sup>6</sup>	0.970	0.240	125	0.0150	0.0165	W70
<b>N2055HE420</b>	4200	2055	24000	2.88 x 10 <sup>6</sup>	0.977	0.342	125	0.0125	0.0138	W80
<b>N2055HE450</b>	4500	2055	24000	2.88 x 10 <sup>6</sup>	0.977	0.342	125	0.0125	0.0138	W80
<b>N2083QK080</b>	800	2083	22000	2.42 x 10 <sup>6</sup>	0.955	0.177	125	0.0180	0.0217	WP2
<b>N2083QK120</b>	1200	2083	22000	2.42 x 10 <sup>6</sup>	0.955	0.177	125	0.0180	0.0217	WP2
<b>N2083QK140</b>	1400	2083	22000	2.42 x 10 <sup>6</sup>	0.955	0.177	125	0.0180	0.0217	WP2
<b>N2086NC060</b>	600	2086	35000	6.13 x 10 <sup>6</sup>	0.840	0.108	125	0.0240	0.0271	W11
<b>N2086NC100</b>	1000	2086	35000	6.13 x 10 <sup>6</sup>	0.840	0.108	125	0.0240	0.0271	W11
<b>N2154JK020</b>	200	2154	22700	2.58 x 10 <sup>6</sup>	0.890	0.107	140	0.0270	0.0314	WP1
<b>N2154JK040</b>	400	2154	22700	2.58 x 10 <sup>6</sup>	0.890	0.107	140	0.0270	0.0314	WP1
<b>N2154JK060</b>	600	2154	22700	2.58 x 10 <sup>6</sup>	0.890	0.107	140	0.0270	0.0314	WP1
<b>N2172ZC420</b>	4200	2172	28000	3.92 x 10 <sup>6</sup>	1.350	0.294	125	0.0110	0.0119	W13
<b>N2172ZC450</b>	4500	2172	28000	3.92 x 10 <sup>6</sup>	1.350	0.294	125	0.0110	0.0119	W13
<b>N2172ZD420</b>	4200	2172	28000	3.92 x 10 <sup>6</sup>	1.350	0.294	125	0.0110	0.0119	W46
<b>N2172ZD450</b>	4500	2172	28000	3.92 x 10 <sup>6</sup>	1.350	0.294	125	0.0110	0.0119	W46
○ <b>N2191ML160</b>	1600	2191	34500	5.95 x 10 <sup>6</sup>	0.940	0.154	125	0.0180	0.0201	WP5
○ <b>N2191ML180</b>	1800	2191	34500	5.95 x 10 <sup>6</sup>	0.940	0.154	125	0.0180	0.0201	WP5
<b>N2285HA420</b>	4200	2285	24000	2.88x 10 <sup>6</sup>	0.977	0.342	125	0.0105	0.0118	W79
<b>N2285HA450</b>	4500	2285	24000	2.88x 10 <sup>6</sup>	0.977	0.342	125	0.0105	0.0118	W79
<b>N2367MK200</b>	2000	2367	32400	5.25 x 10 <sup>6</sup>	0.883	0.210	125	0.0140	0.0157	WP3
<b>N2367MK220</b>	2200	2367	32400	5.25 x 10 <sup>6</sup>	0.883	0.210	125	0.0140	0.0157	WP3
<b>N2385HE320</b>	3200	2385	28400	4.03 x 10 <sup>6</sup>	0.910	0.243	125	0.0125	0.0138	W80
<b>N2385HE360</b>	3600	2385	28400	4.03 x 10 <sup>6</sup>	0.910	0.243	125	0.0125	0.0138	W80

<b>N2418ZD360</b>	3600	2418	30000	4.50 x 10 <sup>6</sup>	1.160	0.246	125	0.0110	0.0119	W46
<b>N2500VC120</b>	1200	2500	37000	6.85 x 10 <sup>6</sup>	0.880	0.124	125	0.0170	0.0206	W12
<b>N2500VC160</b>	1600	2500	37000	6.85 x 10 <sup>6</sup>	0.880	0.124	125	0.0170	0.0206	W12
<b>N2500VF120</b>	1200	2500	37000	6.85 x 10 <sup>6</sup>	0.880	0.124	125	0.0170	0.0206	W62
<b>N2500VF160</b>	1600	2500	37000	6.85 x 10 <sup>6</sup>	0.880	0.124	125	0.0170	0.0206	W62
○ <b>N2520ML080</b>	800	2520	38200	7.30 x 10 <sup>6</sup>	0.980	0.090	125	0.0180	0.0201	WP5
○ <b>N2520ML120</b>	1200	2520	38200	7.30 x 10 <sup>6</sup>	0.980	0.090	125	0.0180	0.0201	WP5
○ <b>N2520ML140</b>	1400	2520	38200	7.30 x 10 <sup>6</sup>	0.980	0.090	125	0.0180	0.0201	WP5
<b>N2543ZC240</b>	2400	2543	32000	5.12 x 10 <sup>6</sup>	0.780	0.274	125	0.0110	0.0119	W13
<b>N2543ZC300</b>	3000	2543	32000	5.12 x 10 <sup>6</sup>	0.780	0.274	125	0.0110	0.0119	W13
<b>N2543ZD240</b>	2400	2543	32000	5.12 x 10 <sup>6</sup>	0.780	0.274	125	0.0110	0.0119	W46
<b>N2543ZD300</b>	3000	2543	32000	5.12 x 10 <sup>6</sup>	0.780	0.274	125	0.0110	0.0119	W46
<b>N2593MK160</b>	1600	2593	34500	5.95 x 10 <sup>6</sup>	0.940	0.154	125	0.0140	0.0157	WP3
<b>N2593MK180</b>	1800	2593	34500	5.95 x 10 <sup>6</sup>	0.940	0.154	125	0.0140	0.0157	WP3
<b>N2600MC160</b>	1600	2600	30000	4.50 x 10 <sup>6</sup>	0.950	0.130	125	0.0150	0.0165	W70
<b>N2600MC180</b>	1800	2600	30000	4.50 x 10 <sup>6</sup>	0.950	0.130	125	0.0150	0.0165	W70
<b>N2655HA320</b>	3200	2655	28400	4.03 x 10 <sup>6</sup>	0.910	0.243	125	0.0105	0.0118	W79
<b>N2655HA360</b>	3600	2655	28400	4.03 x 10 <sup>6</sup>	0.910	0.243	125	0.0105	0.0118	W79
<b>N2825TE420</b>	4200	2825	36900	6.81 x 10 <sup>6</sup>	1.210	0.270	125	0.0080	0.0085	W82
<b>N2825TE450</b>	4500	2825	36900	6.81 x 10 <sup>6</sup>	1.210	0.270	125	0.0080	0.0085	W82
<b>N2825TJ420</b>	4200	2825	36900	6.81 x 10 <sup>6</sup>	1.210	0.270	125	0.0080	0.0085	W81
<b>N2825TJ450</b>	4500	2825	36900	6.81 x 10 <sup>6</sup>	1.210	0.270	125	0.0080	0.0085	W81
<b>N2830HE260</b>	2600	2830	36000	6.48 x 10 <sup>6</sup>	0.930	0.150	125	0.0125	0.0138	W80
<b>N2830HE280</b>	2800	2830	36000	6.48 x 10 <sup>6</sup>	0.930	0.150	125	0.0125	0.0138	W80
○ <b>N2900QL020</b>	200	2900	28000	3.92 x 10 <sup>6</sup>	0.850	0.080	150	0.0230	0.0272	WP6
○ <b>N2900QL040</b>	400	2900	28000	3.92 x 10 <sup>6</sup>	0.850	0.080	150	0.0230	0.0272	WP6
○ <b>N2900QL060</b>	600	2900	28000	3.92 x 10 <sup>6</sup>	0.850	0.080	150	0.0230	0.0272	WP6
<b>N3012ZC200</b>	2000	3012	45100	10.2 x 10 <sup>6</sup>	0.920	0.160	125	0.0110	0.0119	W13
<b>N3012ZC260</b>	2600	3012	45100	10.2 x 10 <sup>6</sup>	0.920	0.160	125	0.0110	0.0119	W13
<b>N3012ZD200</b>	2000	3012	45100	10.2 x 10 <sup>6</sup>	0.920	0.160	125	0.0110	0.0119	W46
<b>N3012ZD260</b>	2600	3012	45100	10.2 x 10 <sup>6</sup>	0.920	0.160	125	0.0110	0.0119	W46
<b>N3022MK080</b>	800	3022	38200	7.30 x 10 <sup>6</sup>	0.981	0.090	125	0.0140	0.0157	WP3
<b>N3022MK120</b>	1200	3022	38200	7.30 x 10 <sup>6</sup>	0.981	0.090	125	0.0140	0.0157	WP3
<b>N3022MK140</b>	1400	3022	38200	7.30 x 10 <sup>6</sup>	0.981	0.090	125	0.0140	0.0157	WP3
<b>N3029ZC240</b>	2400	3029	38200	7.30 x 10 <sup>6</sup>	0.947	0.154	125	0.0110	0.0119	W13
<b>N3029ZC280</b>	2800	3029	38200	7.30 x 10 <sup>6</sup>	0.947	0.154	125	0.0110	0.0119	W13
<b>N3029ZD240</b>	2400	3029	38200	7.30 x 10 <sup>6</sup>	0.947	0.154	125	0.0110	0.0119	W46
<b>N3029ZD280</b>	2800	3029	38200	7.30 x 10 <sup>6</sup>	0.947	0.154	125	0.0110	0.0119	W46
<b>N3165HA260</b>	2600	3165	36000	6.48 x 10 <sup>6</sup>	0.930	0.150	125	0.0105	0.0118	W79
<b>N3165HA280</b>	2800	3165	36000	6.48 x 10 <sup>6</sup>	0.930	0.150	125	0.0105	0.0118	W79
<b>N3175HE160</b>	1600	3175	45500	10.40 x 10 <sup>6</sup>	0.900	0.110	125	0.0125	0.0138	W80
<b>N3175HE180</b>	1800	3175	45500	10.40 x 10 <sup>6</sup>	0.900	0.110	125	0.0125	0.0138	W80

<b>N3533ZC140</b>	1400	3533	50000	12.5 x 10 <sup>6</sup>	0.970	0.095	125	0.0110	0.0120	W13
<b>N3533ZC180</b>	1800	3533	50000	12.5 x 10 <sup>6</sup>	0.970	0.095	125	0.0110	0.0120	W13
<b>N3533ZC220</b>	2200	3533	50000	12.5 x 10 <sup>6</sup>	0.970	0.095	125	0.0110	0.0120	W13
<b>N3533ZD140</b>	1400	3533	50000	12.5 x 10 <sup>6</sup>	0.970	0.095	125	0.0110	0.0120	W46
<b>N3533ZD180</b>	1800	3533	50000	12.5 x 10 <sup>6</sup>	0.970	0.095	125	0.0110	0.0120	W46
<b>N3533ZD220</b>	2200	3533	50000	12.5 x 10 <sup>6</sup>	0.970	0.095	125	0.0110	0.0120	W46
<b>N3565HA160</b>	1600	3565	45500	10.4 x 10 <sup>6</sup>	0.900	0.110	125	0.0105	0.0118	W79
<b>N3565HA180</b>	1800	3565	45500	10.4 x 10 <sup>6</sup>	0.900	0.110	125	0.0105	0.0118	W79
○ <b>N3597ML020</b>	200	3597	45400	10.3 x 10 <sup>6</sup>	0.840	0.053	140	0.0180	0.0201	WP5
○ <b>N3597ML040</b>	400	3597	45400	10.3 x 10 <sup>6</sup>	0.840	0.053	140	0.0180	0.0201	WP5
○ <b>N3597ML060</b>	600	3597	45400	10.3 x 10 <sup>6</sup>	0.840	0.053	140	0.0180	0.0201	WP5
<b>N3620TE320</b>	3200	3620	52500	11.2 x 10 <sup>6</sup>	0.911	0.168	125	0.0080	0.0085	W82
<b>N3620TE360</b>	3600	3620	52500	11.2 x 10 <sup>6</sup>	0.911	0.168	125	0.0080	0.0085	W82
<b>N3620TJ320</b>	3200	3620	52500	11.2 x 10 <sup>6</sup>	0.911	0.168	125	0.0080	0.0085	W81
<b>N3620TJ360</b>	3600	3620	52500	11.2 x 10 <sup>6</sup>	0.911	0.168	125	0.0080	0.0085	W81
<b>N3790TE240</b>	2400	3790	49500	12.3 x 10 <sup>6</sup>	0.900	0.150	125	0.0080	0.0085	W82
<b>N3790TE280</b>	2800	3790	49500	12.3 x 10 <sup>6</sup>	0.900	0.150	125	0.0080	0.0085	W82
<b>N3790TJ240</b>	2400	3790	49500	12.3 x 10 <sup>6</sup>	0.900	0.150	125	0.0080	0.0085	W81
<b>N3790TJ280</b>	2800	3790	49500	12.3 x 10 <sup>6</sup>	0.900	0.150	125	0.0080	0.0085	W81
<b>N3880ZD160</b>	1600	3880	59000	17.4 x 10 <sup>6</sup>	0.986	0.068	125	0.0110	0.0119	W46
<b>N3880ZD180</b>	1800	3880	59000	17.4 x 10 <sup>6</sup>	0.986	0.068	125	0.0110	0.0119	W46
<b>N3904HK200</b>	2000	3904	50900	12.95 x 10 <sup>6</sup>	0.920	0.111	125	0.0090	0.0099	WP4
<b>N3904HK220</b>	2200	3904	50900	12.95 x 10 <sup>6</sup>	0.920	0.111	125	0.0090	0.0099	WP4
<b>N3930ZC120</b>	1200	3930	54000	14.6 x 10 <sup>6</sup>	0.841	0.080	125	0.0110	0.0119	W13
<b>N3930ZC160</b>	1600	3930	54000	14.6 x 10 <sup>6</sup>	0.841	0.080	125	0.0110	0.0119	W13
<b>N3930ZD120</b>	1200	3930	54000	14.6 x 10 <sup>6</sup>	0.841	0.080	125	0.0110	0.0119	W46
<b>N3930ZD160</b>	1600	3930	54000	14.6 x 10 <sup>6</sup>	0.841	0.080	125	0.0110	0.0119	W46
<b>N4085ZC080</b>	800	4085	64000	20.5 x 10 <sup>6</sup>	0.850	0.070	125	0.0110	0.0119	W13
<b>N4085ZC120</b>	1200	4085	64000	20.5 x 10 <sup>6</sup>	0.850	0.070	125	0.0110	0.0119	W13
<b>N4085ZD080</b>	800	4085	64000	20.5 x 10 <sup>6</sup>	0.850	0.070	125	0.0110	0.0119	W46
<b>N4085ZD120</b>	1200	4085	64000	20.5 x 10 <sup>6</sup>	0.850	0.070	125	0.0110	0.0119	W46
➤ <b>N4165EE420</b>	4200	4165	56000	15.7 x 10 <sup>6</sup>	0.977	0.177	125	0.0060	0.0064	W108
➤ <b>N4165EE450</b>	4500	4165	56000	15.7 x 10 <sup>6</sup>	0.977	0.177	125	0.0060	0.0064	W108
<b>N4316MK020</b>	200	4316	45400	10.3 x 10 <sup>6</sup>	0.840	0.053	140	0.0140	0.0157	WP3
<b>N4316MK040</b>	400	4316	45400	10.3 x 10 <sup>6</sup>	0.840	0.053	140	0.0140	0.0157	WP3
<b>N4316MK060</b>	600	4316	45400	10.3 x 10 <sup>6</sup>	0.840	0.053	140	0.0140	0.0157	WP3
<b>N4340TE180</b>	1800	4340	55000	15.1 x 10 <sup>6</sup>	0.886	0.105	125	0.0080	0.0085	W82
<b>N4340TE220</b>	2200	4340	55000	15.1 x 10 <sup>6</sup>	0.886	0.105	125	0.0080	0.0085	W82
<b>N4340TJ180</b>	1800	4340	55000	15.1 x 10 <sup>6</sup>	0.886	0.105	125	0.0080	0.0085	W81
<b>N4340TJ220</b>	2200	4340	55000	15.1 x 10 <sup>6</sup>	0.886	0.105	125	0.0080	0.0085	W81
<b>N4472HK160</b>	1600	4472	59000	17.40 x 10 <sup>6</sup>	0.986	0.068	125	0.0090	0.0099	WP4
<b>N4472HK180</b>	1800	4472	59000	17.40 x 10 <sup>6</sup>	0.986	0.068	125	0.0090	0.0099	WP4

➤ <b>N4845EE320</b>	3200	4845	65000	21.1 x 10 <sup>6</sup>	0.913	0.125	125	0.0060	0.0065	W108
➤ <b>N4845EE360</b>	3600	4845	65000	21.1 x 10 <sup>6</sup>	0.913	0.125	125	0.0060	0.0065	W108
➤ <b>N4940HK120</b>	1200	4940	62000	19.0 x 10 <sup>6</sup>	0.939	0.520	125	0.0090	0.0099	WP4
➤ <b>N4940HK140</b>	1400	4940	62000	19.0 x 10 <sup>6</sup>	0.939	0.520	125	0.0090	0.0099	WP4
<b>N5320FE420</b>	4200	5320	78000	30.42 x 10 <sup>6</sup>	1.060	0.130	125	0.0048	0.0051	W119
<b>N5320FE450</b>	4500	5320	78000	30.42 x 10 <sup>6</sup>	1.060	0.130	125	0.0048	0.0051	W119
➤ <b>N5415EA320</b>	3200	5415	65000	21.1 x 10 <sup>6</sup>	0.913	0.125	125	0.0050	0.0054	W107
➤ <b>N5415EA360</b>	3600	5415	65000	21.1 x 10 <sup>6</sup>	0.913	0.125	125	0.0050	0.0054	W107
➤ <b>N5715EE240</b>	2400	5715	80000	32.0 x 10 <sup>6</sup>	0.840	0.085	125	0.0060	0.0065	W108
➤ <b>N5715EE280</b>	2800	5715	80000	32.0 x 10 <sup>6</sup>	0.840	0.085	125	0.0060	0.0065	W108
<b>N5910FA420</b>	4200	5910	78000	30.42 x 10 <sup>6</sup>	1.060	0.130	125	0.0040	0.0044	W118
<b>N5910FA450</b>	4500	5910	78000	30.42 x 10 <sup>6</sup>	1.060	0.130	125	0.0040	0.0044	W118
<b>N6012ZD020</b>	200	6012	65000	21.13 x 10 <sup>6</sup>	0.853	0.029	140	0.0110	0.0119	W46
<b>N6012ZD040</b>	400	6012	65000	21.13 x 10 <sup>6</sup>	0.853	0.029	140	0.0110	0.0119	W46
<b>N6012ZD060</b>	600	6012	65000	21.13 x 10 <sup>6</sup>	0.853	0.029	140	0.0110	0.0119	W46
➤ <b>N6405EA240</b>	2400	6405	80000	32.0 x 10 <sup>6</sup>	0.840	0.085	125	0.0050	0.0054	W107
➤ <b>N6405EA280</b>	2800	6405	80000	32.0 x 10 <sup>6</sup>	0.840	0.085	125	0.0050	0.0054	W107
<b>N6974HK020</b>	200	6974	65000	21.13 x 10 <sup>6</sup>	0.853	0.029	140	0.0090	0.0099	WP4
<b>N6974HK040</b>	400	6974	65000	21.13 x 10 <sup>6</sup>	0.853	0.029	140	0.0090	0.0099	WP4
<b>N6974HK060</b>	600	6974	65000	21.13 x 10 <sup>6</sup>	0.853	0.029	140	0.0090	0.0099	WP4
➤ <b>N7585FE240</b>	2400	7535	110000	60.50 x 10 <sup>6</sup>	0.780	0.062	125	0.0048	0.0051	W119
➤ <b>N7585FE280</b>	2800	7535	110000	60.50 x 10 <sup>6</sup>	0.780	0.062	125	0.0048	0.0051	W119
➤ <b>N7905FE180</b>	1800	7905	117000	68.44 x 10 <sup>6</sup>	0.770	0.056	125	0.0048	0.0051	W119
➤ <b>N7905FE220</b>	2200	7905	117000	68.44 x 10 <sup>6</sup>	0.770	0.056	125	0.0048	0.0051	W119
➤ <b>N8440FA240</b>	2400	8440	110000	60.50 x 10 <sup>6</sup>	0.780	0.062	125	0.0040	0.0044	W118
➤ <b>N8440FA280</b>	2800	8440	110000	60.50 x 10 <sup>6</sup>	0.780	0.062	125	0.0040	0.0044	W118
➤ <b>N8800FA180</b>	1800	8800	117000	68.44 x 10 <sup>6</sup>	0.770	0.056	125	0.0040	0.0044	W118
➤ <b>N8800FA220</b>	2200	8800	117000	68.44 x 10 <sup>6</sup>	0.770	0.056	125	0.0040	0.0044	W118

# Capsule Types

Part No.	$V_{DRM}$	$I_{TAV}$	$I_{TSM}$	$I^2t$	$t_q$	Typ. Reverse Recovery Charge			$V_{TO}$	$r_T$	$T_{JM}$	180° Sine K/W
	$V_{RRM}$	$T_K = 55^\circ C$	10 ms ½ sine $V_R - \leq 60\% V_{RRM}$		@	$T_{JM}$			@ $T_{JM}$			
	V	A	A	A²s	200 V/μs μs	$Q_{rr}$ μC	@ $I_{TM}$ A	@ -di/dt A/μs	V	mΩ	°C	
<b>K0445LG600</b>	6000	450	6400	200 × 10³	700-1000	3100	500	10	1.560	2.270	125	0.038
<b>K0445LG650</b>	6500	450	6400	200 × 10³	700-1000	3100	500	10	1.560	2.270	125	0.038
<b>K0500LC600</b>	6000	500	6400	200 × 10³	700-1000	3100	500	10	1.560	2.270	125	0.032
<b>K0500LC650</b>	6500	500	6400	200 × 10³	700-1000	3100	500	10	1.560	2.270	125	0.032
<b>K0560QE600</b>	6000	575	7700	296 × 10³	1000-1100	4400	700	10	1.460	1.750	125	0.031
<b>K0560QE650</b>	6500	575	7700	296 × 10³	1000-1100	4400	700	10	1.460	1.750	125	0.031
<b>K0625QA600</b>	6000	640	7700	296 × 10³	1000-1100	4750	1000	10	1.460	1.750	125	0.026
<b>K0625QA650</b>	6500	640	7700	296 × 10³	1000-1100	4750	1000	10	1.460	1.750	125	0.026
<b>K0890NC360</b>	3600	890	10900	594 × 10³	350-550	4000	1000	10	1.516	0.800	125	0.024
<b>K0890NC420</b>	4200	890	10900	594 × 10³	350-550	4000	1000	10	1.516	0.800	125	0.024
<b>K0900ME600</b>	6000	1010	12600	794 × 10³	850-1150	6200	1000	10	1.610	0.900	125	0.018
<b>K0900ME650</b>	6500	1010	12600	794 × 10³	850-1150	6200	1000	10	1.610	0.900	125	0.018
<b>K1010MA600</b>	6000	1130	12600	794 × 10³	850-1150	6200	1000	10	1.610	0.900	125	0.015
<b>K1010MA650</b>	6500	1130	12600	794 × 10³	850-1150	6200	1000	10	1.610	0.900	125	0.015
<b>K1121NC320</b>	3200	1121	15000	1.13 × 10⁶	200-300	2000	1000	10	1.098	0.542	125	0.024
<b>K1121NC360</b>	3600	1121	15000	1.13 × 10⁶	200-300	2000	1000	10	1.098	0.542	125	0.024
<b>K1197NC280</b>	2800	1197	10650	567 × 10³	200-300	2700	1000	10	1.335	0.372	125	0.024
<b>K1197NC320</b>	3200	1197	10650	567 × 10³	200-300	2700	1000	10	1.335	0.372	125	0.024

Outlines on pages O-01...O-35



W10 Weight 340 g



W11 Weight 510 g



W56 Weight 271 g



W75 V



W76 Weight 420 g



W77 Weight 550 g



W78 Weight 730 g



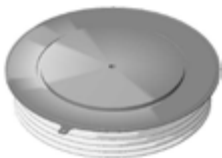
◇ <b>K1210MA520</b>	5200	1210	15300	1.17 x 10 <sup>6</sup>	750-1050	3550	1000	10	1.477	0.797	125	0.015
➤ <b>K1270MA420</b>	4200	1270	16700	1.39 x 10 <sup>6</sup>	650-950	2150	1000	10	1.331	0.741	125	0.015
➤ <b>K1270MA450</b>	4500	1270	16700	1.39 x 10 <sup>6</sup>	650-950	2150	1000	10	1.331	0.741	125	0.015
<b>K1495HE600</b>	6000	1495	21800	2.38 x 10 <sup>6</sup>	1200-1500	9000	1500	10	1.496	0.606	125	0.012
<b>K1495HE650</b>	6500	1495	21800	2.38 x 10 <sup>6</sup>	1200-1500	9000	1500	10	1.496	0.606	125	0.012
<b>K1670HA600</b>	6000	1670	21800	2.38 x 10 <sup>6</sup>	1200-1500	9000	1500	10	1.496	0.606	125	0.010
<b>K1670HA650</b>	6500	1670	21800	2.38 x 10 <sup>6</sup>	1200-1500	9000	1500	10	1.496	0.606	125	0.010
◇ <b>K1785HA420</b>	4200	1785	26600	3.53 x 10 <sup>6</sup>	1050-1350	5150	1500	10	1.373	0.536	125	0.010
◇ <b>K1785HA450</b>	4500	1785	26600	3.53 x 10 <sup>6</sup>	1050-1350	5150	1500	10	1.373	0.536	125	0.010
<b>K1947ZC400</b>	4000	1947	25000	3.13 x 10 <sup>6</sup>	600-700	8800	1000	10	1.221	0.425	125	0.011
<b>K1947ZC450</b>	4500	1947	25000	3.13 x 10 <sup>6</sup>	600-700	8800	1000	10	1.221	0.425	125	0.011
<b>K1947ZD400</b>	4000	1947	25000	3.13 x 10 <sup>6</sup>	600-700	8800	1000	10	1.221	0.425	125	0.011
<b>K1947ZD450</b>	4500	1947	25000	3.13 x 10 <sup>6</sup>	600-700	8800	1000	10	1.221	0.425	125	0.011
<b>K2085TE600</b>	6000	2145	33000	5.45 x 10 <sup>6</sup>	1450-1800	11000	3000	10	1.260	0.410	125	0.009
<b>K2085TE650</b>	6500	2145	33000	5.45 x 10 <sup>6</sup>	1450-1800	11000	3000	10	1.260	0.410	125	0.009
<b>K2095ZC360</b>	3600	2095	18200	1.66 x 10 <sup>6</sup>	400-500	4550	2000	10	1.502	0.296	125	0.011
<b>K2095ZC420</b>	4200	2095	18200	1.66 x 10 <sup>6</sup>	400-500	4550	2000	10	1.502	0.296	125	0.011
<b>K2095ZD360</b>	3600	2095	18200	1.66 x 10 <sup>6</sup>	400-500	4550	2000	10	1.502	0.296	125	0.011
<b>K2095ZD420</b>	4200	2095	18200	1.66 x 10 <sup>6</sup>	400-500	4550	2000	10	1.502	0.296	125	0.011
<b>K2325TJ600</b>	6000	2380	33000	5.45 x 10 <sup>6</sup>	1450-1800	11000	3000	10	1.260	0.410	125	0.008
<b>K2325TJ650</b>	6500	2380	33000	5.45 x 10 <sup>6</sup>	1450-1800	11000	3000	10	1.260	0.410	125	0.008
➤ <b>K3745EA600</b>	6000	3745	35400	6.26 x 10 <sup>6</sup>	1500-1800	14000	4000	10	1.320	0.270	125	0.005
➤ <b>K3745EA650</b>	6500	3745	35400	6.26 x 10 <sup>6</sup>	1500-1800	14000	4000	10	1.320	0.270	125	0.005
◇ <b>K4005EA480</b>	4800	4005	43200	9.33 x 10 <sup>6</sup>	1300-1600	8000	4000	10	1.359	0.216	125	0.005
◇ <b>K4005EA520</b>	5200	4005	43200	9.33 x 10 <sup>6</sup>	1300-1600	8000	4000	10	1.359	0.216	125	0.005
◇ <b>K4215EA420</b>	4200	4215	47000	11.0 x 10 <sup>6</sup>	1200-1500	4800	4000	10	1.224	0.201	125	0.005
◇ <b>K4215EA450</b>	4500	4215	47000	11.0 x 10 <sup>6</sup>	1200-1500	4800	4000	10	1.224	0.201	125	0.005

◇ New parts under development, please consult factory for more details.

Outlines on p



W13 Weight 1.7 kg



W46 Weight 1.2 kg



W77 Weight 550 g



W79



W80 Weight 1.2 kg



W81 Weight 1.2 kg



W82 Weight 1.65 kg



W107



Part No.	$V_{DRM}$	$T_{TAV}$	$T_{TSM}$		$t_q$	Recov. Charge			$V_{TO}$		$T_{thJC}$	Fig. No.
	$V_{RRM}$	$T_C = 55^\circ C$	10 ms $\frac{1}{2}$ sine $V_R - \leq 60\% V_{RRM}$		@ 200 V/ $\mu s$	$Q_{rr}$	$T_{JM}$ @ $I_{TM}$	@ -di/dt	V	m $\Omega$	180° sine	
○ Not for new design	V	A	A	A <sup>2</sup> s	$\mu s$	$\mu C$	A	A/ $\mu s$	V	m $\Omega$	K/W	
○ P0128SH10C	1000	128	1700	19 x 10 <sup>3</sup>	15	50	100	10	1.600	2.490	0.2300	W17
○ P0128SH10D	1000	128	1700	19 x 10 <sup>3</sup>	20	50	100	10	1.600	2.490	0.2300	W17
○ P0128SH10E	1000	128	1700	19 x 10 <sup>3</sup>	25	50	100	10	1.600	2.490	0.2300	W17
○ P0128SH12C	1200	128	1700	19 x 10 <sup>3</sup>	15	50	100	10	1.600	2.490	0.2300	W17
○ P0128SH12D	1200	128	1700	19 x 10 <sup>3</sup>	20	50	100	10	1.600	2.490	0.2300	W17
○ P0128SH12E	1200	128	1700	19 x 10 <sup>3</sup>	25	50	100	10	1.600	2.490	0.2300	W17
○ P0128SJ10C	1000	128	1700	19 x 10 <sup>3</sup>	15	50	100	10	1.600	2.490	0.2300	W16
○ P0128SJ10D	1000	128	1700	19 x 10 <sup>3</sup>	20	50	100	10	1.600	2.490	0.2300	W16
○ P0128SJ10E	1000	128	1700	19 x 10 <sup>3</sup>	25	50	100	10	1.600	2.490	0.2300	W16
○ P0128SJ12C	1200	128	1700	19 x 10 <sup>3</sup>	15	50	100	10	1.600	2.490	0.2300	W16
○ P0128SJ12D	1200	128	1700	19 x 10 <sup>3</sup>	20	50	100	10	1.600	2.490	0.2300	W16
○ P0128SJ12E	1200	128	1700	19 x 10 <sup>3</sup>	25	50	100	10	1.600	2.490	0.2300	W16
<b>R0472YC12EKER</b>	1200	240	4000	80 x 10 <sup>3</sup>	25	155	550	40	1.648	1.125	0.1249	W115
<b>R0472YC12FKER</b>	1200	240	4000	80 x 10 <sup>3</sup>	30	155	550	40	1.648	1.125	0.1249	W115
<b>R0472YC16EKER</b>	1600	240	4000	80 x 10 <sup>3</sup>	25	155	550	40	1.648	1.125	0.1249	W115
<b>R0472YC16FKER</b>	1600	240	4000	80 x 10 <sup>3</sup>	30	155	550	40	1.648	1.125	0.1249	W115
○ P0248SC12D	1200	248	2700	36.5 x 10 <sup>3</sup>	20	45	300	20	1.600	1.230	0.1200	W18
○ P0248SC12E	1200	248	2700	36.5 x 10 <sup>3</sup>	25	45	300	20	1.600	1.230	0.1200	W18
○ P0273SC12D	1200	273	3250	52.8 x 10 <sup>3</sup>	20	80	300	20	1.550	0.870	0.1200	W18
○ P0273SC12E	1200	273	3250	52.8 x 10 <sup>3</sup>	25	80	300	20	1.550	0.870	0.1200	W18
○ P0273SC12F	1200	273	3250	52.8 x 10 <sup>3</sup>	30	80	300	20	1.550	0.870	0.1200	W18
○ P0306SC08A	800	306	4700	110 x 10 <sup>3</sup>	10	50	300	20	1.400	0.670	0.1200	W18
○ P0306SC08B	800	306	4700	110 x 10 <sup>3</sup>	12	50	300	20	1.400	0.670	0.1200	W18
○ P0306SC08C	800	306	4700	110 x 10 <sup>3</sup>	15	50	300	20	1.400	0.670	0.1200	W18
○ P0311SC12E	1200	311	3600	64.8 x 10 <sup>3</sup>	25	55	300	20	1.170	0.920	0.1200	W18
○ P0311SC12F	1200	311	3600	64.8 x 10 <sup>3</sup>	30	55	300	20	1.170	0.920	0.1200	W18
○ P0330SC04A	400	330	5000	125 x 10 <sup>3</sup>	10	55	300	20	1.050	0.880	0.1200	W18
○ P0330SC04C	400	330	5000	125 x 10 <sup>3</sup>	15	55	300	20	1.050	0.880	0.1200	W18
○ P0330SC06A	600	330	5000	125 x 10 <sup>3</sup>	10	55	300	20	1.050	0.880	0.1200	W18
○ P0330SC06C	600	330	5000	125 x 10 <sup>3</sup>	15	55	300	20	1.050	0.880	0.1200	W18
○ P0330SC08A	800	330	5000	125 x 10 <sup>3</sup>	10	55	300	20	1.050	0.880	0.1200	W18
○ P0330SC08C	800	330	5000	125 x 10 <sup>3</sup>	15	55	300	20	1.050	0.880	0.1200	W18
○ P0431SC04B	400	431	6500	211 x 10 <sup>3</sup>	12	190	300	20	0.950	0.377	0.1200	W18
○ P0431SC04C	400	431	6500	211 x 10 <sup>3</sup>	15	190	300	20	0.950	0.377	0.1200	W18
○ P0431SC06B	600	431	6500	211 x 10 <sup>3</sup>	12	190	300	20	0.950	0.377	0.1200	W18
○ P0431SC06C	600	431	6500	211 x 10 <sup>3</sup>	15	190	300	20	0.950	0.377	0.1200	W18

$T_{JM} = 125^\circ C$

W115 Weight 65

○ P0295WC12D	1200	295	2700	$36.5 \times 10^3$	20	50	300	20	1.600	1.230	0.0950	W8
○ P0295WC12E	1200	295	2700	$36.5 \times 10^3$	25	50	300	20	1.600	1.230	0.0950	W8
○ P0327WC08C	800	327	3250	$63.9 \times 10^3$	15	45	300	20	1.550	0.870	0.0950	W8
○ P0327WC08D	800	327	3250	$63.9 \times 10^3$	20	45	300	20	1.550	0.870	0.0950	W8
○ P0327WC08E	800	327	3250	$63.9 \times 10^3$	25	45	300	20	1.550	0.870	0.0950	W8
○ P0327WC08F	800	327	3250	$63.9 \times 10^3$	30	45	300	20	1.550	0.870	0.0950	W8
○ P0327WC12C	1200	327	3250	$63.9 \times 10^3$	15	45	300	20	1.550	0.870	0.0950	W8
○ P0327WC12D	1200	327	3250	$63.9 \times 10^3$	20	45	300	20	1.550	0.870	0.0950	W8
○ P0327WC12E	1200	327	3250	$63.9 \times 10^3$	25	45	300	20	1.550	0.870	0.0950	W8
○ P0327WC12F	1200	327	3250	$63.9 \times 10^3$	30	45	300	20	1.550	0.870	0.0950	W8
○ P0366WC04A	400	366	4700	$110 \times 10^3$	10	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC04B	400	366	4700	$110 \times 10^3$	12	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC04C	400	366	4700	$110 \times 10^3$	15	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC06A	600	366	4700	$110 \times 10^3$	10	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC06B	600	366	4700	$110 \times 10^3$	12	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC06C	600	366	4700	$110 \times 10^3$	15	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC08A	800	366	4700	$110 \times 10^3$	10	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC08B	800	366	4700	$110 \times 10^3$	12	25	300	20	1.400	0.670	0.0950	W8
○ P0366WC08C	800	366	4700	$110 \times 10^3$	15	25	300	20	1.400	0.670	0.0950	W8
○ P0367WC12E	1200	367	3600	$64.8 \times 10^3$	25	50	300	20	1.170	0.920	0.0950	W8
○ P0367WC12F	1200	367	3600	$64.8 \times 10^3$	30	50	300	20	1.170	0.920	0.0950	W8
○ P0389WC04B	400	389	5000	$125 \times 10^3$	12	30	300	20	1.050	0.880	0.0950	W8
○ P0389WC04C	400	389	5000	$125 \times 10^3$	15	30	300	20	1.050	0.880	0.0950	W8
○ P0389WC08B	800	389	5000	$125 \times 10^3$	12	30	300	20	1.050	0.880	0.0950	W8
○ P0389WC08C	800	389	5000	$125 \times 10^3$	15	30	300	20	1.050	0.880	0.0950	W8
○ P0515WC04B	400	515	6500	$211 \times 10^3$	12	180	300	20	0.950	0.377	0.0950	W8
○ P0515WC04C	400	515	6500	$211 \times 10^3$	15	180	300	20	0.950	0.377	0.0950	W8
○ P0515WC04D	400	515	6500	$211 \times 10^3$	20	180	300	20	0.950	0.377	0.0950	W8
○ P0515WC06B	600	515	6500	$211 \times 10^3$	12	180	300	20	0.950	0.377	0.0950	W8
○ P0515WC06C	600	515	6500	$211 \times 10^3$	15	180	300	20	0.950	0.377	0.0950	W8
○ P0515WC06D	600	515	6500	$211 \times 10^3$	20	180	300	20	0.950	0.377	0.0950	W8
○ P0838LC06B	600	1110	12300	$750 \times 10^3$	12	160	800	50	1.200	0.280	0.0320	W10
○ P0838LC06C	600	1110	12300	$750 \times 10^3$	15	160	800	50	1.200	0.280	0.0320	W10
○ P0838LC08B	800	1110	12300	$750 \times 10^3$	12	160	800	50	1.200	0.280	0.0320	W10
○ P0838LC08C	800	1110	12300	$750 \times 10^3$	15	160	800	50	1.200	0.280	0.0320	W10
○ P0848YC04B	400	848	8750	$383 \times 10^3$	12	200	550	40	1.010	0.305	0.0500	W58
○ P0848YC04C	400	848	8750	$383 \times 10^3$	15	200	550	40	1.010	0.305	0.0500	W58
○ P0848YC06B	600	848	8750	$383 \times 10^3$	12	200	550	40	1.010	0.305	0.0500	W58
○ P0848YC06C	600	848	8750	$383 \times 10^3$	15	200	550	40	1.010	0.305	0.0500	W58
○ P1007LC08D	800	1007	9500	$451 \times 10^3$	20	400	800	50	1.509	0.265	0.0320	W10
○ P1007LC08E	800	1007	9500	$451 \times 10^3$	25	400	800	50	1.509	0.265	0.0320	W10
○ P1007LC08F	800	1007	9500	$451 \times 10^3$	30	400	800	50	1.509	0.265	0.0320	W10
○ P1007LC12D	1200	1007	9500	$451 \times 10^3$	20	400	800	50	1.509	0.265	0.0320	W10
○ P1007LC12E	1200	1007	9500	$451 \times 10^3$	25	400	800	50	1.509	0.265	0.0320	W10
○ P1007LC12F	1200	1007	9500	$451 \times 10^3$	30	400	800	50	1.509	0.265	0.0320	W10

$T_{JM} = 125^\circ\text{C}$

	V	V	A	A	A <sup>2</sup> s	μs	μC	A	A/μs	V	mΩ	K/W	
<b>R0472YC12E</b>	1200	1200	472	4300	92.5 x 10 <sup>3</sup>	25	155	550	40	1.648	1.125	0.05000	W58
<b>R0472YC12F</b>	1200	1200	472	4300	92.5 x 10 <sup>3</sup>	30	155	550	40	1.648	1.125	0.05000	W58
<b>R0472YC16E</b>	1600	1600	472	4300	92.5 x 10 <sup>3</sup>	25	155	550	40	1.648	1.125	0.05000	W58
<b>R0472YC16F</b>	1600	1600	472	4300	92.5 x 10 <sup>3</sup>	30	155	550	40	1.648	1.125	0.05000	W58
<b>R0487YC12D</b>	1200	1200	487	4300	92.5 x 10 <sup>3</sup>	20	90	550	40	1.738	0.943	0.05000	W58
<b>R0487YC12E</b>	1200	1200	487	4300	92.5 x 10 <sup>3</sup>	25	90	550	40	1.738	0.943	0.05000	W58
<b>R0487YC14D</b>	1400	1400	487	4300	92.5 x 10 <sup>3</sup>	20	90	550	40	1.738	0.943	0.05000	W58
<b>R0487YC14E</b>	1400	1400	487	4300	92.5 x 10 <sup>3</sup>	25	90	550	40	1.738	0.943	0.05000	W58
<b>R0577YC12C</b>	1200	1200	577	6000	180 x 10 <sup>3</sup>	15	150	550	40	1.510	0.640	0.05000	W58
<b>R0577YC12D</b>	1200	1200	577	6000	180 x 10 <sup>3</sup>	20	150	550	40	1.510	0.640	0.05000	W58
<b>R0577YC12E</b>	1200	1200	577	6000	180 x 10 <sup>3</sup>	25	150	550	40	1.510	0.640	0.05000	W58
<b>R0633YC12D</b>	1200	1200	633	6300	200 x 10 <sup>3</sup>	20	125	550	40	1.250	0.614	0.05000	W58
<b>R0633YC12E</b>	1200	1200	633	6300	200 x 10 <sup>3</sup>	25	125	550	40	1.250	0.614	0.05000	W58
<b>R0633YC12F</b>	1200	1200	633	6300	200 x 10 <sup>3</sup>	30	125	550	40	1.250	0.614	0.05000	W58
<b>R0717LC14G</b>	1400	1400	717	7050	248.5 x 10 <sup>3</sup>	35	425	1000	60	1.752	0.732	0.03200	W10
<b>R0717LC14H</b>	1400	1400	717	7050	248.5 x 10 <sup>3</sup>	40	425	1000	60	1.752	0.732	0.03200	W10
<b>R0717LC16G</b>	1600	1600	717	7050	248.5 x 10 <sup>3</sup>	35	425	1000	60	1.752	0.732	0.03200	W10
<b>R0717LC16H</b>	1600	1600	717	7050	248.5 x 10 <sup>3</sup>	40	425	1000	60	1.752	0.732	0.03200	W10
<b>R0736LC20J</b>	2000	2000	736	6800	231 x 10 <sup>3</sup>	50	640	1000	60	1.842	0.619	0.03200	W10
<b>R0736LC20K</b>	2000	2000	736	6800	231 x 10 <sup>3</sup>	60	640	1000	60	1.842	0.619	0.03200	W10
<b>R0736LC22J</b>	2200	2000	736	6800	231 x 10 <sup>3</sup>	50	640	1000	60	1.842	0.619	0.03200	W10
<b>R0736LC22K</b>	2200	2000	736	6800	231 x 10 <sup>3</sup>	60	640	1000	60	1.842	0.619	0.03200	W10
<b>R0736LC25J</b>	2500	2000	736	6800	231 x 10 <sup>3</sup>	50	640	1000	60	1.842	0.619	0.03200	W10
<b>R0736LC25K</b>	2500	2000	736	6800	231 x 10 <sup>3</sup>	60	640	1000	60	1.842	0.619	0.03200	W10
<b>R0736LC25L</b>	2500	2000	736	6800	231 x 10 <sup>3</sup>	65	640	1000	60	1.842	0.619	0.03200	W10
<b>R0736LC25M</b>	2500	2000	736	6800	231 x 10 <sup>3</sup>	70	640	1000	60	1.842	0.619	0.03200	W10
<b>R0809LC10A</b>	1000	1000	809	8000	320 x 10 <sup>3</sup>	10	120	1000	60	2.100	0.300	0.03200	W10
<b>R0809LC10B</b>	1000	1000	809	8000	320 x 10 <sup>3</sup>	12	120	1000	60	2.100	0.300	0.03200	W10
<b>R0830LC12C</b>	1200	1200	830	8500	361 x 10 <sup>3</sup>	15	285	1000	60	1.900	0.357	0.03200	W10
<b>R0830LC12D</b>	1200	1200	830	8500	361 x 10 <sup>3</sup>	20	285	1000	60	1.900	0.357	0.03200	W10
<b>R0830LC12E</b>	1200	1200	830	8500	361 x 10 <sup>3</sup>	25	285	1000	60	1.900	0.357	0.03200	W10
<b>R0830LC12F</b>	1200	1200	830	8500	361 x 10 <sup>3</sup>	30	285	1000	60	1.900	0.357	0.03200	W10
<b>R0830LC14C</b>	1400	1400	830	8500	361 x 10 <sup>3</sup>	15	285	1000	60	1.900	0.357	0.03200	W10
<b>R0830LC14D</b>	1400	1400	830	8500	361 x 10 <sup>3</sup>	20	285	1000	60	1.900	0.357	0.03200	W10
<b>R0830LC14E</b>	1400	1400	830	8500	361 x 10 <sup>3</sup>	25	285	1000	60	1.900	0.357	0.03200	W10
<b>R0830LC14F</b>	1400	1400	830	8500	361 x 10 <sup>3</sup>	30	285	1000	60	1.900	0.357	0.03200	W10
<b>R0878LC18K</b>	1800	1800	878	7500	281 x 10 <sup>3</sup>	60	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC18L</b>	1800	1800	878	7500	281 x 10 <sup>3</sup>	65	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC18M</b>	1800	1800	878	7500	281 x 10 <sup>3</sup>	70	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC20K</b>	2000	1800	878	7500	281 x 10 <sup>3</sup>	60	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC20L</b>	2000	1800	878	7500	281 x 10 <sup>3</sup>	65	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC20M</b>	2000	1800	878	7500	281 x 10 <sup>3</sup>	70	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC21K</b>	2100	1800	878	7500	281 x 10 <sup>3</sup>	60	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC21L</b>	2100	1800	878	7500	281 x 10 <sup>3</sup>	65	720	1000	60	1.447	0.480	0.03200	W10
<b>R0878LC21M</b>	2100	1800	878	7500	281 x 10 <sup>3</sup>	70	720	1000	60	1.447	0.480	0.03200	W10
<b>R0929LC12A</b>	1200	1200	929	9000	405 x 10 <sup>3</sup>	10	150	1000	60	1.549	0.350	0.03200	W10
<b>R0929LC12B</b>	1200	1200	929	9000	405 x 10 <sup>3</sup>	12	150	1000	60	1.549	0.350	0.03200	W10
<b>R0929LC12C</b>	1200	1200	929	9000	405 x 10 <sup>3</sup>	15	150	1000	60	1.549	0.350	0.03200	W10
<b>R0964LC10C</b>	1000	1000	964	9400	442 x 10 <sup>3</sup>	15	170	1000	60	1.530	0.309	0.03200	W10
<b>R0964LC10D</b>	1000	1000	964	9400	442 x 10 <sup>3</sup>	20	170	1000	60	1.530	0.309	0.03200	W10
<b>R0964LC10E</b>	1000	1000	964	9400	442 x 10 <sup>3</sup>	25	170	1000	60	1.530	0.309	0.03200	W10
<b>R0964LC12C</b>	1200	1200	964	9400	442 x 10 <sup>3</sup>	15	170	1000	60	1.530	0.309	0.03200	W10
<b>R0964LC12D</b>	1200	1200	964	9400	442 x 10 <sup>3</sup>	20	170	1000	60	1.530	0.309	0.03200	W10
<b>R0964LC12E</b>	1200	1200	964	9400	442 x 10 <sup>3</sup>	25	170	1000	60	1.530	0.309	0.03200	W10

<b>R0990LC08C</b>	800	800	990	11000	605 x 10 <sup>3</sup>	15	90	1000	60	1.350	0.350	0.03200	W10
➤ <b>R1045NC28L</b>	2800	2800	1055	12500	781 x 10 <sup>3</sup>	60	950	1000	60	1.640	0.430	0.02400	W11
➤ <b>R1045NC28M</b>	2800	2800	1055	12500	781 x 10 <sup>3</sup>	70	950	1000	60	1.640	0.430	0.02400	W11
➤ <b>R1045NC32L</b>	3200	3200	1055	12500	781 x 10 <sup>3</sup>	60	950	1000	60	1.640	0.430	0.02400	W11
➤ <b>R1045NC32M</b>	3200	3200	1055	12500	781 x 10 <sup>3</sup>	70	950	1000	60	1.640	0.430	0.02400	W11
<b>R1124NC18J</b>	1800	1800	1124	13500	0.91 x 10 <sup>6</sup>	50	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC18K</b>	1800	1800	1124	13500	0.91 x 10 <sup>6</sup>	60	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC18L</b>	1800	1800	1124	13500	0.91 x 10 <sup>6</sup>	65	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC18M</b>	1800	1800	1124	13500	0.91 x 10 <sup>6</sup>	70	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC20J</b>	2000	1800	1124	13500	0.91 x 10 <sup>6</sup>	50	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC20K</b>	2000	1800	1124	13500	0.91 x 10 <sup>6</sup>	60	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC20L</b>	2000	1800	1124	13500	0.91 x 10 <sup>6</sup>	65	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC20M</b>	2000	1800	1124	13500	0.91 x 10 <sup>6</sup>	70	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC21J</b>	2100	1800	1124	13500	0.91 x 10 <sup>6</sup>	50	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC21K</b>	2100	1800	1124	13500	0.91 x 10 <sup>6</sup>	60	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC21L</b>	2100	1800	1124	13500	0.91 x 10 <sup>6</sup>	65	640	1000	60	1.540	0.379	0.02400	W11
<b>R1124NC21M</b>	2100	1800	1124	13500	0.91 x 10 <sup>6</sup>	70	640	1000	60	1.540	0.379	0.02400	W11
<b>R1127NC32P</b>	3200	3200	1127	12800	819 x 10 <sup>3</sup>	120	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC32R</b>	3200	3200	1127	12800	819 x 10 <sup>3</sup>	140	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC32S</b>	3200	3200	1127	12800	819 x 10 <sup>3</sup>	160	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC32T</b>	3200	3200	1127	12800	819 x 10 <sup>3</sup>	200	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC34R</b>	3400	3400	1127	12800	819 x 10 <sup>3</sup>	140	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC34S</b>	3400	3400	1127	12800	819 x 10 <sup>3</sup>	160	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC34T</b>	3400	3400	1127	12800	819 x 10 <sup>3</sup>	200	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC36R</b>	3600	3600	1127	12800	819 x 10 <sup>3</sup>	140	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC36S</b>	3600	3600	1127	12800	819 x 10 <sup>3</sup>	160	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1127NC36T</b>	3600	3600	1127	12800	819 x 10 <sup>3</sup>	200	3500	1000	60	1.500	0.474	0.02200	W11
<b>R1158NC26N</b>	2600	2600	1158	14500	1.05 x 10 <sup>6</sup>	100	1600	1000	60	1.600	0.400	0.02200	W11
<b>R1158NC26P</b>	2600	2600	1158	14500	1.05 x 10 <sup>6</sup>	120	1600	1000	60	1.600	0.400	0.02200	W11
<b>R1158NC26T</b>	2600	2600	1158	14500	1.05 x 10 <sup>6</sup>	200	1600	1000	60	1.600	0.400	0.02200	W11
<b>R1178NC14E</b>	1400	1400	1178	17000	1.45 x 10 <sup>6</sup>	25	320	1000	60	1.600	0.300	0.02400	W11
<b>R1178NC14F</b>	1400	1400	1178	17000	1.45 x 10 <sup>6</sup>	30	320	1000	60	1.600	0.300	0.02400	W11
<b>R1178NC14G</b>	1400	1400	1178	17000	1.45 x 10 <sup>6</sup>	35	320	1000	60	1.600	0.300	0.02400	W11
<b>R1211NC12C</b>	1200	1200	1211	17600	1.548 x 10 <sup>6</sup>	15	230	1000	60	1.720	0.230	0.02400	W11
<b>R1211NC12D</b>	1200	1200	1211	17600	1.548 x 10 <sup>6</sup>	20	230	1000	60	1.720	0.230	0.02400	W11
<b>R1211NC12E</b>	1200	1200	1211	17600	1.548 x 10 <sup>6</sup>	25	230	1000	60	1.720	0.230	0.02400	W11
<b>R1271NC12B</b>	1200	1200	1271	18000	1.62 x 10 <sup>6</sup>	12	200	1000	60	1.547	0.237	0.02400	W11
<b>R1271NC12C</b>	1200	1200	1271	18000	1.62 x 10 <sup>6</sup>	15	200	1000	60	1.547	0.237	0.02400	W11
<b>R1271NC12D</b>	1200	1200	1271	18000	1.62 x 10 <sup>6</sup>	20	200	1000	60	1.547	0.237	0.02400	W11
<b>R1271NC12E</b>	1200	1200	1271	18000	1.62 x 10 <sup>6</sup>	25	200	1000	60	1.547	0.237	0.02400	W11
<b>R1275NC18L</b>	1800	1800	1275	15500	1.20 x 10 <sup>6</sup>	65	940	1000	60	1.207	0.342	0.02400	W11
<b>R1275NC18M</b>	1800	1800	1275	15500	1.20 x 10 <sup>6</sup>	70	940	1000	60	1.207	0.342	0.02400	W11
<b>R1275NC20L</b>	2000	1800	1275	15500	1.20 x 10 <sup>6</sup>	65	940	1000	60	1.207	0.342	0.02400	W11
<b>R1275NC20M</b>	2000	1800	1275	15500	1.20 x 10 <sup>6</sup>	70	940	1000	60	1.207	0.342	0.02400	W11
<b>R1275NC21L</b>	2100	1800	1275	15500	1.20 x 10 <sup>6</sup>	65	940	1000	60	1.207	0.342	0.02400	W11
<b>R1275NC21M</b>	2100	1800	1275	15500	1.20 x 10 <sup>6</sup>	70	940	1000	60	1.207	0.342	0.02400	W11
○ <b>R1279NC22J</b>	2200	2200	1279	14800	1.10 x 10 <sup>6</sup>	50	1250	1000	60	1.440	0.330	0.02200	W11
○ <b>R1279NC22K</b>	2200	2200	1279	14800	1.10 x 10 <sup>6</sup>	60	1250	1000	60	1.440	0.330	0.02200	W11
○ <b>R1279NC22L</b>	2200	2200	1279	14800	1.10 x 10 <sup>6</sup>	65	1250	1000	60	1.440	0.330	0.02200	W11
○ <b>R1279NC22M</b>	2200	2200	1279	14800	1.10 x 10 <sup>6</sup>	70	1250	1000	60	1.440	0.330	0.02200	W11
○ <b>R1279NC25J</b>	2500	2500	1279	14800	1.10 x 10 <sup>6</sup>	50	1250	1000	60	1.440	0.330	0.02200	W11
○ <b>R1279NC25K</b>	2500	2500	1279	14800	1.10 x 10 <sup>6</sup>	60	1250	1000	60	1.440	0.330	0.02200	W11
○ <b>R1279NC25L</b>	2500	2500	1279	14800	1.10 x 10 <sup>6</sup>	65	1250	1000	60	1.440	0.330	0.02200	W11
○ <b>R1279NC25M</b>	2500	2500	1279	14800	1.10 x 10 <sup>6</sup>	70	1250	1000	60	1.440	0.330	0.02200	W11

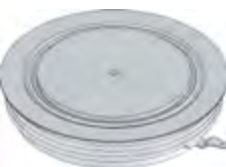
○ R1280NC21L	2100	2100	1280	14800	1.10 x 10 <sup>6</sup>	65	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC21M	2100	2100	1280	14800	1.10 x 10 <sup>6</sup>	70	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC22J	2200	2100	1280	14800	1.10 x 10 <sup>6</sup>	50	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC22K	2200	2100	1280	14800	1.10 x 10 <sup>6</sup>	60	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC22L	2200	2100	1280	14800	1.10 x 10 <sup>6</sup>	65	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC22M	2200	2100	1280	14800	1.10 x 10 <sup>6</sup>	70	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC25J	2500	2100	1280	14800	1.10 x 10 <sup>6</sup>	50	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC25K	2500	2100	1280	14800	1.10 x 10 <sup>6</sup>	60	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC25L	2500	2100	1280	14800	1.10 x 10 <sup>6</sup>	65	1200	1000	60	1.440	0.330	0.02200	W11
○ R1280NC25M	2500	2100	1280	14800	1.10 x 10 <sup>6</sup>	70	1200	1000	60	1.440	0.330	0.02200	W11
○ R1331NC10B	1000	1000	1331	18200	1.66 x 10 <sup>6</sup>	12	200	1000	60	1.450	0.285	0.02200	W11
○ R1331NC10C	1000	1000	1331	18200	1.66 x 10 <sup>6</sup>	15	200	1000	60	1.450	0.285	0.02200	W11
○ R1331NC10D	1000	1000	1331	18200	1.66 x 10 <sup>6</sup>	20	200	1000	60	1.450	0.285	0.02200	W11
○ R1331NC12B	1200	1200	1331	18200	1.66 x 10 <sup>6</sup>	12	200	1000	60	1.450	0.285	0.02200	W11
○ R1331NC12C	1200	1200	1331	18200	1.66 x 10 <sup>6</sup>	15	200	1000	60	1.450	0.285	0.02200	W11
○ R1331NC12D	1200	1200	1331	18200	1.66 x 10 <sup>6</sup>	20	200	1000	60	1.450	0.285	0.02200	W11
<b>R1446NC12C</b>	1200	1200	1446	19500	1.90 x 10 <sup>6</sup>	15	300	1000	60	1.304	0.199	0.02400	W11
<b>R1446NC12D</b>	1200	1200	1446	19500	1.90 x 10 <sup>6</sup>	20	300	1000	60	1.304	0.199	0.02400	W11
<b>R1446NC12E</b>	1200	1200	1446	19500	1.90 x 10 <sup>6</sup>	25	300	1000	60	1.304	0.199	0.02400	W11
<b>R1446NC12F</b>	1200	1200	1446	19500	1.90 x 10 <sup>6</sup>	30	300	1000	60	1.304	0.199	0.02400	W11
○ R1448NC14H	1400	1400	1448	15500	1.20 x 10 <sup>6</sup>	40	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC14J	1400	1400	1448	15500	1.20 x 10 <sup>6</sup>	50	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC18H	1800	1800	1448	15500	1.20 x 10 <sup>6</sup>	40	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC18J	1800	1800	1448	15500	1.20 x 10 <sup>6</sup>	50	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC20H	2000	2000	1448	15500	1.20 x 10 <sup>6</sup>	40	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC20J	2000	2000	1448	15500	1.20 x 10 <sup>6</sup>	50	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC20K	2000	2000	1448	15500	1.20 x 10 <sup>6</sup>	60	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC20L	2000	2000	1448	15500	1.20 x 10 <sup>6</sup>	65	950	1000	60	1.300	0.250	0.02200	W11
○ R1448NC20M	2000	2000	1448	15500	1.20 x 10 <sup>6</sup>	70	950	1000	60	1.300	0.250	0.02200	W11
<b>R1605MC20E</b>	2000	2000	1605	20700	2.14 x 10 <sup>6</sup>	25	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC20F</b>	2000	2000	1605	20700	2.14 x 10 <sup>6</sup>	30	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC20G</b>	2000	2000	1605	20700	2.14 x 10 <sup>6</sup>	35	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC20H</b>	2000	2000	1605	20700	2.14 x 10 <sup>6</sup>	40	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC20J</b>	2000	2000	1605	20700	2.14 x 10 <sup>6</sup>	50	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC22E</b>	2200	2200	1605	20700	2.14 x 10 <sup>6</sup>	25	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC22F</b>	2200	2200	1605	20700	2.14 x 10 <sup>6</sup>	30	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC22G</b>	2200	2200	1605	20700	2.14 x 10 <sup>6</sup>	35	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC22H</b>	2200	2200	1605	20700	2.14 x 10 <sup>6</sup>	40	900	1000	60	2.100	0.200	0.01500	W70
<b>R1605MC22J</b>	2200	2200	1605	20700	2.14 x 10 <sup>6</sup>	50	900	1000	60	2.100	0.200	0.01500	W70
<b>R1700MC18E</b>	1800	1800	1700	20000	2.0 x 10 <sup>6</sup>	25	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC18F</b>	1800	1800	1700	20000	2.0 x 10 <sup>6</sup>	30	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC18G</b>	1800	1800	1700	20000	2.0 x 10 <sup>6</sup>	35	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC18H</b>	1800	1800	1700	20000	2.0 x 10 <sup>6</sup>	40	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC18J</b>	1800	1800	1700	20000	2.0 x 10 <sup>6</sup>	50	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC21E</b>	2100	1800	1700	20000	2.0 x 10 <sup>6</sup>	25	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC21F</b>	2100	1800	1700	20000	2.0 x 10 <sup>6</sup>	30	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC21G</b>	2100	1800	1700	20000	2.0 x 10 <sup>6</sup>	35	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC21H</b>	2100	1800	1700	20000	2.0 x 10 <sup>6</sup>	40	1400	1000	60	1.600	0.250	0.01500	W70
<b>R1700MC21J</b>	2100	1800	1700	20000	2.0 x 10 <sup>6</sup>	50	1400	1000	60	1.600	0.250	0.01500	W70

<b>R1955MC14F</b>	1400	1400	1955	26500	3.51x10 <sup>6</sup>	30	1000	1000	60	1.460	0.910	0.01500	W70
<b>R1955MC16D</b>	1600	1600	1955	26500	3.51 x 10 <sup>6</sup>	20	1000	1000	60	1.460	0.910	0.01500	W70
<b>R1955MC16E</b>	1600	1600	1955	26500	3.51 x 10 <sup>6</sup>	25	1000	1000	60	1.460	0.910	0.01500	W70
<b>R1955MC16F</b>	1600	1600	1955	26500	3.51 x 10 <sup>6</sup>	30	1000	1000	60	1.460	0.910	0.01500	W70
<b>R2075MC12A</b>	1200	1200	2075	29000	4.21 x 10 <sup>6</sup>	10	300	1000	60	1.390	0.167	0.01500	W70
<b>R2075MC12B</b>	1200	1200	2075	29000	4.21 x 10 <sup>6</sup>	12	300	1000	60	1.390	0.167	0.01500	W70
<b>R2075MC12C</b>	1200	1200	2075	29000	4.21 x 10 <sup>6</sup>	15	300	1000	60	1.390	0.167	0.01500	W70
➤ <b>R2295HA22F</b>	2200	2200	2295	30000	4.50 x 10 <sup>6</sup>	30	875	1000	60	1.690	0.190	0.01100	W79
➤ <b>R2295HA22H</b>	2200	2200	2295	30000	4.50 x 10 <sup>6</sup>	40	875	1000	60	1.690	0.190	0.01100	W79
<b>R2475ZC28M</b>	2800	2800	2475	31000	4.81 x 10 <sup>6</sup>	70	3900	4000	60	1.504	0.174	0.01100	W13
<b>R2475ZC28N</b>	2800	2800	2475	31000	4.81 x 10 <sup>6</sup>	100	3900	4000	60	1.504	0.174	0.01100	W13
<b>R2475ZC28R</b>	2800	2800	2475	31000	4.81 x 10 <sup>6</sup>	140	3900	4000	60	1.504	0.174	0.01100	W13
<b>R2475ZD28M</b>	2800	2800	2475	31000	4.81 x 10 <sup>6</sup>	70	3900	4000	60	1.504	0.174	0.01100	W46
<b>R2475ZD28N</b>	2800	2800	2475	31000	4.81 x 10 <sup>6</sup>	100	3900	4000	60	1.504	0.174	0.01100	W46
<b>R2475ZD28R</b>	2800	2800	2475	31000	4.81 x 10 <sup>6</sup>	140	3900	4000	60	1.504	0.174	0.01100	W46
<b>R2619ZC18J</b>	1800	1800	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC18K</b>	1800	1800	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC18L</b>	1800	1800	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC20J</b>	2000	2000	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC20K</b>	2000	2000	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC20L</b>	2000	2000	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC21J</b>	2100	2100	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC21K</b>	2100	2100	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC21L</b>	2100	2100	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC25J</b>	2500	2100	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC25K</b>	2500	2100	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZC25L</b>	2500	2100	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W13
<b>R2619ZD18J</b>	1800	1800	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD18K</b>	1800	1800	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD18L</b>	1800	1800	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD20J</b>	2000	2000	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD20K</b>	2000	2000	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD20L</b>	2000	2000	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD21J</b>	2100	2100	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD21K</b>	2100	2100	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD21L</b>	2100	2100	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD25J</b>	2500	2100	2619	33800	5.71 x 10 <sup>6</sup>	50	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD25K</b>	2500	2100	2619	33800	5.71 x 10 <sup>6</sup>	60	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2619ZD25L</b>	2500	2100	2619	33800	5.71 x 10 <sup>6</sup>	65	1850	4000	60	1.308	0.173	0.01100	W46
<b>R2620ZC22J</b>	2200	2200	2620	33800	5.71 x 10 <sup>6</sup>	50	2100	4000	60	1.500	0.143	0.01100	W13
<b>R2620ZC22K</b>	2200	2200	2620	33800	5.71 x 10 <sup>6</sup>	60	2100	4000	60	1.500	0.143	0.01100	W13
<b>R2620ZC22L</b>	2200	2200	2620	33800	5.71 x 10 <sup>6</sup>	65	2100	4000	60	1.500	0.143	0.01100	W13
<b>R2620ZC25J</b>	2500	2500	2620	33800	5.71 x 10 <sup>6</sup>	50	2100	4000	60	1.500	0.143	0.01100	W13
<b>R2620ZC25K</b>	2500	2500	2620	33800	5.71 x 10 <sup>6</sup>	60	2100	4000	60	1.500	0.143	0.01100	W13
<b>R2620ZC25L</b>	2500	2500	2620	33800	5.71 x 10 <sup>6</sup>	65	2100	4000	60	1.500	0.143	0.01100	W13
<b>R2620ZD22J</b>	2200	2200	2620	33800	5.71 x 10 <sup>6</sup>	50	2100	4000	60	1.500	0.143	0.01100	W46
<b>R2620ZD22K</b>	2200	2200	2620	33800	5.71 x 10 <sup>6</sup>	60	2100	4000	60	1.500	0.143	0.01100	W46
<b>R2620ZD22L</b>	2200	2200	2620	33800	5.71 x 10 <sup>6</sup>	65	2100	4000	60	1.500	0.143	0.01100	W46
<b>R2620ZD25J</b>	2500	2500	2620	33800	5.71 x 10 <sup>6</sup>	50	2100	4000	60	1.500	0.143	0.01100	W46
<b>R2620ZD25K</b>	2500	2500	2620	33800	5.71 x 10 <sup>6</sup>	60	2100	4000	60	1.500	0.143	0.01100	W46
<b>R2620ZD25L</b>	2500	2500	2620	33800	5.71 x 10 <sup>6</sup>	65	2100	4000	60	1.500	0.143	0.01100	W46

<b>R2714ZC14K</b>	1400	1400	2714	35600	6.34 x 10 <sup>6</sup>	60	1400	4000	60	1.250	0.163	0.01100	W13
<b>R2714ZC18H</b>	1800	1800	2714	35600	6.34 x 10 <sup>6</sup>	40	1400	4000	60	1.250	0.163	0.01100	W13
<b>R2714ZC18J</b>	1800	1800	2714	35600	6.34 x 10 <sup>6</sup>	50	1400	4000	60	1.250	0.163	0.01100	W13
<b>R2714ZC18K</b>	1800	1800	2714	35600	6.34 x 10 <sup>6</sup>	60	1400	4000	60	1.250	0.163	0.01100	W13
<b>R2714ZD14H</b>	1400	1400	2714	35600	6.34 x 10 <sup>6</sup>	40	1400	4000	60	1.250	0.163	0.01100	W46
<b>R2714ZD14J</b>	1400	1400	2714	35600	6.34 x 10 <sup>6</sup>	50	1400	4000	60	1.250	0.163	0.01100	W46
<b>R2714ZD14K</b>	1400	1400	2714	35600	6.34 x 10 <sup>6</sup>	60	1400	4000	60	1.250	0.163	0.01100	W46
<b>R2714ZD18H</b>	1800	1800	2714	35600	6.34 x 10 <sup>6</sup>	40	1400	4000	60	1.250	0.163	0.01100	W46
<b>R2714ZD18J</b>	1800	1800	2714	35600	6.34 x 10 <sup>6</sup>	50	1400	4000	60	1.250	0.163	0.01100	W46
<b>R2714ZD18K</b>	1800	1800	2714	35600	6.34 x 10 <sup>6</sup>	60	1400	4000	60	1.250	0.163	0.01100	W46
○ <b>R3047TC24K</b>	2400	2400	3047	50000	12.5 x 10 <sup>6</sup>	60	2100	4000	60	1.580	0.170	0.00800	W14
○ <b>R3047TC24M</b>	2400	2400	3047	50000	12.5 x 10 <sup>6</sup>	70	2100	4000	60	1.580	0.170	0.00800	W14
○ <b>R3047TC24N</b>	2400	2400	3047	50000	12.5 x 10 <sup>6</sup>	100	2100	4000	60	1.580	0.170	0.00800	W14
○ <b>R3047TC28K</b>	2800	2800	3047	50000	12.5 x 10 <sup>6</sup>	60	2100	4000	60	1.580	0.170	0.00800	W14
○ <b>R3047TC28M</b>	2800	2800	3047	50000	12.5 x 10 <sup>6</sup>	70	2100	4000	60	1.580	0.170	0.00800	W14
○ <b>R3047TC28N</b>	2800	2800	3047	50000	12.5 x 10 <sup>6</sup>	100	2100	4000	60	1.580	0.170	0.00800	W14
➤ <b>R3115TJ24J</b>	2400	2400	3115	56000	15.68 x 10 <sup>6</sup>	50	3350	2000	60	1.884	0.120	0.00800	W81
➤ <b>R3115TJ24K</b>	2400	2400	3115	56000	15.68 x 10 <sup>6</sup>	60	3350	2000	60	1.884	0.120	0.00800	W81
➤ <b>R3115TJ28J</b>	2800	2800	3115	56000	15.68 x 10 <sup>6</sup>	50	3350	2000	60	1.884	0.120	0.00800	W81
➤ <b>R3115TJ28K</b>	2800	2800	3115	56000	15.68 x 10 <sup>6</sup>	60	3350	2000	60	1.884	0.120	0.00800	W81
<b>R3370ZC12C</b>	1200	1200	3370	43900	9.64 x 10 <sup>6</sup>	15	600	4000	60	1.353	0.064	0.01100	W13
<b>R3370ZC12D</b>	1200	1200	3370	43900	9.64 x 10 <sup>6</sup>	20	600	4000	60	1.353	0.064	0.01100	W13
<b>R3370ZC12E</b>	1200	1200	3370	43900	9.64 x 10 <sup>6</sup>	25	600	4000	60	1.353	0.064	0.01100	W13
<b>R3370ZD12C</b>	1200	1200	3370	43900	9.64 x 10 <sup>6</sup>	15	600	4000	60	1.353	0.064	0.01100	W46
<b>R3370ZD12D</b>	1200	1200	3370	43900	9.64 x 10 <sup>6</sup>	20	600	4000	60	1.353	0.064	0.01100	W46
<b>R3370ZD12E</b>	1200	1200	3370	43900	9.64 x 10 <sup>6</sup>	25	600	4000	60	1.353	0.064	0.01100	W46
○ <b>R3559TC20K</b>	2000	2000	3559	38900	7.57 x 10 <sup>6</sup>	60	1750	4000	60	1.173	0.155	0.00800	W14
○ <b>R3559TC20M</b>	2000	2000	3559	38900	7.57 x 10 <sup>6</sup>	70	1750	4000	60	1.173	0.155	0.00800	W14
○ <b>R3559TC20N</b>	2000	2000	3559	38900	7.57 x 10 <sup>6</sup>	100	1750	4000	60	1.173	0.155	0.00800	W14
○ <b>R3968FC24K</b>	2400	2400	4001	66000	21.78 x 10 <sup>6</sup>	60	2600	4000	60	1.453	0.125	0.00650	W15
○ <b>R3968FC24M</b>	2400	2400	4001	66000	21.78 x 10 <sup>6</sup>	70	2600	4000	60	1.453	0.125	0.00650	W15
○ <b>R3968FC24N</b>	2400	2400	4001	66000	21.78 x 10 <sup>6</sup>	100	2600	4000	60	1.453	0.125	0.00650	W15
○ <b>R3968FC28K</b>	2800	2800	4001	66000	21.78 x 10 <sup>6</sup>	60	2600	4000	60	1.453	0.125	0.00650	W15
○ <b>R3968FC28M</b>	2800	2800	4001	66000	21.78 x 10 <sup>6</sup>	70	2600	4000	60	1.453	0.125	0.00650	W15
○ <b>R3968FC28N</b>	2800	2800	4001	66000	21.78 x 10 <sup>6</sup>	100	2600	4000	60	1.453	0.125	0.00650	W15
➤ <b>R4680EA24K</b>	2400	2400	4680	67000	22.40 x 10 <sup>6</sup>	60	3000	1000	60	1.509	0.128	0.00500	W107
➤ <b>R4680EA24L</b>	2400	2400	4680	67000	22.40 x 10 <sup>6</sup>	65	3000	1000	60	1.509	0.128	0.00500	W107
➤ <b>R4680EA24M</b>	2400	2400	4680	67000	22.40 x 10 <sup>6</sup>	70	3000	1000	60	1.509	0.128	0.00500	W107
➤ <b>R4680EA28K</b>	2800	2800	4680	67000	22.40 x 10 <sup>6</sup>	60	3000	1000	60	1.509	0.128	0.00500	W107
➤ <b>R4680EA28L</b>	2800	2800	4680	67000	22.40 x 10 <sup>6</sup>	65	3000	1000	60	1.509	0.128	0.00500	W107
➤ <b>R4680EA28M</b>	2800	2800	4680	67000	22.40 x 10 <sup>6</sup>	70	3000	1000	60	1.509	0.128	0.00500	W107
➤ <b>R5145FA42V</b>	4200	4500	5145	66000	21.78 x 10 <sup>6</sup>	250	12000	4000	60	1.659	0.107	0.00450	W118
➤ <b>R5145FA42W</b>	4200	4500	5145	66000	21.78 x 10 <sup>6</sup>	300	12000	4000	60	1.659	0.107	0.00450	W118
➤ <b>R5145FA45V</b>	4500	4500	5145	66000	21.78 x 10 <sup>6</sup>	250	12000	4000	60	1.659	0.107	0.00450	W118
➤ <b>R5145FA45W</b>	4500	4500	5145	66000	21.78 x 10 <sup>6</sup>	300	12000	4000	60	1.659	0.107	0.00450	W118
➤ <b>R5370EA18J</b>	1800	1800	5370	70000	24.5 x 10 <sup>6</sup>	50	3000	1000	60	1.661	0.071	0.00500	W107
➤ <b>R5370EA18K</b>	1800	1800	5370	70000	24.5 x 10 <sup>6</sup>	60	3000	1000	60	1.661	0.071	0.00500	W107
➤ <b>R5370EA22J</b>	2200	2200	5370	70000	24.5 x 10 <sup>6</sup>	50	3000	1000	60	1.661	0.071	0.00500	W107
➤ <b>R5370EA22K</b>	2200	2200	5370	70000	24.5 x 10 <sup>6</sup>	60	3000	1000	60	1.661	0.071	0.00500	W107



W107 Weight 1.6 kg



W81 Weight 1.2 kg



	V	V	55°C A	A	A <sup>2</sup> s	typ. μs	200 V/μs μC	T <sub>JM</sub> A/μs	T <sub>JM</sub> V/μs	V	mΩ
<b>A0516YC240</b>	2400	10	516	5700	151 x 10 <sup>3</sup>	0.5	55	2000	3000	1.630	0.850
<b>A0516YC280</b>	2800	10	516	5700	151 x 10 <sup>3</sup>	0.5	55	2000	3000	1.630	0.850
<b>A1237NC240</b>	2400	30	1237	18000	1.62 x 10 <sup>6</sup>	0.9	30	2000	3000	1.707	0.212
<b>A1237NC280</b>	2800	30	1237	18000	1.62 x 10 <sup>6</sup>	0.9	30	2000	3000	1.707	0.212

Outlines on pages O-01...O-35



W11 Weight 510 g



W58 Weight 90 g

## Pulse Thyristors

IXYS UK Westcode Ltd are at the forefront of solid state pulsed power technology, offering custom solutions to power problems.

Standard Devices with voltage ratings to 2.5kV, pulsed currents to 150kA peak and di/dt capabilities to over 30kA/μs. Please consult factory for other requirements for voltage ratings up to 4.5kV and pulsed current ratings >200kA.

Part No.	V <sub>DRM</sub>	V <sub>RRM</sub>	V <sub>DC</sub>	I <sub>PULSE</sub>	(di/dt) <sub>cr</sub>	V <sub>TO</sub>	r <sub>T</sub>	T <sub>JM</sub>	R <sub>thJC</sub>	Fig. No.
	V <sub>GK</sub> = 2 V		V <sub>GK</sub> = 2 V			@T <sub>JM</sub>			180° Sine	
	V	V	V	kA	kA/μs	V	mΩ	°C	K/W	
<b>Y200CKC250</b>	2500	2000	1500	20	5	1.216	2.20	125	0.065	W34
<b>Y500CNC250</b>	2500	2000	1500	50	11	1.755	1.12	125	0.027	W36



W34 Weight 120 g



W36 Weight 500 g



➤ <b>G1000NC45B</b>	4500	18	1000	2.0	545	8.00	320 × 10 <sup>3</sup>	3.5	15	4.0	125
<b>G1000QC25B</b>	2500	18	1000	1.0	615	8.00	320 × 10 <sup>3</sup>	2.8	13	2.5	125
<b>G1000QC45B</b>	4500	18	1000	1.0	443	6.50	211 × 10 <sup>3</sup>	3.4	14	4.0	125
<b>G2000HF250</b>	2500	18	2000	4.0	1030	16.00	1.28 × 10 <sup>6</sup>	3.0	25	2.8	125
<b>G2000HF450</b>	4500	18	2000	4.0	890	13.70	938 × 10 <sup>3</sup>	4.0	25	3.5	125
<b>G2500HF250</b>	2500	18	2500	6.0	1085	16.00	1.28 × 10 <sup>6</sup>	3.0	25	3.1	125
<b>G3000TF250</b>	2500	18	3000	5.0	1690	30.00	4.5 × 10 <sup>6</sup>	3.5	26	2.5	125
<b>G3000TF450</b>	4500	18	3000	6.0	1381	24.00	2.88 × 10 <sup>6</sup>	4.0	22	4.0	125
➤ <b>G4000EF250</b>	2500	18	4000	6.0	2005	32.00	5.12 × 10 <sup>6</sup>	4.5	28	3.0	125
<b>G4000EF450</b>	4500	18	4000	6.0	1480	26.00	3.38 × 10 <sup>6</sup>	4.0	30	4.4	125
<b>H0500KC200</b>	2000	2000	500	1.0	280	3.00	45 × 10 <sup>3</sup>	2.0	5	3.2	125
<b>H0500KC20Y</b>	2000	100	500	1.0	280	3.00	45 × 10 <sup>3</sup>	2.0	5	3.2	125
<b>H0500KC25D</b>	2500	2000	500	1.0	280	3.00	45 × 10 <sup>3</sup>	2.0	5	3.2	125
<b>H0500KC25Y</b>	2500	100	500	1.0	280	3.00	45 × 10 <sup>3</sup>	2.0	5	3.2	125
<b>H0700KC140</b>	1400	1400	700	1.5	360	4.00	80 × 10 <sup>3</sup>	3.0	5	2.8	125
<b>H0700KC14Y</b>	1400	100	700	1.5	360	4.00	80 × 10 <sup>3</sup>	3.0	5	2.8	125
<b>H0700KC17D</b>	1700	1400	700	1.5	360	4.00	80 × 10 <sup>3</sup>	3.0	5	2.8	125
<b>H0700KC17Y</b>	1700	100	700	1.5	360	4.00	80 × 10 <sup>3</sup>	3.0	5	2.8	125
<b>H1200NC200</b>	2000	2000	1200	3.0	670	10.50	550 × 10 <sup>3</sup>	3.0	12	3.3	125
<b>H1200NC20Y</b>	2000	100	1200	3.0	670	10.50	550 × 10 <sup>3</sup>	3.0	12	3.3	125
<b>H1200NC25D</b>	2500	2000	1200	3.0	670	10.50	550 × 10 <sup>3</sup>	3.0	12	3.3	125
<b>H1200NC25Y</b>	2500	100	1200	3.0	670	10.50	550 × 10 <sup>3</sup>	3.0	12	3.3	125
<b>S0300SR12Y</b>	1200	100	480	1.0	215	3.50	61.2 × 10 <sup>3</sup>	3.5	9	2.4	125
<b>S0500YC20Y</b>	2000	100	500	1.0	275	4.00	80 × 10 <sup>3</sup>	3.5	10	2.5	125
<b>S0500YC25Y</b>	2500	100	500	1.0	275	4.00	80 × 10 <sup>3</sup>	3.5	10	2.5	125
<b>S0500KC200</b>	2000	2000	500	1.0	330	4.00	80 × 10 <sup>3</sup>	3.5	10	2.5	125
<b>S0500KC20Y</b>	2000	100	500	1.0	330	4.00	80 × 10 <sup>3</sup>	3.5	10	2.5	125
<b>S0500KC25D</b>	2500	2000	500	1.0	330	4.00	80 × 10 <sup>3</sup>	3.5	10	2.5	125
<b>S0500KC25Y</b>	2500	100	500	1.0	330	4.00	80 × 10 <sup>3</sup>	3.5	10	2.5	125
<b>S0700KC140</b>	1400	1400	700	1.5	430	5.00	125 × 10 <sup>3</sup>	3.0	10	2.2	125
<b>S0700KC14Y</b>	1400	100	700	1.5	430	5.00	125 × 10 <sup>3</sup>	3.0	10	2.2	125
<b>S0700KC17D</b>	1700	1400	700	1.5	430	5.00	125 × 10 <sup>3</sup>	3.0	10	2.2	125
<b>S0700KC17Y</b>	1700	100	700	1.5	430	5.00	125 × 10 <sup>3</sup>	3.0	10	2.2	125
<b>S1200NC200</b>	2000	2000	1200	3.0	790	13.00	840 × 10 <sup>3</sup>	4.5	19	2.7	125
<b>S1200NC20Y</b>	2000	100	1200	3.0	790	13.00	840 × 10 <sup>3</sup>	4.5	19	2.7	125
<b>S1200NC25D</b>	2500	2000	1200	3.0	790	13.00	840 × 10 <sup>3</sup>	4.5	19	2.7	125
<b>S1200NC25Y</b>	2500	100	1200	3.0	790	13.00	840 × 10 <sup>3</sup>	4.5	19	2.7	125



W34 Weight 120 g



W35 Weight 300 g



W36 Weight 500 g



W85 Weight 990 g



W86 Weight 1.24 kg



W87 Weight 250 g



W93 Weight 90 g



W10

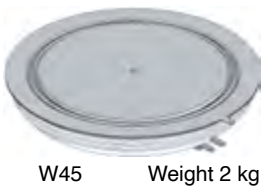
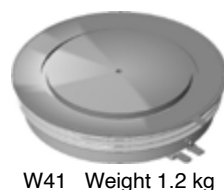
switching behavior despite the high voltage ratings. The devices feature a positive temperature coefficient making them suitable for reliable parallel operation. Devices are available with or without integral anti-parallel diode; a range of complimentary diodes optimized for use with these IGBTs are available now with a new generation using improved technology in contact your representative for more information.

The press-pack IGBTs exhibit exceptional power cycling performance; typically an order of magnitude better than most. They are highly suited to applications such as metals and traction drive systems where there are repeated cyclic power demands. Press-pack IGBTs have a stable short circuit failure mode which, as well as safety benefits, makes them an ideal choice for medium voltage applications where series connection is required. Stable short circuit failure mode allows for the design in of n+1 additional bypass switches and costly explosion proof enclosures. Typical examples include HVDC, FACTS, Active Power Filters, compensators and medium voltage drives. In applications above 4MW press-pack IGBTs offer exceptional power density that is not achievable with comparable modules in multi-level / MMC based converters.

These PPIGBT's are largely backwardly compatible with standard 2.5kV and 4.5kV GTOs in many applications such as HVDC, FACTS, Active Power Filters, medium voltage drives. They are suitable for all cooling options including direct liquid immersion. Complementary gate drivers, clamps and passive components available.

Part No.	$V_{CES}$	$I_C$	$I_{CM}$	$V_{CE(sat)}$ @ $I_C$	IGBT Switching		$V_F$ $I_F = I_C$	Diode Recovery			$T_{JM}$	IGBT
					Typical			$I_{rm}$	Typical			
					$E_{ON}$	$E_{OFF}$			$t_{rr}$	$Q_r$		
➤ New	V	A	A	V	J	J	V	A	$\mu s$	$\mu C$	°C	K/W
➤ T0600NC17A	1700	600	1200	3.0	0.29	0.50	2.25	300	0.5	175	125	0.054
➤ T0840NC17E	1700	840	1680	3.0	0.41	0.70	N/A	N/A	N/A	N/A	125	0.038
T0960VC17G	1700	960	1920	3.0	0.47	0.80	2.05	540	0.6	310	125	0.033
➤ T1440VC17E	1700	1440	2880	3.0	0.70	1.20	N/A	N/A	N/A	N/A	125	0.022
➤ T1680TC17G	1700	1680	3360	3.0	0.82	1.40	2.05	945	0.5	545	125	0.019
➤ T0140QC33G	3300	140	280	3.35	0.37	0.38	3.0	100	1.9	150	125	0.108
➤ T0285NC33E	3300	285	570	3.4	0.73	0.75	N/A	N/A	N/A	N/A	125	0.054
➤ T0425VC33G	3300	425	850	3.4	1.1	1.12	3.0	305	1.7	440	125	0.036
➤ T0640VC33E	3300	640	1280	3.4	1.65	1.68	N/A	N/A	N/A	N/A	125	0.024
➤ T0710TC33A	3300	710	1420	3.4	1.83	1.87	3.3	455	1.5	655	125	0.021
➤ T1000TC33E	3300	1000	2000	3.4	2.6	2.7	N/A	N/A	N/A	N/A	125	0.015
➤ T1000EC33G	3300	1000	2000	3.4	2.6	2.7	3.0	470	1.7	1040	125	0.015
➤ T1500EC33E	3300	1500	3000	3.4	3.9	4.05	N/A	N/A	N/A	N/A	125	0.010
➤ T2000GC33G	3300	2000	4000	3.4	5.2	5.4	3.0	940	2.2	2070	125	0.007

Outlines on p

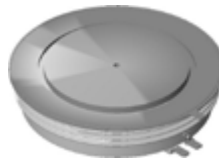


<b>T0340VB45G</b>	4500	340	680	3.5	2.2	1.3	3.45	220	3.2	500	125	0.036
<b>T0510VB45E</b>	4500	510	1020	3.5	3.3	2.2	N/A	N/A	N/A	N/A	125	0.024
<b>T0600TB45A</b>	4500	600	1200	3.7	3.6	2.5	3.7	640	1.2	700	125	0.021
<b>T0800TB45E</b>	4500	800	1600	3.5	5	3.5	N/A	N/A	N/A	N/A	125	0.015
<b>T0800EB45G</b>	4500	800	1600	3.5	5	3.5	3.5	550	1.7	1020	125	0.015
<b>T0900EB45A</b>	4500	900	1800	3.6	5.4	3.8	3.9	800	1.6	1000	125	0.014
<b>T1200EB45E</b>	4500	1200	2400	3.6	7	5.5	N/A	N/A	N/A	N/A	125	0.010
<b>T1600GB45G</b>	4500	1600	3200	3.5	12	8.7	3.45	1270	1.75	1960	125	0.007
<b>T1800GB45A</b>	4500	1800	3600	3.6	11	10.5	3.9	1600	1.6	2000	125	0.007
➤ <b>T2000BB45G</b>	4500	2000	4000	3.5	14	12.5	3.55	2050	1.6	2450	125	0.006
<b>T2400GB45E</b>	4500	2400	4800	3.6	14	13	N/A	N/A	N/A	N/A	125	0.005
<b>T2960BB45E</b>	4500	3000	6000	3.6	11.5	17.5	N/A	N/A	N/A	N/A	125	0.004
<b>T0258HF65G</b>	6500	258	516	4.8	1.8	1.45	3.45	300	1.2	410	125	0.032
<b>T0385HF65E</b>	6500	385	770	4.8	2.7	2.2	N/A	N/A	N/A	N/A	125	0.021
<b>T0600AF65G</b>	6500	600	1030	4.8	4.2	3.4	3.5	700	1.2	950	125	0.014
<b>T0900AF65E</b>	6500	900	1800	4.8	6.3	5.1	N/A	N/A	N/A	N/A	125	0.009
<b>T0900DF65A</b>	6500	900	1800	4.8	6.3	5.1	3.4	1050	1.2	1450	125	0.009
<b>T1290BF65A</b>	6500	1290	2580	4.8	9.0	7.3	3.6	1400	1.1	1900	125	0.006
<b>T1375DF65E</b>	6500	1375	2750	4.8	9.6	7.8	N/A	N/A	N/A	N/A	125	0.006
<b>T1890BF65E</b>	6500	1890	3780	4.8	13.2	10.6	N/A	N/A	N/A	N/A	125	0.004

Outlines on



W40 Weight 430 g



W41 Weight 1.2 kg



W44 Weight 1.2 kg



W45 Weight 2 kg



W67 Weight 650 g



W95 Weight 825 g



W99



W98 Weight 1.8 kg



W103 Weight 3.2 kg



W109 Weight 360 g



W110

W125 Weight 1.35 kg



Part Number	IGBT Type
C0044BG400SCB	T0600NC17A
C0044BG400SCA	T0840NC17E
C0044BG400SCC	T0960VC17G
C0044BG400SCD	T1440VC17E
C0044BG400SCE	T1680TC17G
C0044BG400SCF	T0140QC33G
C0044BG400SCG	T0285NC33E
C0044BG400SCH	T0425VC33G
C0044BG400SCJ	T0640VC33E
C0044BG400SCK	T0710TC33A
C0044BG400SCM	T1000EC33G
C0044BG400SCL	T1000TC33E
C0044BG400SCN	T1500EC33E
C0044BG400SCS	T2000GC33G
C0044BG400SCR	T0115QC45G
C0044BG400SBL	T0240NB45E
C0044BG400SBQ	T0340VB45G
C0044BG400SBE	T0510VB45E
C0044BG400SBM	T0600TB45A
C0044BG400SBG	T0800EB45G
C0044BG400SBN	T0800TB45E
C0044BG400SBP	T0900EB45A
C0044BG400SBR	T1200EB45E
C0044BG400SBJ	T1600GB45G
C0044BG400SBS	T1800GB45A
C0044BG400SBZ	T2000BB45G
C0044BG400SBT	T2400GB45E
C0044BG400SBW	T2960BB45E



#### FEATURES

- High reliability topology
- Designed for ultra low power consumption
- Build in DC/DC-converter with soft start
- Integrated input filter for low EMI
- Separate low impedance path for parasitic EMI current
- PD-Voltage levels available up to 11 kV on request.
- Low impedance from gate to emitter at start-up and post
- Monitoring of all secondary supply voltages
- Monitoring of IGBT switching status (VCE-de-sat detected)
- Soft switch-OFF at  $V_{CE-de-sat}$  fault condition
- Fiber-optic links for switching commands and status communication
- Low light protection for input signal
- Short-pulse suppression. configurable
- Balanced propagation delay time
- Gate Current up to 44 A
- Optional gate-speed-up capacitors

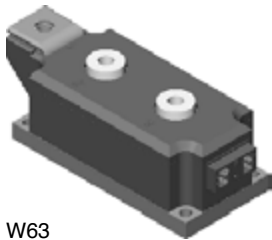
#### APPLICATION

- Large and medium drives
- Renewable generation.
- Utilities scale converters

<b>MCC220-28io3</b>	2800	235	85	543	5000	0.900	1.100	125	0.110
<b>MCC265-24io3</b>	2400	280	85	655	6900	0.800	0.700	125	0.110
<b>MCC320-30io2</b>	3000	327	85	765	5000	1.150	0.800	125	0.062
<b>MCC320-36io2</b>	3600	327	85	765	5000	1.150	0.800	125	0.062
<b>MCC325-14io3</b>	1400	345	85	785	7650	0.750	0.500	125	0.110
<b>MCC325-18io3</b>	1800	345	85	785	7650	0.750	0.500	125	0.110
<b>MCC380-28io2</b>	2800	395	85	620	8100	1.000	0.650	125	0.062
<b>MCC431-20io2</b>	2000	429	85	1020	10900	1.000	0.410	125	0.062
<b>MCC431-22io2</b>	2200	429	85	1020	10900	1.000	0.410	125	0.062
<b>MCC431-24io2</b>	2400	429	85	1020	10900	1.000	0.410	125	0.062
<b>MCC500-14io1</b>	1400	500	89	1294	16500	0.850	0.270	125	0.062
<b>MCC500-18io1</b>	1800	500	89	1294	16500	0.850	0.270	125	0.062
<b>MCC500-22io1</b>	2200	500	80	1071	14000	0.880	0.460	125	0.062
<b>MCK500-14io1</b>	1400	500	89	1294	16500	0.850	0.270	125	0.062
<b>MCK500-18io1</b>	1800	500	89	1294	16500	0.850	0.270	125	0.062
<b>MCK500-22io1</b>	2200	500	80	1071	14000	0.880	0.460	125	0.062
<b>MCA500-14io1</b>	1400	500	89	1294	16500	0.850	0.270	125	0.062
<b>MCA500-18io1</b>	1800	500	89	1294	16500	0.850	0.270	125	0.062
<b>MCA500-22io1</b>	2200	500	80	1071	14000	0.880	0.460	125	0.062
<b>MCC501-12io2</b>	1200	503	85	1195	14500	0.850	0.300	125	0.062
<b>MCC501-14io2</b>	1400	503	85	1195	14500	0.850	0.300	125	0.062
<b>MCC501-16io2</b>	1600	503	85	1195	14500	0.850	0.300	125	0.062
<b>MCC501-18io2</b>	1800	503	85	1195	14500	0.850	0.300	125	0.062
<b>MCC550-12io1</b>	1200	550	85	1318	18000	0.839	0.244	125	0.062
<b>MCC550-16io1</b>	1600	550	85	1318	18000	0.839	0.244	125	0.062
<b>MCK550-12io1</b>	1200	550	85	1318	18000	0.839	0.244	125	0.062
<b>MCK550-16io1</b>	1600	550	85	1318	18000	0.839	0.244	125	0.062
<b>MCA550-12io1</b>	1200	550	85	1318	18000	0.839	0.244	125	0.062
<b>MCA550-16io1</b>	1600	550	85	1318	18000	0.839	0.244	125	0.062
<b>MCC552-12io2</b>	1200	550	85	1300	15800	0.770	0.259	125	0.062
<b>MCC552-14io2</b>	1400	550	85	1300	15800	0.770	0.259	125	0.062
<b>MCC552-16io2</b>	1600	550	85	1300	15800	0.770	0.259	125	0.062
<b>MCC500-30io7</b>	3000	500	85	1181	16200	1.079	0.422	125	0.050
<b>MCC500-36io7</b>	3600	500	85	1181	16200	1.079	0.422	125	0.050
<b>MCR500-30io7</b>	3000	500	85	1181	16200	1.079	0.422	125	0.050
<b>MCR500-36io7</b>	3600	500	85	1181	16200	1.079	0.422	125	0.050
<b>MCC580-28io7</b>	2800	581	85	1372	18900	0.926	0.313	125	0.050
<b>MCR580-28io7</b>	2800	581	85	1372	18900	0.926	0.313	125	0.050
<b>MCC650-24io7</b>	2400	646	85	1542	22100	0.874	0.227	125	0.050
<b>MCR650-24io7</b>	2400	646	85	1542	22100	0.874	0.227	125	0.050
<b>MCC720-14io7</b>	1400	719	85	1633	25200	0.823	0.241	130	0.050
<b>MCC720-18io7</b>	1800	719	85	1633	25200	0.823	0.241	130	0.050
<b>MCR720-14io7</b>	1400	719	85	1633	25200	0.823	0.241	130	0.050
<b>MCR720-18io7</b>	1800	719	85	1633	25200	0.823	0.241	130	0.050

<b>MCO635-28io1</b>	2800	635	85	1880	20700	0.950	0.350	125	0.042
<b>MCO741-22io1</b>	2200	765	85	2110	29000	0.850	0.277	125	0.042
<b>MCO801-14io1</b>	1400	830	85	2335	30000	0.800	0.240	130	0.042
<b>MCO801-18io1</b>	1800	830	85	2335	30000	0.800	0.240	130	0.042
➤ <b>N4340TJ180MBR</b>	1800	1110	85	3500	55000	0.886	0.105	125	0.031
➤ <b>N4340TJ220MBR</b>	2200	1110	85	3500	55000	0.886	0.105	125	0.031

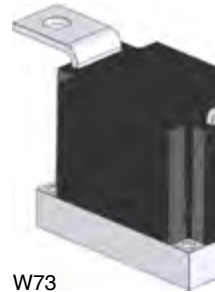
Outlines on pages O-01...O-35



W63



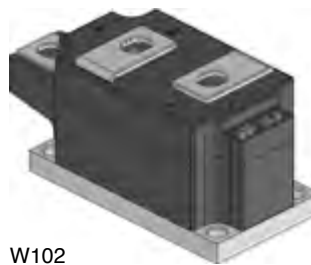
W74



W73



W88



W102

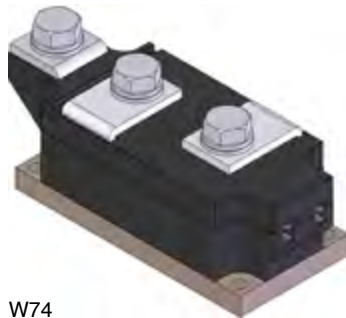


W116

<b>MCD160-36io3</b>	3600	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102
<b>MDC160-30io3</b>	3000	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102
<b>MDC160-36io3</b>	3600	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102
<b>MCD220-28io3</b>	2800	235	85	543	5000	0.900	1.100	125	0.110	0.0400	W102
<b>MDC220-28io3</b>	2800	235	85	543	5000	0.900	1.100	125	0.110	0.0400	W102
<b>MCD265-24io3</b>	2400	280	85	655	6900	0.800	0.700	125	0.110	0.0400	W102
<b>MDC265-24io3</b>	2400	280	85	655	6900	0.800	0.700	125	0.110	0.0400	W102
<b>MCD320-30io2</b>	3000	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74
<b>MCD320-36io2</b>	3600	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74
<b>MDC320-30io2</b>	3000	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74
<b>MDC320-36io2</b>	3600	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74
<b>MCD325-14io3</b>	1400	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102
<b>MCD325-18io3</b>	1800	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102
<b>MDC325-14io3</b>	1400	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102
<b>MDC325-18io3</b>	1800	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102
<b>MCD380-28io2</b>	2800	395	85	620	8100	1.000	0.650	125	0.062	0.0200	W74
<b>MDC380-28io2</b>	2800	395	85	620	8100	1.000	0.650	125	0.062	0.0200	W74
<b>MCD431-20io2</b>	2000	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
<b>MCD431-22io2</b>	2200	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
<b>MCD431-24io2</b>	2400	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
<b>MDC431-20io2</b>	2000	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
<b>MDC431-22io2</b>	2200	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
<b>MDC431-24io2</b>	2400	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
<b>MCD500-14io1</b>	1400	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63
<b>MCD500-18io1</b>	1800	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63
<b>MCD500-22io1</b>	2200	500	80	1071	14000	0.880	0.460	125	0.062	0.0200	W63
<b>MDC500-14io1</b>	1400	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63
<b>MDC500-18io1</b>	1800	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63
<b>MDC500-22io1</b>	2200	500	80	1071	14000	0.880	0.460	125	0.062	0.0200	W63
<b>MCD501-12io2</b>	1200	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MCD501-14io2</b>	1400	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MCD501-16io2</b>	1600	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MCD501-18io2</b>	1800	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MDC501-12io2</b>	1200	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MDC501-14io2</b>	1400	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MDC501-16io2</b>	1600	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MDC501-18io2</b>	1800	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
<b>MCD550-12io1</b>	1200	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
<b>MCD550-16io1</b>	1600	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63



<b>MDC550-16io1</b>	1600	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
<b>MCD552-12io2</b>	1200	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
<b>MCD552-14io2</b>	1400	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
<b>MCD552-16io2</b>	1600	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
<b>MDC552-12io2</b>	1200	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
<b>MDC552-14io2</b>	1400	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
<b>MDC552-16io2</b>	1600	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
<b>MCD500-30io7</b>	3000	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
<b>MCD500-36io7</b>	3600	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
<b>MDC500-30io7</b>	3000	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
<b>MDC500-36io7</b>	3600	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
<b>MCD580-28io7</b>	2800	581	85	1372	18900	0.926	0.313	125	0.050	0.0160	W88
<b>MDC580-28io7</b>	2800	581	85	1372	18900	0.926	0.313	125	0.050	0.0160	W88
<b>MCD650-24io7</b>	2400	646	85	1542	22100	0.874	0.227	125	0.050	0.0160	W88
<b>MDC650-24io7</b>	2400	646	85	1542	22100	0.874	0.227	125	0.050	0.0160	W88
<b>MCD720-14io7</b>	1400	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88
<b>MCD720-18io7</b>	1800	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88
<b>MDC720-14io7</b>	1400	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88
<b>MDC720-18io7</b>	1800	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88



W74

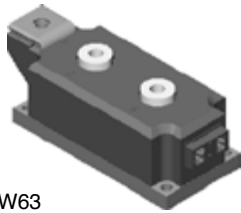


W88

<b>MDA275-30N3</b>	3000	290	85	580	4500	0.90	1.570	150	0.110
<b>MDA275-36N3</b>	3600	290	85	580	4500	0.90	1.570	150	0.110
<b>MDK275-30N3</b>	3000	290	85	580	4500	0.90	1.570	150	0.110
<b>MDK275-36N3</b>	3600	290	85	580	4500	0.90	1.570	150	0.110
<b>MDD410-24N3</b>	2400	440	85	910	7800	0.85	0.450	150	0.110
<b>MDD410-28N3</b>	2800	440	85	910	7800	0.85	0.450	150	0.110
<b>MDA410-24N3</b>	2400	440	85	910	7800	0.85	0.450	150	0.110
<b>MDA410-28N3</b>	2800	440	85	910	7800	0.85	0.450	150	0.110
<b>MDK410-24N3</b>	2400	440	85	910	7800	0.85	0.450	150	0.110
<b>MDK410-28N3</b>	2800	440	85	910	7800	0.85	0.450	150	0.110
<b>MDD510-14N3</b>	1400	545	85	1135	10900	0.75	0.250	150	0.110
<b>MDD510-18N3</b>	1800	545	85	1135	10900	0.75	0.250	150	0.110
<b>MDA510-14N3</b>	1400	545	85	1135	10900	0.75	0.250	150	0.110
<b>MDA510-18N3</b>	1800	545	85	1135	10900	0.75	0.250	150	0.110
<b>MDK510-14N3</b>	1400	545	85	1135	10900	0.75	0.250	150	0.110
<b>MDK510-18N3</b>	1800	545	85	1135	10900	0.75	0.250	150	0.110
<b>MDD600-14N1</b>	1400	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDD600-18N1</b>	1800	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDD600-22N1</b>	2200	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDA600-14N1</b>	1400	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDA600-18N1</b>	1800	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDA600-22N1</b>	2200	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDK600-14N1</b>	1400	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDK600-18N1</b>	1800	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDK600-22N1</b>	2200	600	111	1818	21800	0.75	0.200	150	0.062
<b>MDD630-30N2</b>	3000	630	85	1275	11700	0.80	0.500	150	0.062
<b>MDD630-36N2</b>	3600	630	85	1275	11700	0.80	0.500	150	0.062
<b>MDA630-30N2</b>	3000	630	85	1275	11700	0.80	0.500	150	0.062
<b>MDA630-36N2</b>	3600	630	85	1275	11700	0.80	0.500	150	0.062
<b>MDK630-30N2</b>	3000	630	85	1275	11700	0.80	0.500	150	0.062
<b>MDK630-36N2</b>	3600	630	85	1275	11700	0.80	0.500	150	0.062
<b>MDD 710-22N2</b>	2200	708	85	1440	12750	0.80	0.350	150	0.062
<b>MDD 710-26N2</b>	2600	708	85	1440	12750	0.80	0.350	150	0.062
<b>MDA 710-22N2</b>	2200	708	85	1440	12750	0.80	0.350	150	0.062
<b>MDA 710-26N2</b>	2600	708	85	1440	12750	0.80	0.350	150	0.062
<b>MDK 710-22N2</b>	2200	708	85	1440	12750	0.80	0.350	150	0.062
<b>MDK 710-26N2</b>	2600	708	85	1440	12750	0.80	0.350	150	0.062
<b>MDD 810-12N2</b>	1200	807	85	1661	17250	0.78	0.230	150	0.062
<b>MDD 810-16N2</b>	1600	807	85	1661	17250	0.78	0.230	150	0.062
<b>MDD 810-18N2</b>	1800	807	85	1661	17250	0.78	0.230	150	0.062
<b>MDA 810-12N2</b>	1200	807	85	1661	17250	0.78	0.230	150	0.062
<b>MDA 810-16N2</b>	1600	807	85	1661	17250	0.78	0.230	150	0.062
<b>MDA 810-18N2</b>	1800	807	85	1661	17250	0.78	0.230	150	0.062

<b>MDK 810-16N2</b>	1600	807	85	1661	17250	0.78	0.230	150	0.062
<b>MDK 810-18N2</b>	1800	807	85	1661	17250	0.78	0.230	150	0.062
<b>MDD1080-18N7</b>	1800	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDD1080-24N7</b>	2400	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDD1080-28N7</b>	2800	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDA1080-18N7</b>	1800	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDA1080-24N7</b>	2400	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDA1080-28N7</b>	2800	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDK1080-18N7</b>	1800	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDK1080-24N7</b>	2400	1080	85	2235	29100	0.78	0.157	150	0.050
<b>MDK1080-28N7</b>	2800	1080	85	2235	29100	0.78	0.157	150	0.050

Outlines on pages O-01...O-35



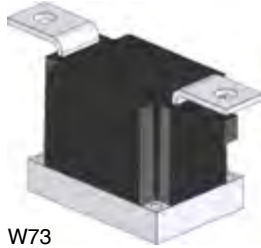
W63



W74



W88



W73



W102



W116

## Single Diode Modules

IXYS UK Westcode Ltd. has UL Certification for most modules (Underwriters Laboratories Inc).

Part No.	$V_{RRM}$	$I_{FAV}$	@ $T_c$	$I_{FRMS}$	$I_{FSM}$ 150°C 10 ms	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$ per L
➤ New *	V	A	°C	A	A	V	mΩ	°C	K/W
<b>MDO1120-24N1</b>	2400	1189	85	1869	32400	0.80	0.170	150	0.042
<b>MDO1120-28N1</b>	2800	1189	85	1869	32400	0.80	0.170	150	0.042
<b>MDO1201-14N1</b>	1400	1520	85	3665	36000	0.80	0.100	160	0.042
<b>MDO1201-18N1</b>	1800	1520	85	3665	36000	0.80	0.100	160	0.042
<b>MDO1201-22N1</b>	2200	1520	85	3665	36000	0.80	0.100	160	0.042
➤ <b>W8570TJ180MBR</b>	1800	2830	85	6435	70200	0.69	0.050	175	0.031
➤ <b>W8570TJ220MBR</b>	2200	2830	85	6435	70200	0.69	0.050	175	0.031
➤ <b>W9830TJ120MBR</b>	1200	3345	85	7280	72000	0.67	0.043	190	0.031
➤ <b>W9830TJ150MBR</b>	1500	3345	85	7280	72000	0.67	0.043	190	0.031

<b>MDD950-14N1W</b>	1400	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDD950-18N1W</b>	1800	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDD950-22N1W</b>	2200	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDA950-14N1W</b>	1400	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDA950-18N1W</b>	1800	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDA950-22N1W</b>	2200	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDK950-14N1W</b>	1400	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDK950-18N1W</b>	1800	950	45	1773	21800	0.75	0.200	150	0.090	W64
<b>MDK950-22N1W</b>	2200	950	45	1773	21800	0.75	0.200	150	0.090	W64

## Water Cooled Thyristor/Diode Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$ 125°C 10ms	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJW}$ per Die	Fig. No.	
	$V_{DRM}$										
	V										A
<b>MCD600-22io1W</b>	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64	
<b>MDC600-22io1W</b>	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64	
<b>MCD700-14io1W</b>	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MCD700-18io1W</b>	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MDC700-14io1W</b>	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MDC700-18io1W</b>	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64	

## Water Cooled Dual Thyristor Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$ 125°C 10ms	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJW}$ per Die	Fig. No.	
	$V_{DRM}$										
	V										A
<b>MCA600-22io1W</b>	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64	
<b>MCC600-22io1W</b>	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64	
<b>MCK600-22io1W</b>	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64	
<b>MCC700-14io1W</b>	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MCC700-18io1W</b>	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MCA700-14io1W</b>	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MCA700-18io1W</b>	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MCK700-14io1W</b>	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64	
<b>MCK700-18io1W</b>	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64	

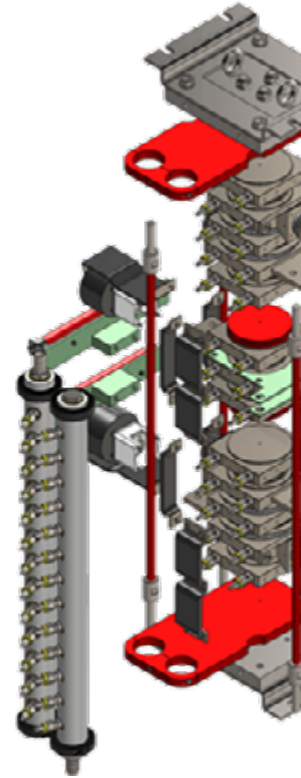
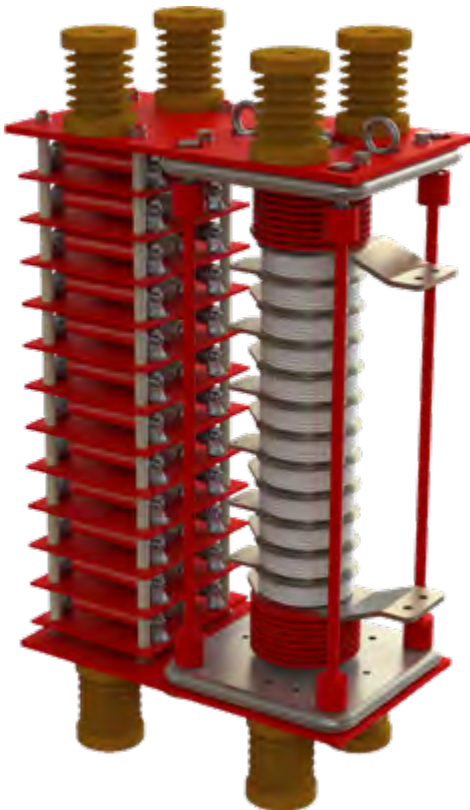
Using the latest 3D modelling and simulation techniques, we can significantly reduce the cycle time from concept design, minimising risk and identifying opportunity for optimisation early in the project.

With double digit growth in the preceding 5 years, in 2010 we moved into a new 300m<sup>2</sup> dedicated production facility by a well-equipped power lab. These new facilities, supported by an expanded team of engineers and technical foundations for continued investment and growth in this strategic area of our business.

## ***Standard Assemblies***

IXYS UK's standard assemblies also include the new press-pack IGBT 3-level inverters. 3 separate designs are available, a totally independent 3.3kV system, a 6.6kV system and a 10kV system. The 6.6kV and 10kV systems are based on the combination of 2 IGBT stacks and 1 diode stack. Each system benefits from direct water cooling to provide highly effective heat dissipation away from the devices and pre-loaded disc spring clamping to evenly distribute the applied force across the entire surface area of the device.

Also designed into each system is an integrated snubber circuit design and an isolated clamping rod system to limit the occurrence of eddy currents within the unit.



## ***Pulsed Power***

As a pioneer in the development of solid state pulsed power components we are able to deliver anything from discrete components to fully integrated transfer switches. With systems successfully delivering voltage ratings and pulsed currents up to 140kA, we have a wealth of experience. Our modular design solutions based on either pulse thyristor or IGBT technology and integrating control and protection functions provide a flexible 'black-box' approach to energy transfer problems.

We are involved with pulsed power on a global basis, working with research organisations such as CERN, Switzerland as well as manufacturing for emerging commercial applications such as laser systems, PEF sterilisation, magnetisation and metal forming.

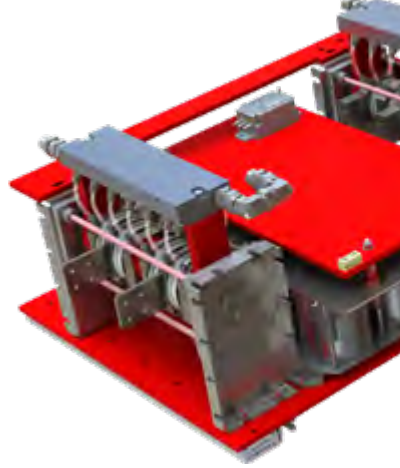
as; component obsolescence, improving power equipment reliability, contract maintenance of power modules, refurbishment of power electronics, upgrades to existing systems and, of course, subcontract manufacture for new projects.

**Working systematically to the highest international standards, we can give your equipment a new lease of life and help protect your investment in these valuable assets.**

Component obsolescence is becoming a significant problem for the rail sector as equipment design life invariably exceeds that of the modern power electronics components. Our highly skilled team of engineers are able to re-engineer older equipment to incorporate the latest technology whilst maintaining compatibility.

As equipment reached half-life, many of the major power components will reach the end of their useful life resulting in a sharp decline in equipment reliability and availability. In these circumstances we can offer a full overhaul and refurbishment program for your power electronics, from engineering analysis, test and measurement through to delivery and validation of refurbished equipment.

For larger projects such as fleet wide refits, we are able to work within a consortium of specialist international sure you have the right skills on hand to deliver turnkey solutions to your requirements. This may include system management, risk assessment and safety case.



## ***Custom assemblies – our design philosophy***

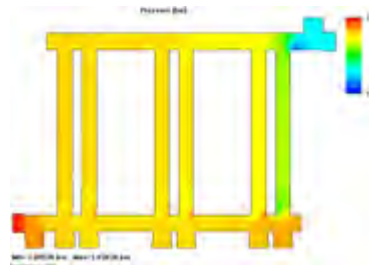
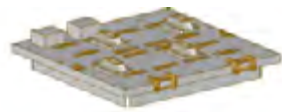
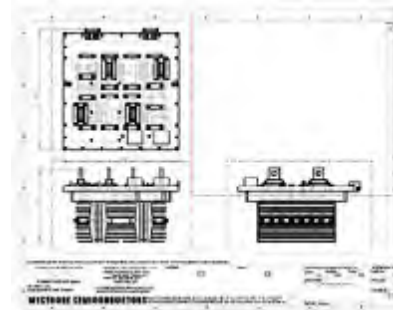
**From concept through development and manufacture to after sales support, we believe strongly in working closely with our customer every step of the way – extending our philosophy of teamwork beyond our own organisation.**

We understand that good communication and close collaboration help us provide the very best service to our customers.

Using the latest 3D modelling techniques we can visualise concepts and check form, fit and function with virtual prototypes. Also, utilising advanced software packages, IXYS UK can carry out simulation modelling, allowing us to model pressure drops through coolers/manifolds and heat flows through heatsinks.

Whether finding solutions to complex engineering problems or simply manufacturing to your designs, you will find IXYS UK offers outstanding value for money, excellent quality and first class customer service.

By working closely together from the very start of a project we aim to provide the best solutions on time and in budget.





- Single-phase half or fully controlled bridges from 35 to 2200 Amps DC
- Three-phase diode bridges with current ratings from 100 to 7190 Amps DC
- Three-phase half or fully controlled bridges from 45 to 3790 Amps DC
- Hexaphase single way diode assemblies from 200 to 14380 Amps DC
- Hexaphase single way thyristor assemblies from 90 to 7580 Amps DC
- AC regulators, single and three-phase from 40 to 2940 Amps RMS

Included in our standard range are solid-state, water-cooled AC regulators for resistance welding, with ratings from 315 to 3020 Amps RMS.

Also available are water cooled, single and three-phase assemblies from 1200 to 6000 Amps RMS.

All the above ranges are suitable for 440VRMS, 50Hz mains operation.



### **Components**

To complement our range of power semiconductor and assemblies IXYS UK can offer a range of supporting components including:

- Heatsinks
- Coolers
- Mounting clamps
- Ultra-rapid semiconductor protection fuses
- Capacitors
  - Snubbers
  - Rectification
  - Specialist DC link
- Gate drive units

### **Beyond Semiconductors**

Our flexible manufacturing facility is able to readily adapt to your needs. In addition to power semiconductor assembly, we offer a range of elementary sub-assemblies to our customer's requirements, including capacitor banks as well as contract manufacture to your specifications.

### **Application and engineering support**

Our highly experienced technical team is on hand to provide you with first class support for everything from the application of discrete devices to the design and development of complete power systems. We can help you from concept through design to manufacture and commissioning with you every step of the way.



<b>SXB4264B</b>	4264	4051	3835	72000	22.5x10 <sup>6</sup>	2	382	593	405	40	W8405ZC (4)	B(2x83.1x1
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**Three phase diode bridges** **Approx. total loss 2.5x I<sub>DC</sub> @ 25°C**

Assembly Part Number	I <sub>DC</sub> amps Air Forced 2.5m/s			I <sub>FSM</sub> amps I <sub>TSM</sub> amps	I <sup>2</sup> t A <sup>2</sup> s	Dimensions mm				Mass kg	Device Type and Quantity	Heat Sin Type
	T <sub>a</sub> = 25°C	T <sub>a</sub> = 35°C	T <sub>a</sub> = 45°C			Fig.	W	H	D			
<b>SXB1920G</b>	1920	1822	1721	19500	1.9x10 <sup>6</sup>	3	548	325	405	30	W2058LC (6)	B(2x83.1x1
<b>SXB2939G</b>	2939	2788	2634	33000	5.45x10 <sup>6</sup>	3	548	325	405	30	W3270NC (6)	B(2x83.1x1
<b>SXB4869G</b>	4869	4640	4407	53000	13.5x10 <sup>6</sup>	4	548	593	405	60	W5696VC (6)	B(2x180
<b>SXB5993G</b>	5993	5701	5402	72000	22.5x10 <sup>6</sup>	4	548	593	405	60	W8405ZC (6)	B(2x180

**Six phase diode, single way with IPT** **Approx. total loss 1.25x I<sub>DC</sub> @ 25°C**

Assembly Part Number	I <sub>DC</sub> amps Air Forced 2.5m/s			I <sub>FSM</sub> amps I <sub>TSM</sub> amps	I <sup>2</sup> t A <sup>2</sup> s	Dimensions mm				Mass kg	Device Type and Quantity	Heat Sin Type
	T <sub>a</sub> = 25°C	T <sub>a</sub> = 35°C	T <sub>a</sub> = 45°C			Fig.	W	H	D			
<b>SXB3840HEX</b>	3840	3644	3442	19500	1.9x10 <sup>6</sup>	5	548	325	395	30	W2058LC (6)	B(2x83.1x1
<b>SXB5877HEX</b>	5877	5576	5268	33000	5.45x10 <sup>6</sup>	5	548	325	395	30	W3270NC (6)	B(2x83.1x1
<b>SXB9737HEX</b>	9737	9281	8813	53000	13.5x10 <sup>6</sup>	6	548	593	395	60	W5696VC (6)	B(2x180
<b>SXB11987HEX</b>	11987	11401	10804	72000	22.5x10 <sup>6</sup>	6	548	593	395	60	W8405ZC (6)	B(2x180

**Six phase thyristor, single way with IPT** **Approx. total loss 1.5x I<sub>DC</sub> @ 25°C**

Assembly Part Number	I <sub>DC</sub> amps Air Forced 2.5m/s			I <sub>FSM</sub> amps I <sub>TSM</sub> amps	I <sup>2</sup> t A <sup>2</sup> s	Dimensions mm				Mass kg	Device Type and Quantity	Heat Sin Type
	T <sub>a</sub> = 25°C	T <sub>a</sub> = 35°C	T <sub>a</sub> = 45°C			Fig.	W	H	D			
<b>SXB3529HEXT</b>	3529	3244	2949	29600	4.38x10 <sup>6</sup>	5	548	325	395	30	N1802LC (6)	B(2x83.1x1
<b>SXB4649HEXT</b>	4649	4270	3878	37000	6.85x10 <sup>6</sup>	6	548	593	395	60	N2500VC (6)	B(2x180
<b>SXB6240HEXT</b>	6240	5714	5173	64000	20.5x10 <sup>6</sup>	6	548	593	395	60	N4085ZC (6)	B(2x180

**Single phase fully controlled bridges** **Approx. total loss 2.5x I<sub>DC</sub> @ 25°C**

Assembly Part Number	I <sub>DC</sub> amps Air Forced 2.5m/s			I <sub>FSM</sub> amps I <sub>TSM</sub> amps	I <sup>2</sup> t A <sup>2</sup> s	Dimensions mm				Mass kg	Device Type and Quantity	Heat Sin Type
	T <sub>a</sub> = 25°C	T <sub>a</sub> = 35°C	T <sub>a</sub> = 45°C			Fig.	W	H	D			
<b>SXB1265FB</b>	1265	1161	1054	29600	4.38x10 <sup>6</sup>	1	382	325	405	20	N1802NC (4)	B(2x83.1x1
<b>SXB1645FB</b>	1645	1508	1367	37000	6.85x10 <sup>6</sup>	2	382	593	405	40	N2500VC (4)	B(2x180
<b>SXB2167FB</b>	2167	1981	1790	64000	20.5x10 <sup>6</sup>	2	382	593	405	40	N4085ZC (4)	B(2x180

**Three phase fully controlled bridges** **Approx. total loss 3x I<sub>DC</sub> @ 25°C**

Assembly Part Number	I <sub>DC</sub> amps Air Forced 2.5m/s			I <sub>FSM</sub> amps I <sub>TSM</sub> amps	I <sup>2</sup> t A <sup>2</sup> s	Dimensions mm				Mass kg	Device Type and Quantity	Heat Sin Type
	T <sub>a</sub> = 25°C	T <sub>a</sub> = 35°C	T <sub>a</sub> = 45°C			Fig.	W	H	D			
<b>SXB1764FG</b>	1764	1622	1475	29600	4.38x10 <sup>6</sup>	3	548	325	405	30	N1802NC (6)	B(2x83.1x1
<b>SXB2324FG</b>	2324	2135	1939	37000	6.85x10 <sup>6</sup>	4	548	593	405	60	N2500VC (6)	B(2x180
<b>SXB3120FG</b>	3120	2857	2586	64000	20.5x10 <sup>6</sup>	4	548	593	405	60	N4085ZC (6)	B(2x180





**Westack - Modular Solutions are available in 6 standard configurations. others**



Figure 1  
Weight 20 kg



Figure 2  
Weight 40 kg



Figure 3  
Weight 30 kg



Figure 4  
Weight 60 kg



Figure 5  
Weight 30 kg



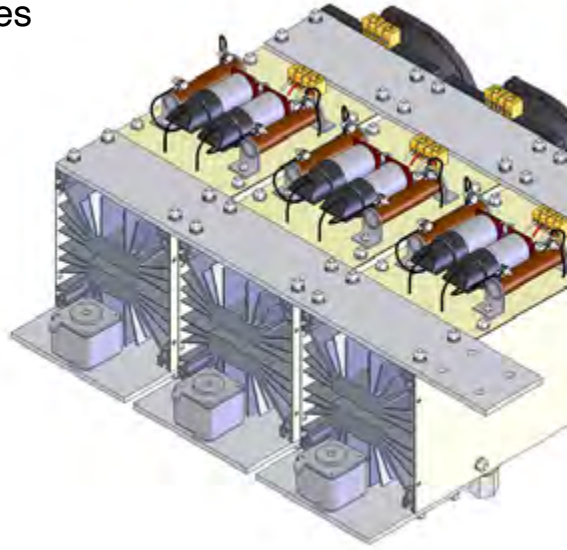
Figure 6  
Weight 60 kg

## Single-phase bridges

## Three-phase bridges

These stacks can easily be modified to meet individual customer requirements.

Fully dimensioned drawings are available upon request from the Chippenham Factory.



## Features and Benefits

**WESPACK** devices provide the maximum power rating for weight and volume without sing on quality and reliability.



Cooling is provided by means of a low noise dual voltage (230V/115V) ac fan that protects against overloading by an integral thermal cut-out.

Surge suppression and fusing can be added to protect the devices from voltage transients and short circuits.

Assembly	$I_{DC}$ amps Air Forced 2.5m/s			$I_{FSM}$ amps	$I^2t$	Dimensions mm				Mass	Device Type and Quantity	Heat Sin
Part Number	$T_a = 25^\circ C$	$T_a = 35^\circ C$	$T_a = 45^\circ C$	$I_{TSM}$ amps	$A^2s$	Fig.	W	H	D	kg		Type
<b>SXC1076FB</b>	1076	988	897	19100	$1.82 \times 10^6$	2	330	415	212	20	N1806QK (4)	(2x150. 1x3
<b>SXC1318FB</b>	1318	1213	1104	32400	$5.25 \times 10^6$	2	330	415	212	20	N2367MK (4)	(2x150. 1x3
<b>SXC1609FB</b>	1609	1473	1332	50900	$12.95 \times 10^6$	2	330	415	212	20	N3904HK (4)	(2x150. 1x3

**Three phase fully controlled bridges**

**Approx. total loss  $3 \times I_{DC}$**

Assembly	$I_{DC}$ amps Air Forced 2.5m/s			$I_{FSM}$ amps	$I^2t$	Dimensions mm				Mass	Device Type and Quantity	Heat Sin
Part Number	$T_a = 25^\circ C$	$T_a = 35^\circ C$	$T_a = 45^\circ C$	$I_{TSM}$ amps	$A^2s$	Fig.	W	H	D	kg		Type
<b>SXC1517FG</b>	1517	1396	1270	19100	$1.82 \times 10^6$	3	492	415	212	30	N1806QK (6)	(2x150. 1x3
<b>SXC1871FG</b>	1871	1725	1573	32400	$5.25 \times 10^6$	3	492	415	212	30	N2367MK (6)	(2x150. 1x3
<b>SXC2319FG</b>	2319	2125	1926	50900	$12.95 \times 10^6$	3	492	415	212	30	N3904HK (6)	(2x150. 1x3

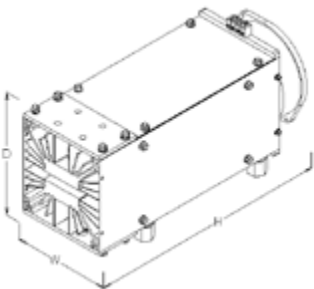
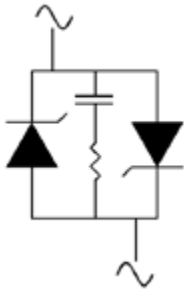


Figure 1  
Weight 10 kg

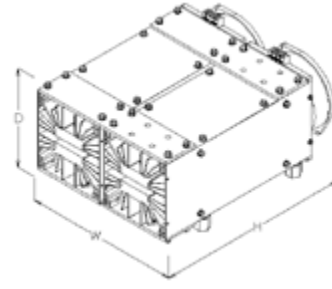
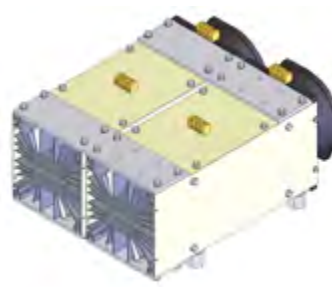
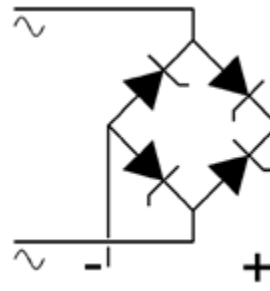


Figure 2  
Weight 20 kg

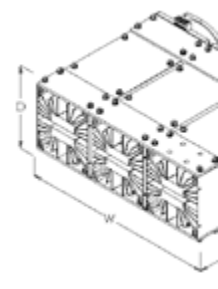
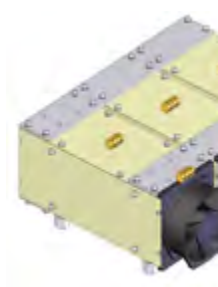
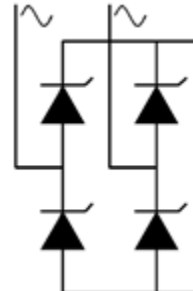
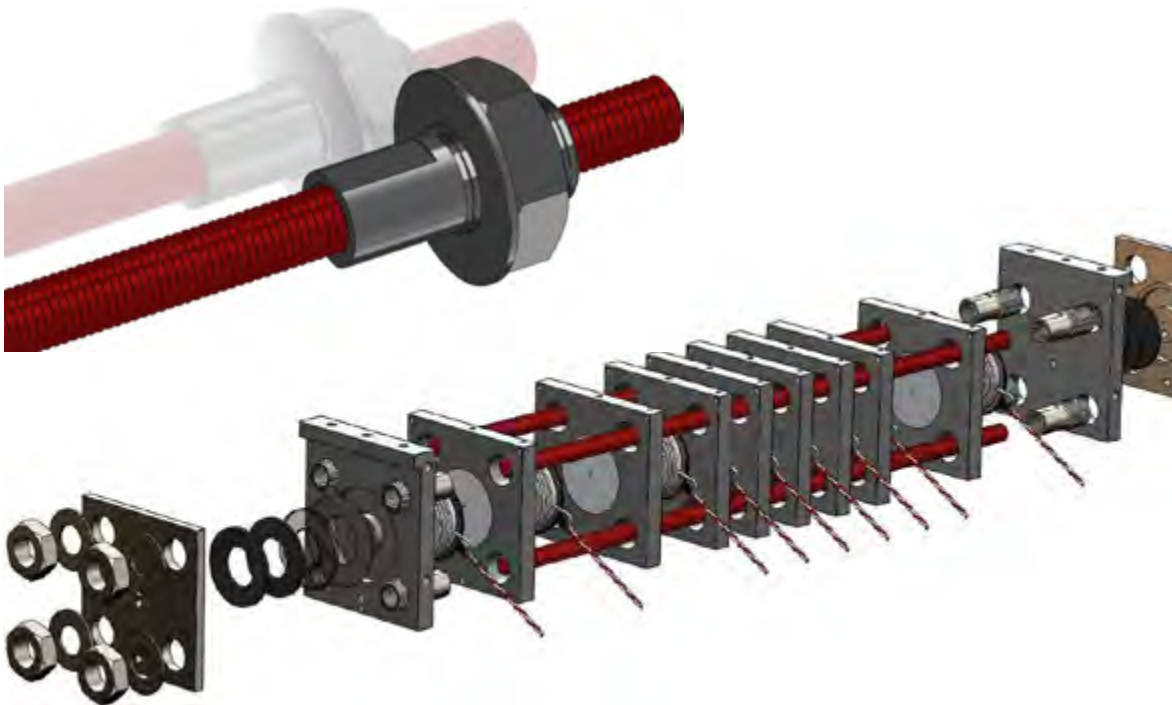


Figure 3  
Weight 30 kg

XST1000M08	PTFE1000M8	M8 PTFE tube x 1m length insulation
XST1000M10P	PTFE1000M10	M10 PTFE tube x 1m length insulation
XST1000M12P	PTFE1000M12	M12 PTFE tube x 1m length insulation
XST1000M16P	PTFE1000M16	M16 PTFE tube x 1m length insulation
L0001YC600XXX	n/a	30mm diameter electrode Insulator Capsule
L0001QC600XXX	n/a	38mm diameter electrode Insulator Capsule
L0001NC600XXX	n/a	47mm diameter electrode Insulator Capsule
L0001HC600XXX	n/a	66mm diameter electrode Insulator Capsule
L0001ZF600XXX	n/a	73mm diameter electrode Insulator Capsule
L0001TC600XXX	n/a	75mm diameter electrode Insulator Capsule

Part No.	Old Part Number	Accessory
XSL200D8WRC	U9948	200mm long single Co-Axial cable, Red / White, M5 ring terminal for Ø75 IGBT &
XSL200D8WRCP	U9947	200mm long double Co-Axial cable, Red / White, M5 ring terminal for Ø85 IGBT
XSL220C2WRT		220mm long twisted pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL300C2WRP	U9900	300mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL300C2WS	U9900 (Gate Only)	300mm long gate wire, Silicone sleeve cable 16/0.2, White, M4 ring terminal
XSL350C2WRP	U9723	350mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL400C2WRP	U9860	400mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL500C2WRP	U9855	500mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL600C2WRP	U9775	600mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL1000C2WRP	U9734/U9801/U9849	1000mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL1000C2WRT	U9952	1000mm long twisted pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal
XSL1100C2WRT	U9779	1100mm long twisted pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal

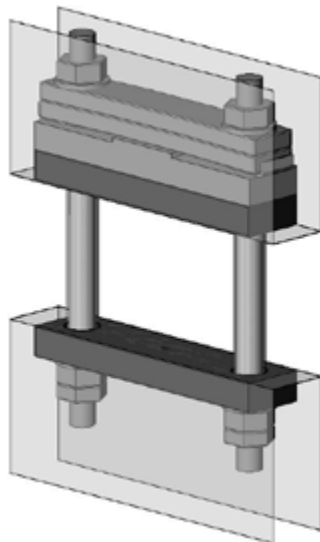


We can supply discrete parts, kits of parts or complete assemblies to satisfy your requirements. Please contact the Chippenham Factory for further information.

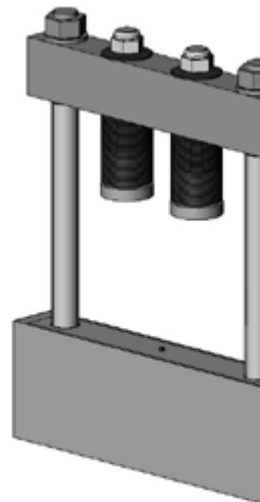
XK0550SA056M	65	M8	GTO	29.5	16
XK0900DA056M *					
XK0900DT056M *	65	M8	Diode/Thyristor	25.1	14.6
XK0900SA056M					
XK0600DA074M					
XK0600SA074M	89	M10	Press-Pack IGBTs	47.0	27
XK1000DA074M					
XK1000SA074M	89	M10	Press-Pack IGBTs	47.0	27
XK1100DA076M	89	M10	DO-200AB/TO-200AC	34.0	26.2
XK1130DA076M					
XK1130DT076M	89	M10	DO-200AB/TO-200AC	34.0	26.2
XK1130SA076M					
XK1800DA076M					
XK1800DT076M	89	M10	Wespack PCT	38.0	14
XK1800SA076M					
XK2100DA076M					
XK2100DA076ML					
XK2100SA076M	89	M10	GTO	47.0	27
XK2100SA076ML					
XK2140DA076M *					
XK2140DA076ML *					
XK2140DT076M *	89	M10	DO-200/Thyristor	47.0	26.8
XK2140DT076ML *					
XK2140SA076M					
XK2140SA076ML					
XK2700DA076M					
XK2700DT076M	89	M10	Wespack PCT	50.0	14
XK2700SA076M					
XK2000DA114M					
XK2000SA114M	132	M12	Press-Pack IGBTs	75.0	26
XK2500DA114M					
XK2500SA114M	132	M12	Press-Pack IGBTs	75.0	26
XK2500DA116M					
XK2500DA116ML					
XK2500SA116M	132	M12	GTO	63.0	26
XK2500SA116ML					
XK3000DA116M *					
XK3000DA116ML *					
XK3000SA116M	132	M12	DO-200AD/Thyristor	63.0	33
XK3000SA116ML					
XK3500DA116M					
XK3500DA116ML					
XK3500SA116M	132	M12	GTO	75.0	26
XK3500SA116ML					

<b>XK5000DA128M</b> <b>XK5000DA128ML</b>	146	M16	GTO	75.0	26
<b>XK7000DA128M</b> <b>XK7000DA128ML</b>	146	M16	Diode/Thyristor	75.0	26.6
<b>XK3060DA140ML</b> <b>XK3060SA140ML</b>	154	M12	Press-Pack IGBTs	85.1	26
<b>XK9000SA160M</b> <b>XK9000SA160ML</b>	180	M16	Thyristor	99.3	35.8
<b>XK9000DA160M</b> <b>XK9000DA160ML</b>	180	M16	Thyristor	99.3	35.8
<b>XK6120DA180ML</b> <b>XK6120SA180ML</b>	196	M16	Press-Pack IGBTs	125.0	26
<b>XK8000DA180ML</b> <b>XK8000SA180ML</b>	196	M16	Press-Pack IGBTs	132.0	26

\* Not for new design. For new replacement part see page 177



WC 18



WC 45



WC 50



WC 48/49

<b>XSK054</b>	XSK####DT054xxx	0900	54	190	025-076*
	XSK####DF054xxx	0900	54	190	025-076*
<b>XSK056</b>	XSK####DA056xxx	0500/0900	56	190	038-120*
	XSK####DT056xxx	0500/0900	56	190	038-120*
	XSK####DF056xxx	0500/0900	56	190	038-120*
	XSK####DA056xxx	1500	56	190	038-120*
	XSK####DT056xxx	1500	56	190	038-120*
	XSK####DF056xxx	1500	56	190	038-120*
<b>XSK065</b>	XSK####DA065xxx	0500/0900	65	190	038-120*
	XSK####DT065xxx	0500/0900	65	190	038-120*
	XSK####DF065xxx	0500/0900	65	190	038-120*
	XSK####DA065xxx	1500	65	190	038-120*
	XSK####DT065xxx	1500	65	190	038-120*
	XSK####DF065xxx	1500	65	190	038-120*
<b>XSK075</b>	XSK####DA075xxx	0900/1500	75	190	038-120*
	XSK####DT075xxx	0900/1500	75	190	038-120*
	XSK####DF075xxx	0900/1500	75	190	038-120*
	XSK####DA075xxx	2200	75	190	038-120*
	XSK####DT075xxx	2200	75	190	038-120*
	XSK####DF075xxx	2200	75	190	038-120*
<b>XSK087</b>	XSK####DA087xxx	1500/2200	87	190	038-120*
	XSK####DT087xxx	1500/2200	87	190	038-120*
	XSK####DF087xxx	1500/2200	87	190	038-120*
	XSK####DA087xxx	3000	87	190	038-120*
	XSK####DT087xxx	3000	87	190	038-120*
	XSK####DF087xxx	3000	87	190	038-120*
<b>XSK103</b>	XSK####DA103xxx	2200	103	190	038-120*
	XSK####DF103xxx	2200	103	190	038-120*
	XSK####DA103xxx	3200	103	190	038-120*
	XSK####DF103xxx	3200	103	190	038-120*
	XSK####DA103xxx	4000	103	190	038-120*
	XSK####DF103xxx	4000	103	190	038-120*
<b>XSK112</b>	XSK####DA112xxx	2800/3200/3800/4500	112	190	038-120*
	XSK####DF112xxx	2800/3200/3800/4500	112	190	038-120*
<b>XSK120</b>	XSK####DA120xxx	3800/4500/5000	120	190	050-120*
	XSK####DF120xxx	3800/4500/5000	120	190	050-120*
<b>XSK126</b>	XSK####DA126xxx	3800/4500/5000	126	190	050-120*
	XSK####DF126xxx	3800/4500/5000	126	190	050-120*
<b>XSK160</b>	XSK####DA160xxx	8000/9000	160	190	050-120*
	XSK####DF160xxx	8000/9000	160	190	050-120*

<b>XSK075</b>	112.78	-	89.00	25.40	-	75.00	12.19	PCF	PCF
<b>XSK087</b>	127.00	-	102.00	25.40	-	87.00	12.19	PCF	PCF
<b>XSK103 (2200/3200)</b>	144.78	-	118.00	25.40	36.00	103.00	12.19	PCF	PCF
<b>XSK103 (4000)</b>	144.78	154.11	118.00	25.40	36.00	103.00	16.56	PCF	PCF
<b>XSK112</b>	165.02	-	132.00	25.40	36.00	112.00	16.56	PCF	PCF
<b>XSK120</b>	172.72	-	140.00	25.40	36.00	120.00	16.56	PCF	PCF
<b>XSK126</b>	181.1	-	146	25.4	36	126	16.56	PCF	PCF
<b>XSK160</b>	216.07	-	180	38.1	-	160	16.56	PCF	PCF

Notes: PCF = Dimension is dependent on clamp force and cell height. Please consult factory.

“A1” dimension only shown where “A1” is larger than “A”.

“C1” dimension only shown where “C1” is larger than “C”.

All dimensions in mm.



WC 58



WC 60



WC 62



WC 59



WC 61



WC 63



<b>XSK2000DA076101</b>	M8 x 160	M8 x 120				101
<b>XSK3000DA076038</b>	M8 x 100	M8 x 65				38
<b>XSK3000DA076076</b>	M8 x 130	M8 x 100	89.0	50	25kN to 31kN	76
<b>XSK3000DA076101</b>	M8 x 160	M8 x 125				101
<b>XSK3400DA076038</b>	M8 x 100	M8 x 65				38
<b>XSK3400DA076076</b>	M8 x 140	M8 x 105	89.0	50	27kN to 34kN	76
<b>XSK3400DA076101</b>	M8 x 160	M8 x 130				101
<b>XSK3800DA116M076</b>	M10 x 150	M12 x 100	132.0	66	32kN to 38kN	76
<b>XSK3800DA116M101</b>	M10 x 180	M12 x 125				101
<b>XSK4400DA116M076</b>	M10 x 150	M12 x 105	132.0	68	36kN to 44kN	76
<b>XSK4400DA116M101</b>	M10 x 180	M12 x 130				101
<b>XSK6000DA116M076</b>	M10 x 150	M12 x 105	132.0	75	50kN to 60kN	76
<b>XSK6000DA116M101</b>	M10 x 180	M12 x 130				101

Note: 1 Kgf = 9.8 Newtons

T<sub>JMAX</sub> = 190°C

Outline drawing  
from pages O-C



WC51



WC52



WC53



WC55



WC56



WC

<b>XK1000BA025M</b>	Injection	50 PCD	M5x50 Bolts	W91	25.1	14.0
<b>XK1500BA034M</b>	Injection	70 PCD	M6x50 Bolts	W4 / W10 / W92	34.0	26.2

Note: 1 Kgf = 9.8 Newtons

Outline drawings are available from pages O-01...O-35



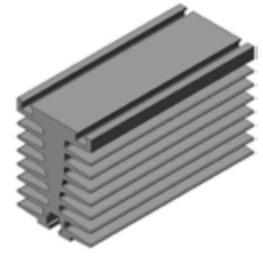
WC 48/49



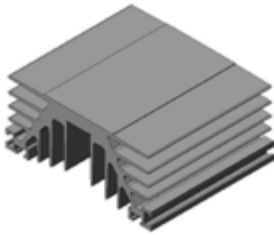
WC 50

## Heatsinks

Part No.	Weight Kg/m	Periphery mm	Area mm <sup>2</sup>	Fig.
<b>XSFGxxxxAN</b>	8.1	1059	2979	WH1
<b>XSFGAxxxxAN</b>	15.6	1682	5867	WH2
<b>XSFHxxxxAN</b>	12.7	1684	4655	WH3
<b>XSFTxxxxAN</b>	20	2065	7573	WH4
<b>XSFTBxxxxAN</b>	29	2467	10905	WH5
<b>XSFTCxxxxAN</b>	28	2544	10561	WH6
<b>XSFLPxxxxAN</b>	30	6620	11172	WH7
<b>XS46xxxxAN</b>	20	2822	7411	WH8
<b>XS30xxxxAN</b>	Dimensions 125mm x 125mm x 4 vanes			



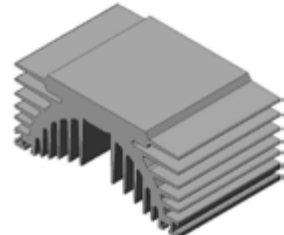
WH1



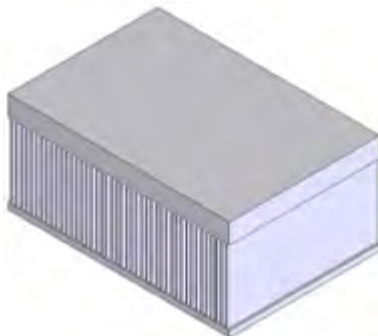
WH3



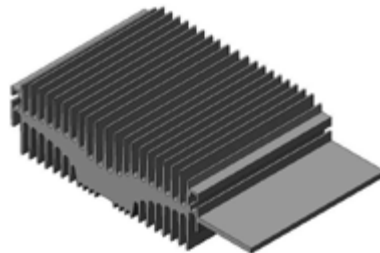
WH4



WH5



WH7



WH8



WH9

XW076NC16A	0.350	16	0.33	47mm WC Cu reversed with Busbar	WCL12
XW076NC16W	0.400	16	N/A	47mm WC Cu reversed	WCL13
XW116ZC20A	1.300	20	N/A	73mm WC Cu	WCL4
XW116ZC20B	1.750	20	10	73mm WC Cu with Busbar	WCL3
XW116ZC20C	2.120	20	10	73mm WC Cu with alt. Busbar	WCL5
XW116ZC20R	1.672	20	10	73mm WC Cu reversed with Busbar	WCL14
XW116ZC20W	1.119	20	N/A	73mm WC Cu reversed	WCL15
XW127EC25A	1.650	25	N/A	85mm WC Cu Helix	WCL16
XW127EC25B	2.200	25	8	85mm WC Cu with Busbar Helix	WCL17
XW127EA25A	0.500	25	N/A	85mm WC Al Helix	WCL16
XW127EA25B	0.650	25	8	85mm WC Al with Busbar Helix	WCL17
XW160FC25A	3.620	25	N/A	100mm WC Cu	WCL6
XW160FC25B	4.520	25	10	100mm WC Cu with Busbar	WCL7
XW180GC34A	4.920	34	N/A	125mm WC Cu Helix	WCL11
XW180GC34B	5.950	34	10	125mm WC Cu with Busbar Helix	WCL10
XW180GA34A	1.500	34	N/A	125mm WC Al Helix	WCL11
XW180GA34B	1.800	34	10	125mm WC Al with Busbar Helix	WCL10
XW180BA34E	1.550	34	N/A	132mm WC Al Helix	WCL19
XW180BA34F	1.850	34	10	132mm WC Al with Busbar Helix	WCL20
XW270QA25A	2.941	25	N/A	270 x 190mm WC Al Cold Plate	WCL9

Outlines on pages O-01...O-35



WCL1



WCL3



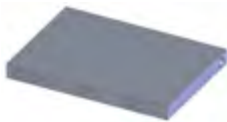
WCL5



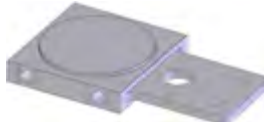
WCL6



WCL12



WCL9 -WS65



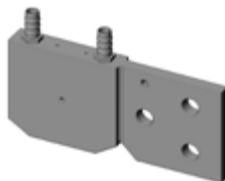
WCL10



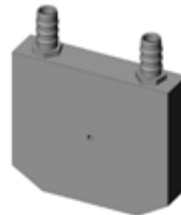
WCL11



WCL13 -WS71-2



WCL14 -WS72-1



WCL15 -WS72-2



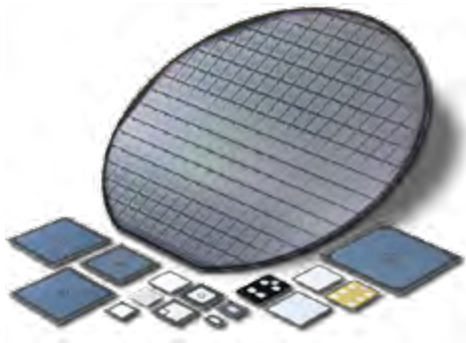
WCL16



WCL17

Part No.	Cooler Accessories
XSNM12H10S	M12 Cooler Connection, 10mm Hose & Stainless Steel material
XSNM12H12S	M12 Cooler Connection, 12mm Hose & Stainless Steel material

<b>Semi-Fast Diodes</b>	1200 - 1600	15 - 60	60 - 100
<b>Rectifier Diodes</b>	1200 - 2200	10 - 400	-
<b>Phase Control Thyristors</b>	800 - 2200	5 - 300	-



#### Mode of Shipment:

- in wafer form, unsawn, electrically tested, rejects are inked
- sawn wafer on foil, electrically tested, rejects are inked
- known good die in tray (Waffle Pack)
- customized die sizes / geometry on request

For chip sales please see:

<https://www.littelfuse.com/products/power-semiconductors>

## Direct Copper Bonded Ceramic Substrates

### DCB Ceramic Substrates (Al<sub>2</sub>O<sub>3</sub>)

Littelfuse IXYS manufactures Direct Copper Bonded substrates on aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) base.

DCB ceramic substrates form the basis for new product ideas and electronic developments with a high degree of integration.

- carriers for semiconductor chips and connection clips
- circuits similar to that on a PC board
- electrical isolator for separating „current paths“ from „heat paths“
- transfer medium for heat dissipation from active parts into heat sink

**Standard bonded DCB** panel dimensions are:

Unclad aluminum oxide ceramic			
Al <sub>2</sub> O <sub>3</sub> content		> 96	%
dimensions		138x210, 138x190.5, 115x165*	mm
usable area	max.	130x200, 130x180, 107x156*	mm
thickness		0.63, 0.38, 0.25	mm
arc through voltage		10	kV
thermal conductivity		> 24	W/m · K
Conduction layers - both sides			
copper thickness		0.5, 0.3 (< 0.3 on request)	mm
conductor width	min.	0.5, 0.3 + / - 0.2	mm
conductor spacing	min.	0.4 + / - 0.2	mm
spacing conductor/edge of ceramic	min.	0.35 + / - 0.2	mm
surface finishes available		bare copper; nickel plated; nickel + gold plated	
peel-off resistance (90° peel test)		>6	N/mm
DCB ceramic substrate			
application temperature range		-55...+850	°C
resistant to hydrogen	max.	400	°C
thermal expansion coefficient	to typ.	7.4 x 10 <sup>-6</sup>	K <sup>-1</sup>



DCB parts are

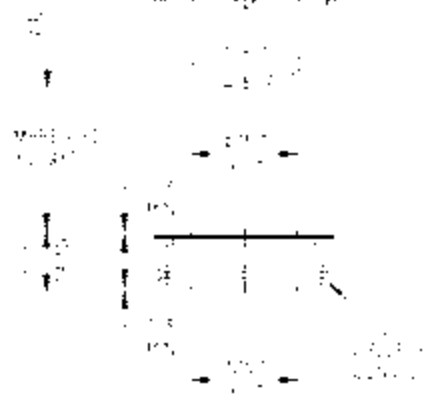
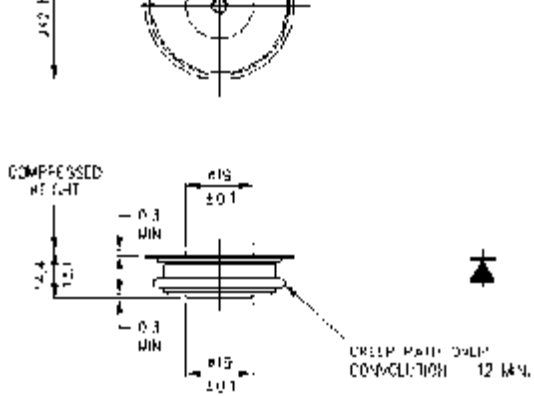
- bonded plate
- bonded and p
- prelasered, u
- individuelle su
- customer spe

substrates on

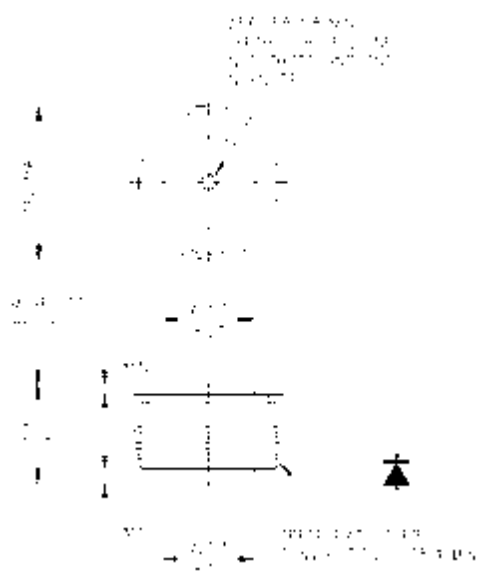


\* = (for 0.25

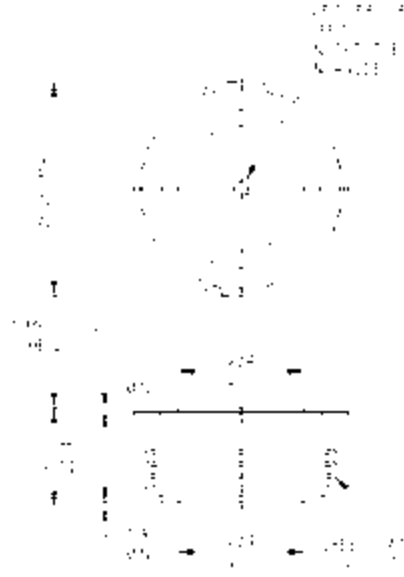
IXAN0005	Status of the Techniques of Three-Phase Rectifier Systems with Low Effects on the Mains
<b>MOSFETs and IGBTs Drivers</b>	
IXAN0012	MOSFET/IGBT Drivers - Theory and Applications
IXAN0011	Driving Your MOSFETs Wild to Obtain Greater Efficiencies, Power Densities and Lower Overall
<b>BiMOSFETs Applications</b>	
IXAN0013	Capacitor Charge/Discharge Circuits, utilizing High Voltage IGBTs and ZCS Resonant Mode Te
IXAN0014	Comparative Performance of BiMOSFETs in Fly-back Converter Circuits
IXAN0015	Use of BiMOSFETs in Modern Radar Transmitters
IXAN0016	IXBH40N160 BiMOSFET Developed for High Voltage and High Frequency Applications
IXAN0017	New 1600V BiMOSFET Transistors Open Up New Applications
<b>Automotive Applications</b>	
IXAN0018	A High Current Dual Inline Packaged Trench MOSFET Three Phase Full Bridge as Contribution System Integration
IXAN0019	High Power TrenchMOSFETs Solutions in Automotive Designs
IXAN0020	Power Electronic Supply for Automotive Starter Generator
IXAN0021	New Trench Power MOSFETs in Isolated Packages
<b>Isolation Techniques, Mounting, Soldering and Cooling</b>	
IXAN0022	Capitalizing on the Advantages of ISOPLUS Products
IXAN0023	General Mounting Instructions
IXAN0025	ISOPLUS-The Revolution in Discrete Isolation Technique
IXAN0026	Combining the Features of Modules and Discretes in a New Power Semiconductor Packages
IXAN0028	The Revolution in Discrete Isolation Technique
IXAN0030	Surface Mount Soldering Recommendations for TO-263 and TO-268 case styles
IXAN0031	New ISOPLU247 Power Package Features 2500V Internal Isolation Revolutionary Approach In Conductance and Reliability
IXAN0071	The SMPD Package and its Mounting Instructions
<b>Power Modules</b>	
IXAN0034	Recommended Use of the Integrated NTC Thermistor Temperature Sensor in IXYS Power Mod
IXAN0035	Mounting Instructions for _A7, _E7, _A8 and _E8 Module Series
IXAN0036	Investigations on Electromagnetic Compatibility of Power Semiconductor Modules Integrated in
IXAN0037	Power Cycle Capability of solder contact DCB-Modules
<b>FREDs and Schottky Diodes</b>	
IXAN0042	Is the Lowest Forward Voltage Drop Schottky Diode Always the Best Choice?
IXAN0043	Input Rectifiers with Semifast Diodes for DC link.
IXAN0044	Characteristics and Applications of Fast Recovery Epitaxial Diodes.
IXAN0060	Optimized Ultra Fast Diodes for Switching Applications
<b>Power MOSFETs</b>	
IXAN0057	Series Operation of MOSFET and IGBT Switches
IXAN0061	Power MOSFET Basics
IXAN0062	IXYS Power MOSFET Products
IXAN0063	Application note on Depletion-mode
IXAN0064	IXYS P-Channel MOSFET
IXAN0065	IXYS Power MOSFET Datasheet Parameters Definition
IXAN0068	Linear Power MOSFETS Basic and Application
IXAN0069	Synchronous DC to DC Converter Design
<b>IGBTs</b>	
IXAN0063	IGBTs
IXAN0070	Drive with the IXYS XPT IGBT
IXAN0072	Discrete 600V GenX3 XPT IGBTs



W3 - 100A317



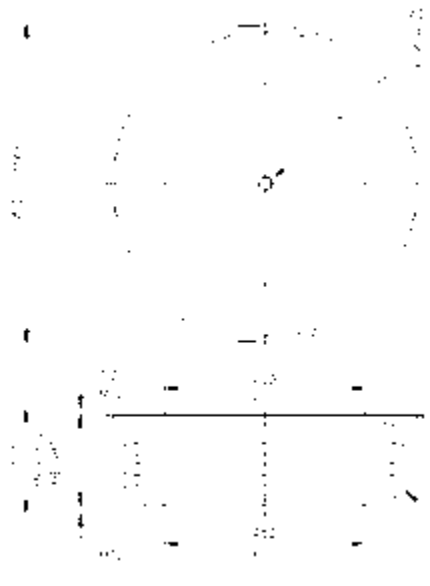
W4 - 100A243

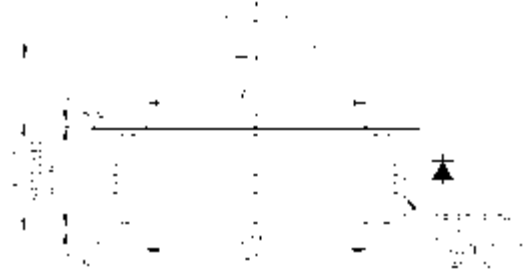


W5 - 100A249

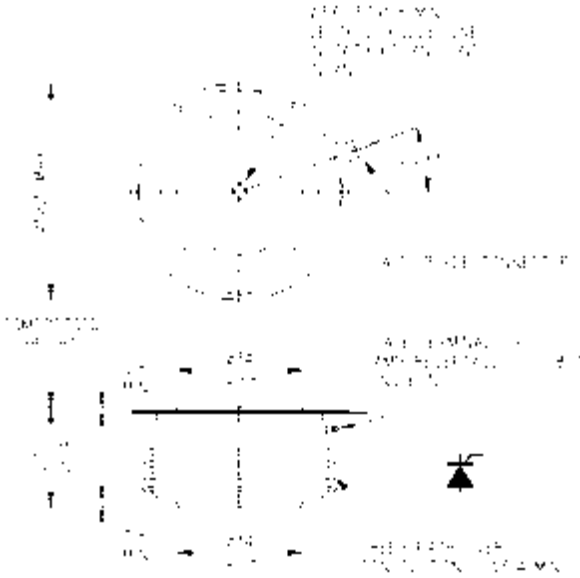


W6 - 100A270

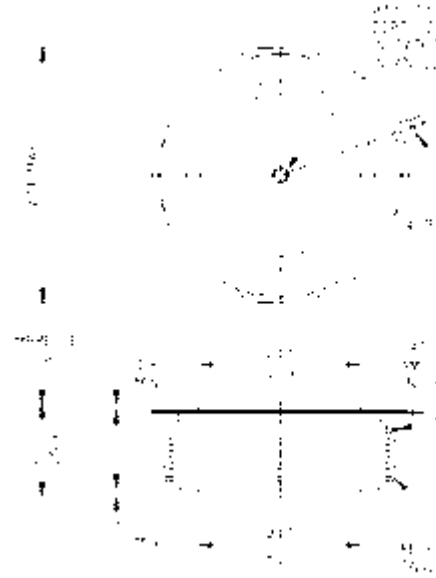




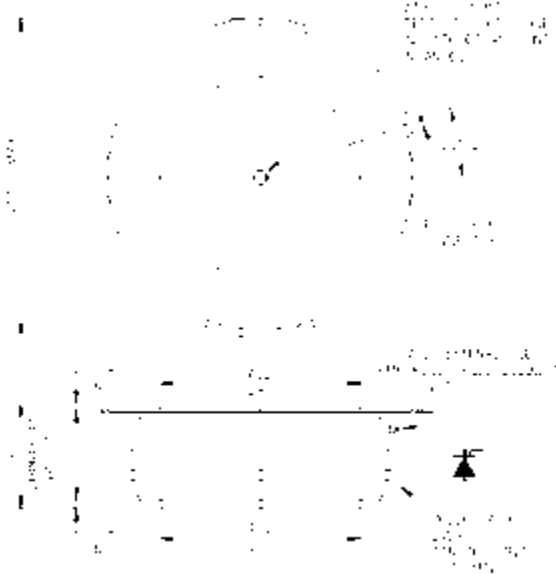
**W10 - 101A216**



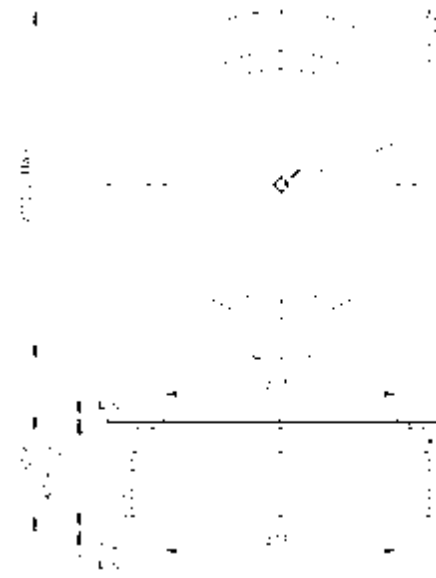
**W11 - 101A223**



**W12 - 101A232**



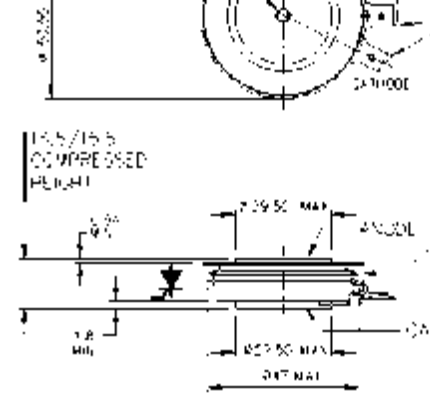
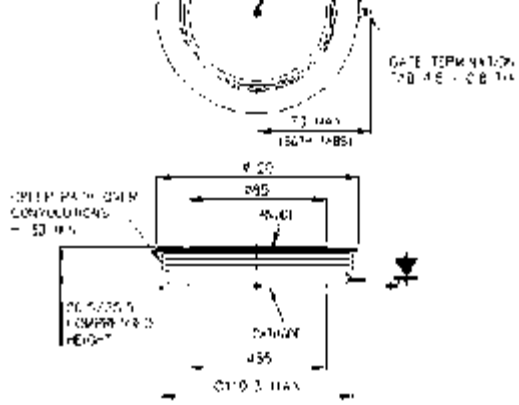
**W13 - 101A281**





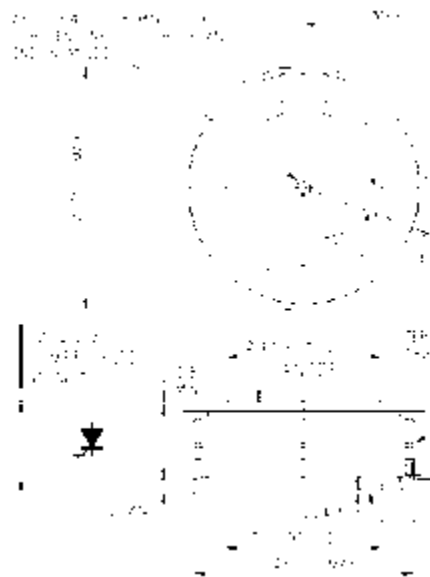
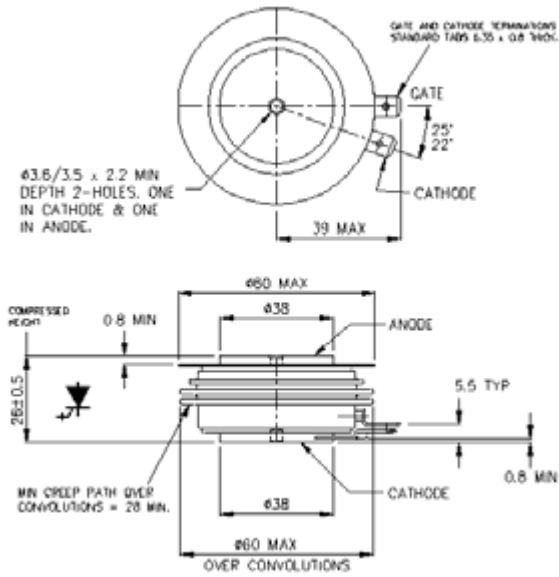






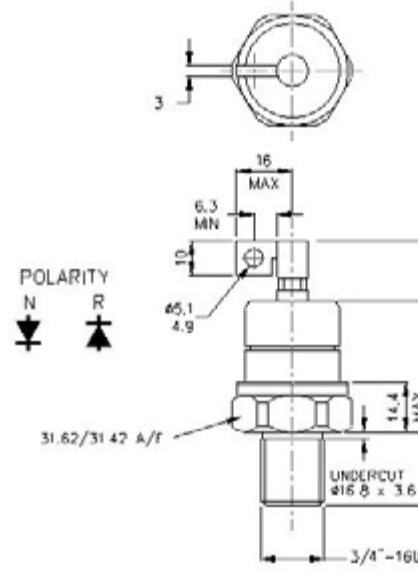
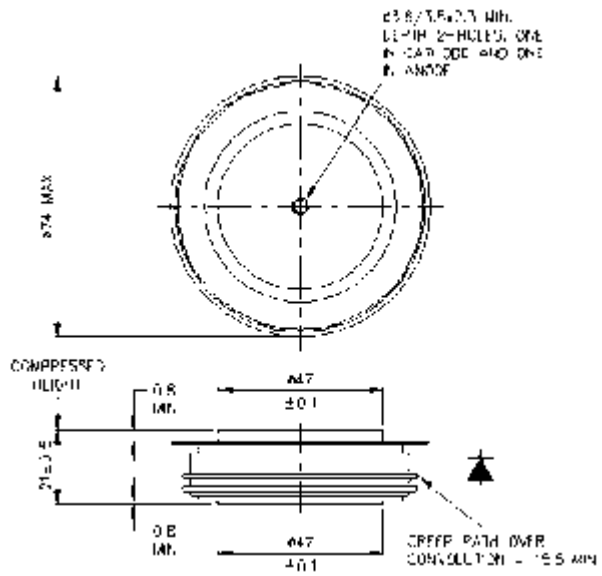
W35 - 101A358

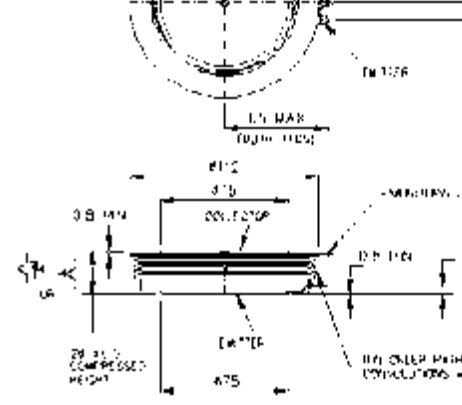
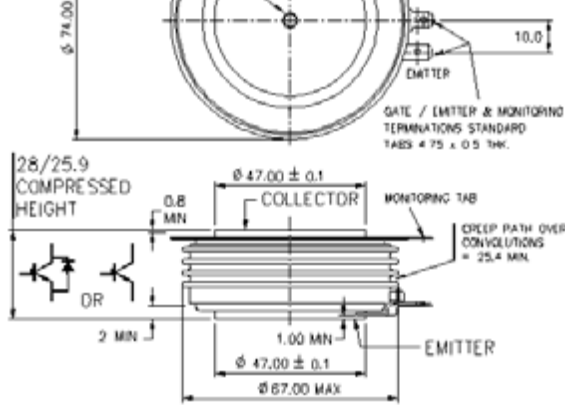
W36 - 101A288



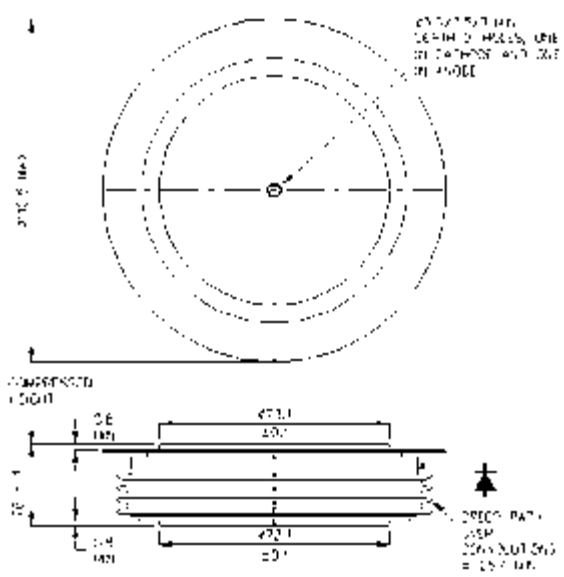
W37 - 100A325

W39 - 100A338

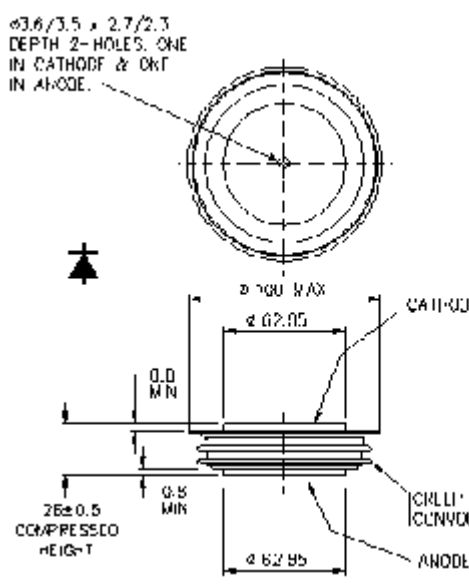




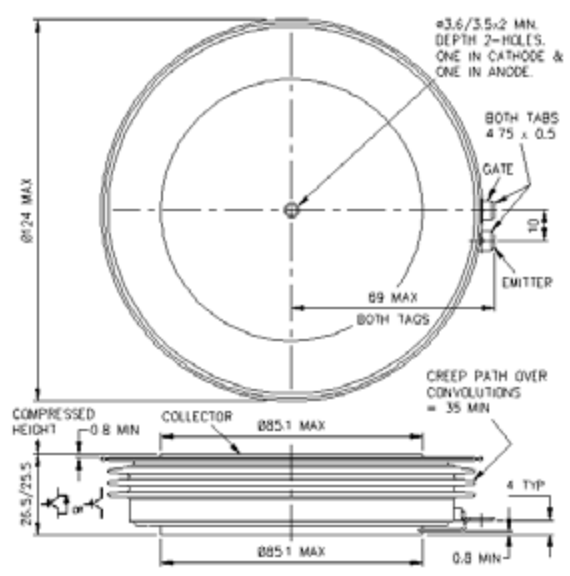
W42- 100A310



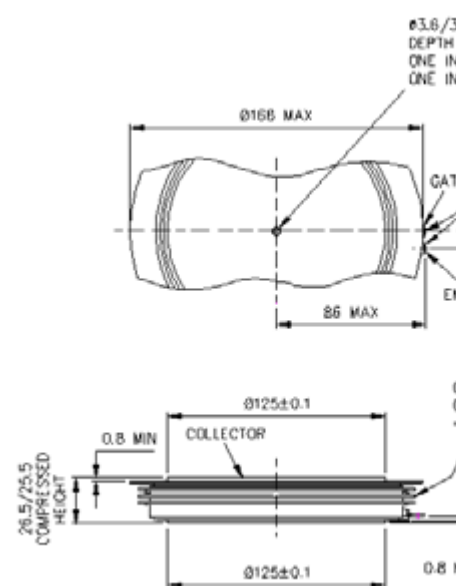
W43 - 100A320

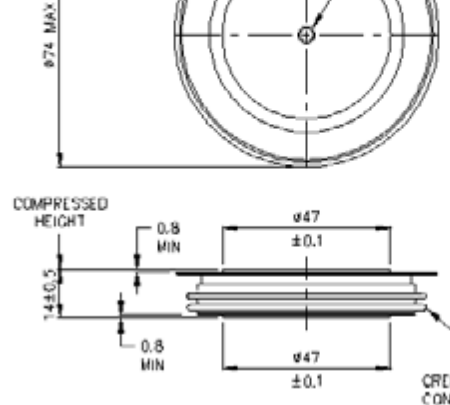
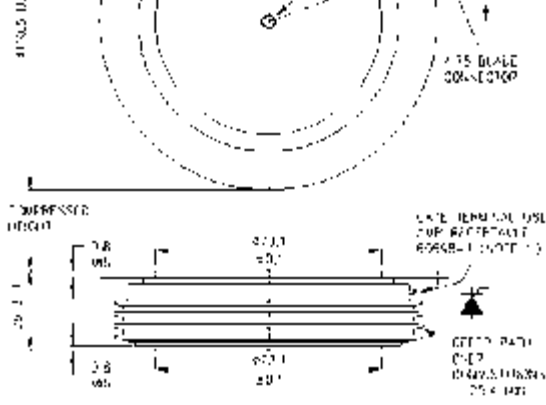


W44 - 101A340



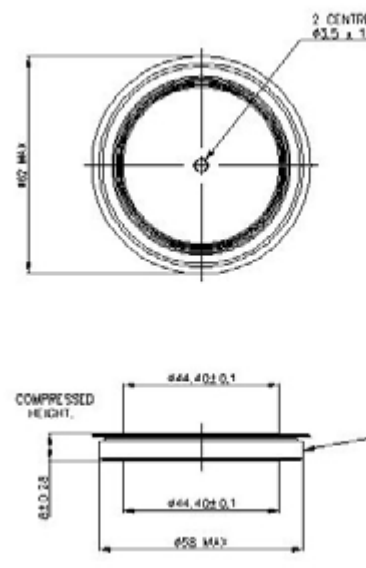
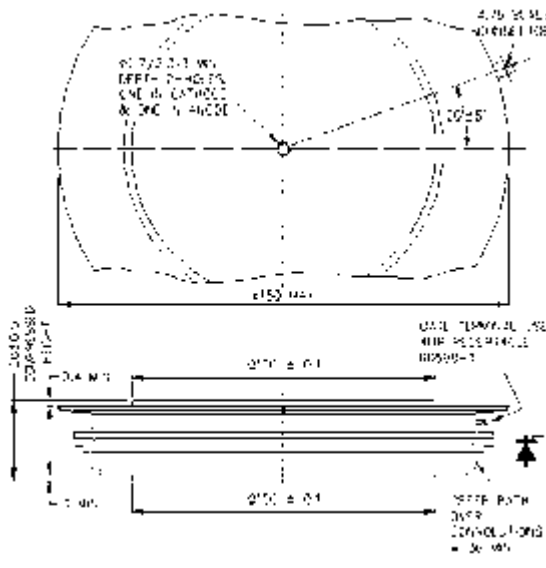
W45 - 101A359





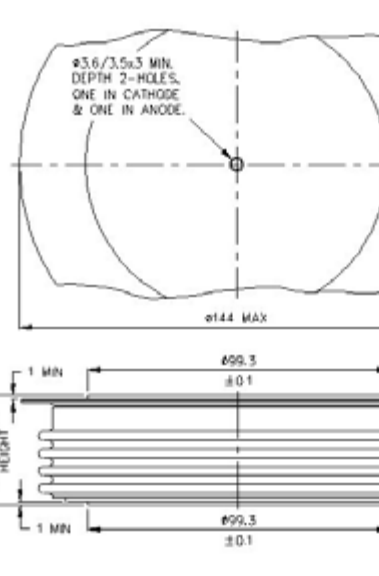
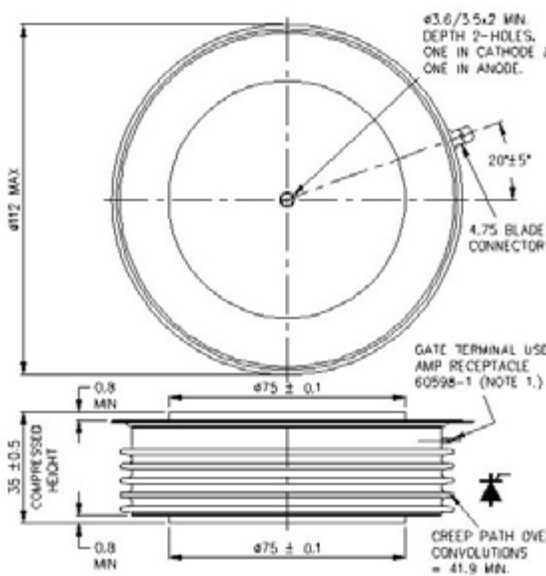
W48 - 101A347

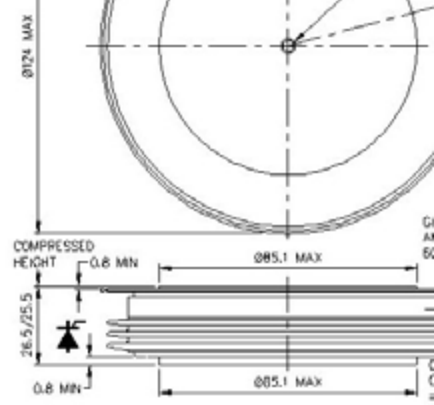
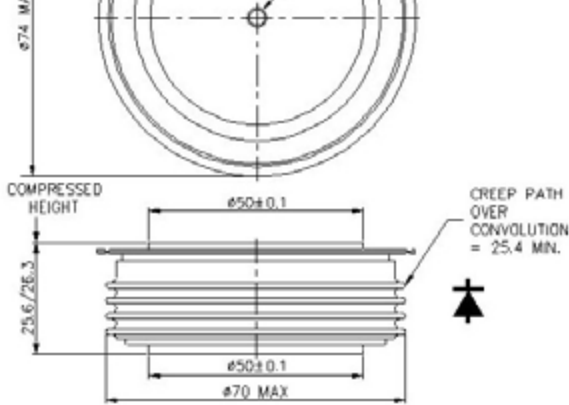
W49 100A354



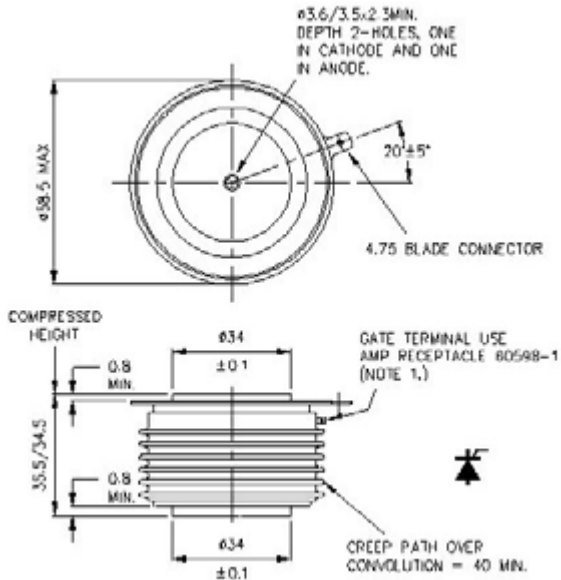
W51 - 101A334

W52 - 100A328

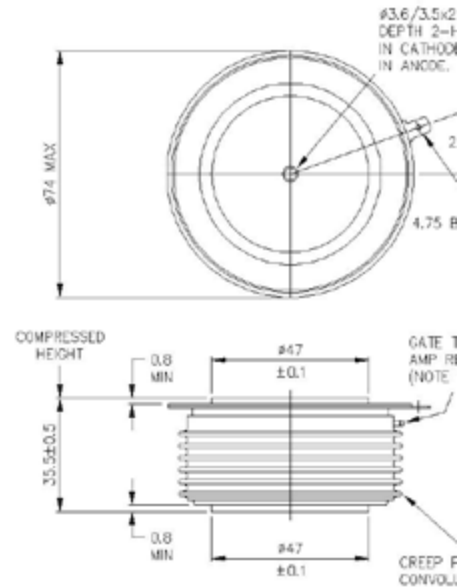




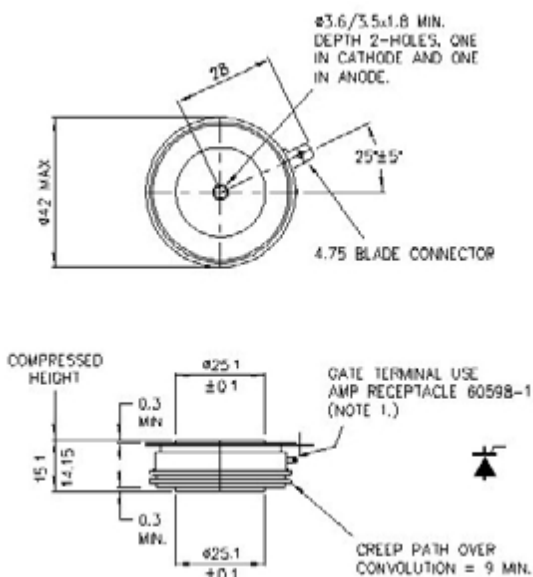
W56 - 101A365



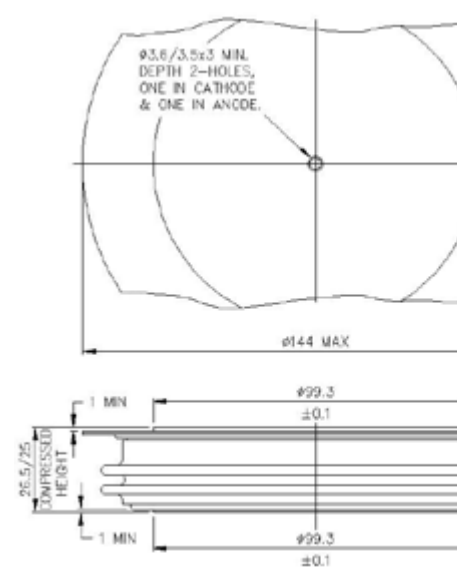
W57 - 101A363



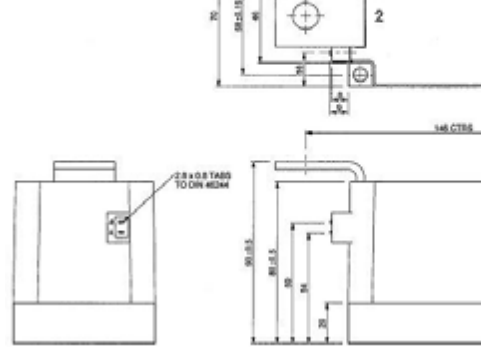
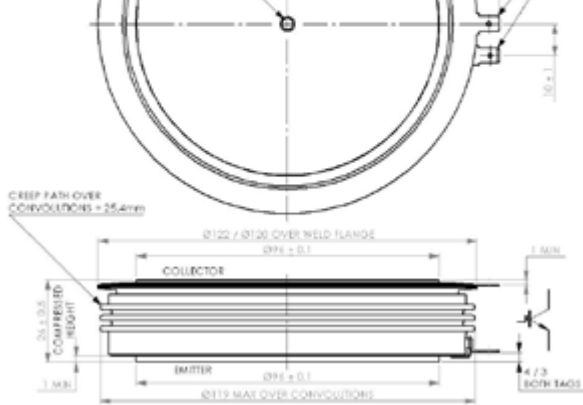
W58 - 101A237



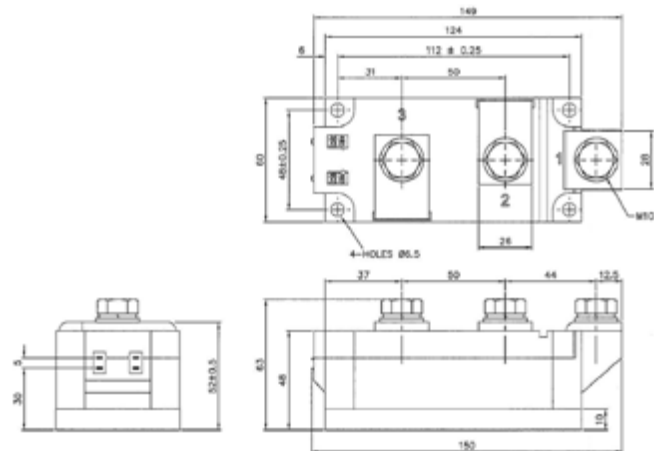
W59 - 100A359



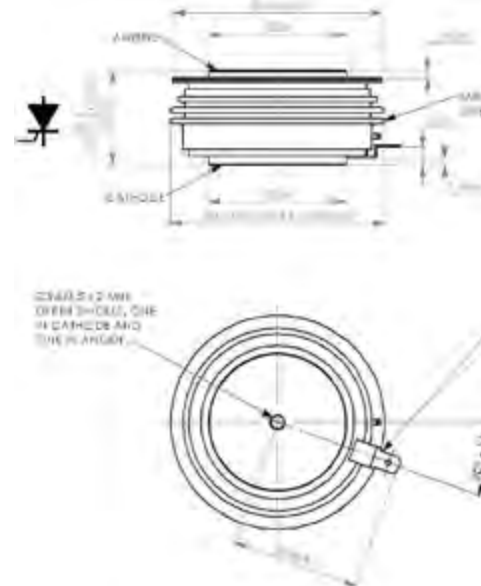




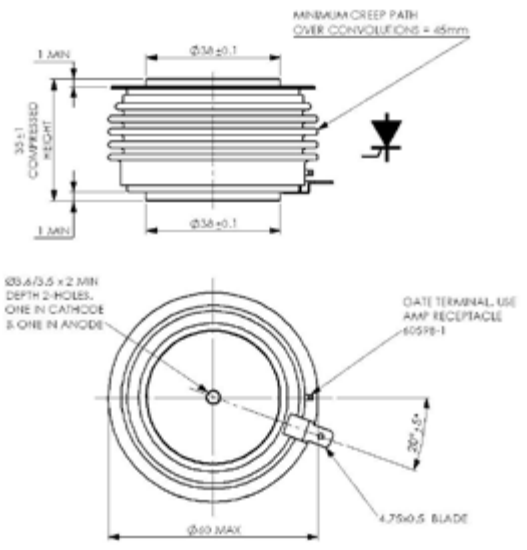
**W74 - 150A123**



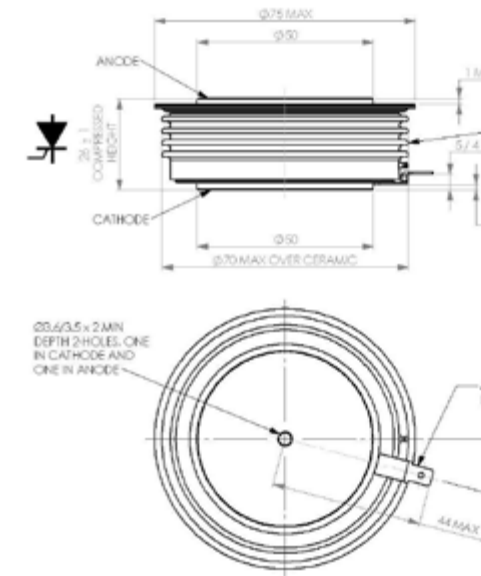
**W75 - 101A377**

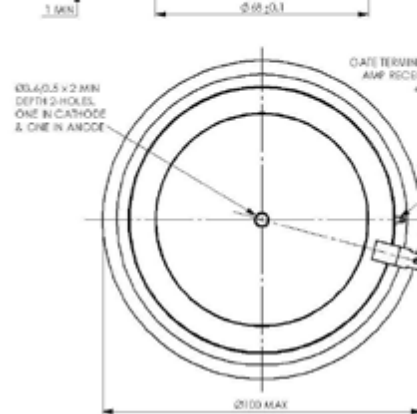
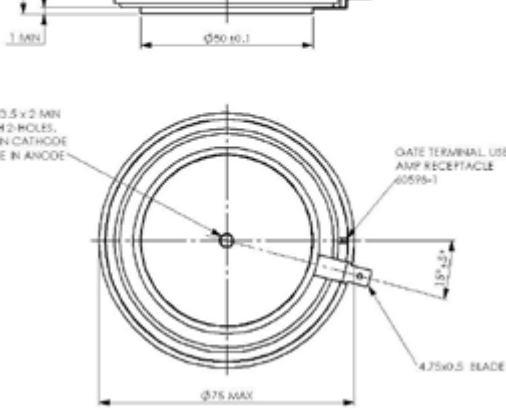


**W76 - 101A392**

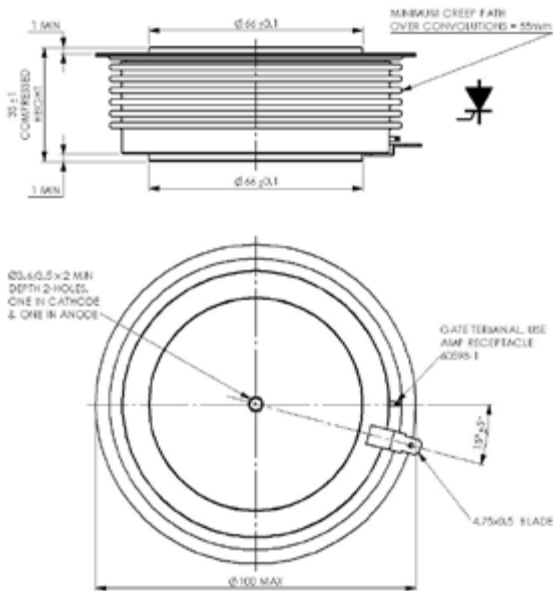


**W77 - 101A372**

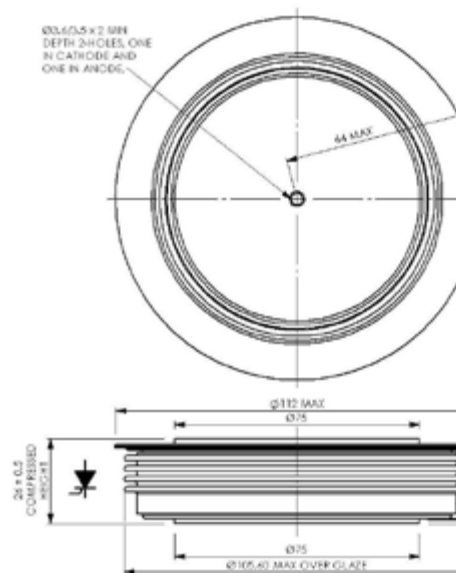




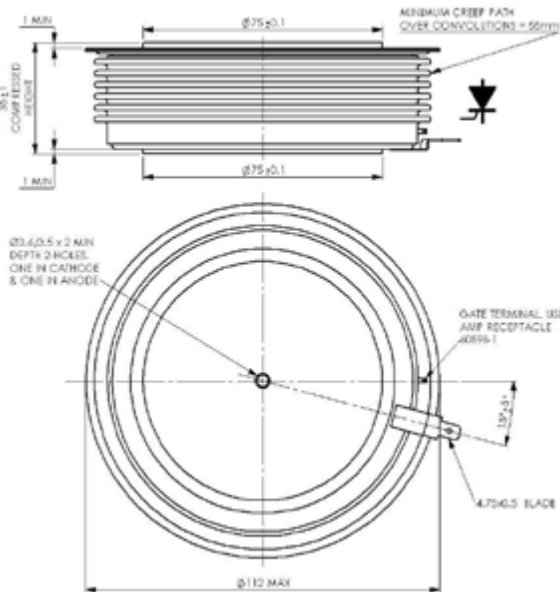
**W80 - 101A394**



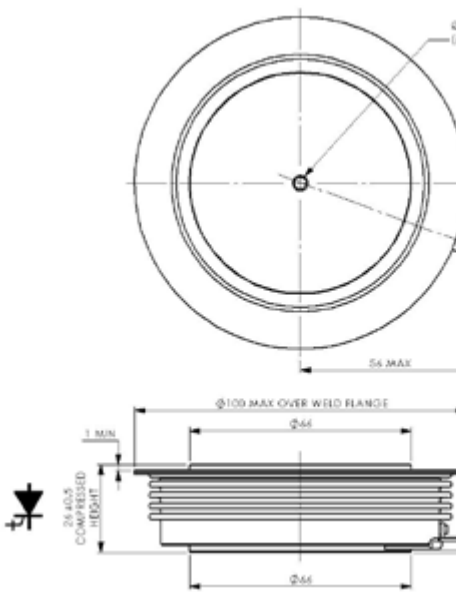
**W81 - 101A373**



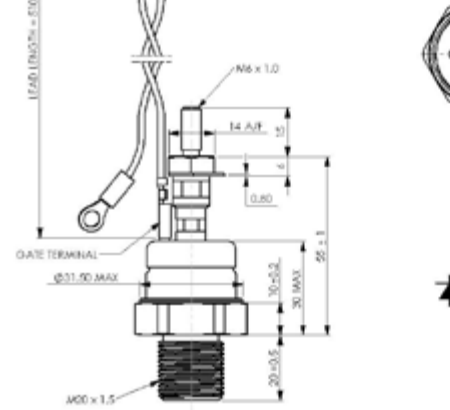
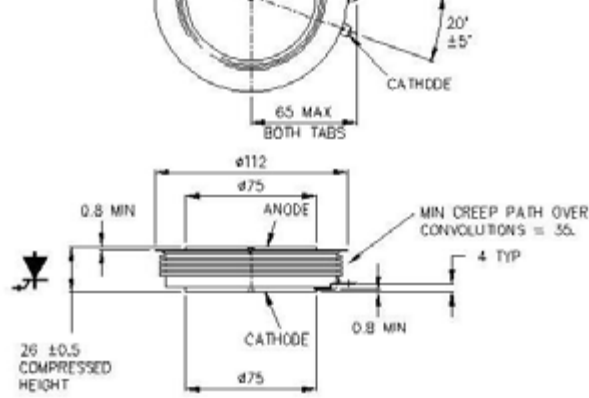
**W82 - 101A395**



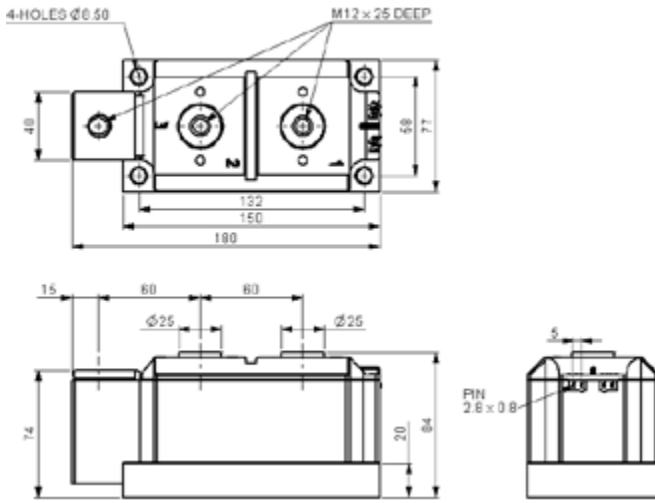
**W85 - 101A388**



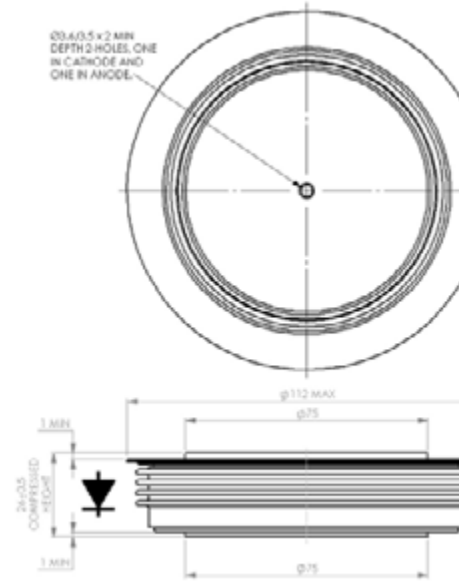




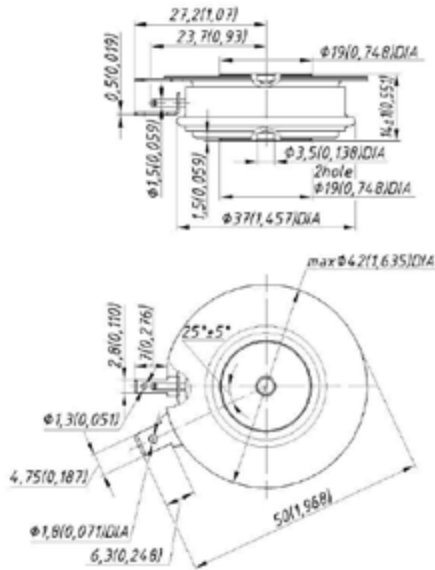
W88 - 150A124



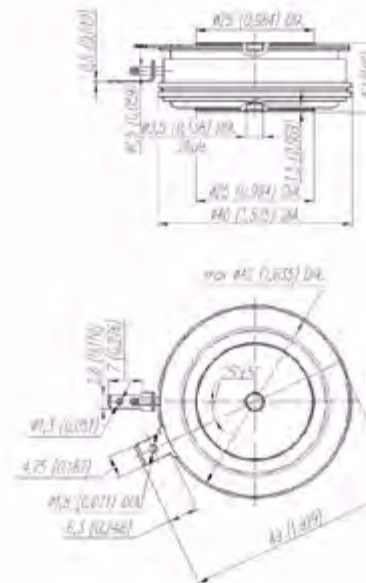
W89 - 100A368



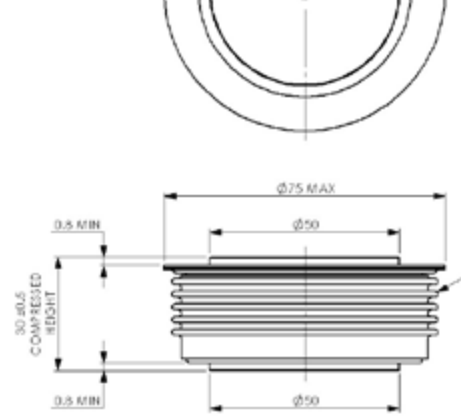
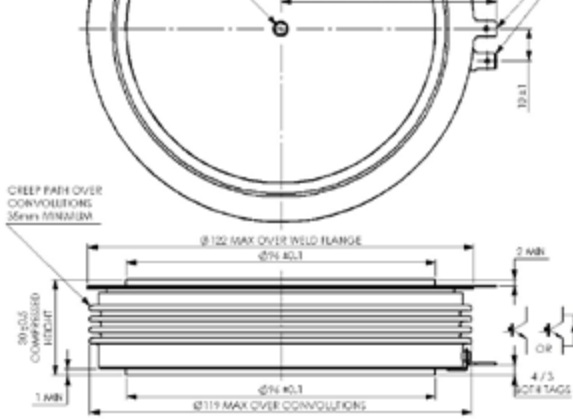
W90 - 101A405



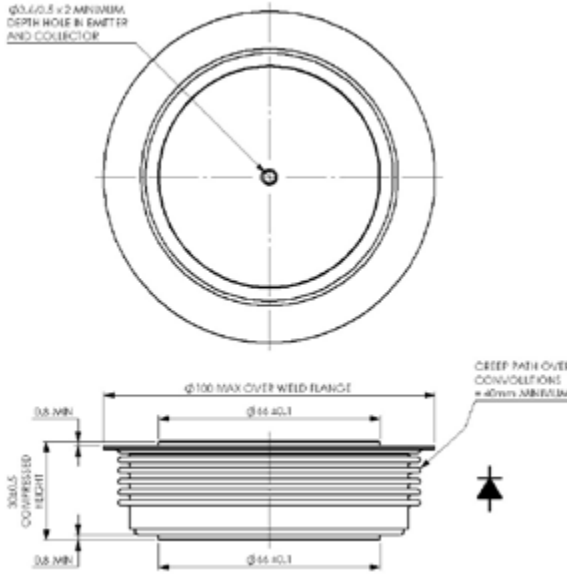
W91 - 101A406



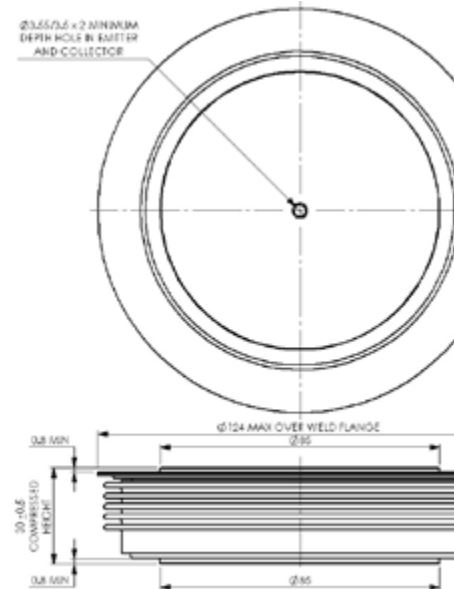




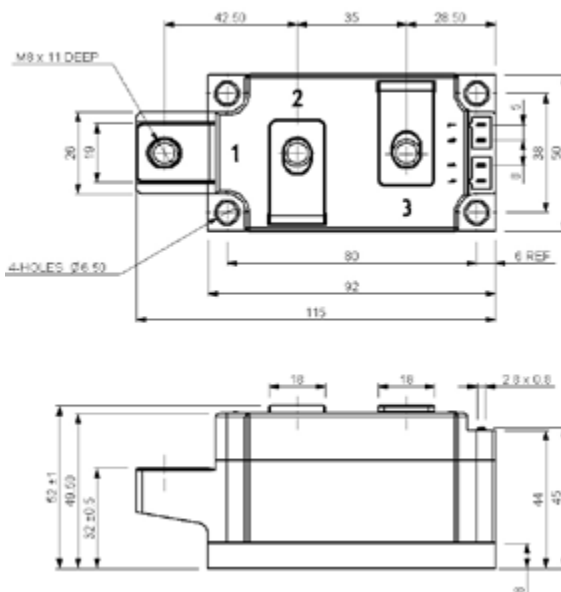
W100 - 100A384



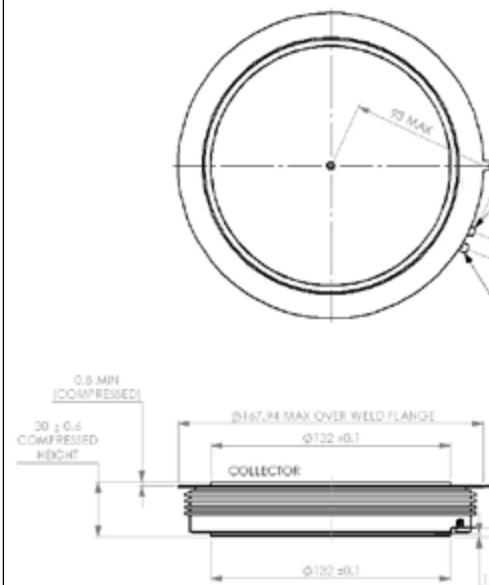
W101 - 100A380

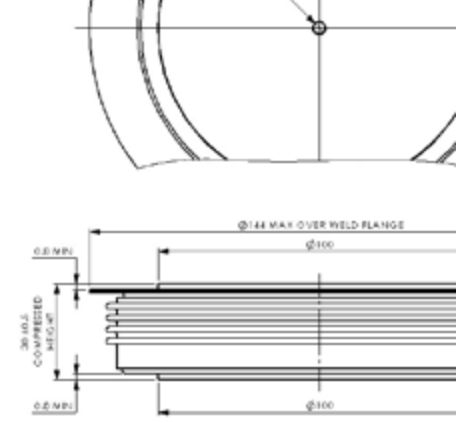
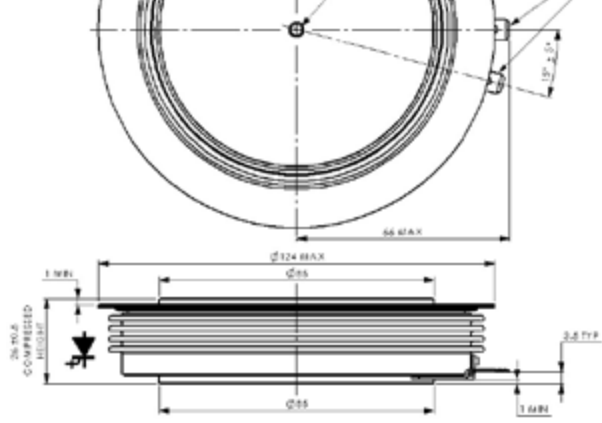


W102 - 150A125



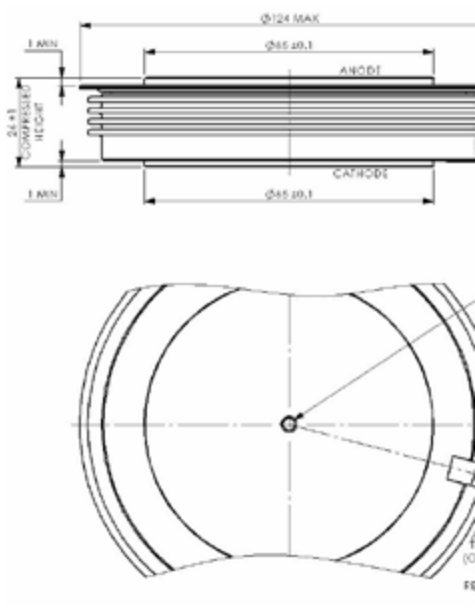
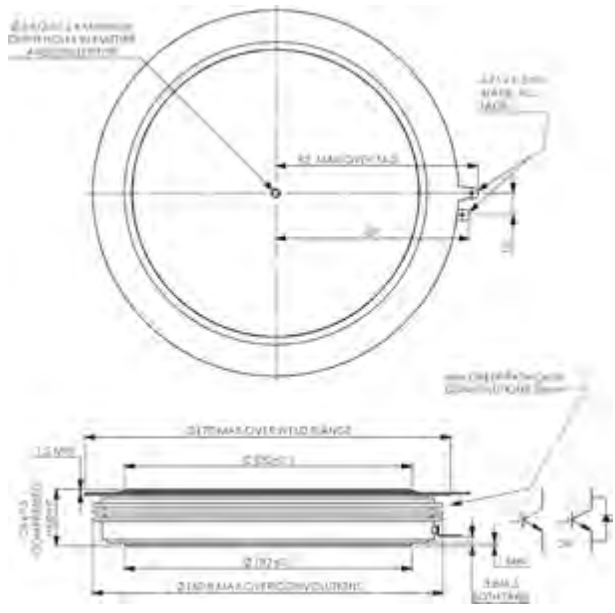
W103 - 101A401





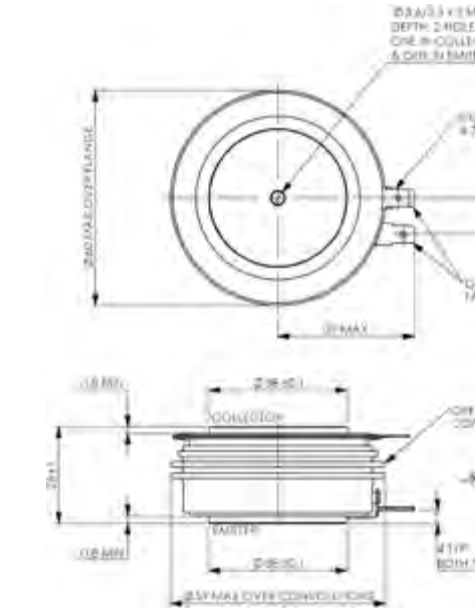
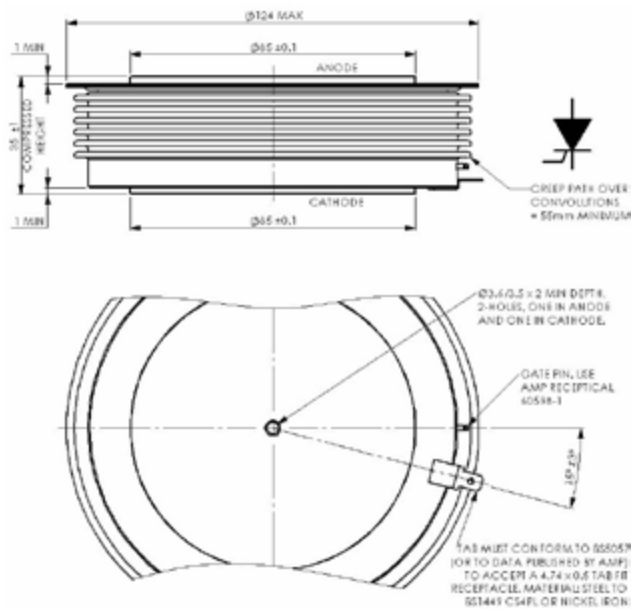
W106 - 101A420

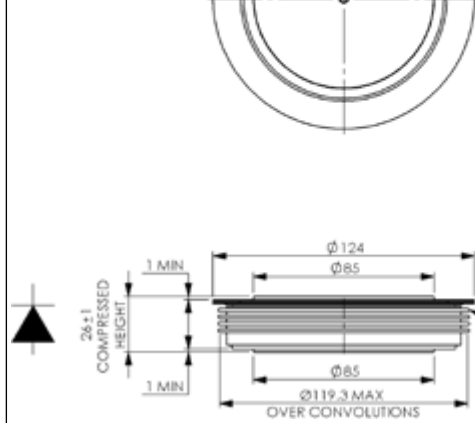
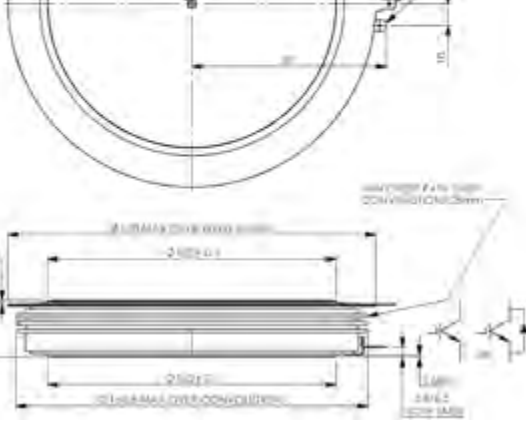
W107 - 101A411



W108 - 101A410

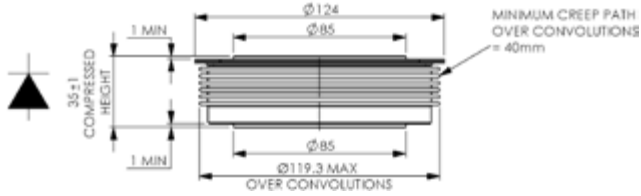
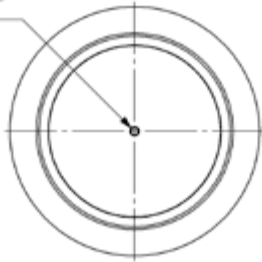
W109 - 101A425



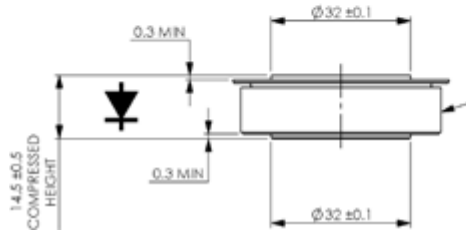
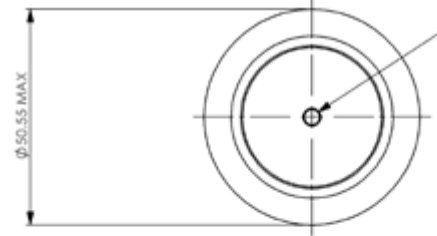


**W112 - 100A377**

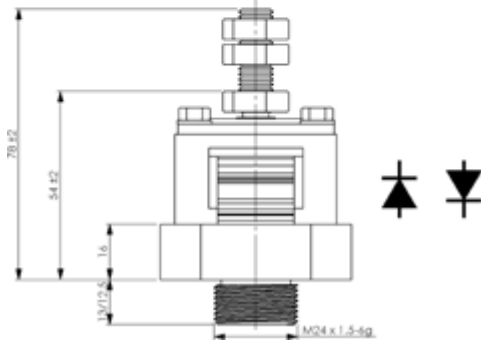
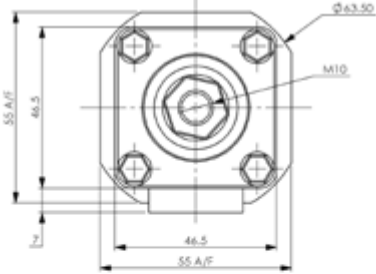
Ø3.6/3.5 x 2 MIN  
DEPTH 2-HOLES, ONE  
IN CATHODE AND  
ONE IN ANODE.



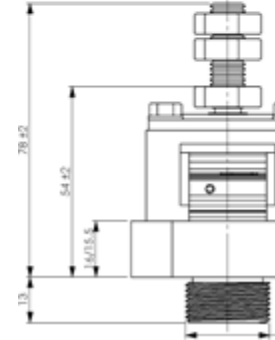
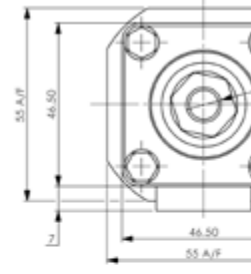
**W113 - 100A393**

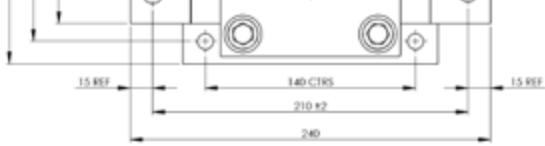


**W114 - 100A394**

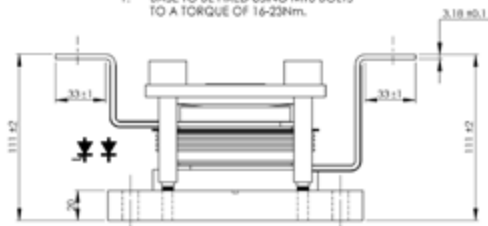


**W115 - 101A427**

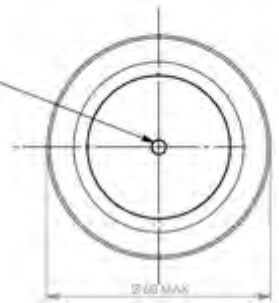




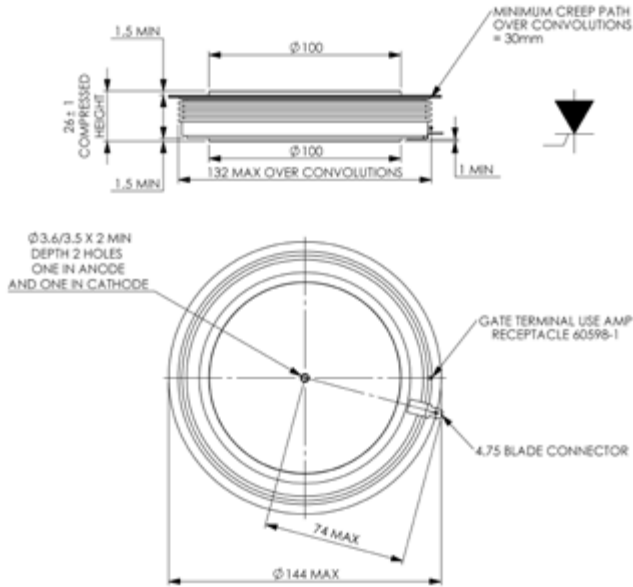
NOTES  
1. BASE TO BE FIXED USING M10 BOLTS TO A TORQUE OF 16-23Nm.



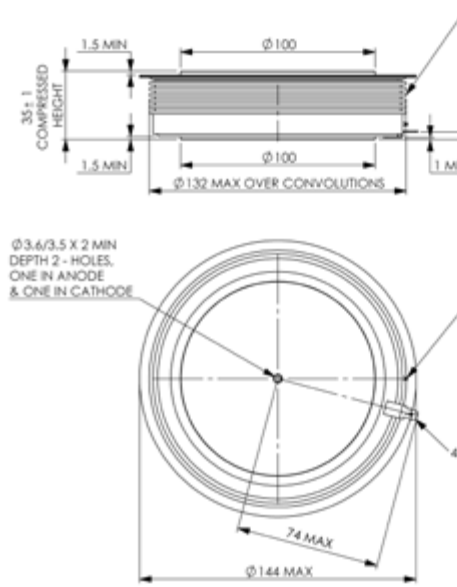
Ø3.6/3.5 X 2 MIN DEPTH 2-HOLES, ONE IN CATHODE & ONE IN ANODE



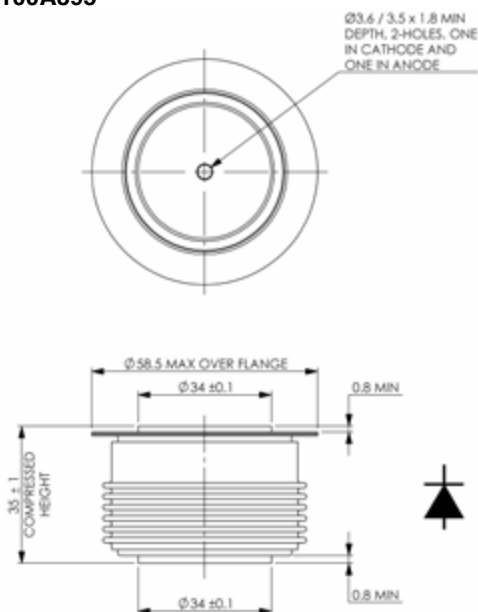
W118 - 101A428



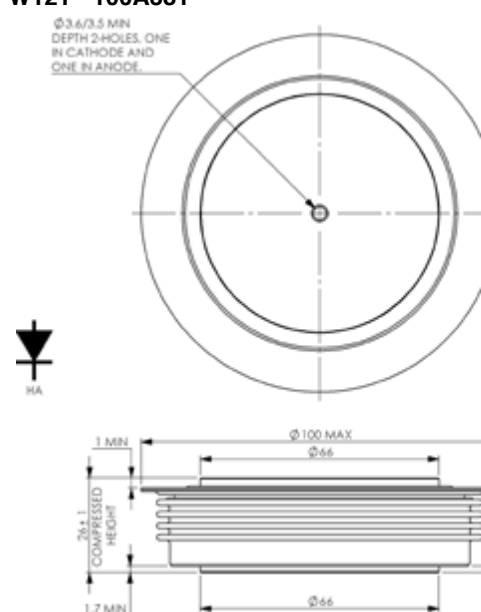
W119 - 101A421

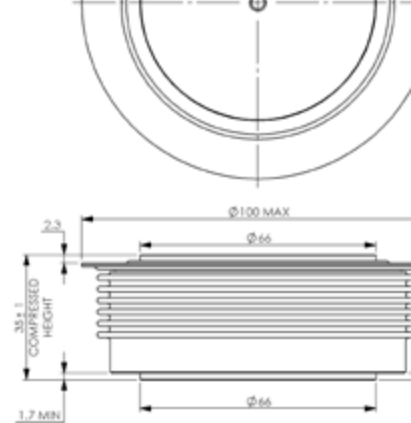
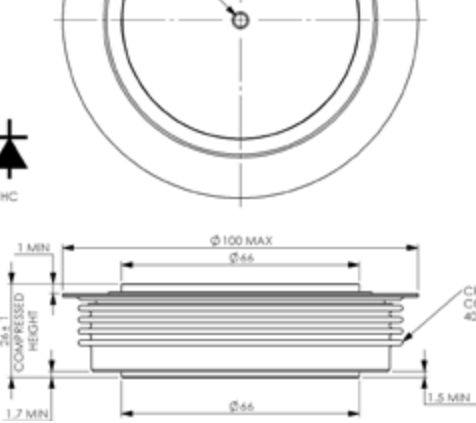


W120 - 100A395



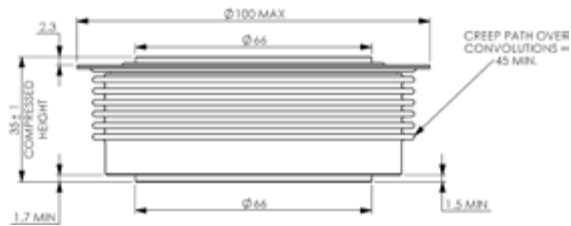
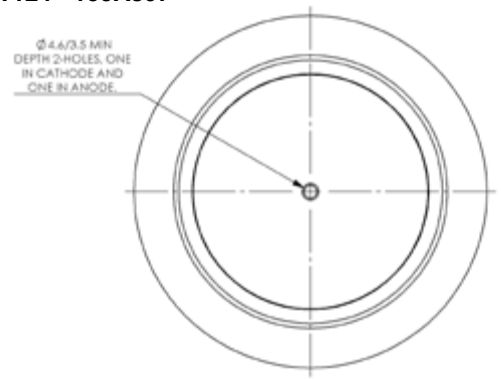
W121 - 100A381



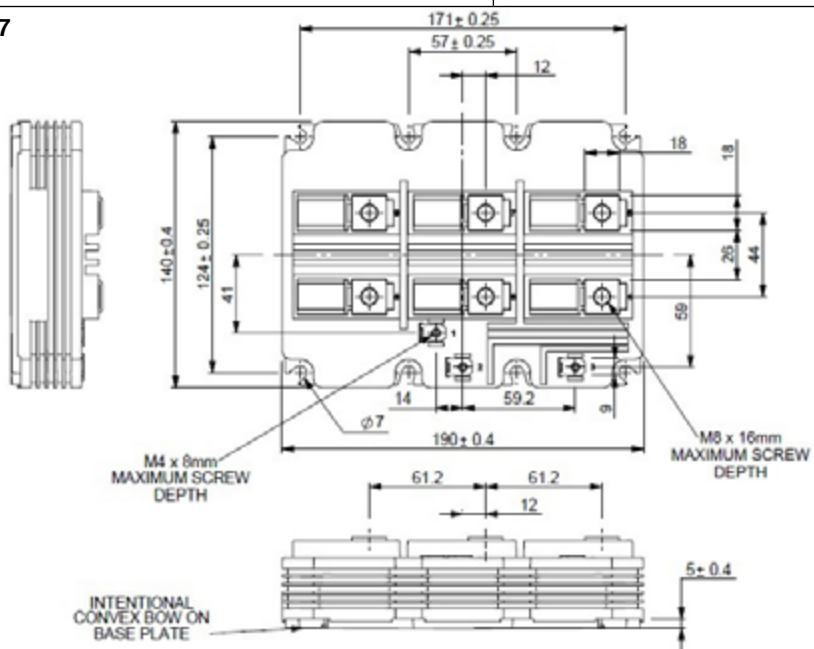


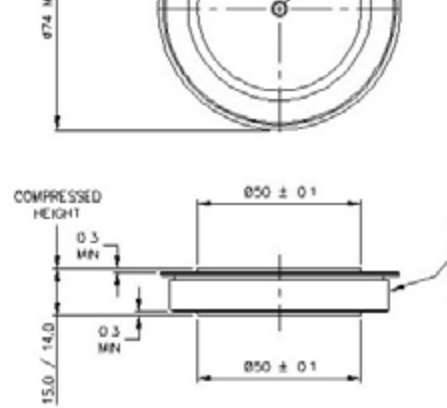
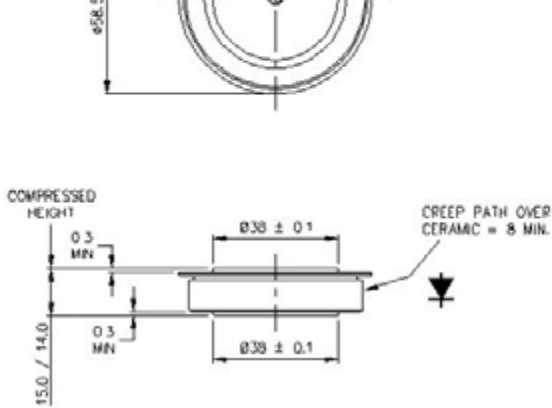
**W124 - 100A397**

$\phi 4.6/3.5 \text{ MIN}$   
DEPTH 2-HOLES, ONE  
IN CATHODE AND  
ONE IN ANODE



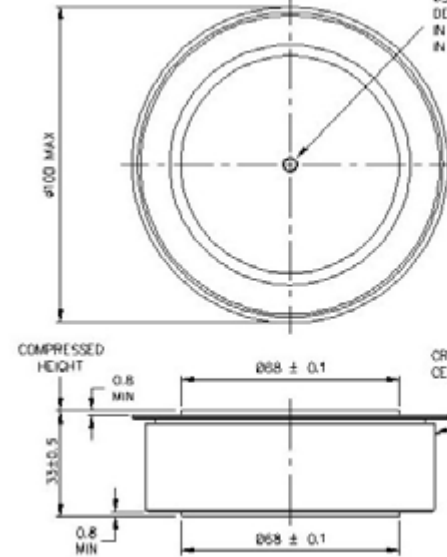
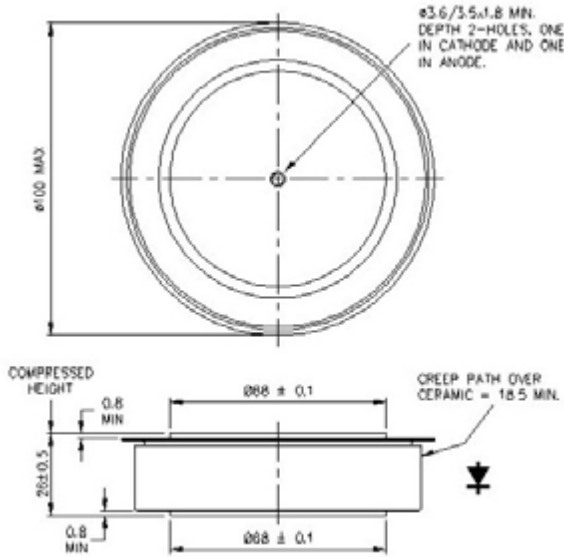
**W125 - 150A127**





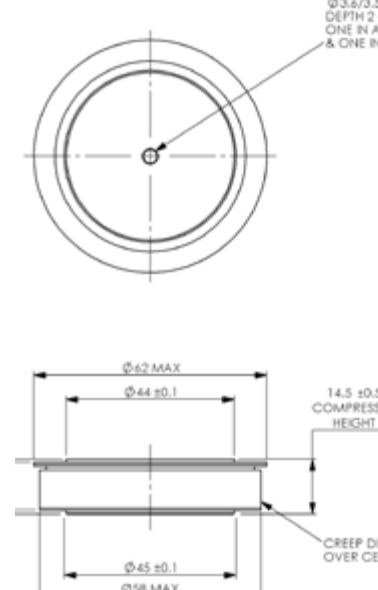
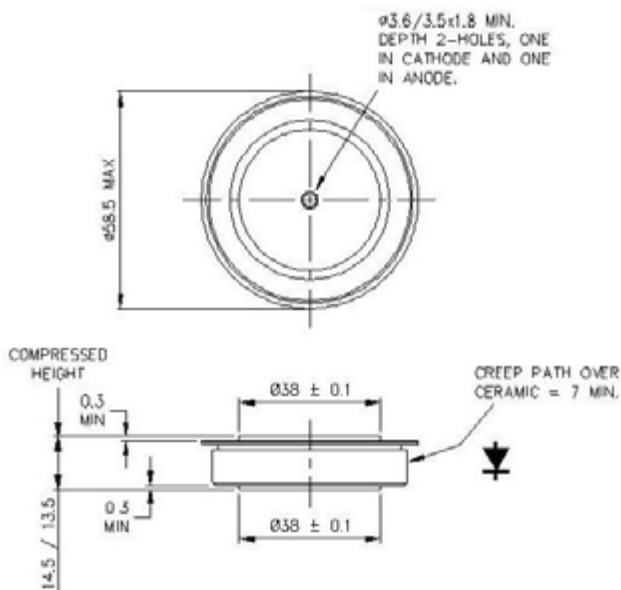
WD5 - 100A361 - 26 mm thick

WD6 - 100A360 - 33 mm thick

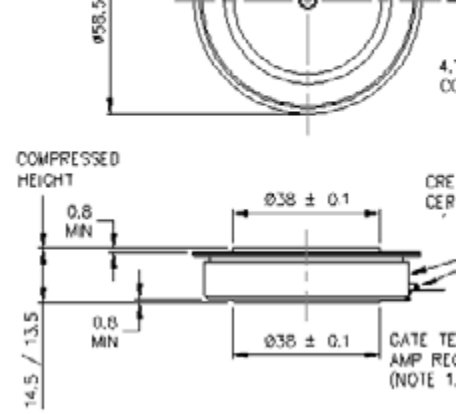
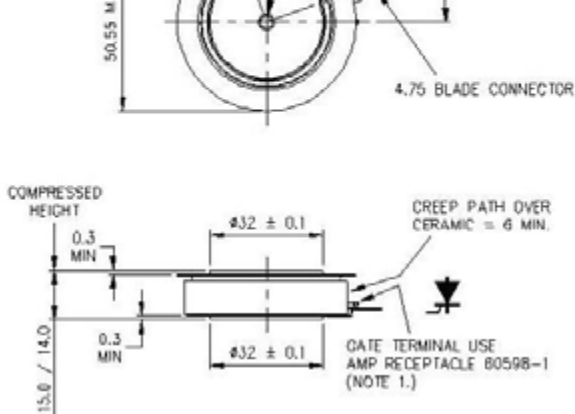


WD7 - 100A363

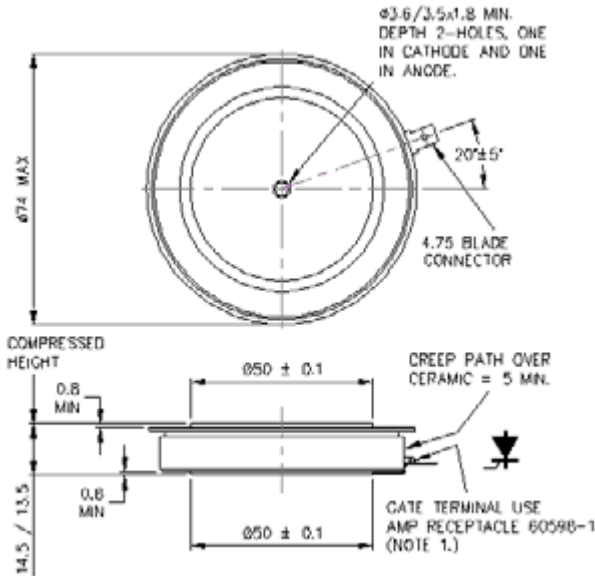
WD8 - 100A392



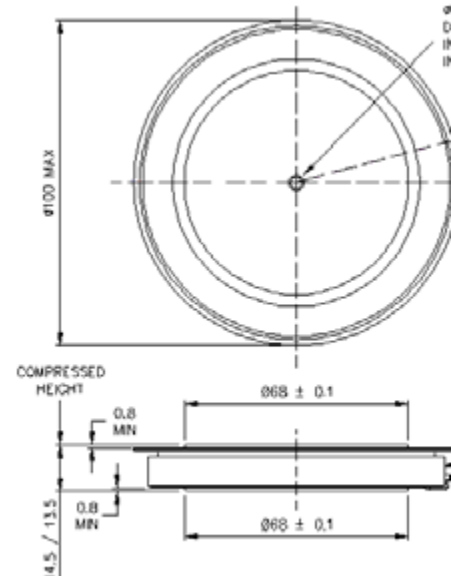




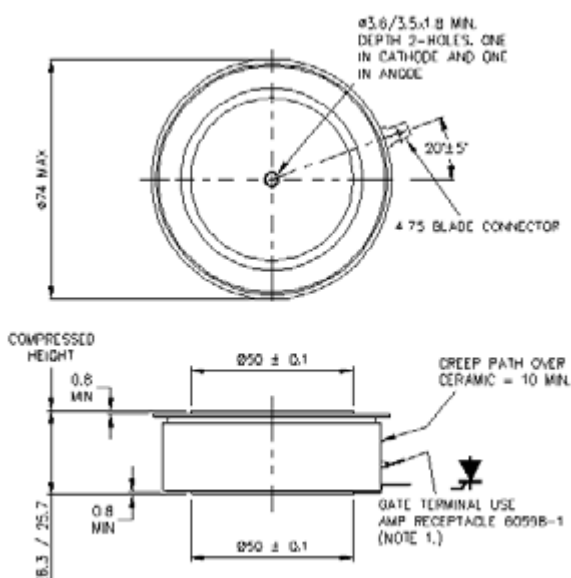
WP3 - 101A353



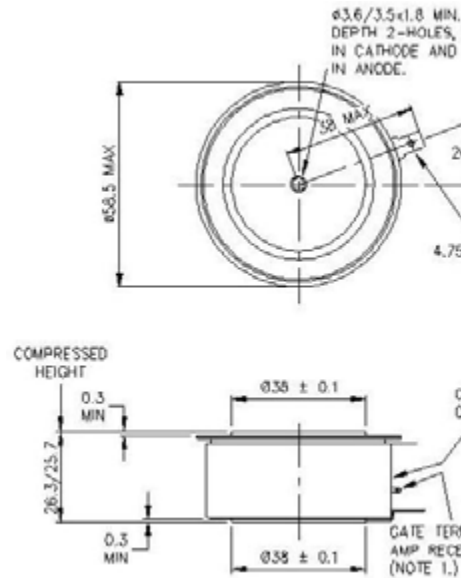
WP4 - 101A355

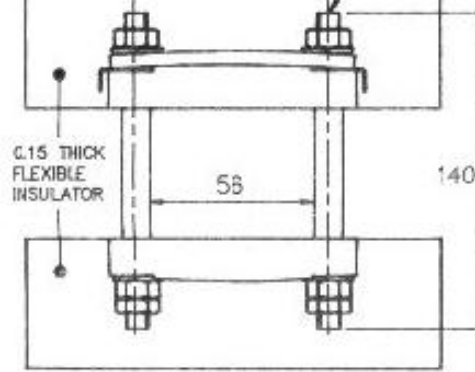
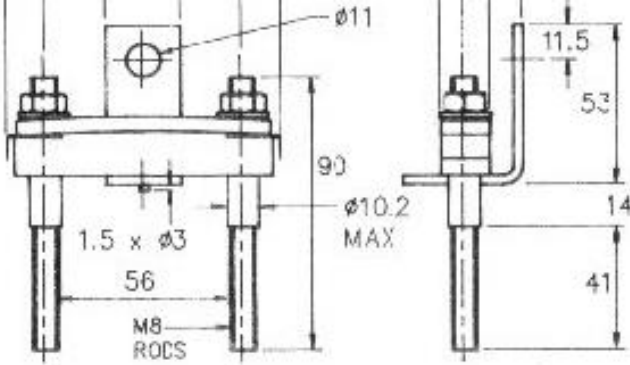


WP5 - 101A356

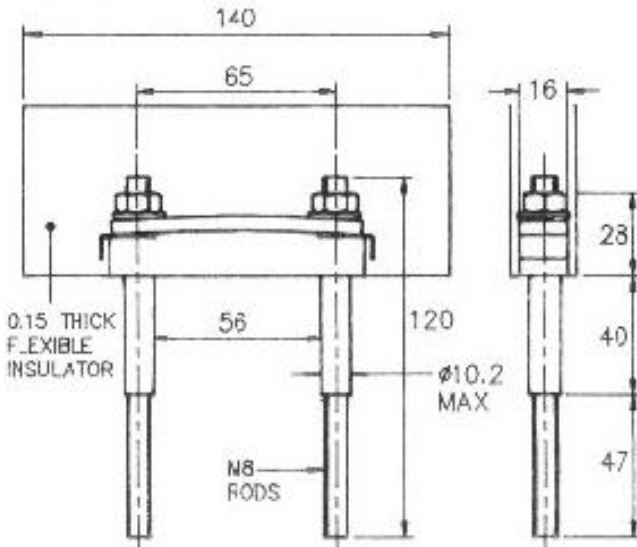


WP6 - 101A389

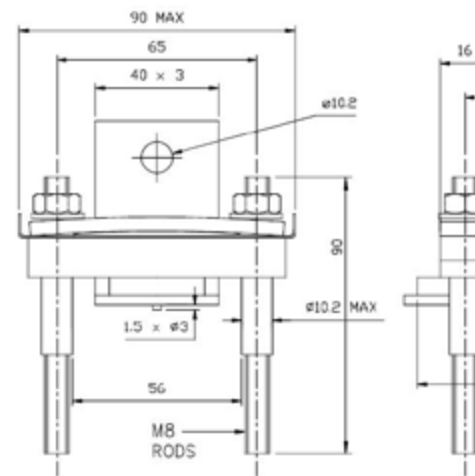




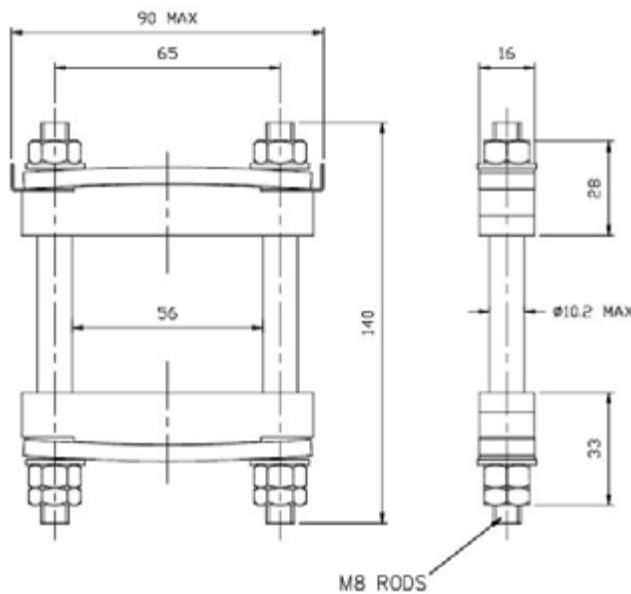
WC3 - XK0450DT056M



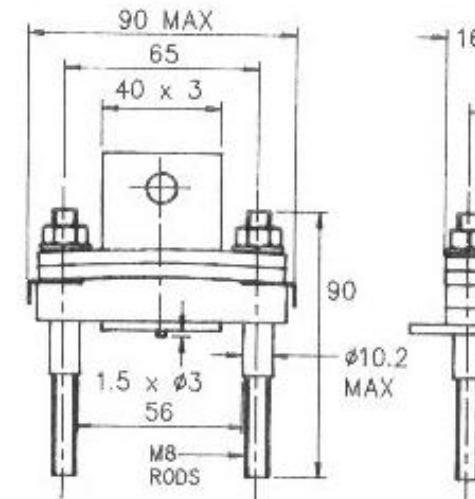
WC4 - XK0550SA056M

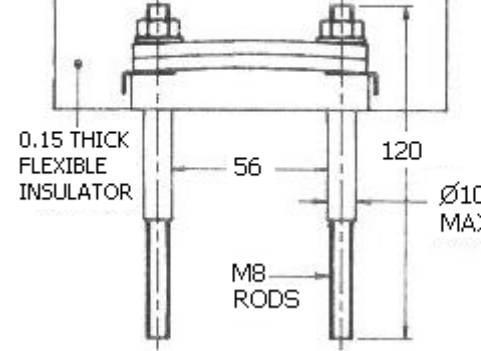
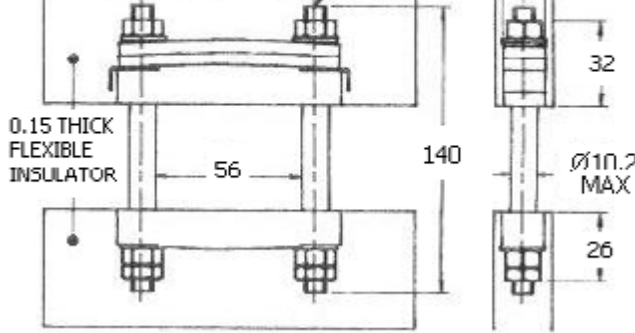


WC5 - XK0550DA056M

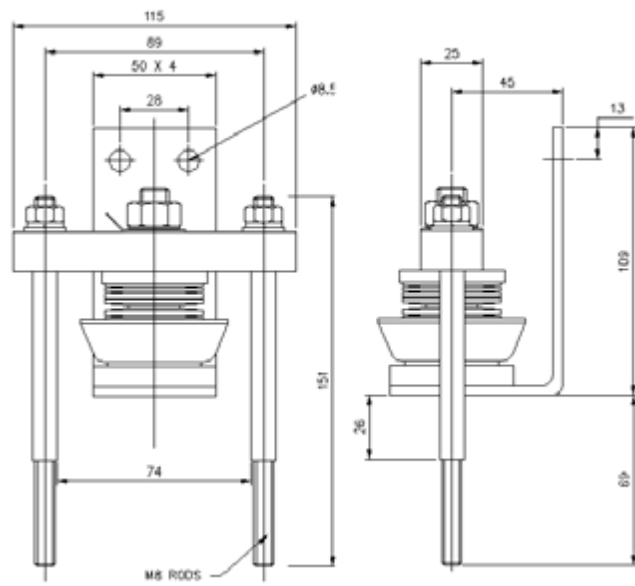


WC6 - XK0900SA056M

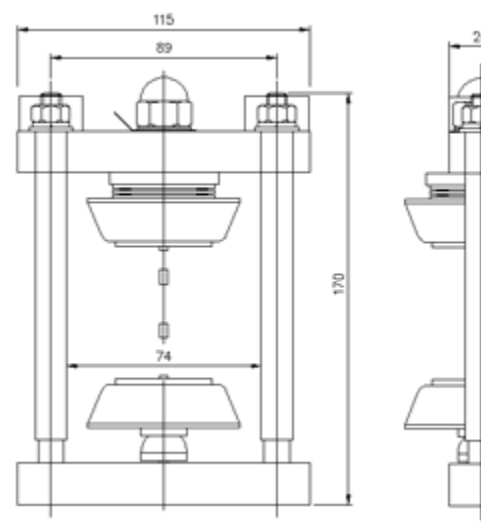




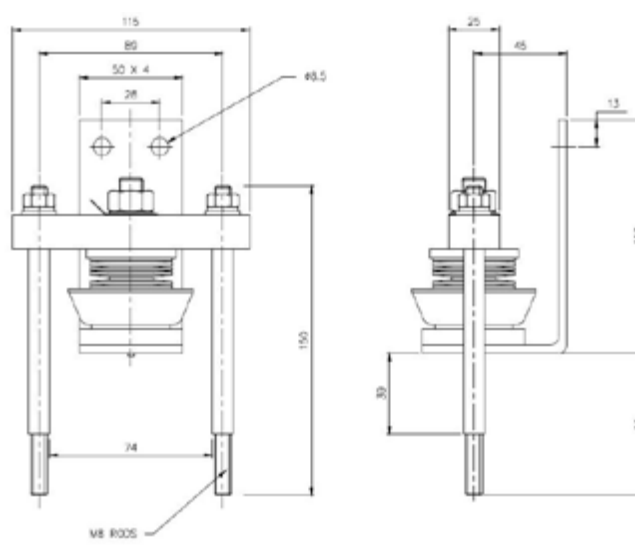
**WC9 - XK0600SA074M**



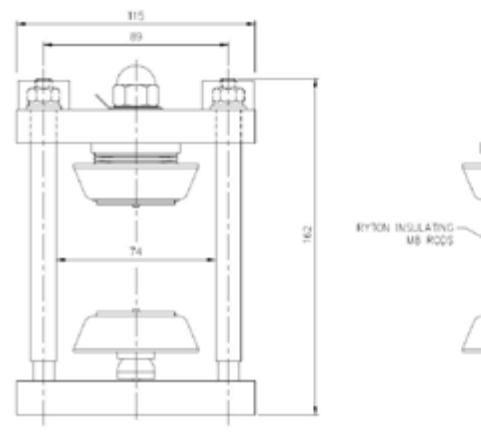
**WC10 - XK0600DA074M**

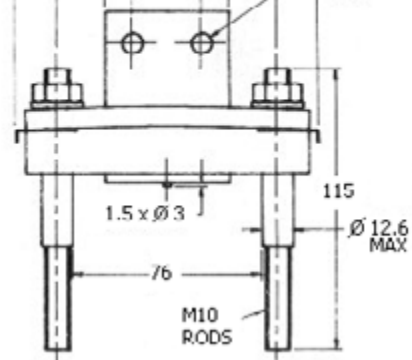
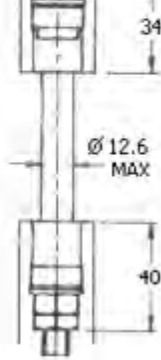
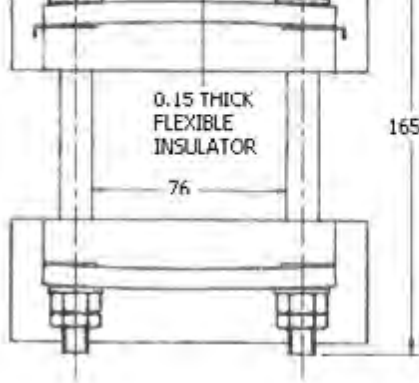


**WC11 - XK1000SA074M**

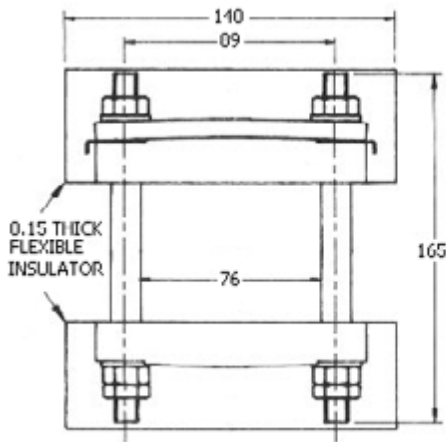


**WC12 - XK1000DA074M**

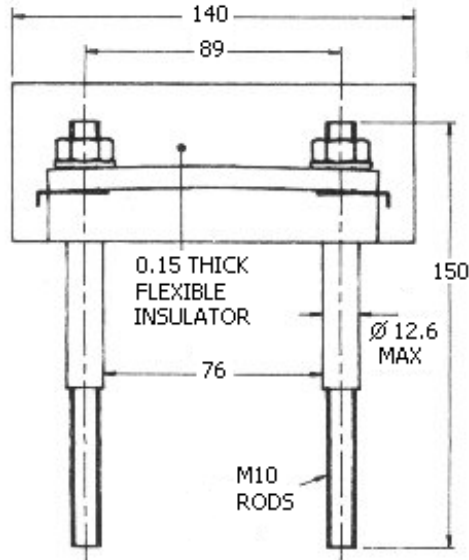




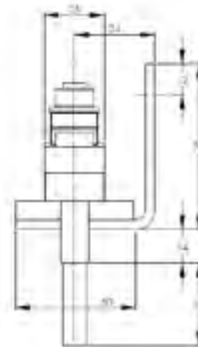
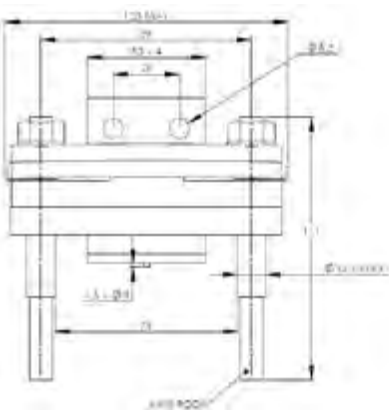
WC15 - XK1130DA076M



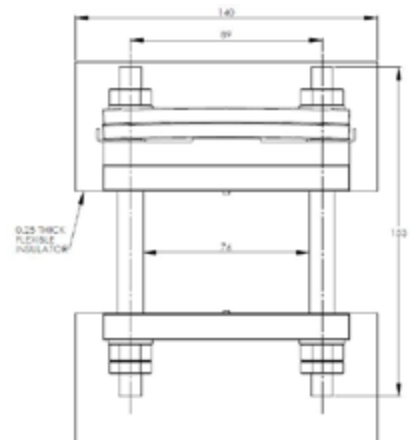
WC16 - XK1130DT076M

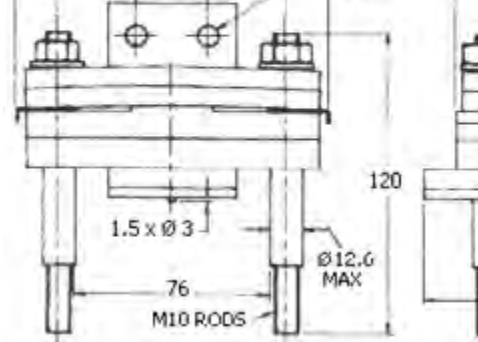
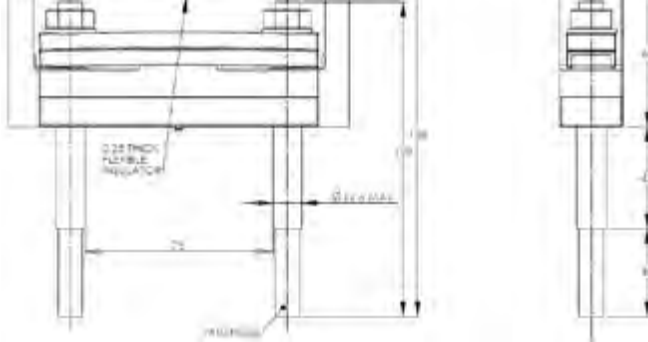


WC17 - XK1800SA076M



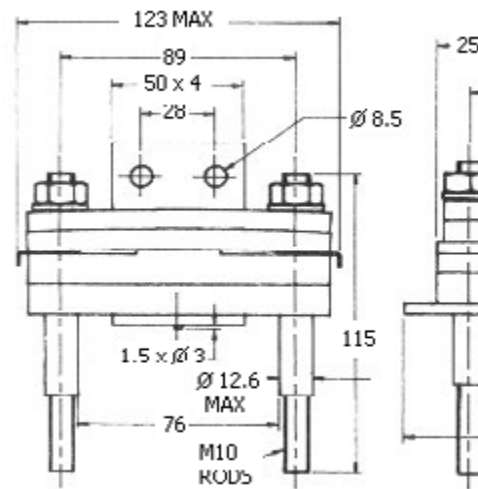
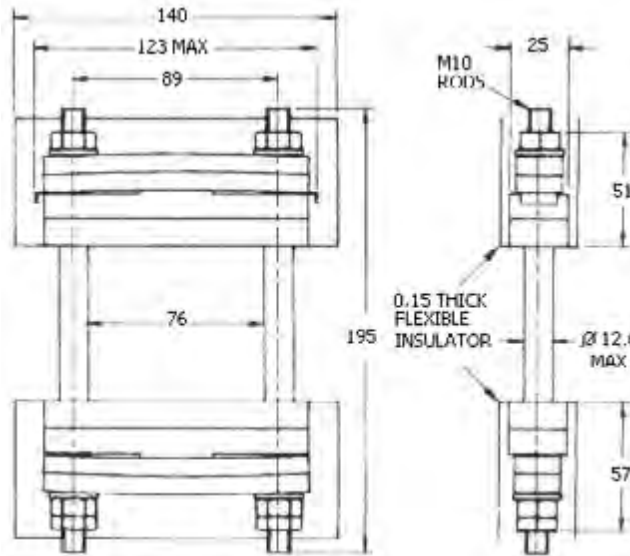
WC18 - XK1800DA076M





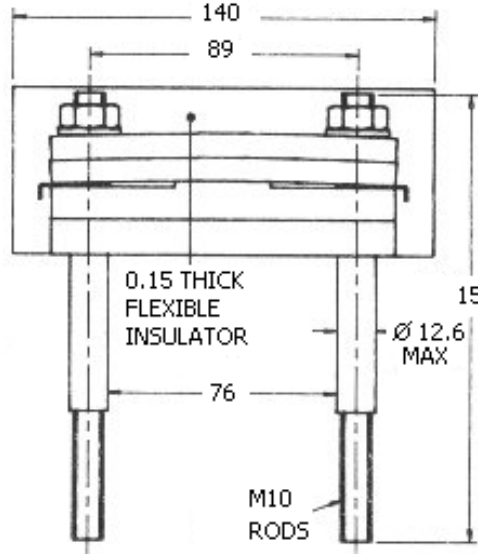
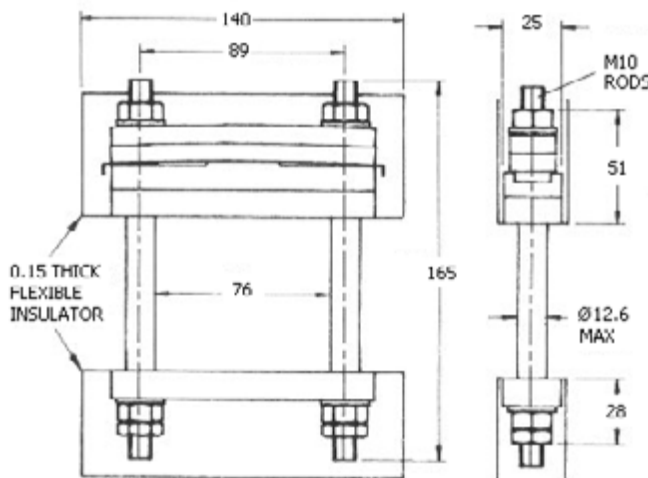
**WC21 - XK2100DA076M/ML**

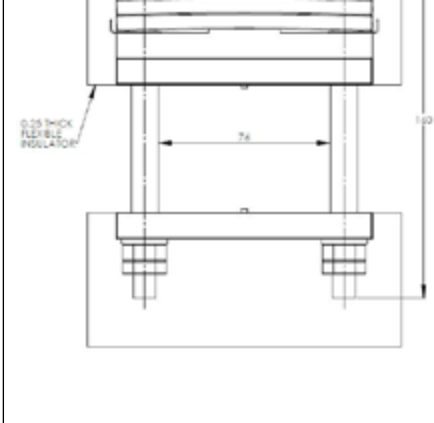
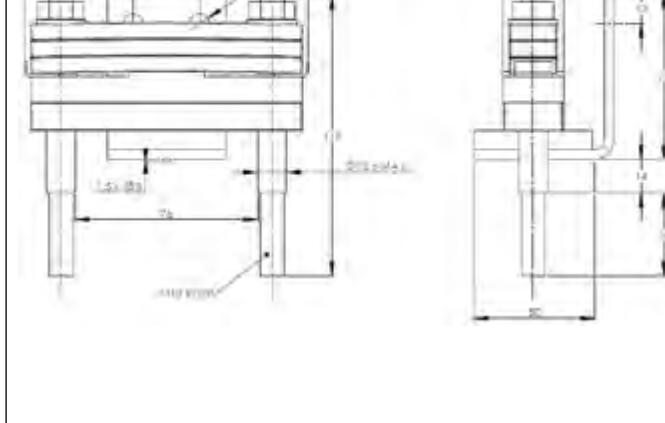
**WC22 - XK2140SA076M/ML**



**WC23 - XK2140DA076M/ML**

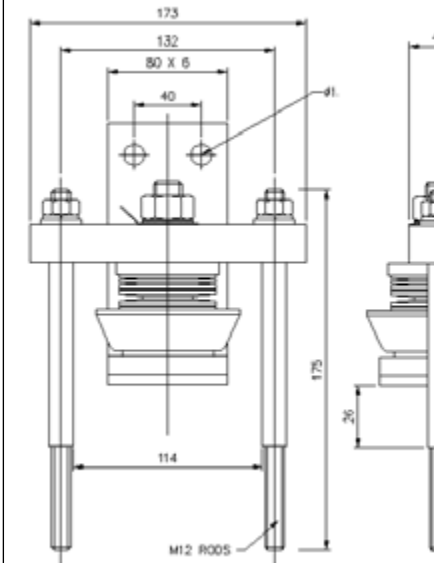
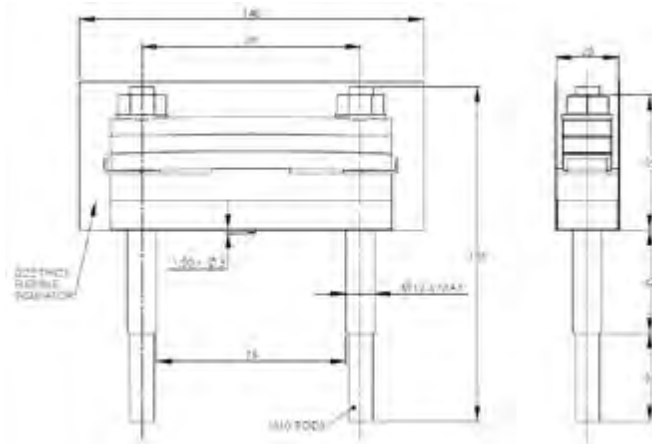
**WC24 - XK2140DT076M/ML**





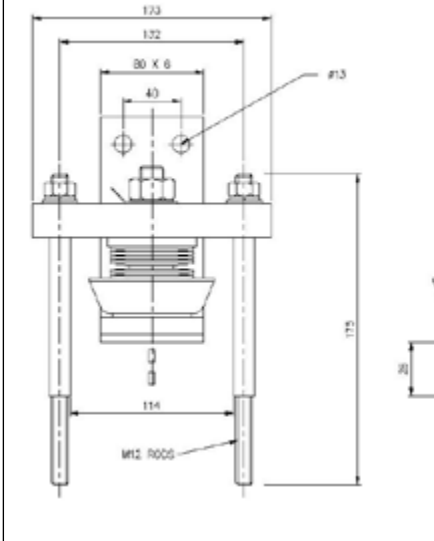
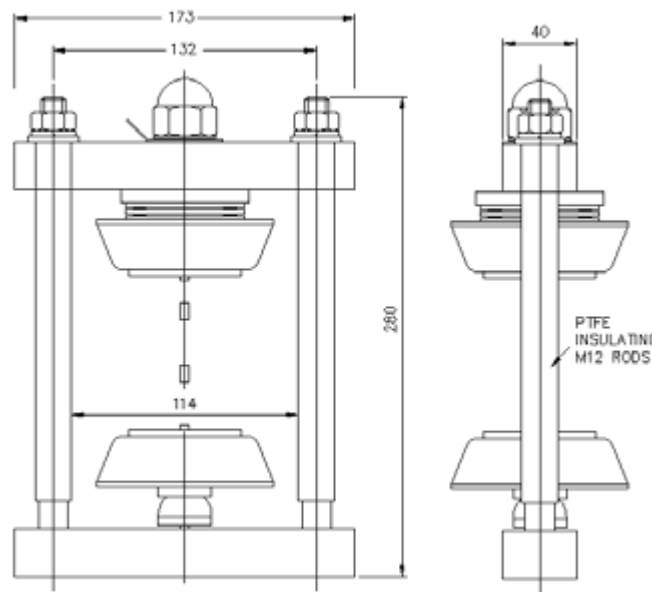
**WC27 - XK2700DT076M**

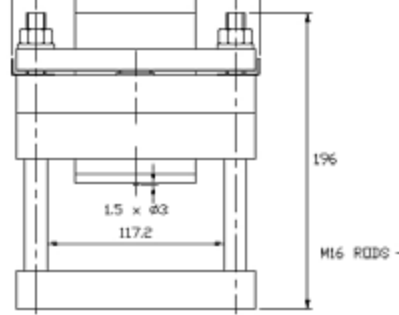
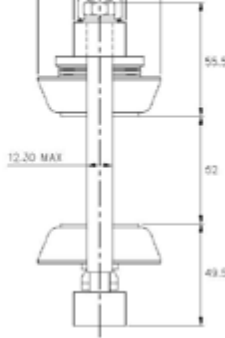
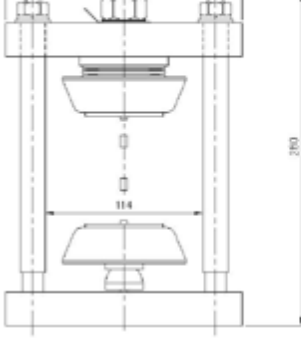
**WC28 - XK2000SA114M**



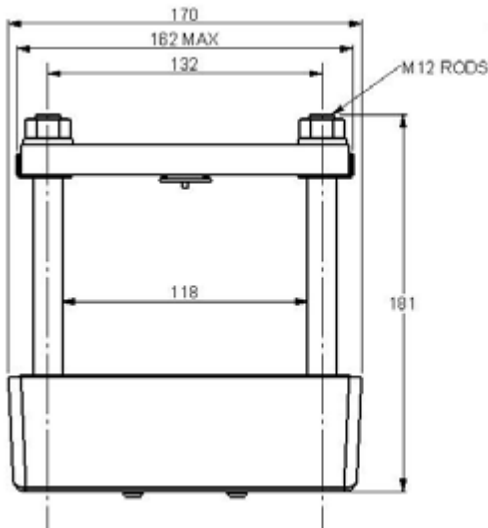
**WC29 - XK2000DA114M**

**WC30 - XK2500SA114M**

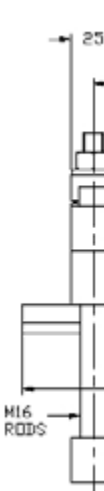
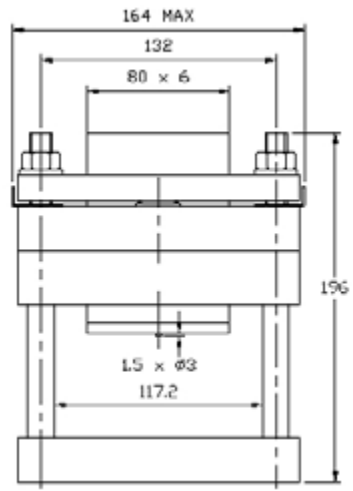




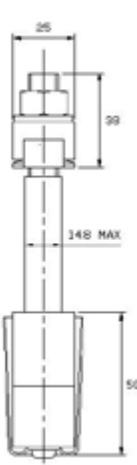
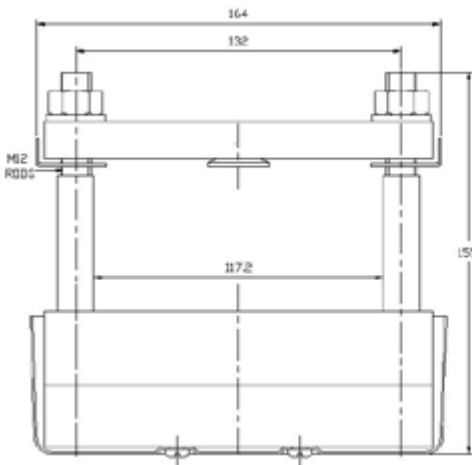
**WC33 - XK2500DA116M/ML**



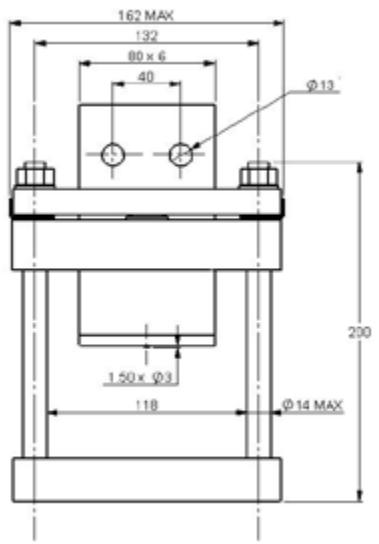
**WC34 - XK3000SA116M/ML**

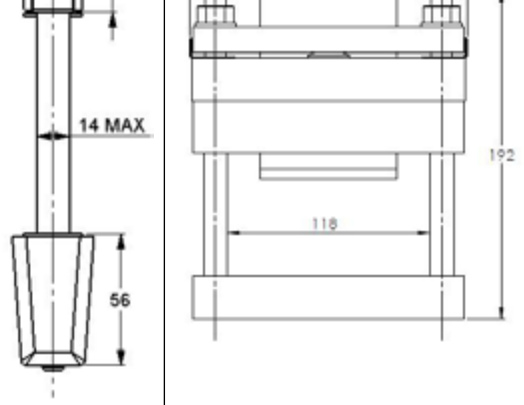
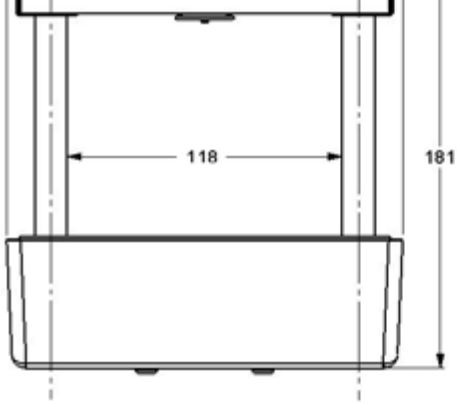


**WC35 - XK3000DA116M/Mx**



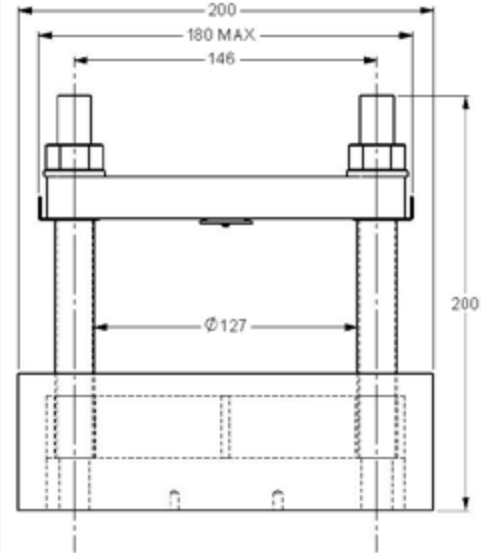
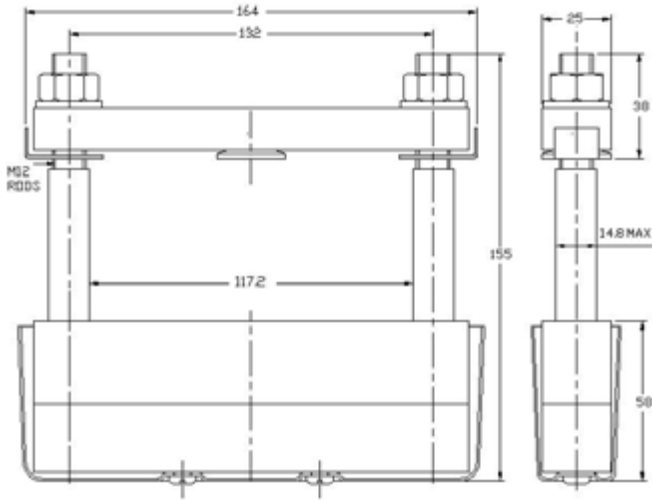
**WC36 - XK3500SA116M/ML**





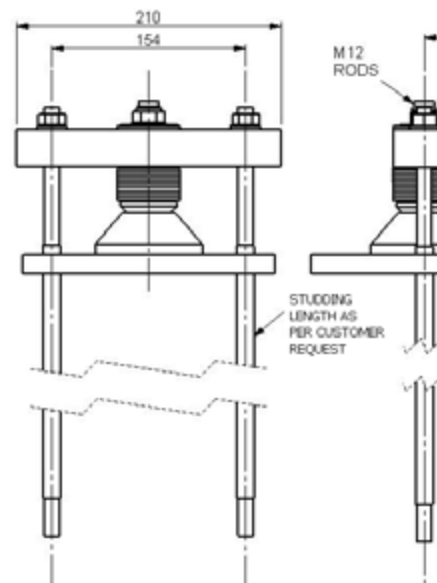
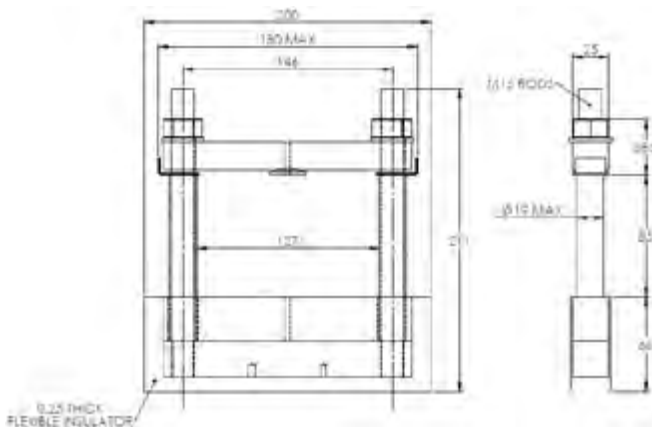
**WC39 - XK4000DA116M/ML**

**WC40 - XK5000DA128M/ML**

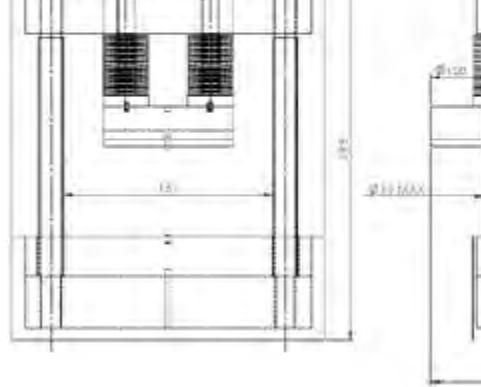
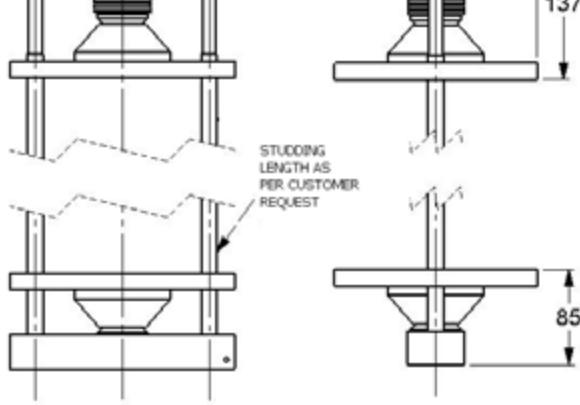


**WC41 - XK7000DA128M/ML**

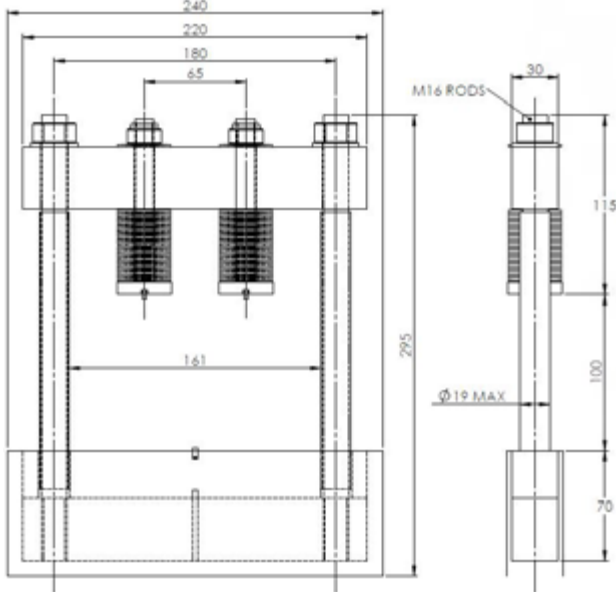
**WC42 - XK3060SA140ML**



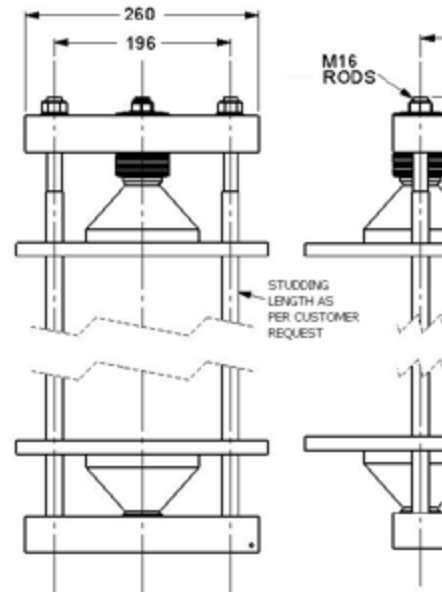




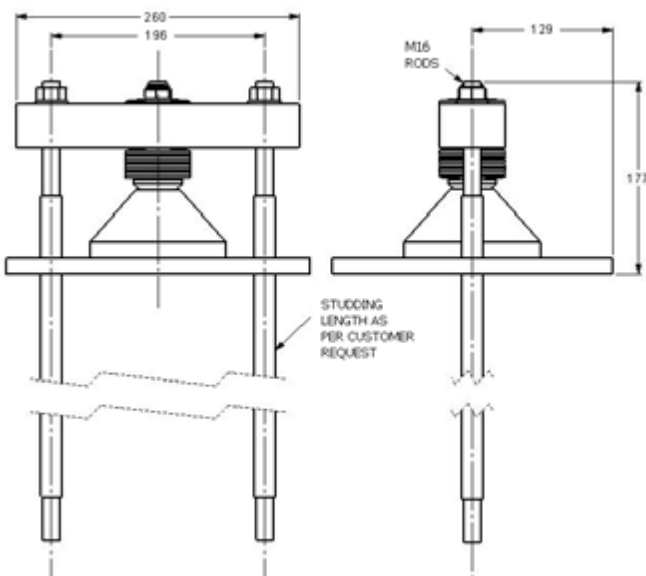
**WC45 - XK9000DA160M/ML**



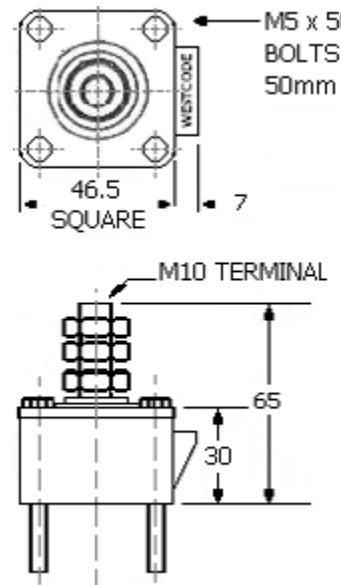
**WC46 - XK6120DA180ML**



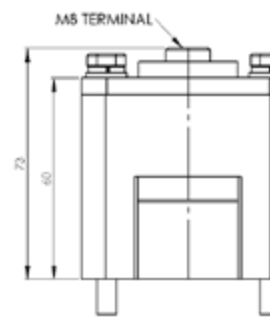
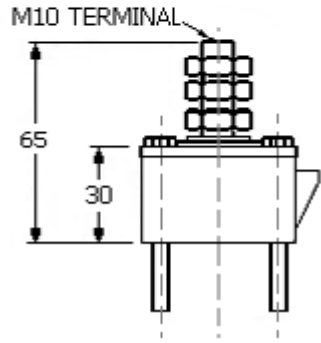
**WC47 - XK6120SA180ML**



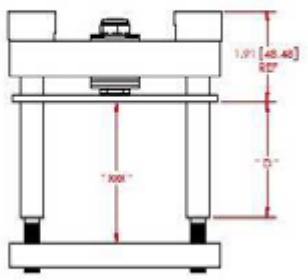
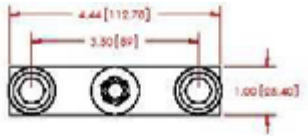
**WC48 - XK0450xx019M**



46.5  
SQUARE

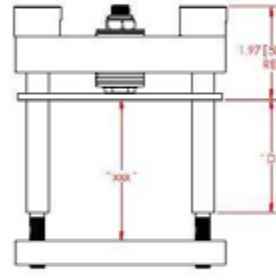
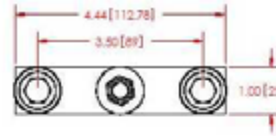


WC51 - XSK1500DA076xxx



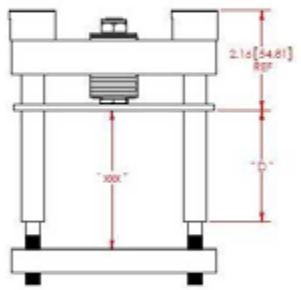
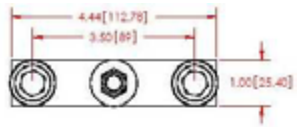
**Notes:**  
 1. DIMENSIONS IN INCHES [ MILLIMETERS ].  
 2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.  
 3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

WC52 - XSK2000DA076xxx



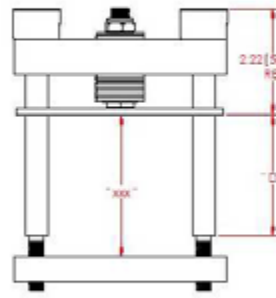
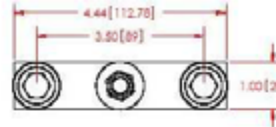
**Notes:**  
 1. DIMENSIONS IN INCHES [ MILLIMETERS ].  
 2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.  
 3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

WC53 - XSK3000DA076xxx

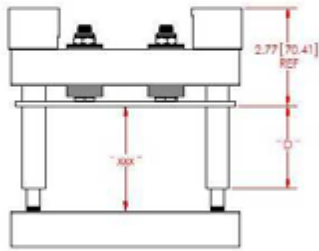


**Notes:**  
 1. DIMENSIONS IN INCHES [ MILLIMETERS ].  
 2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.  
 3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

WC54 - XSK3400DA076xxx

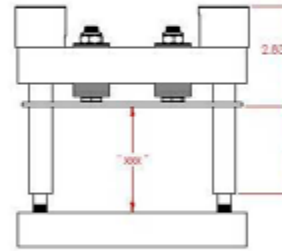


**Notes:**  
 1. DIMENSIONS IN INCHES [ MILLIMETERS ].  
 2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.  
 3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.



**Notes:**

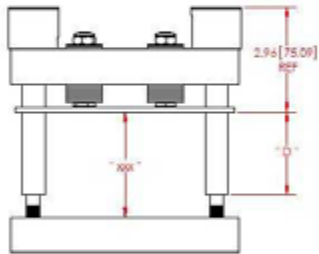
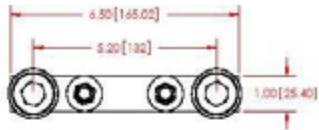
1. DIMENSIONS IN INCHES [ MILLIMETERS ]
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT



**Notes:**

1. DIMENSIONS IN INCHES [ MILLIMETERS ]
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT

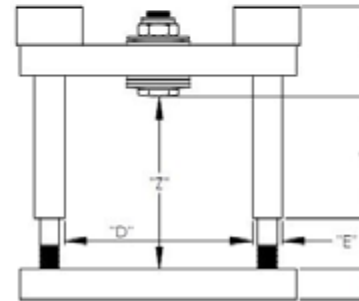
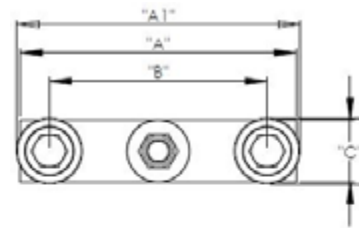
**WC57 - XSK6000DA116Mxxx**



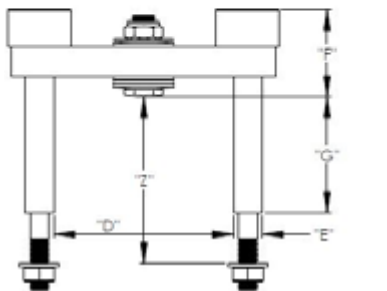
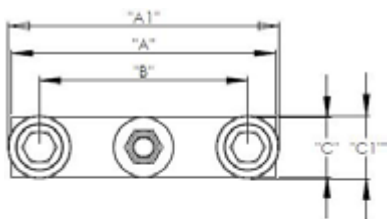
**Notes:**

1. DIMENSIONS IN INCHES [ MILLIMETERS ]
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT

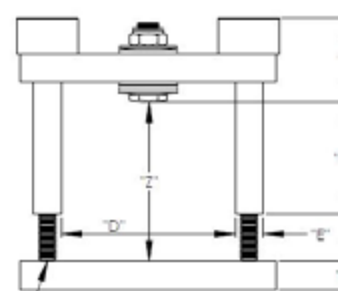
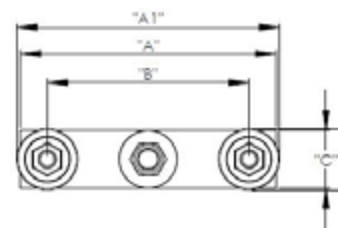
**WC58- DA**



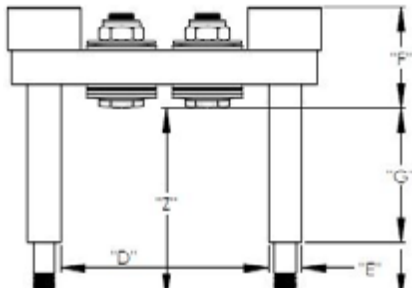
**WC59 - DT**



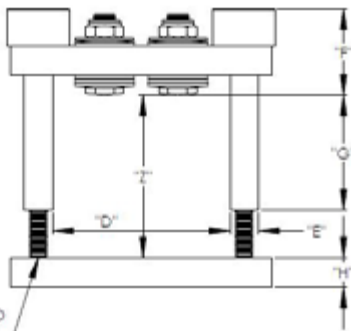
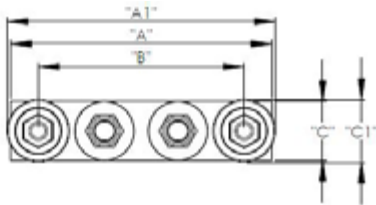
**WC60 - DF**



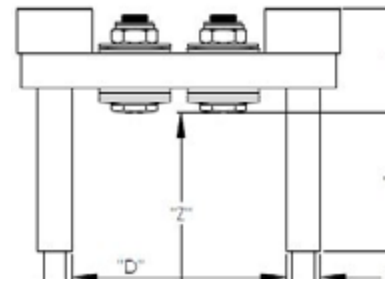
RODS LOCITE INTO



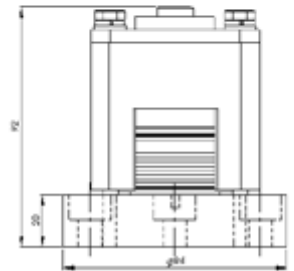
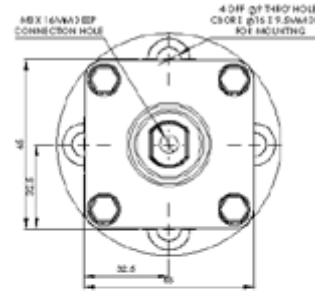
WC63 - DF



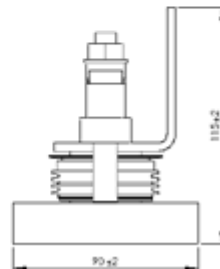
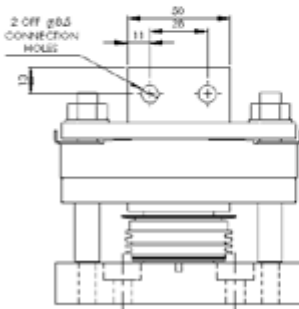
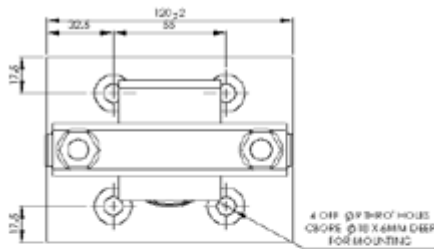
RODS LOCTITE INTO THE BOTTOM BAR



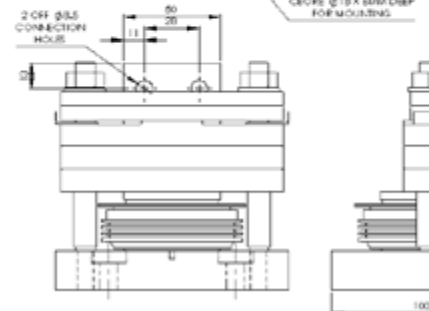
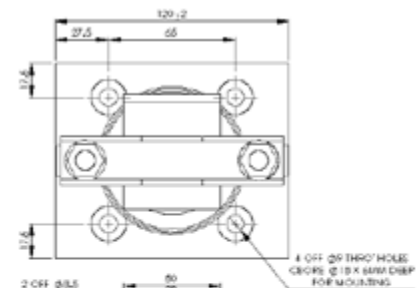
WC64 - XK1500CB034M

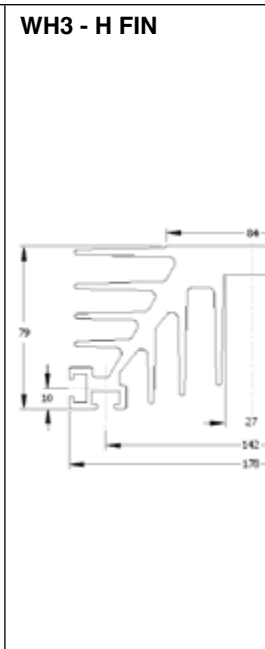
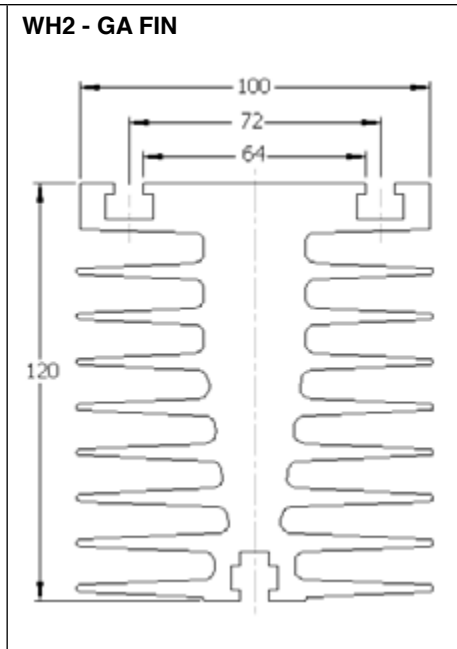
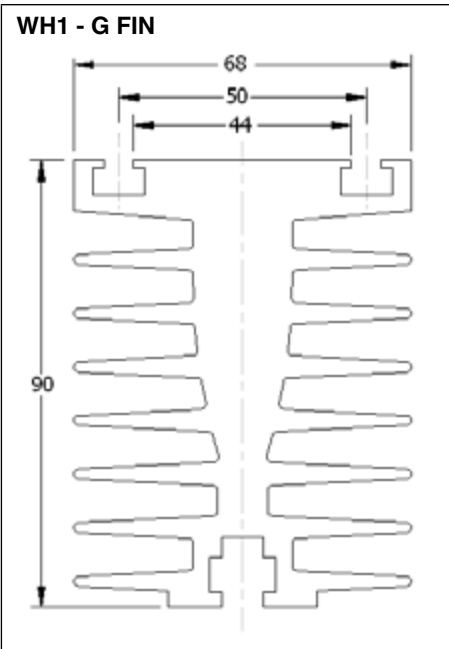
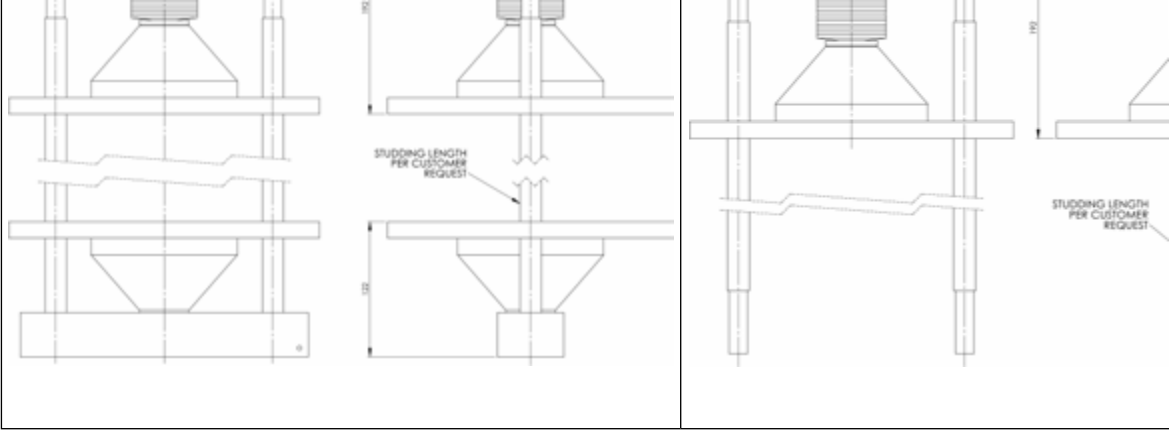


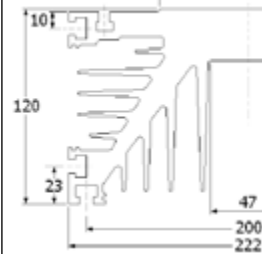
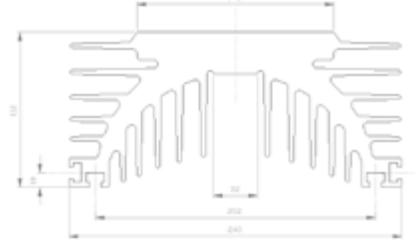
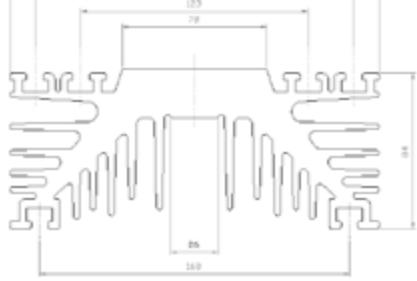
WC65 - XK1130SB076M



WC66 - XK2140SB076M



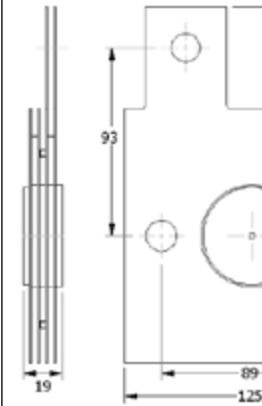
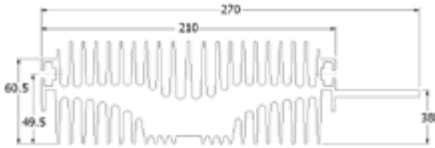
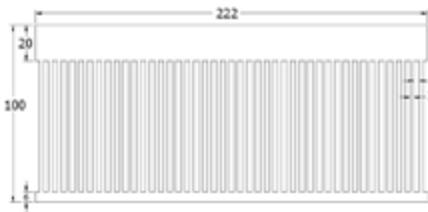




**WH7 - LP100**

**WH8 - WS46**

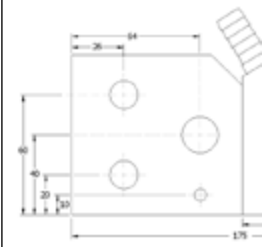
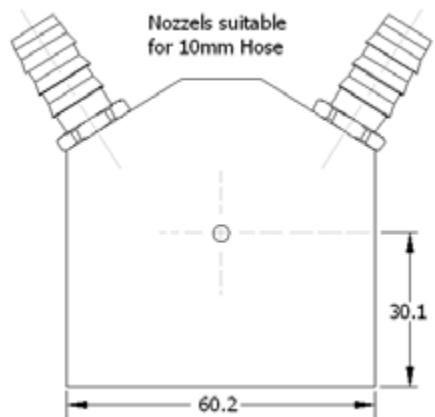
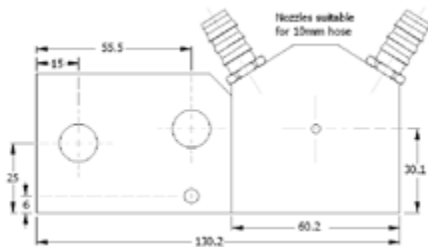
**WH9 - WS30 - COPPE**

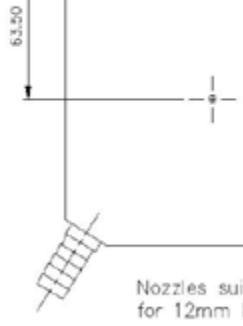
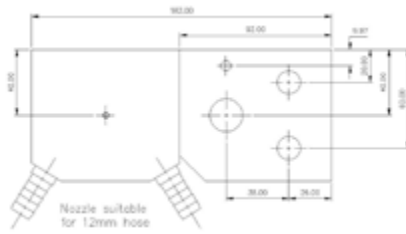
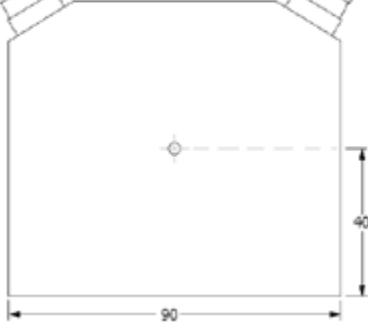


**WCL1 - LK COOLER**

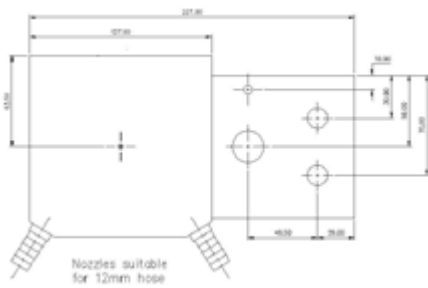
**WCL2 - LKA COOLER**

**WCL3 - LKB COOLER**

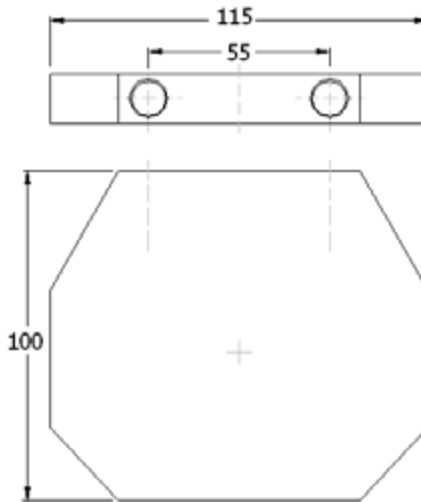




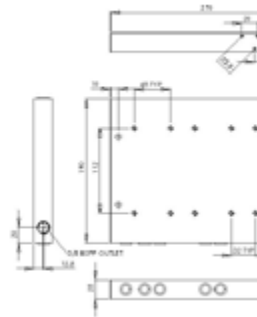
**WCL7 - LKF**



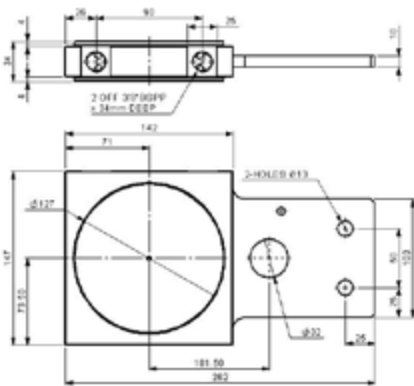
**WCL8 - WS27**



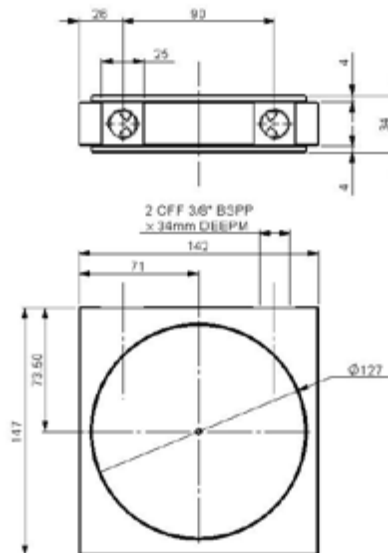
**WCL9 - WS65 COOLER**



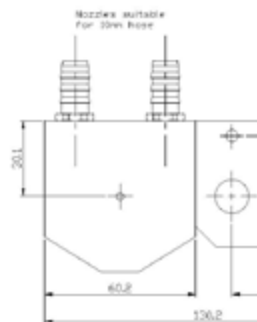
**WCL10 - WS69 COOLER**

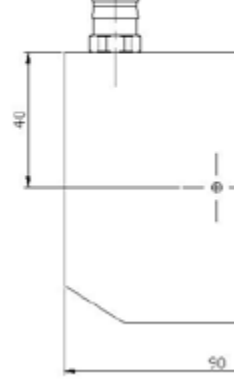
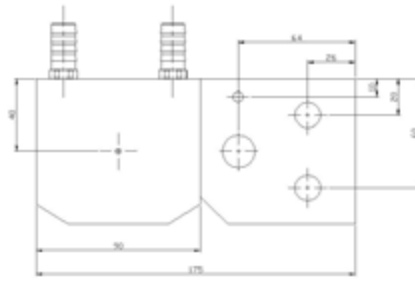
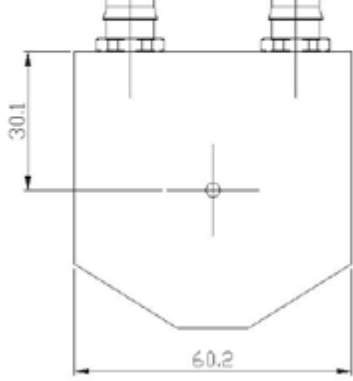


**WCL11 - WS70 COOLER**

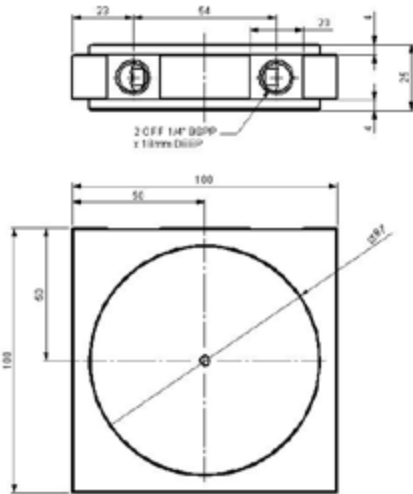


**WCL12 - WS71-1 COOLER**

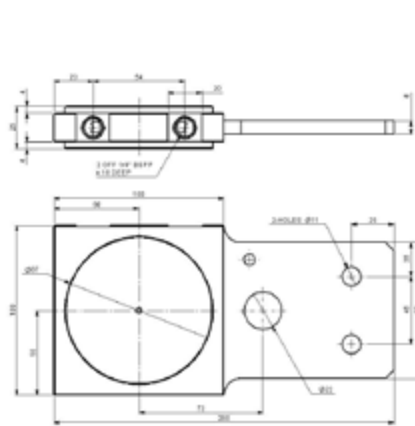




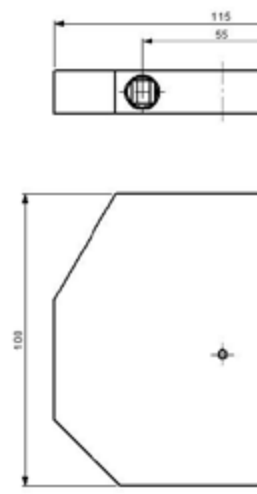
**WCL16 - XW127ExxxA**



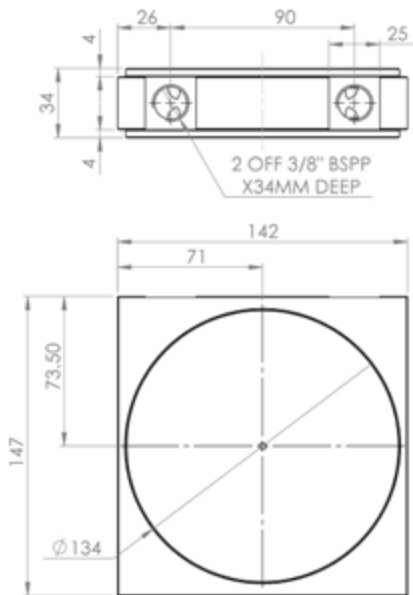
**WCL17 - XW127ExxxB**



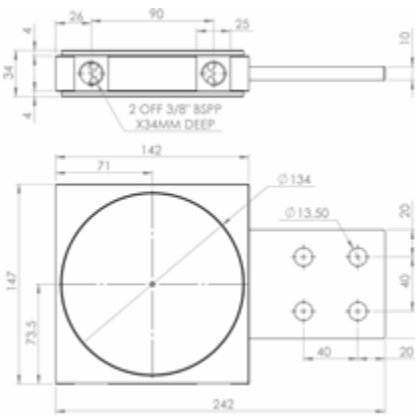
**WCL18 - XW180GN25**



**WCL19 - XW180BxxxE**

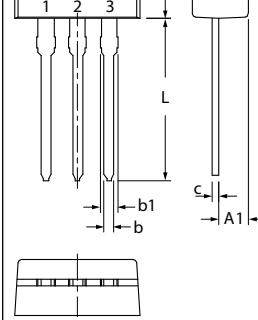
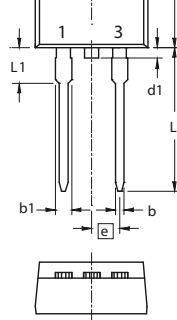
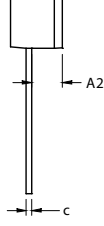
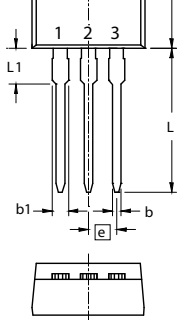


**WCL20 - XW180BxxxF**









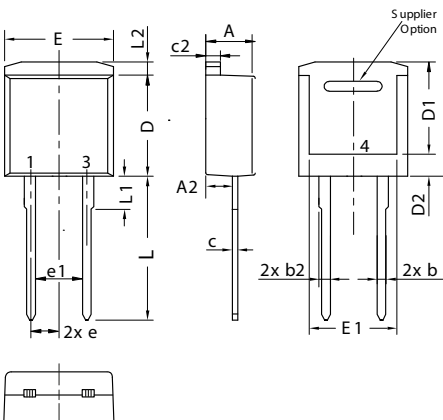
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
b1	1.27	1.47	0.050	0.058
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
Ø P	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134

Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
b1	1.27	1.47	0.050	0.058
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
d1	0.00	1.10	0.000	0.043
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
Ø P	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134

Dim.	Millimeters	
	min	max
A	4.30	4.70
A1	2.20	2.60
b	0.70	0.90
b1	1.37	1.57
c	0.45	0.60
c1	1.25	1.40
D	9.00	9.40
D1	7.20	
E	9.70	9.90
E1	7.00	
e	2.54 BSC	
L	12.88	13.28
L1	3.00	-
L2	1.00	1.40

**X008b TO-262 I<sup>2</sup>PAK**

Weight = 1.5 g

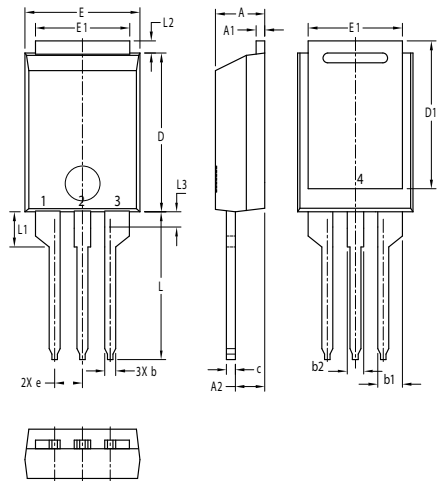


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
L	13.00	13.60	0.512	0.535
L1	2.90	3.10	0.114	0.122
L2	1.02	1.68	0.040	0.066

**X009a PLUS220™**

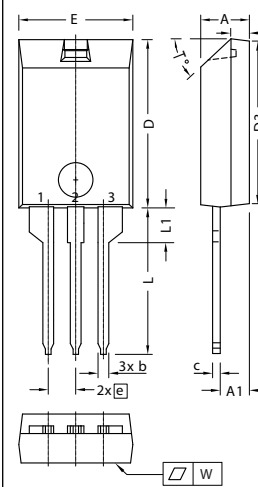
Weight = 2.5 g

b) middle leg cut

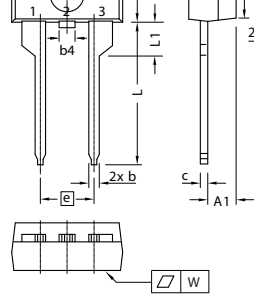


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	0.70	0.90	0.028	0.035
A2	2.50	3.00	0.098	0.118
b	0.90	1.20	0.035	0.047
b1	2.03	2.41	0.080	0.095
b2	1.37	1.63	0.054	0.064
c	0.70	0.90	0.028	0.035
D	14.00	15.00	0.551	0.591
D1	13.00	13.70	0.512	0.539
E	10.00	11.00	0.394	0.433
E1	8.40	8.80	0.331	0.346
e	2.54 BSC		0.100 BSC	
L	13.00	14.00	0.512	0.551
L1	3.00	3.50	0.118	0.138
L2	0.90	1.30	0.035	0.051
L3	1.20	1.50	0.047	0.059

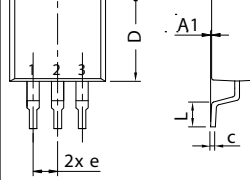
**X010a ISOPLUS220™ A**



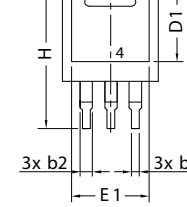
Dim.	Millimeters	
	min	max
A	4.00	5.00
A1	2.50	3.00
A2	1.60	1.80
b	0.90	1.30
b2	2.35	2.55
b4	1.25	1.65
c	0.70	1.00
D	15.00	16.00
D1	12.00	13.00
D2	1.10	1.50
D3	14.90	15.50
E	10.00	11.00
E1	7.50	8.50
e	2.54 BSC	
L	13.00	14.50
L1	3.00	3.50
T°	42.5	47.5
W	-	0.10



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.00	5.00	0.157	0.197
A1	2.50	3.00	0.098	0.118
A2	1.60	1.80	0.063	0.071
b	0.90	1.30	0.035	0.051
b2	1.25	1.65	0.049	0.065
b4	2.35	2.55	0.093	0.100
c	0.70	1.00	0.028	0.039
D	15.00	16.00	0.591	0.630
D1	12.00	13.00	0.472	0.512
D2	1.10	1.50	0.043	0.059
D3	14.90	15.50	0.587	0.610
E	10.00	11.00	0.394	0.433
E1	7.50	8.50	0.295	0.335
e	5.08 BSC		0.200 BSC	
L	13.00	14.50	0.512	0.571
L1	3.00	3.50	0.118	0.138
T°	42.5	47.5		
W	-	0.10	-	0.004

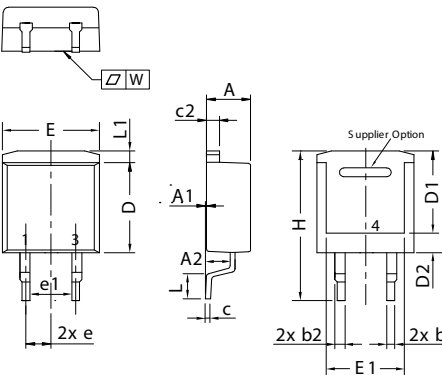


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.13	0.245	0.320
e	2.54 BSC		0.100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002



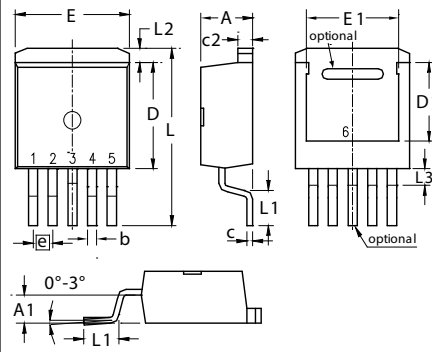
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.13	0.245	0.320
e	2.54 BSC		0.100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

**X011c TO-263 AB (D<sup>2</sup>PAK HV)** Weight = 1.5 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L2	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

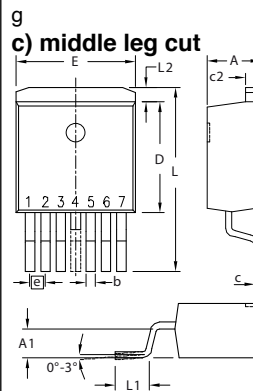
**X012a TO-263 (5)** Weight = 1.5 g



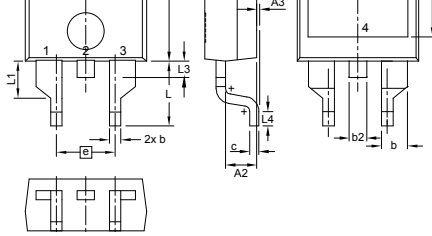
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.20	4.80	0.160	0.190
A1	2.10	2.70	0.083	0.106
b	0.60	0.99	0.024	0.039
c	0.40	0.70	0.016	0.028
c2	1.20	1.40	0.047	0.055
D	8.80	9.50	0.346	0.374
D1	6.60	7.20	0.260	0.283
E	9.65	10.30	0.380	0.406
E1	7.50	8.20	0.295	0.323
e	1.70 BSC		0.067 BSC	
L	14.80	15.80	0.583	0.622
L1	2.24	2.84	0.088	0.112
L2	1.00	1.40	0.039	0.067
L3	1.20	1.70	0.047	0.067

Weight = 1.5 g

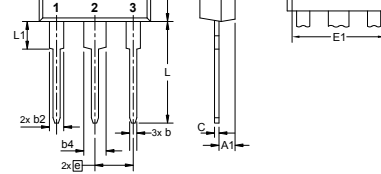
**X012b TO-263 (7)**



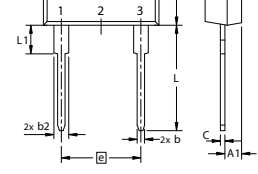
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.20	4.60	0.160	0.190
A1	2.45	2.75	0.083	0.106
b	0.65	0.90	0.024	0.039
c	0.40	0.60	0.016	0.028
c2	1.14	1.40	0.045	0.055
D	8.38	8.64	0.330	0.370
D1	6.10	6.35	0.260	0.283
E	10.00	10.30	0.394	0.433
E1	7.34	8.00	0.295	0.323
e	1.27 BSC		0.050 BSC	
L	14.73	15.75	0.583	0.622
L1	2.24	2.84	0.088	0.112
L2	1.35	1.55	0.053	0.061



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	0.70	0.90	0.028	0.035
A2	2.50	3.00	0.098	0.118
A3	0.00	0.25	0.000	0.010
b	0.90	1.20	0.035	0.047
b1	2.03	2.41	0.080	0.095
b2	1.37	1.63	0.054	0.064
c	0.70	0.90	0.028	0.035
D	14.00	15.00	0.551	0.591
D1	13.00	13.70	0.512	0.539
E	10.00	11.00	0.394	0.433
E1	8.40	8.80	0.331	0.346
e	5.08 BSC		0.200 BSC	
L	5.30	5.80	0.209	0.228
L1	3.00	3.50	0.118	0.138
L2	0.90	1.30	0.035	0.051
L3	1.20	1.50	0.047	0.059
L4	1.00	1.50	0.039	0.059



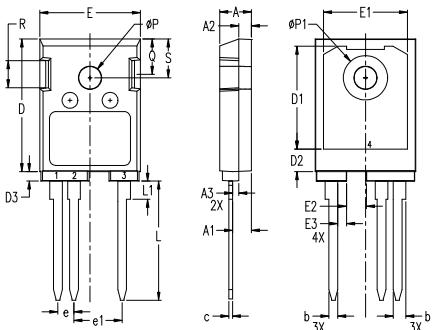
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.53	-
E2	4.31	5.48	0.170	0.216
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	



Dim.	Millimeters	
	min	max
A	4.70	5.30
A1	2.21	2.59
A2	1.50	2.49
b	0.99	1.40
b2	1.65	2.39
b4	2.59	3.43
c	0.38	0.89
D	20.79	21.45
D1	13.07	-
D2	0.51	1.35
E	15.48	16.24
E1	13.45	-
E2	4.31	5.48
e	10.90 BSC	
L	19.80	20.30
L1	-	4.49
Ø P	3.55	3.65
Ø P1	-	7.39
Q	5.38	6.19
S	6.14 BSC	

**X014c TO-247 AD**

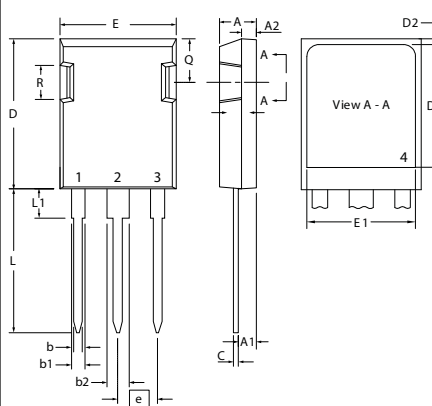
Weight = 6 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.90	3.10	0.114	0.122
A2	1.90	2.10	0.075	0.083
A3	0.90	1.10	0.035	0.043
b	1.35	1.50	0.053	0.059
b1	1.90	2.10	0.075	0.083
c	0.55	0.75	0.022	0.030
D	20.80	21.40	0.819	0.843
D1	16.20	16.40	0.638	0.646
D2	3.40	3.70	0.134	0.146
D3	1.40	1.60	0.055	0.063
E	15.80	16.20	0.622	0.638
E1	13.20	13.40	0.520	0.528
E2	3.00	3.20	0.118	0.126
E3	1.30	1.50	0.051	0.059
e	2.54 BSC		0.100 BSC	
e1	7.62 BSC		0.300 BSC	
L	18.60	19.00	0.732	0.748
L1	2.70	3.00	0.106	0.118
Ø P	3.50	3.60	0.138	0.142
Ø P1	6.90	7.10	0.272	0.280
Q	5.50	5.70	0.216	0.224
R	4.20	4.30	0.165	0.169
S	6.10	6.30	0.240	0.248

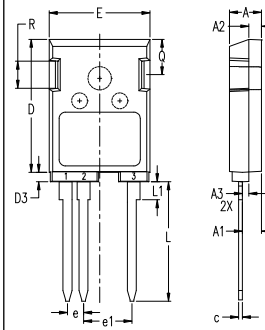
**X015a PLUS247™**

Weight = 7 g

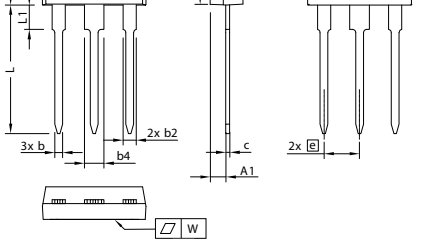


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b1	1.90	2.10	0.075	0.084
b2	2.92	3.12	0.115	0.123
C	0.60	0.80	0.024	0.031
D	20.80	21.34	0.819	0.840
E	15.75	16.13	0.620	0.635
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	3.80	4.30	0.150	0.170
Q	5.60	6.20	0.220	0.244
R	4.32	4.83	0.170	0.190

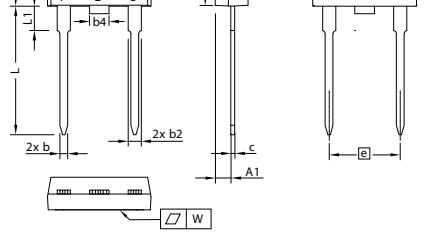
**X015c PLUS247™**



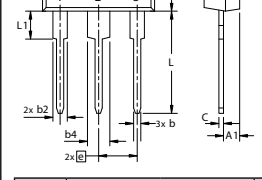
Dim.	Millimeters	
	min	max
A	4.90	5.10
A1	2.90	3.10
A2	1.90	2.10
A3	0.90	1.10
b	1.35	1.50
b1	1.90	2.10
c	0.55	0.75
D	20.80	21.40
D1	16.20	16.



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b2	1.91	2.20	0.075	0.087
b4	2.92	3.24	0.115	0.128
c	0.61	0.83	0.024	0.033
D	20.80	21.34	0.819	0.840
D1	15.75	16.26	0.620	0.640
D2	1.65	2.15	0.065	0.085
D3	20.30	20.70	0.799	0.815
E	15.75	16.13	0.620	0.635
E1	13.21	13.72	0.520	0.540
e	5.45 BSC		0.215 BSC	
L	19.81	20.60	0.780	0.811
L1	3.81	4.38	0.150	0.172
Q	5.59	6.20	0.220	0.244
R	4.25	5.50	0.167	0.217
W	-	0.10	-	0.004



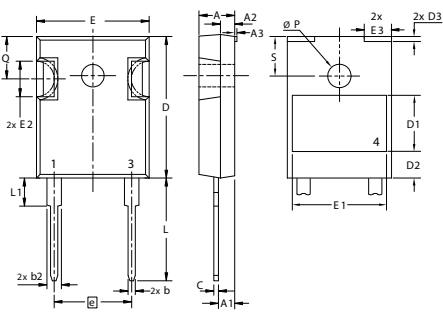
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b2	1.91	2.20	0.075	0.087
b4	2.92	3.24	0.115	0.128
c	0.61	0.83	0.024	0.033
D	20.80	21.34	0.819	0.840
D1	15.75	16.26	0.620	0.640
D2	1.65	2.15	0.065	0.085
D3	20.30	20.70	0.799	0.815
E	15.75	16.13	0.620	0.635
E1	13.21	13.72	0.520	0.540
e	10.90 BSC		0.430 BSC	
L	19.81	20.60	0.780	0.811
L1	3.81	4.38	0.150	0.172
Q	5.59	6.20	0.220	0.244
R	4.25	5.50	0.167	0.217
W	-	0.10	-	0.004



Dim.	Millimeters	
	min	max
A	4.70	5.30
A1	2.21	2.59
A2	1.50	2.49
A3	typ. 0.05	
b	0.99	1.40
b2	1.65	2.39
b4	2.59	3.43
C	0.38	0.89
D	20.79	21.45
D1	typ. 8.90	
D2	typ. 2.90	
D3	typ. 1.00	
E	15.49	16.24
E1	typ. 13.45	
E2	4.31	5.48
E3	typ. 4.00	
e	5.46 BSC	
L	19.80	20.30
L1	-	4.49
Ø P	3.55	3.65
Q	5.38	6.19
S	6.14 BSC	

### X016d ISO247™

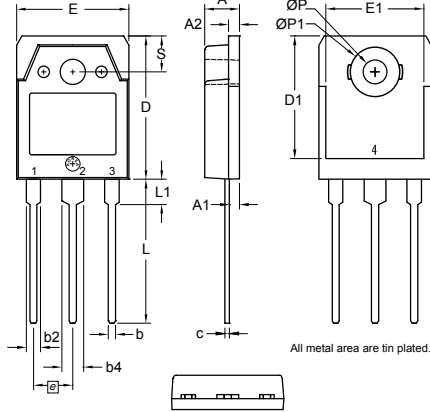
Weight = 4 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
A3	typ. 0.05		typ. 0.002	
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
C	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.844
D1	typ. 8.90		typ. 0.350	
D2	typ. 2.90		typ. 0.114	
D3	typ. 1.00		typ. 0.039	
E	15.49	16.24	0.610	0.639
E1	typ. 13.45		typ. 0.530	
E2	4.31	5.48	0.170	0.216
E3	typ. 4.00		typ. 0.157	
e	10.92 BSC		0.430 BSC	
L	19.80	20.30	0.780	0.799
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

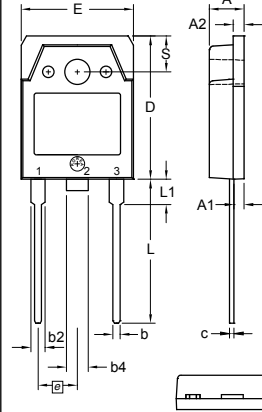
### X017a TO-3P

Weight = 5.5 g

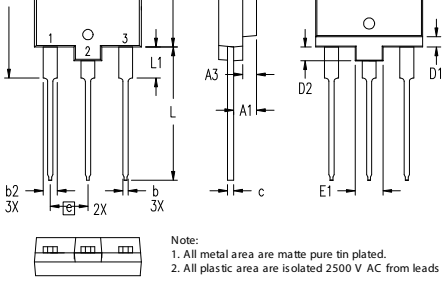


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	4.90	0.185	0.193
A1	1.30	1.50	0.051	0.059
A2	1.45	1.65	0.057	0.065
b	0.90	1.15	0.035	0.045
b2	1.90	2.20	0.075	0.087
b4	2.90	3.20	0.114	0.126
c	0.55	0.80	0.022	0.031
D	19.80	20.10	0.780	0.791
D1	16.90	17.20	0.665	0.677
E	15.50	15.80	0.610	0.622
E1	13.50	13.70	0.531	0.539
e	5.45 BSC		0.215 BSC	
L	19.80	20.20	0.780	0.795
L1	3.40	3.60	0.134	0.142
L2	0.00	1.40	-	-
Ø P	3.20	3.40	0.126	0.134
Ø P1	6.90	7.10	0.272	0.280
S	4.90	5.10	0.193	0.201

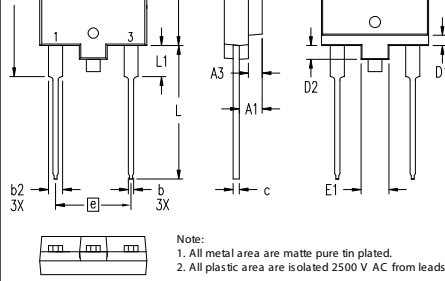
### X017b TO-3P



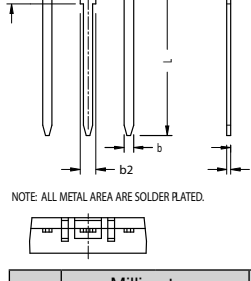
Dim.	Millimeters	
	min	max
A	4.70	4.90
A1	1.30	1.50
A2	1.45	1.65
b	0.90	1.15
b2	1.90	2.20
b4	2.90	3.20
c	0.55	0.80
D	19.80	20.10
D1	16.90	17.20
E	15.50	15.80
E1	13.50	13.70
e	5.45 BSC	
L	19.80	20.20
L1	3.40	3.60
L2	0.00	1.40
Ø P	3.20	3.40
Ø P1	6.90	7.10
S	4.90	5.10



Note:  
 1. All metal area are matte pure tin plated.  
 2. All plastic area are isolated 2500 V AC from leads



Note:  
 1. All metal area are matte pure tin plated.  
 2. All plastic area are isolated 2500 V AC from leads



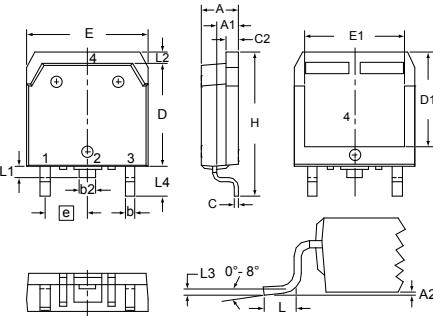
NOTE: ALL METAL AREA ARE SOLDER RATED.

Dim.	Millimeters		Inches	
	min	max	min	max
A	5.40	5.80	0.213	0.228
A1	3.10	3.50	0.122	0.138
A2	2.90	3.30	0.114	0.130
A3	1.90	2.30	0.075	0.091
b	0.65	0.95	0.026	0.037
b2	1.90	2.30	0.075	0.091
c	0.80	1.10	0.031	0.043
D	24.30	24.70	0.957	0.972
D1	1.30	1.70	0.051	0.067
D2	1.80	2.2	0.071	0.087
E	15.40	15.80	0.606	0.622
E1	3.90	4.30	0.154	0.169
e	5.45 BSC		0.215 BSC	
L	19.00	19.50	0.748	0.768
L1	4.30	4.70	0.169	0.185
Ø P	3.40	3.80	0.134	0.150
R	5.30	5.70	0.209	0.224
S	4.30	4.70	0.169	0.185

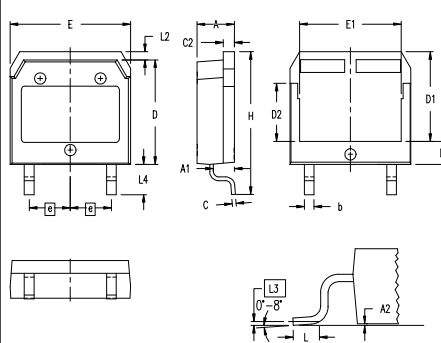
Dim.	Millimeters		Inches	
	min	max	min	max
A	5.40	5.80	0.213	0.228
A1	3.10	3.50	0.122	0.138
A2	2.90	3.30	0.114	0.130
A3	1.90	2.30	0.075	0.091
b	0.65	0.95	0.026	0.037
b2	1.90	2.30	0.075	0.091
c	0.80	1.10	0.031	0.043
D	24.30	24.70	0.957	0.972
D1	1.30	1.70	0.051	0.067
D2	1.80	2.2	0.071	0.087
E	15.40	15.80	0.606	0.622
E1	3.90	4.30	0.154	0.169
e	10.9 BSC		0.430 BSC	
L	19.00	19.50	0.748	0.768
L1	4.30	4.70	0.169	0.185
Ø P	3.40	3.80	0.134	0.150
R	5.30	5.70	0.209	0.224
S	4.30	4.70	0.169	0.185

Dim.	Millimeters	
	min	max
A	4.90	5.10
A1	2.70	2.90
b	1.15	1.45
b2	1.90	2.10
C	0.40	0.65
C 2	1.45	1.60
D	13.80	14.00
D1	12.40	12.70
E	15.85	16.05
E1	13.30	13.60
e	5.45 BSC	
H	34.67	35.43
L	19.81	20.32
L1	2.00	2.30
L2	1.00	1.15

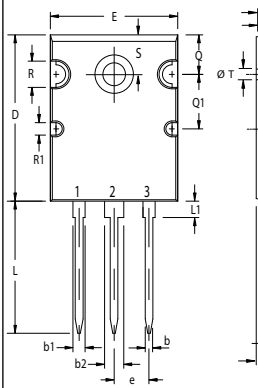
**X019 TO-268 AA (D³PAK) Weight = 4 g**



**X019a TO-268 AA (D³PAK HV) Weight = 4 g**



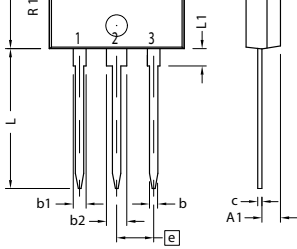
**X020a TO-264 AA**



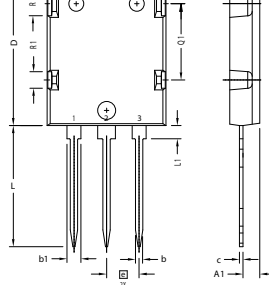
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
b2	1.90	2.10	0.075	0.083
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	12.40	12.70	0.488	0.500
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	2.40	2.70	0.094	0.106
L1	1.20	1.40	0.047	0.055
L2	1.00	1.15	0.039	0.045
L3	2.54 BSC		0.100 BSC	
L4	3.80	4.10	0.150	0.161

Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	11.80	12.10	0.465	0.476
D2	7.50	7.80	0.295	0.307
D3	2.90	3.20	0.114	0.126
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	1.70	2.00	0.067	0.079
L2	1.00	1.15	0.039	0.045
L3	0.25 BSC		0.010 BSC	
L4	3.80	4.10	0.150	0.161

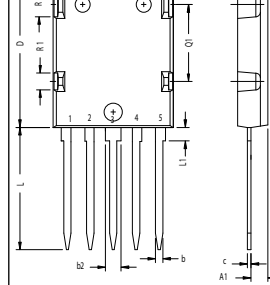
Dim.	Millimeters	
	min	max
A	4.82	5.13
A1	2.54	2.89
A2	2.00	2.10
b	1.12	1.42
b2	2.90	3.09
c	0.53	0.83
D	25.91	26.16
E	19.81	19.96
e	5.45 BSC	
J	0.00	0.25
K	0.00	0.25
L	20.32	20.83
L1	2.29	2.59
P	3.17	2.66
Q	6.07	6.27
Q1	8.38	8.69
R	3.81	4.32
R1	1.78	2.29
S	6.04	6.30
T	1.57	1.83



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.31	0.185	0.209
A1	2.59	3.00	0.102	0.118
b	0.94	1.40	0.037	0.055
b1	2.21	2.59	0.087	0.102
b2	2.79	3.20	0.110	0.126
c	0.43	0.74	0.017	0.029
D	25.58	26.59	1.007	1.047
E	19.30	20.29	0.760	0.799
e	5.45 BSC		0.215 BSC	
L	19.79	21.39	0.779	0.842
L1	2.21	2.59	0.087	0.102
Q	6.10	6.50	0.240	0.256
Q1	8.38	8.79	0.330	0.346
Ø R	3.94	4.75	0.155	0.187
ØR1	2.16	2.36	0.085	0.093

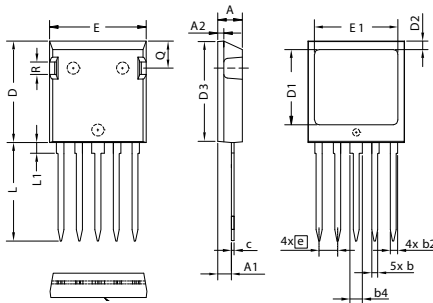


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	1.40	0.046	0.055
b	1.14	1.40	0.045	0.055
b1	1.60	1.83	0.063	0.072
b2	2.54	2.79	0.100	0.110
b3	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	25.91	26.42	1.020	1.040
E	19.56	20.29	0.770	0.799
e	3.81 BSC		0.150 BSC	
L	19.81	21.83	0.780	0.820
L1	2.03	2.59	0.080	0.102
Q	5.33	5.97	0.210	0.235
Q1	12.45	13.03	0.490	0.513
R	3.81	4.57	0.150	0.180
R1	2.54	3.30	0.100	0.130
S	16.97	17.53	0.668	0.690
T	20.34	20.85	0.801	0.821
U	1.65	2.03	0.065	0.080



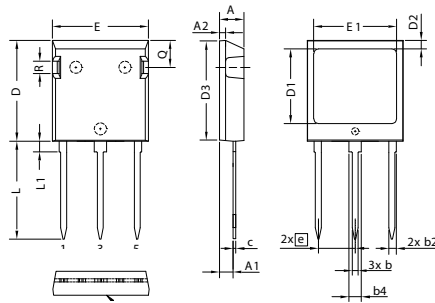
Dim.	Millimeters	
	min	max
A	4.83	5.21
A1	2.59	3.00
A2	1.17	1.40
b	1.14	1.40
b1	1.60	1.83
b2	2.54	2.79
b3	1.47	1.73
c	0.51	0.74
D	25.91	26.42
E	19.56	20.29
e	3.81 BSC	
L	19.81	21.83
L1	2.03	2.59
Q	5.33	5.97
Q1	12.45	13.03
R	3.81	4.57
R1	2.54	3.30
S	16.97	17.53
T	20.34	20.85
U	1.65	2.03

**X024a ISOPLUS i4-PAC™ Weight = 6 g**



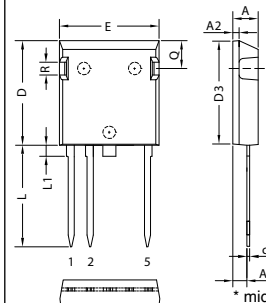
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
b4	2.54	2.79	0.100	0.110
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.150 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

**X024b ISOPLUS i4-PAC™ Weight = 5.5 g**

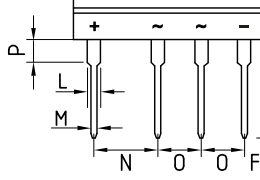
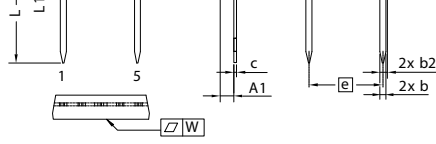
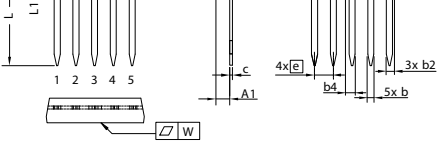


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
b4	2.54	2.79	0.100	0.110
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	7.62 BSC		0.300 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

**X024c ISOPLUS i4-PAC™**



Dim.	Millimeters	
	min	max
A	4.83	5.21
A1	2.59	3.00
A2	1.17	2.16
b	1.14	1.40
b2	1.47	1.73
b4*	2.54	2.79
c	0.51	0.74
D	20.80	21.34
D1	14.99	15.75
D2	1.65	2.03
D3	20.30	20.70
E	19.56	20.29
E1	16.76	17.53
e	3.81 BSC	
e1	11.43 BSC	
L	19.81	21.34
L1	2.11	2.59
Q	5.33	6.20
R	2.54	4.57
W	-	0.10

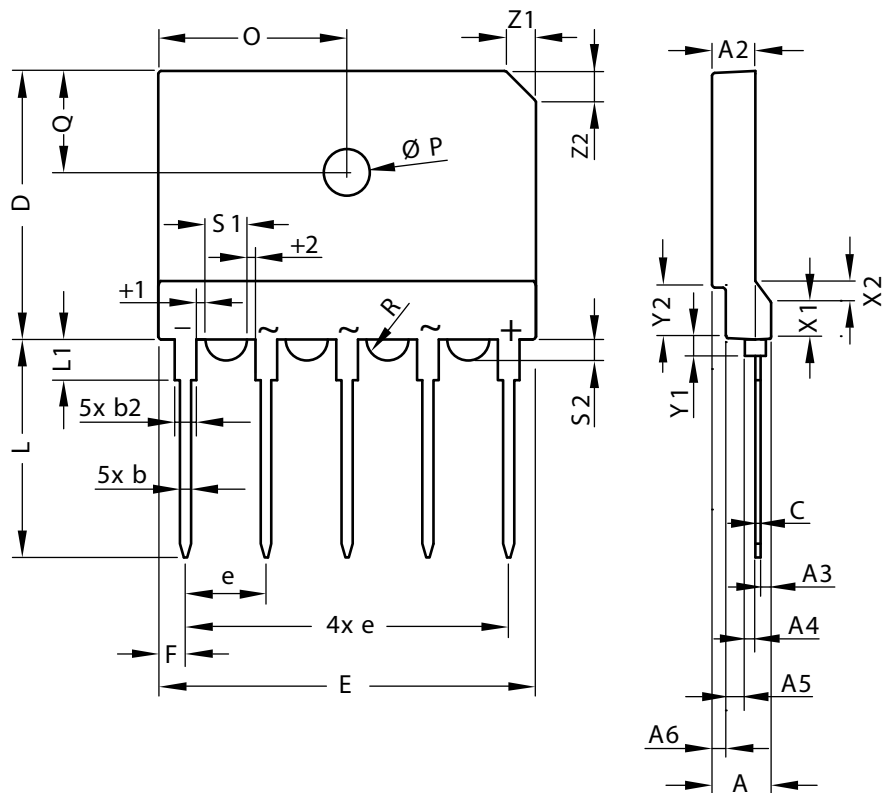


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.150 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	15.24 BSC		0.600 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

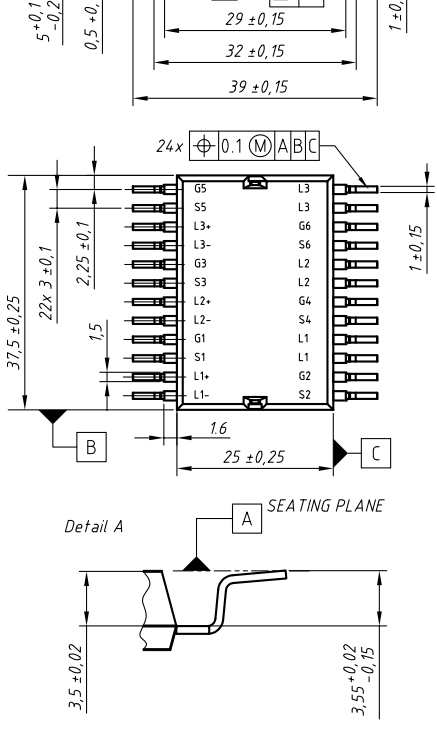
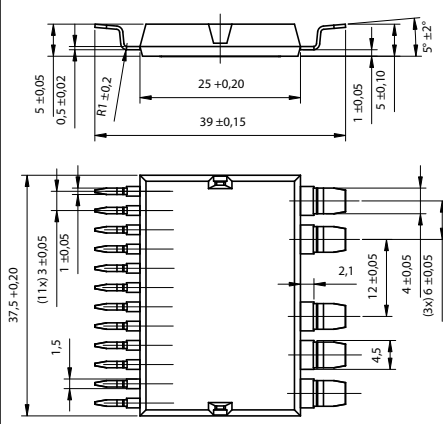
Dim.	Millimeters	
	min	max
A	29.70	30.30
B	19.70	20.30
C	17.00	18.00
D	4.70	4.90
E	10.80	11.20
F	2.30	2.70
G	3.10	3.40
H	3.40	3.80
I	4.40	4.80
J	2.50	2.90
K	0.60	0.80
L	2.00	2.40
M	0.90	1.10
N	9.80	10.20
O	7.30	7.70
P	3.80	4.20
Q	(3.0) x 45°	
Ø R	3.1	3.4

**X025b GUPF**



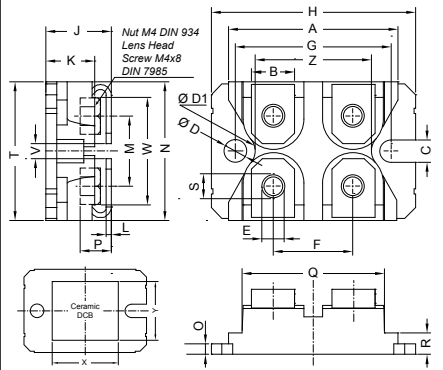
Dim.	Millimeters		
	min	typ.	max
A	5.40	5.50	5.60
A2	3.90	4.00	4.10
A3	0.95	1.00	1.10
A4	0.95	1.00	1.05
A5	1.60	1.70	1.80
A6	1.25	1.30	1.35
b	0.95	1.00	1.05
b2	1.95	2.00	2.05
C	0.45	0.50	0.55
D	24.80	25.00	25.20
E	34.70	35.00	35.30
e	BSC	7.50	
F	2.40	2.50	2.60
L	2.30	20.40	2.50
L1	3.70	3.75	3.80
O	17.40	17.50	17.60
Ø P	4.10	4.20	4.30
Q	9.20	9.30	9.40
q <sub>2</sub> R	-	1.77	-
s1	3.45	3.50	3.55
s2	1.45	1.50	1.55
t1	0.95	1.00	1.05
t2	0.95	1.00	1.05
x1	3.20	3.30	3.40
x2	1.90	2.00	2.10
y1	1.60	1.65	1.70
y2	4.65	4.70	4.75
z1	2.80	2.90	3.00





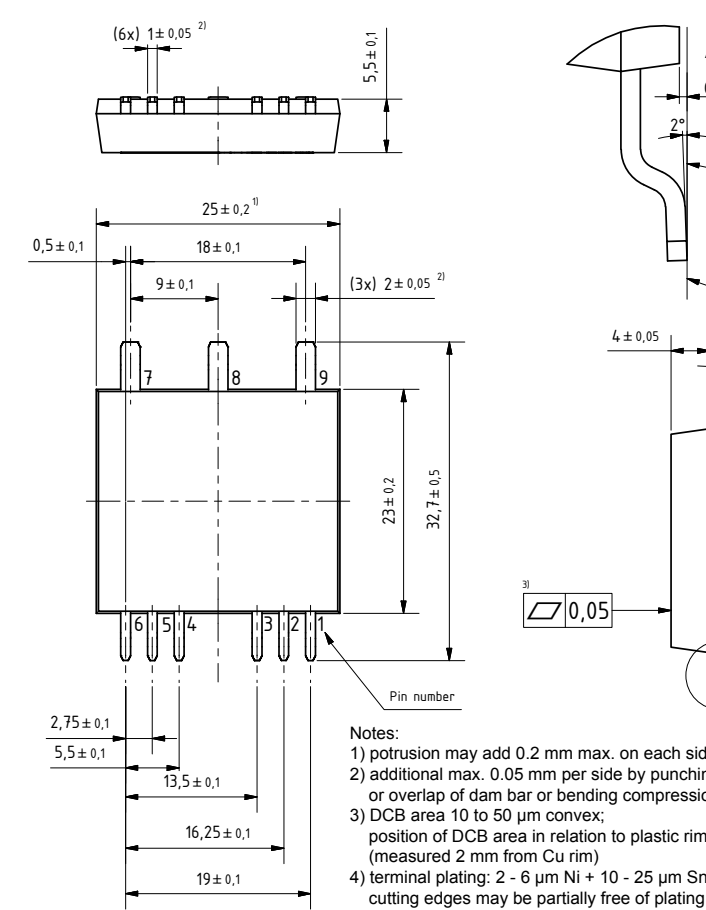
Dim.	Millimeters	
	min	max
A	31.50	31.88
B	7.80	8.20
C	4.09	4.29
D	4.09	4.29
E	4.09	4.29
F	14.91	15.11
G	30.12	30.30
H	37.80	38.23
J	11.68	12.22
K	8.92	9.60
L	0.74	0.84
M	12.50	13.10
N	25.15	25.42
O	1.95	2.13
P	4.95	6.20
Q	26.54	26.90
R	3.94	4.42
S	4.55	4.85
T	24.59	25.25
U	-0.05	0.10
V	3.20	5.50
W	19.81	21.08
Z	2.50	2.70

**X028 ISOPLUS227™** Weight = 19 g

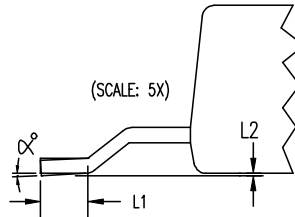
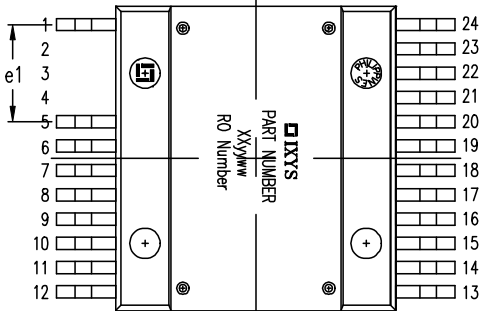
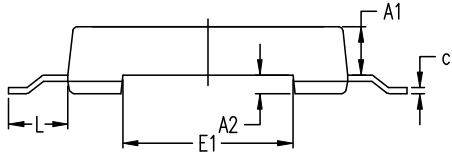
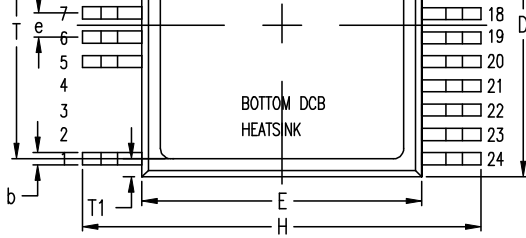


Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	32.26	1.240	1.270
B	7.87	8.38	0.310	0.330
C	3.94	4.19	0.155	0.165
D	3.94	4.19	0.155	0.165
D1	3.81	3.98	0.150	0.157
E	4.06	4.27	0.160	0.168
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.489	1.505
J	11.81	12.22	0.465	0.481
K	9.40	9.65	0.370	0.380
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	2.54	2.64	0.100	0.105
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	4.06	4.32	0.160	0.170
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.03	0.05	-0.001	0.002
V	3.30	4.06	0.130	0.160
W	19.81	21.08	0.780	0.830
X	19.56	20.57	0.770	0.810
Y	17.27	18.29	0.680	0.720
Z	22.48	22.66	0.885	0.892

**X030a SMPD-B**



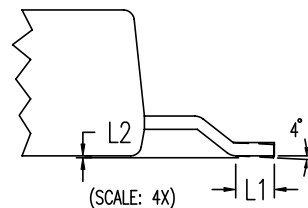
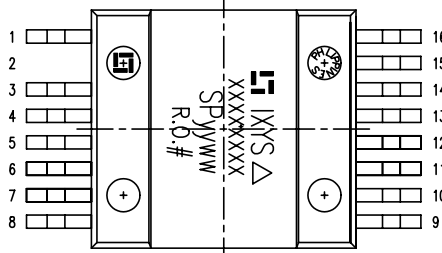
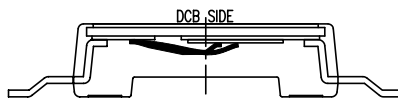
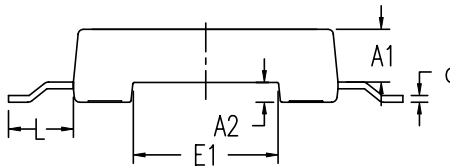
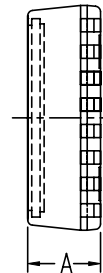
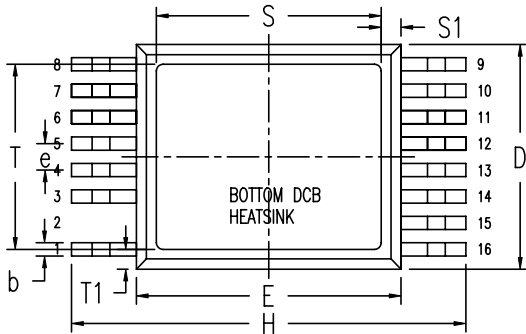
- Notes:
- 1) potusion may add 0.2 mm max. on each side
  - 2) additional max. 0.05 mm per side by punching or overlap of dam bar or bending compression
  - 3) DCB area 10 to 50 µm convex; position of DCB area in relation to plastic rim: (measured 2 mm from Cu rim)
  - 4) terminal plating: 2 - 6 µm Ni + 10 - 25 µm Sn cutting edges may be partially free of plating



- Note:
1. Bottom heatsink meets 2.6 kV AC isolation to the other pins.
  2. All leads are matte pure tin plated.

c	0.45	0.65
D	24.80	25.25
E	22.80	23.25
E1	13.80	14.20
e	2.00	BSC
e1	8.00	BSC
H	32.30	33.30
L	4.60	5.30
L1	1.30	1.70
L2	0.00	0.15
S	18.85	20.12
S1	1.45	2.08
T	20.90	22.17
T1	1.42	2.03
a	4°	-

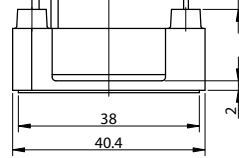
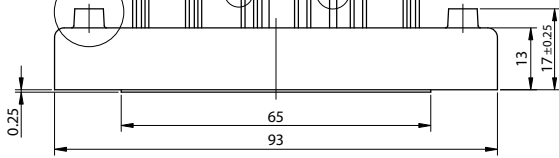
**X032... MiniSMPD** \* See data sheet for pin arrangement



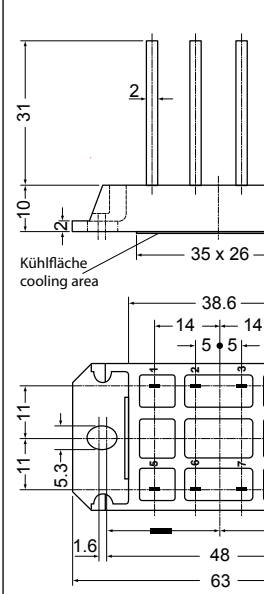
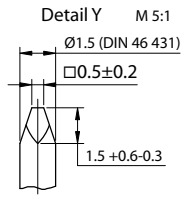
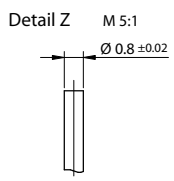
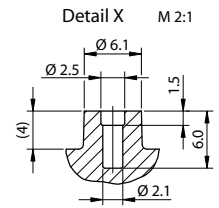
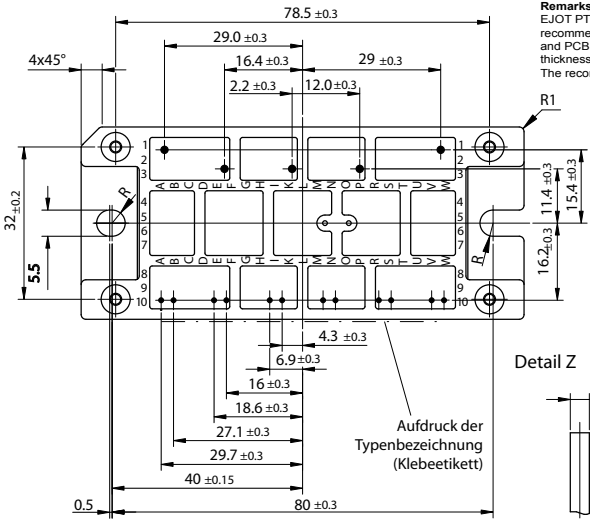
Dim.	Millimeters	
	min	max
A	5.30	5.70
A1	3.90	4.10
A2	1.40	1.60
b	0.90	1.15
c	0.45	0.65
D	16.80	17.20
E	19.80	20.20
E1	10.80	11.20
e	2.00 BSC	
H	29.50	30.10
L	4.60	5.30
L1	1.30	1.70
L2	0.00	0.15
S	16.80	17.20
S1	1.30	1.70
T	13.80	14.20
T1	1.30	1.70

- NOTE:
1. All leads are matte pure tin plated.
  2. Cu surface of bottom DCB is exposed unless otherwise noted.
  3. Cu surface of bottom DCB is exposed to 2.500V AC from all other leads.
  4. Unless otherwise specified, pin numbers are:
    - Pin #1 - Gate
    - Pin #3 - Gate return or source
    - Pin #4 through #8 - Source
    - Pin #9 through #16 - Drain





**Remarks:**  
 EJOT PT® self-tapping screws of the dimension K25 are recommended for the mechanical connection between module and PCB. Choose the right length according to your board thickness at a maximum depth of 6 mm of the module holes. The recommended mounting torque is 1.5 Nm.



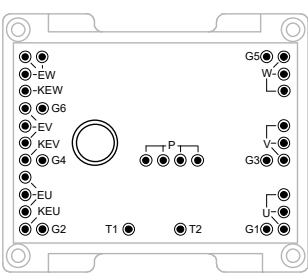
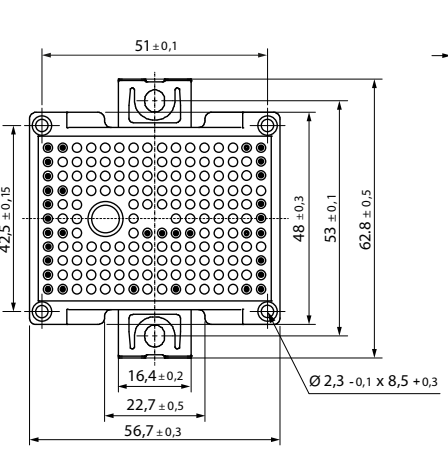
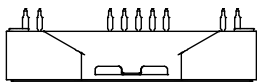
Kühlfläche cooling area

**X109 Mini-Pack2B**

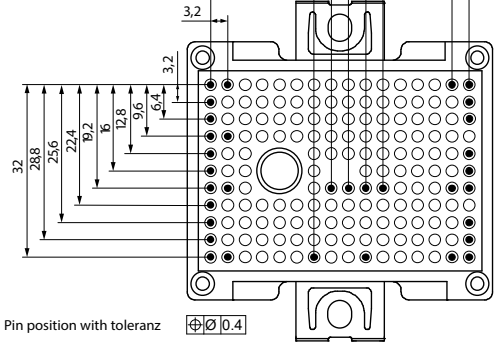
See data sheet for pin arrangement

Weight = 42 g

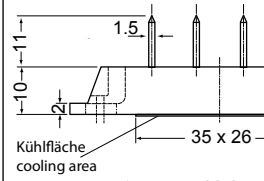
**X105c V1-B-Pack g**



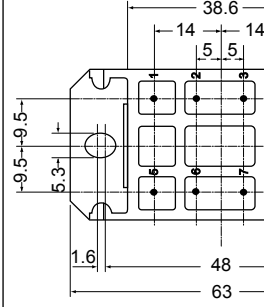
Pin description

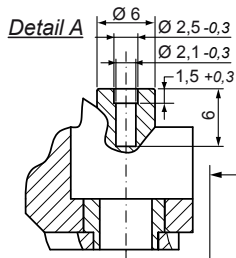


Pin position with toleranz

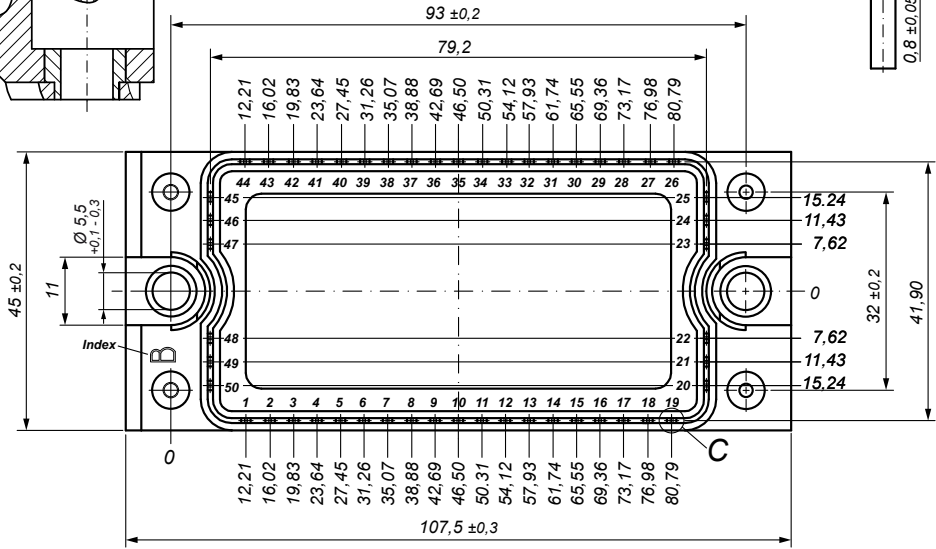
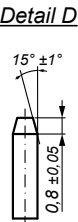
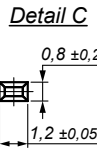


Kühlfläche cooling area



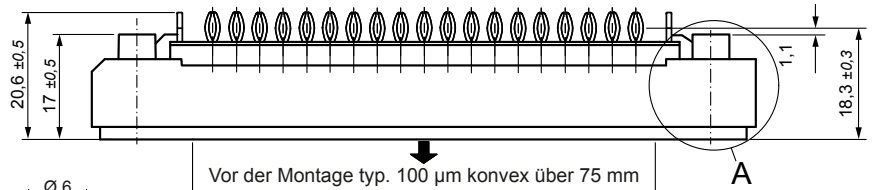


Vor der Montage typ. 100 µm konvex über 75 mm  
Before mounting typ. 100 µm convex over 75 mm

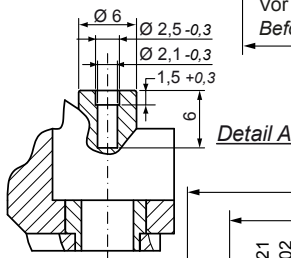


**X112a E2-Pack PFP**

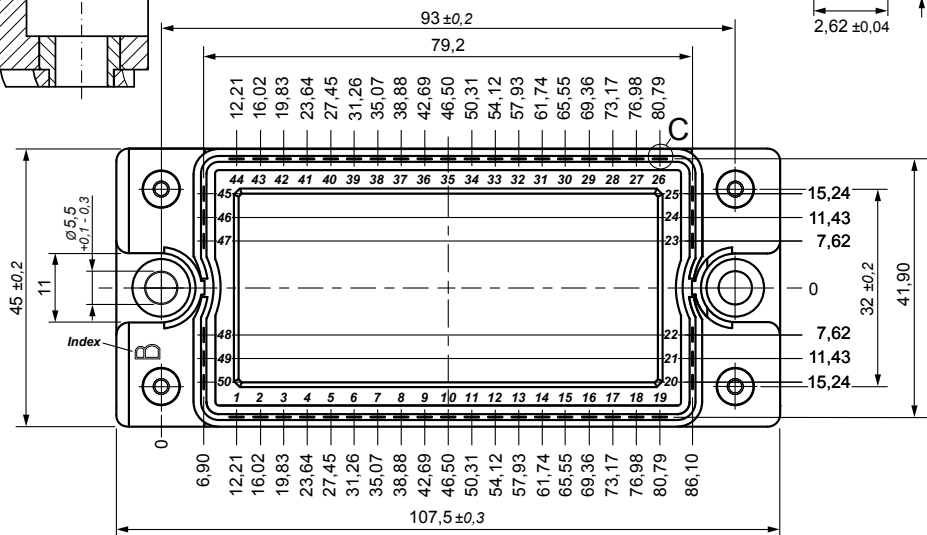
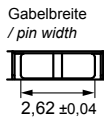
Pin configuration see data sheets

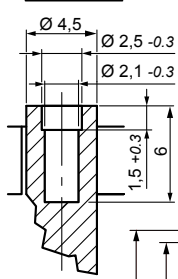


Vor der Montage typ. 100 µm konvex über 75 mm  
Before mounting typ. 100 µm convex over 75 mm



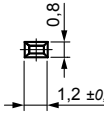
**Detail C (5:1)**



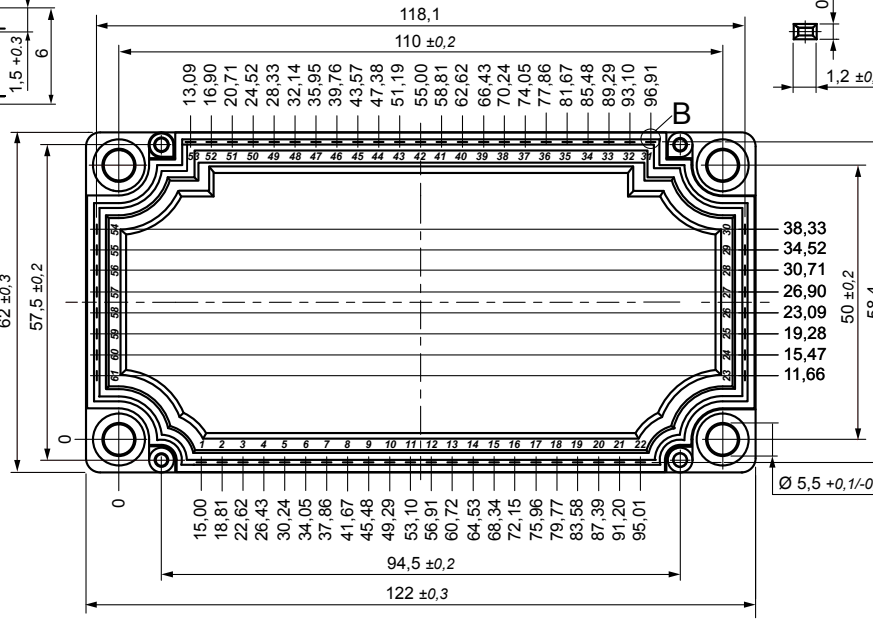
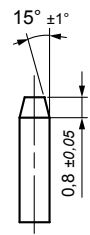


Vor der Montage typ. 100 µm konvex über 97.5 mm  
Before mounting typ. 100 µm convex over 97.5 mm

Detail E

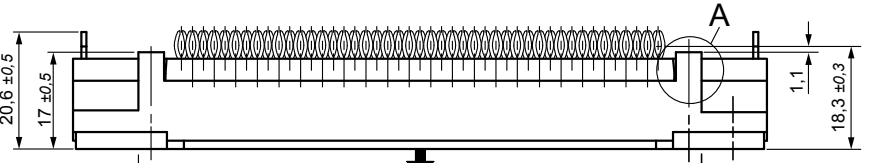


Detail C



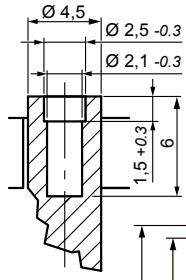
X113a E3-Pack PFP

Pin configuration see data sheets

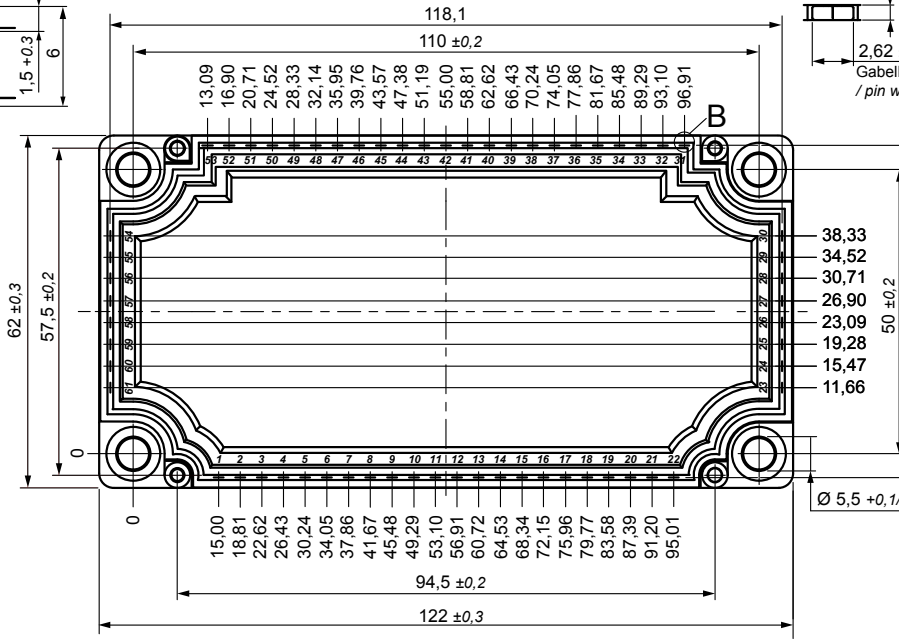
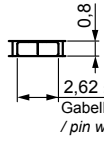


Vor der Montage typ. 100 µm konvex über 97.5 mm  
Before mounting typ. 100 µm convex over 97.5 mm

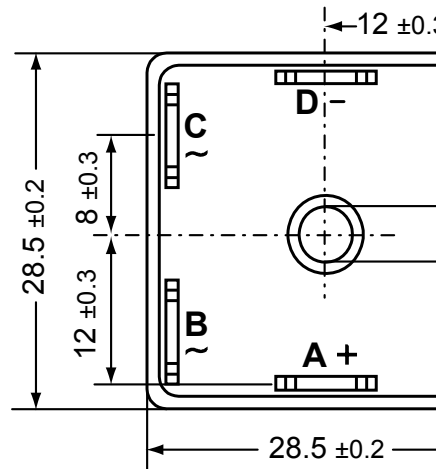
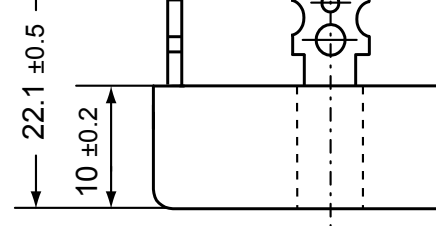
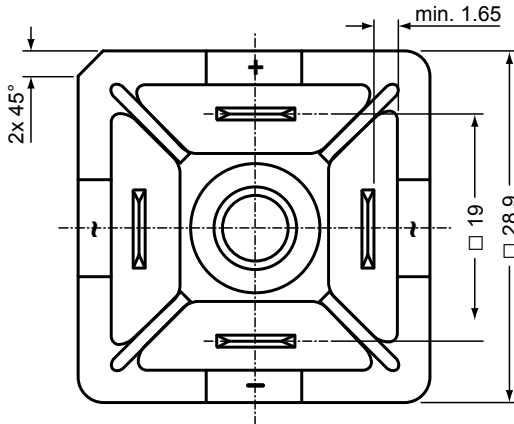
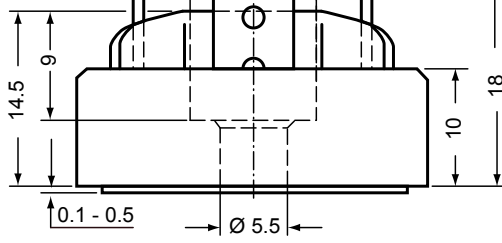
Detail A



B (3:1)



Ø 5,5 +0,1/-0,1

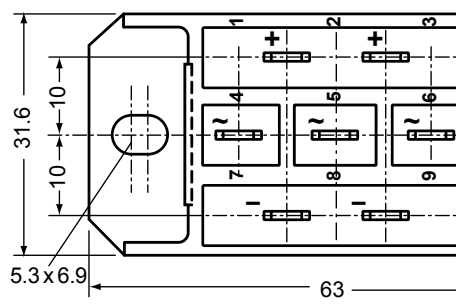
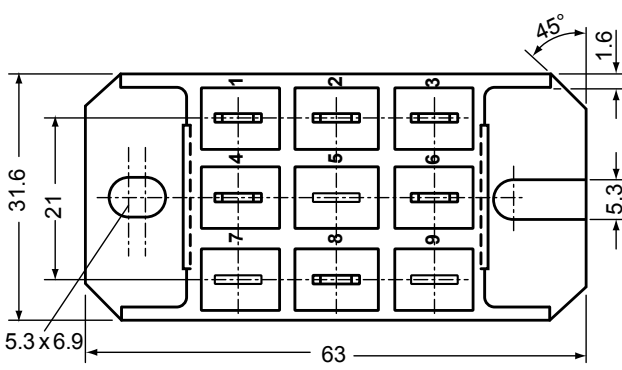
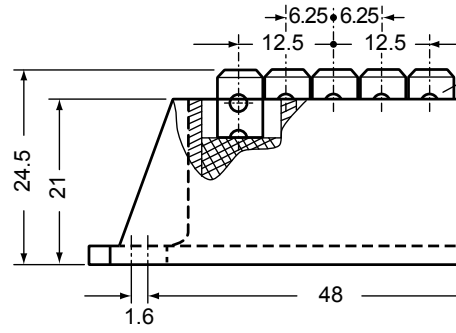
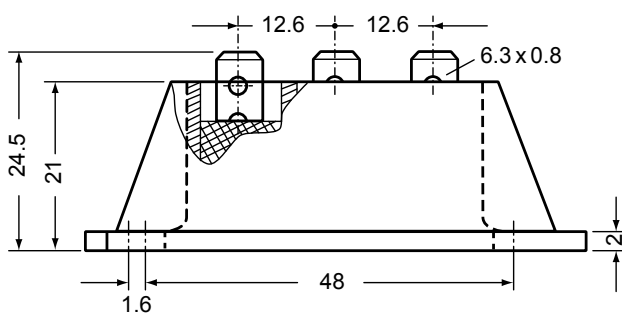


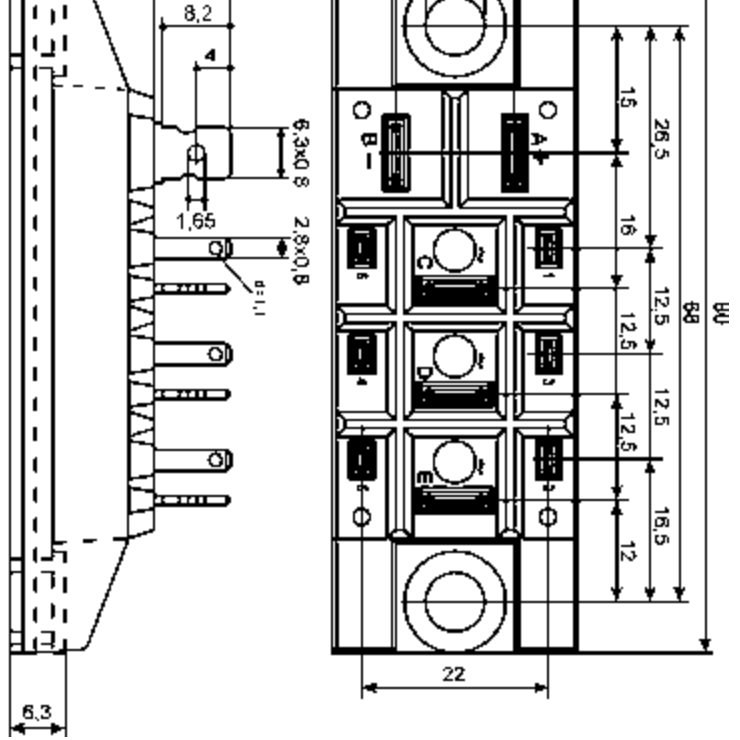
**X117a FO-F-A**

Weight = 45 g

**X117b FO-F-B**

Weight = 45 g





**X119 PWS-A**

a: VUO  
b: w/o terminal D (VBO)

Weight =  
104 g  
100 g

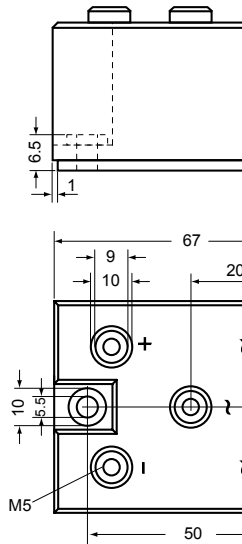
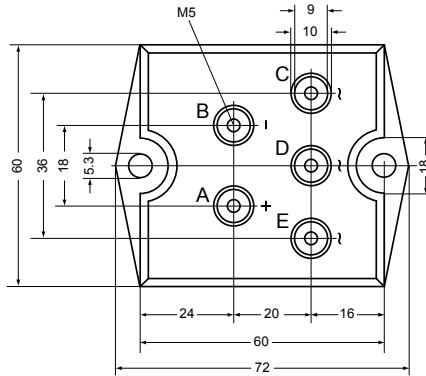
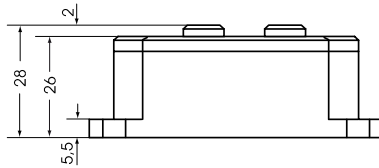
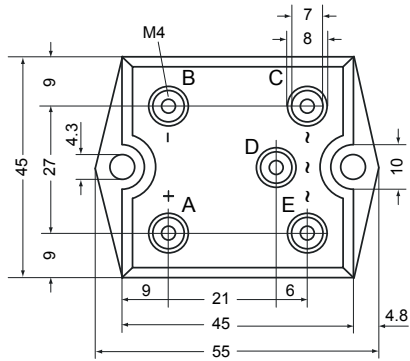
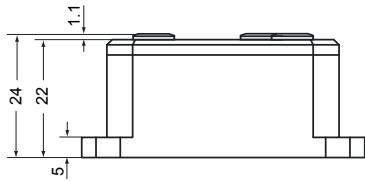
**X120 PWS-B**

a: VUO  
b: w/o terminal D (VBO)

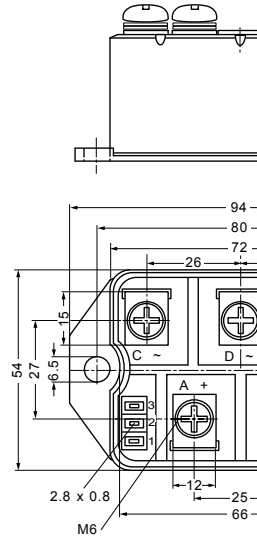
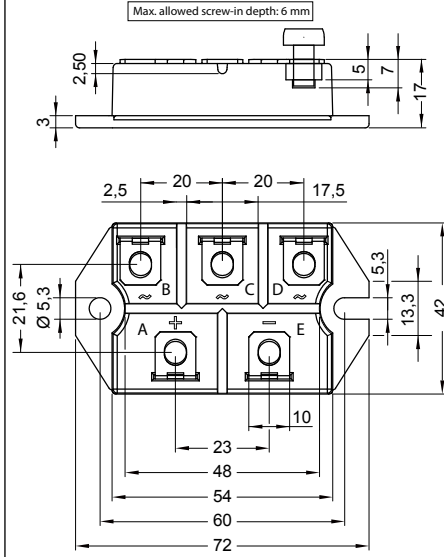
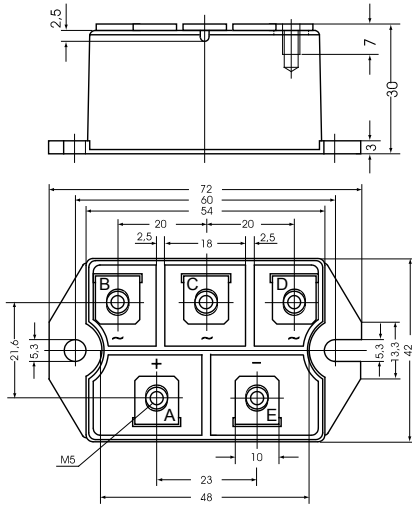
Weight =  
203 g  
193 g

**X121 PWS-C**

a: VUO  
b: w/o terminal D (VBO)

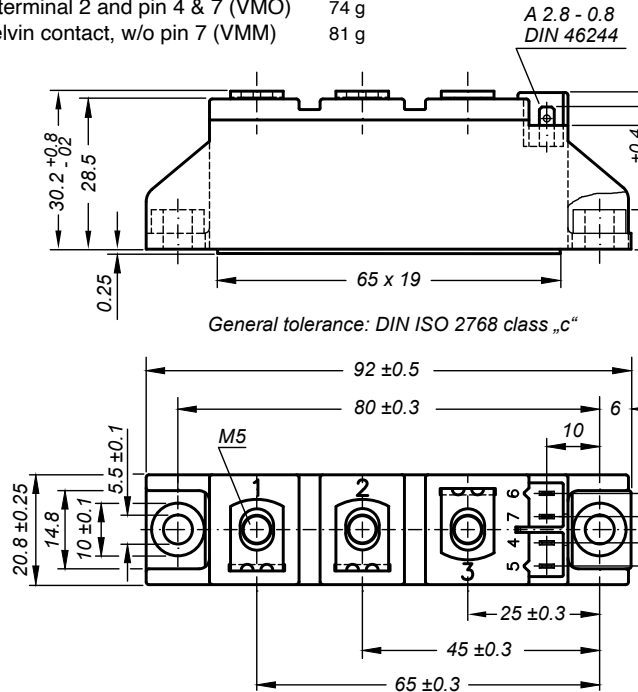
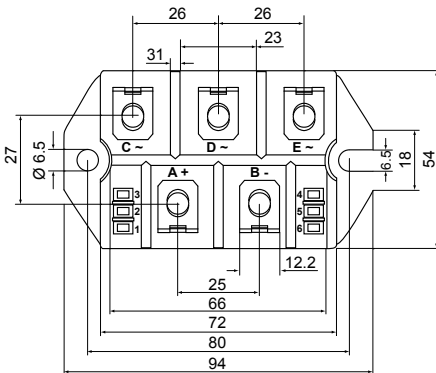
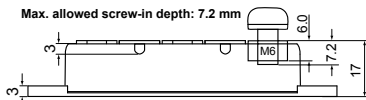




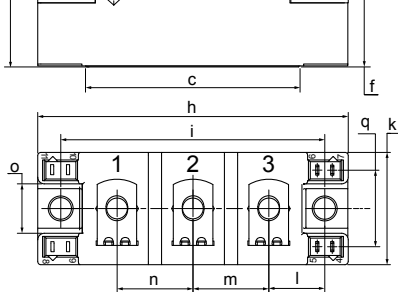


**X123 PWS-E Flat** Weight = 220 g  
h: w/o terminal 1, 2, 3, 4, 5 & 6 (VUO)

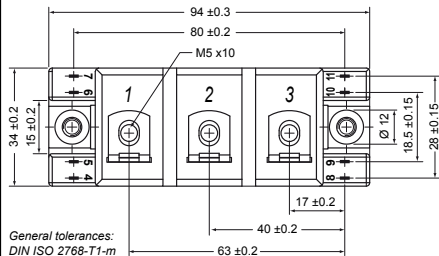
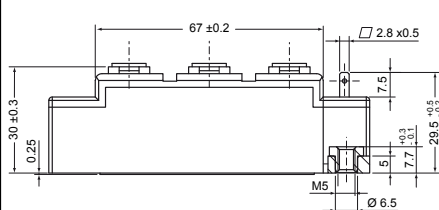
**X125 TO-240 AA** Weight =  
a: + Kelvin contact (MCC) 81 g  
b: + Kelvin contact, w/o pin 6 & 7 (MCD) 81 g  
c: w/o Kelvin contact 4 & 7 (MCC) 81 g  
d: w/o Kelvin contact 4, 7 & pin 6 (MCD) 81 g  
e: w/o pin 4, 5, 6 & 7 (MDD) 81 g  
f: w/o terminal 2 and pin 4 & 7 (VMO) 74 g  
g: + Kelvin contact, w/o pin 7 (VMM) 81 g



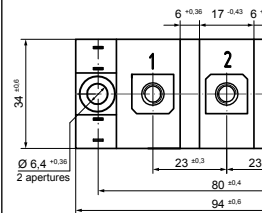
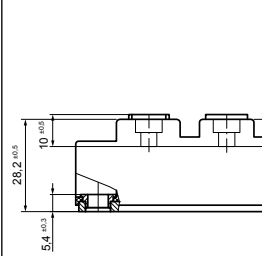
Optional accessories for modules  
Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cat  
Type ZY 200L (L = Left for pin pair 4/5) } UL 758, style 3751  
Type ZY 200R (R = Right for pin pair 6/7) }



Dim.	Millimeters		Inches	
	min	max	min	max
a	30.0	30.6	1.181	1.205
c	64.0	65.0	2.520	2.559
f	28.6	29.2	1.126	1.150
h	93.5	94.5	3.681	3.720
i	79.5	80.5	3.130	3.169
j	4.8	5.2	0.189	0.205
k	33.4	34.0	1.315	1.339
l	16.7	17.3	0.657	0.681
m	22.7	23.3	0.894	0.917
n	22.7	23.3	0.894	0.917
o	14.0	15.0	0.551	0.591
p	typ. 10.5		typ. 0.413	
q	22.8	23.3	0.898	0.917



General tolerances:  
DIN ISO 2768-T1-m



### X128 Y3-DCB

- a: w/o pin 4 up to 7 (VMM, MII) 222 g  
 b: w/o pin 4 up to 9 (MID) 220 g  
 c: w/o pin 4 up to 7, 10 & 11 (MDI) 220 g  
 d: w/o terminal 3 & pin 6 up to 11 (VMO) 200 g  
 e/f/g: see data sheet

Weight =

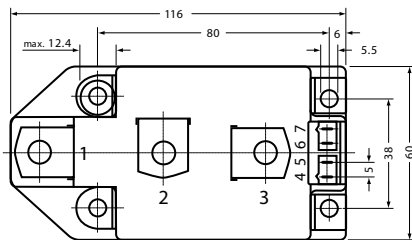
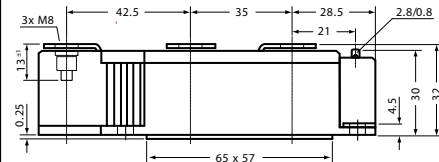
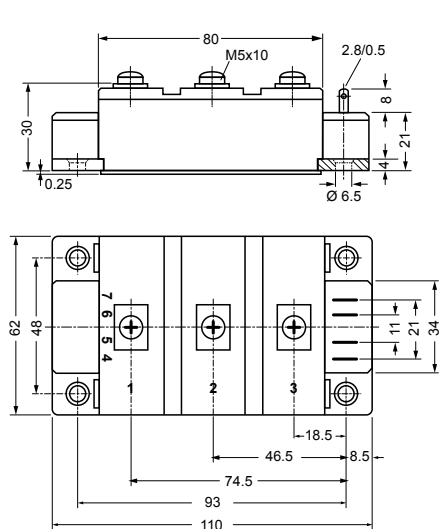
### X129 Y2-DCB

- a: + Kelvin contact (MCC) 245 g  
 b: + Kelvin contact, w/o pin 6 & 7 (MCD) 245 g  
 c: w/o pin 4, 5, 6 & 7 (MDD) 244 g

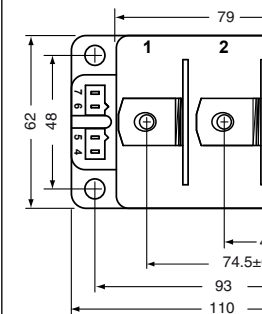
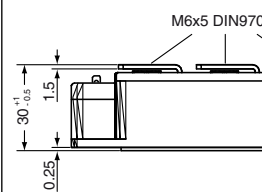
Weight =

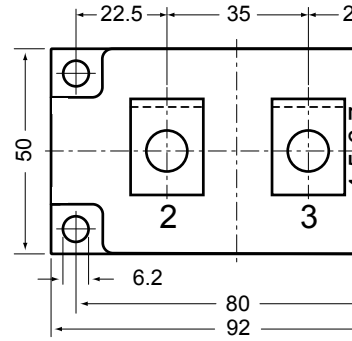
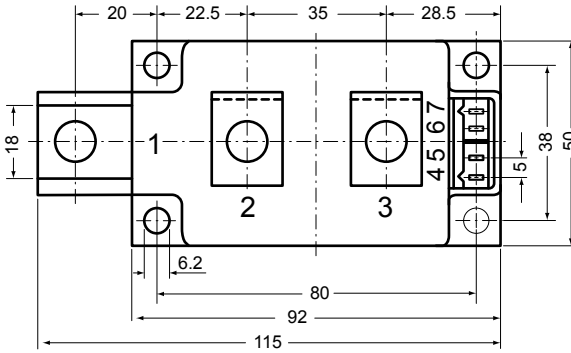
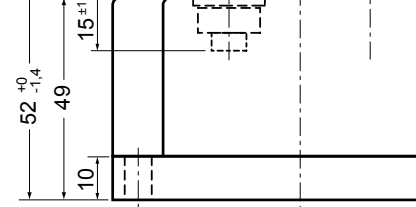
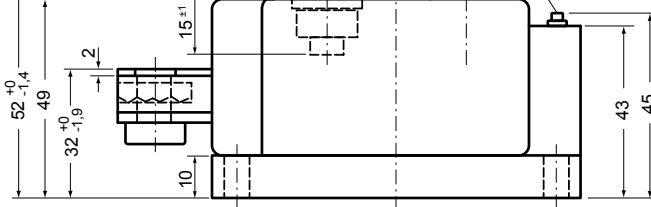
### X130 Y3-Li

- a: w/o pin 4-7, low inductance  
 b: w/o pin 4-9, low inductance  
 c: w/o pin 4-7, 10&11, low inductance  
 d: w/o terminal 1&pin 6-11, low inductance  
 e: w/o pin 4&5, low inductance (VMM)  
 f: w/o pin 4, 5, 8 & 9, low inductance



Optional accessories for modules  
 Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cathode = red  
 Type ZY 180L (L = Left for pin pair 4/5)  
 Type ZY 180R (R = Right for pin pair 6/7) } UL 758, style 3751



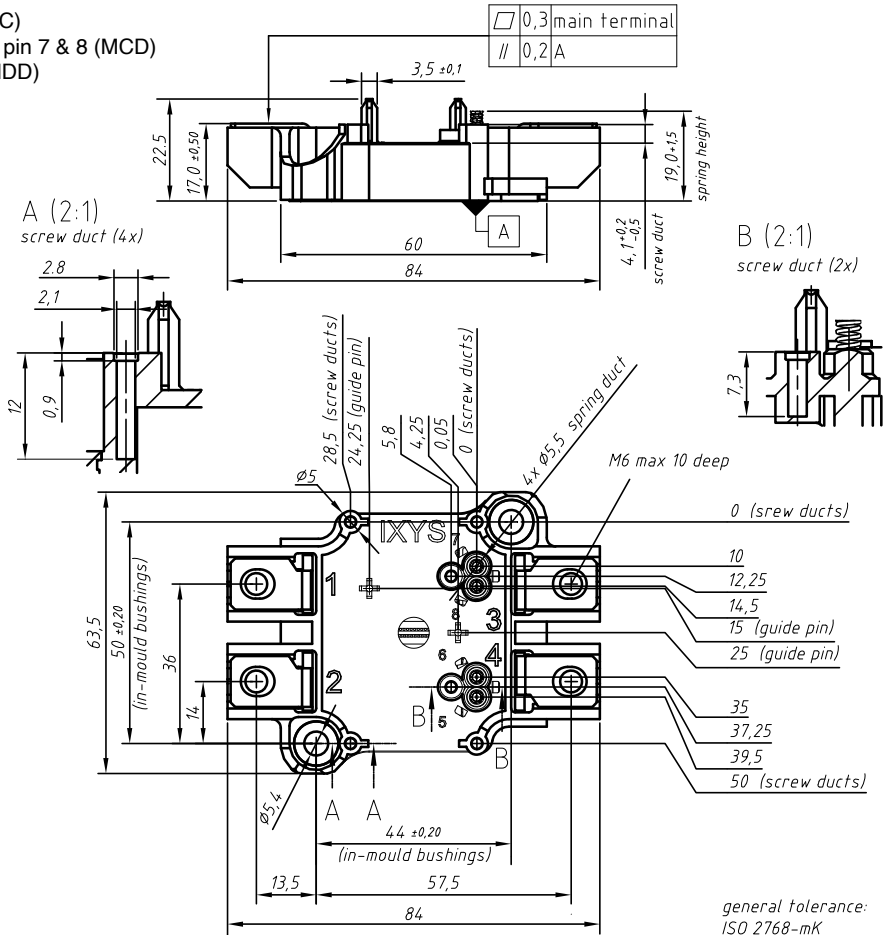


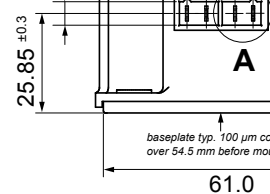
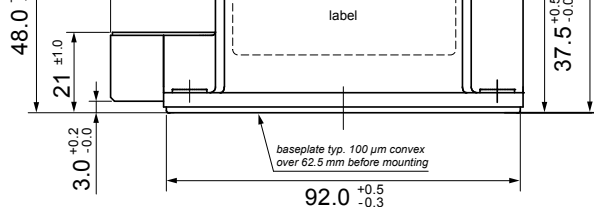
Optional accessories for modules

Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cathode = red  
 Type ZY 180L (L = Left for pin pair 4/5)  
 Type ZY 180R (R = Right for pin pair 6/7) } UL 758, style 3751

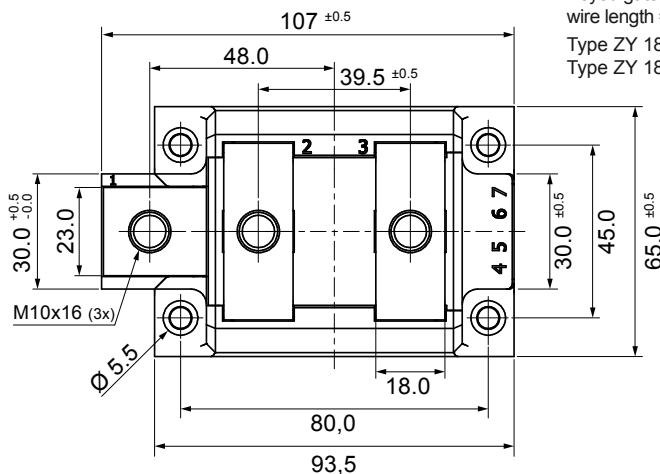
**X141 SimBus A**

- a: + Kelvin contact (MCC)
- b: + Kelvin contact, w/o pin 7 & 8 (MCD)
- c: w/o pin 5, 6, 7 & 8 (MDD)

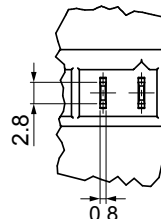




Optional accessories for modules  
Keyed gate/cathode twin plugs with  
wire length = 350 mm, gate = white, cathode = black  
Type ZY 180L (L = Left for pin pair 4/5)  
Type ZY 180R (R = Right for pin pair 6/7)

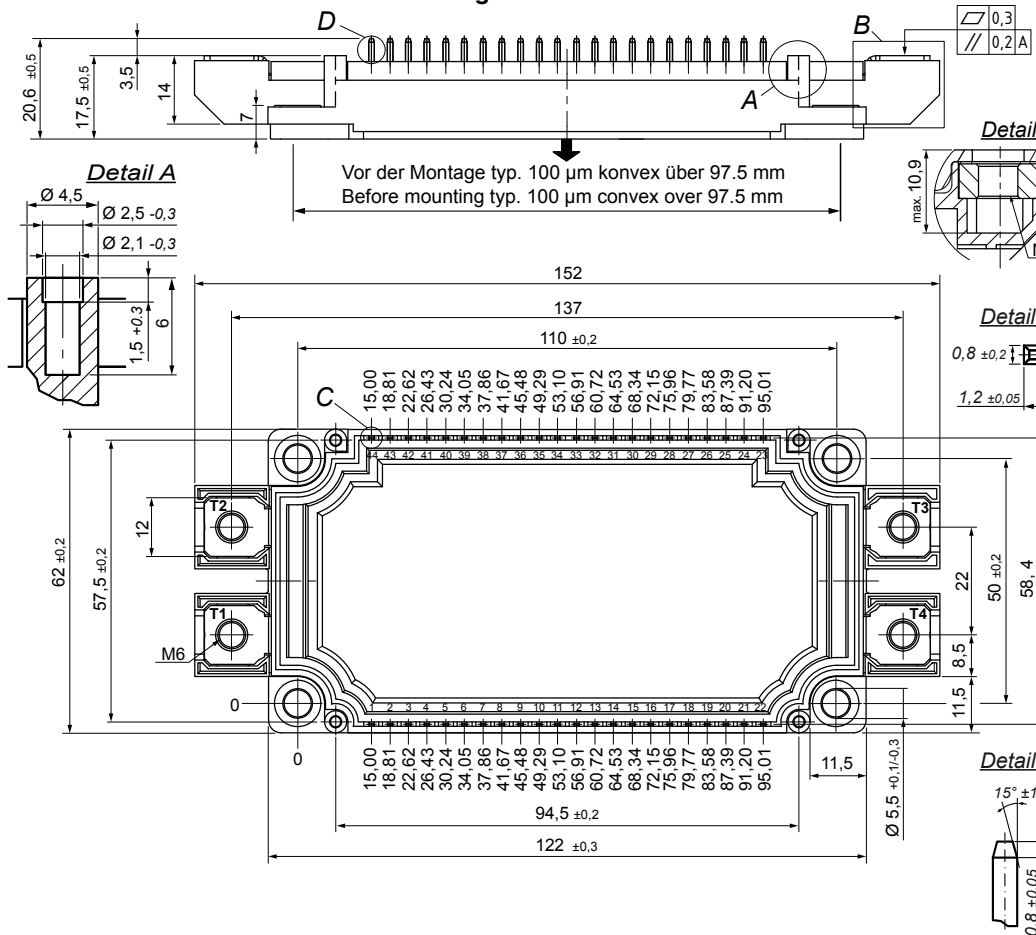


A (2:1)



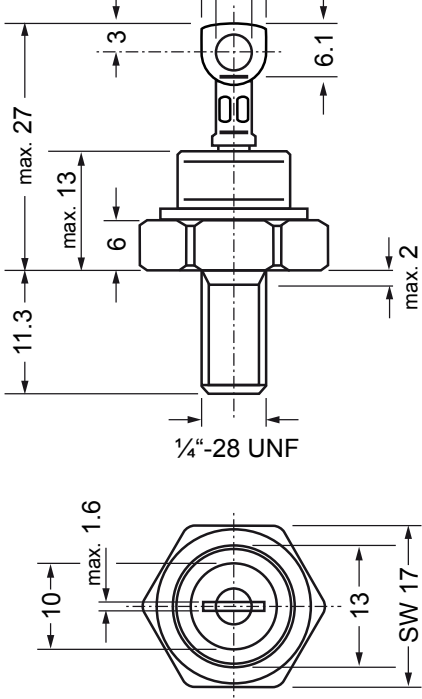
### X143 SimBus F

Pin configuration see data sheets



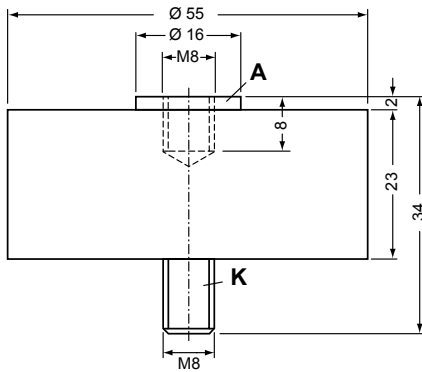






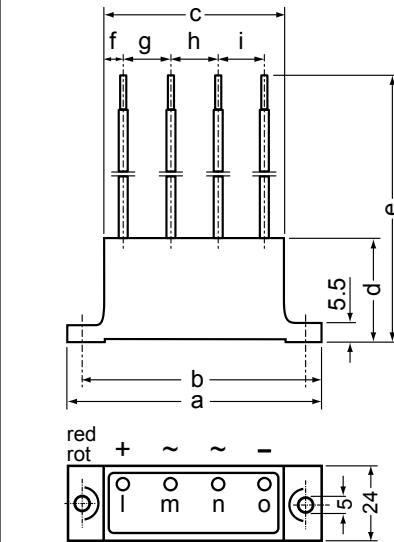
**X251 UGE-single**

Weight = 125 g



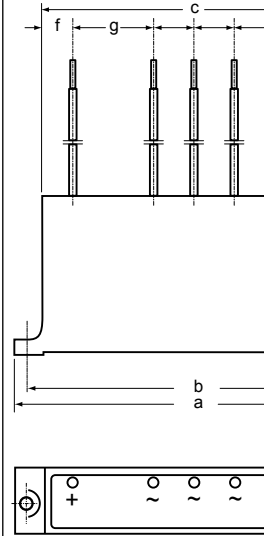
**X252 UG**

Weight = 155 g



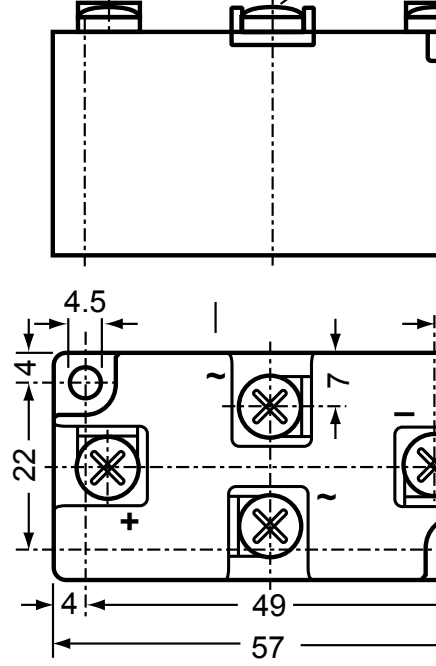
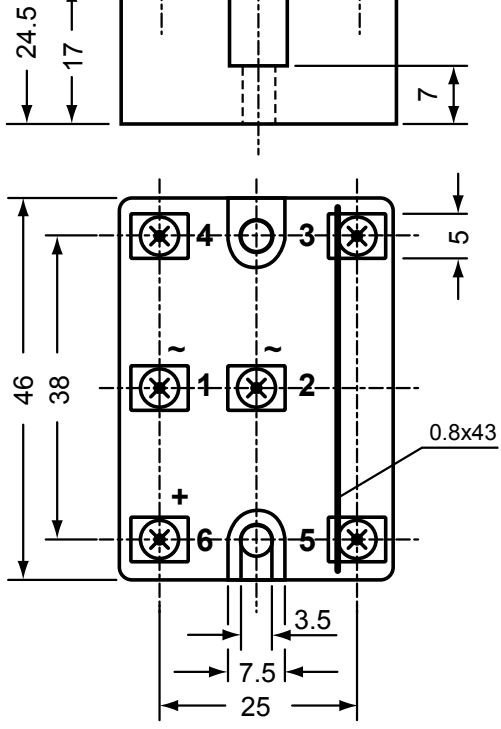
**X253a UG**

b: w/o middle terminal

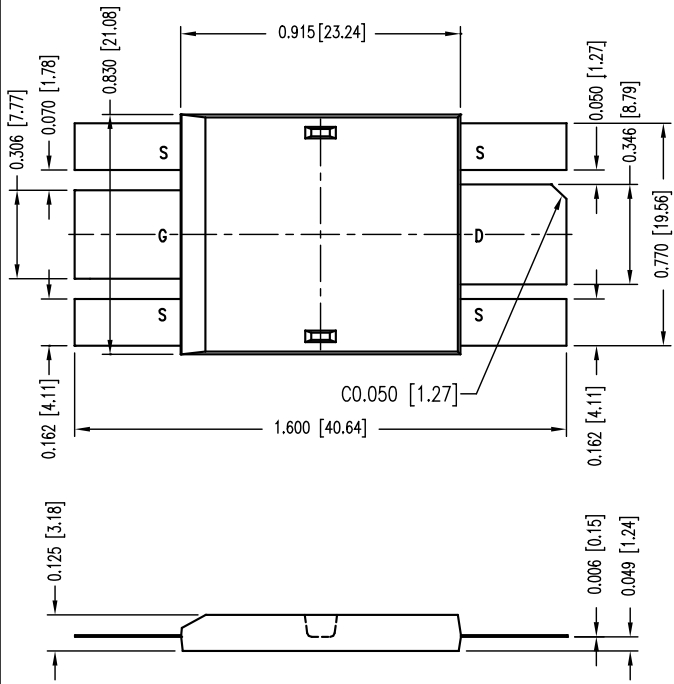


Type	a	b	c	d	e	f	g	h
UGB 3132 AD	80	70	57	58.5	260	6	15	15
UGB 6124 AG	135	125	112	58.5	260	11	32.5	25
UGD 6123 AG	135	125	112	58.5	260	8	30	18
UGD 8124 AG	135	125	112	58.5	260	8	30	18

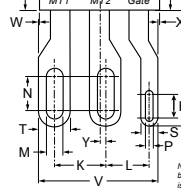
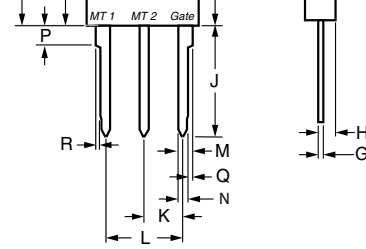
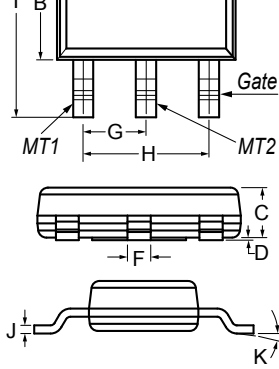
Dimensions in mm



**D5 DE475**





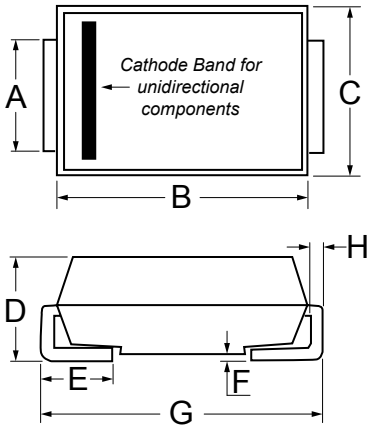


Dim.	Millimeters			Inches		
	min	typ	max	min	typ	max
A	6.30	6.50	6.70	0.248	0.256	0.264
B	3.30	3.50	3.70	0.130	0.138	0.146
C	-	-	1.80	-	-	0.071
D	0.02	-	0.10	0.001	-	0.004
E	2.90	3.00	3.15	0.114	0.118	0.124
F	0.60	0.70	0.85	0.024	0.027	0.034
G	-	2.30	-	-	0.090	-
H	-	4.60	-	-	0.181	-
I	6.70	7.00	7.30	0.264	0.276	0.287
J	0.24	0.26	0.35	0.009	0.010	0.014
K	10° max					

Dim.	Millimeter		Inches	
	min	max	min	max
A	20.57	21.21	0.810	0.835
B	15.49	16.00	0.610	0.630
C	4.52	4.78	0.178	0.188
D	1.40	1.78	0.055	0.070
E	12.37	12.62	0.487	0.497
F	16.13	16.64	0.635	0.655
G	0.56	0.74	0.022	0.029
H	1.91	2.41	0.075	0.095
J	14.61	15.88	0.575	0.625
K	5.36	5.56	0.211	0.219
L	10.72	11.10	0.422	0.437
M	1.47	1.73	0.058	0.068
N	1.14	1.40	0.045	0.055
P	2.41	2.92	0.095	0.115
Q	0.20	0.41	0.008	0.016
R	0.20	0.41	0.008	0.016
U	4.10	4.20	0.164	0.165
W	2.17	2.42	0.085	0.095

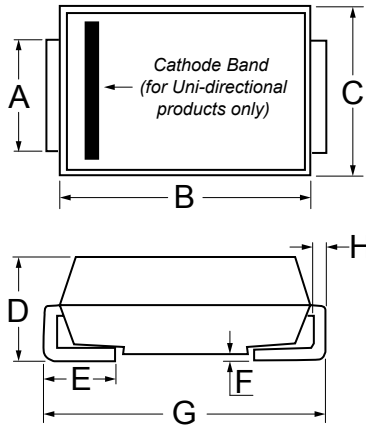
Dim.	Millimeter	
	min	max
A	20.57	21.21
B	15.49	16.00
C	4.52	4.78
D	1.40	1.78
E	12.37	12.62
F	16.13	16.64
G	0.56	0.74
H	1.91	2.41
J	14.61	15.88
K	6.50	6.71
L	5.58	5.79
M	2.03	2.24
N	4.29	4.49
P	0.86	1.07
R	2.87	3.07
S	2.18	2.44
T	3.96	4.22
U	0.41	0.42
V	15.31	15.70
W	0.00	0.13
X	0.07	0.30
Y	0.71	0.81
Z	2.17	2.42

**L003a DO-214AA** Weight = 0.1 g



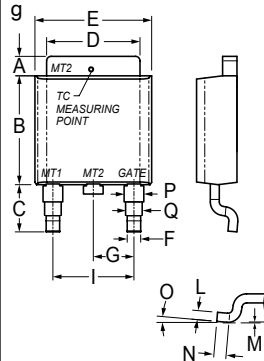
Dim.	Millimeters		Inches	
	min	max	min	max
A	1.950	2.200	0.077	0.086
B	4.060	4.570	0.160	0.180
C	3.300	3.940	0.130	0.155
D	2.130	2.440	0.084	0.096
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	5.210	5.590	0.205	0.220
H	0.152	0.305	0.006	0.012

**L003b DO-214AB** Weight = 0.2 g

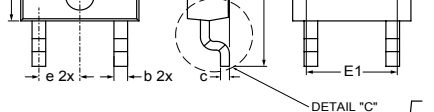


Dim.	Millimeters		Inches	
	min	max	min	max
A	2.900	3.200	0.114	0.126
B	6.600	7.110	0.260	0.280
C	5.590	6.220	0.220	0.245
D	2.060	2.620	0.079	0.103
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	7.750	8.130	0.305	0.320
H	0.152	0.305	0.006	0.012

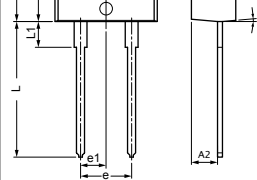
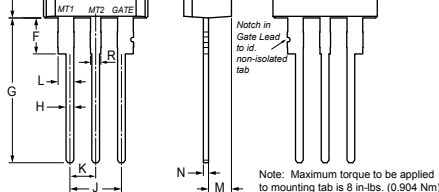
**L004 TO-252AA**



Dim.	Millimeters		
	min	nom	max
A	0.94	1.01	1.09
B	5.97	6.16	6.22
C	2.69	2.74	2.87
D	5.21	5.29	5.41
E	6.48	6.65	6.73
F	0.69	0.80	0.84
G	2.21	2.28	2.36
H	2.16	2.33	2.41
I	4.47	4.55	4.67
J	0.46	0.51	0.58
K	0.90	0.95	1.00
L	0.46	0.51	0.58
M	0.00	0.00	0.10
N	0.53	0.67	0.69
O	0°	0°	5°
P	1.06	1.20	1.32
Q	0.86	1.00	1.11



NOTE:  
L4 - MAXIMUM PLASTIC PROTRUSION  
L2 - REFERENCE FOR FOOT LENGTH MEASUREMENT



Dim.	Millimeters			Inches		
	min	nom	max	min	nom	max
A	2.16	2.29	2.41	0.085	0.090	0.095
A1	0	0.08	0.13	0	0.003	0.005
b	0.64	0.76	0.89	0.025	0.030	0.035
b3	4.95	5.08	5.46	0.195	0.200	0.215
c	0.46	0.51	0.61	0.018	0.020	0.024
C2	0.46	0.81	0.89	0.018	0.032	0.035
D	5.97	6.10	6.22	0.235	0.240	0.245
D1	5.21	-	-	0.205	-	-
E	6.35	6.60	6.73	0.250	0.260	0.265
E1	4.32	-	-	0.170	-	-
e	2.29 BSC			0.090 BSC		
H	9.40	9.83	10.41	0.370	0.387	0.410
L	1.02	1.14	1.27	0.040	0.045	0.050
L2	0.25 BSC			0.010 BSC		
L3	0.89	-	1.27	0.035	-	0.050
P	0°	-	8°	0°	-	8°

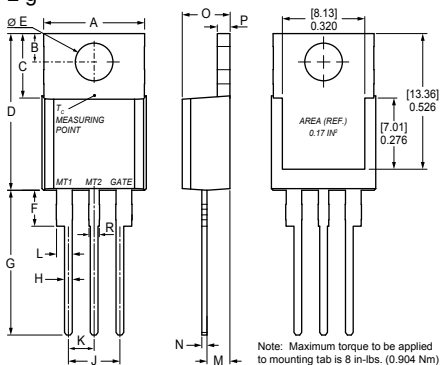
Dim.	Millimeters		Inches	
	min	max	min	max
A	9.65	10.67	0.380	0.420
B	2.67	2.92	0.105	0.115
C	5.84	6.35	0.230	0.250
D	14.99	15.75	0.590	0.620
E	3.61	3.73	0.142	0.147
F	2.79	3.30	0.110	0.130
G	13.72	14.61	0.540	0.575
H	0.64	0.89	0.025	0.035
J	4.95	5.21	0.195	0.205
K	2.41	2.67	0.095	0.105
L	1.52	1.91	0.060	0.075
M	2.16	2.41	0.085	0.095
N	0.46	0.61	0.018	0.024
O	4.52	4.78	0.178	0.188
P	1.14	1.52	0.045	0.060
R	0.97	1.22	0.038	0.048

Dim.	Millimeters	
	min	nom
A	4.320	4.45
A1	1.140	1.27
A2	2.500	-
b	0.690	-
b1	0.680	-
b2	1.230	-
b3	1.220	1.27
c	0.360	-
c1	0.630	-
D	14.900	-
D1	8.615	-
D2	12.840	-
E	10.000	10.1
E1	7.570	7.61
e1	2.490	2.54
e	5.030	5.08
H1	6.295	6.54
L	13.000	13.5
L1	2.390	-
øP	3.710	3.84
Q	2.650	-
R	-	-

### L005c TO-220AB (ISO)

Weight =

2 g

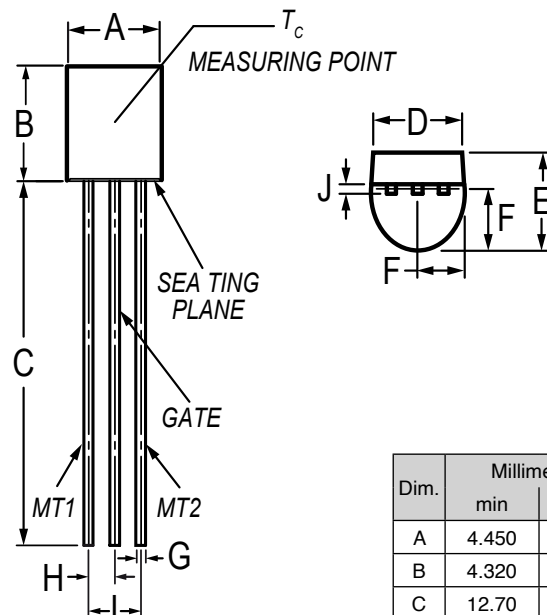


Dim.	Millimeters		Inches	
	min	max	min	max
A	9.65	10.67	0.380	0.420
B	2.67	2.92	0.105	0.115
C	5.84	6.35	0.230	0.250
D	14.99	15.75	0.590	0.620
E	3.61	3.73	0.142	0.147
F	2.79	3.30	0.110	0.130
G	13.72	14.61	0.540	0.575
H	0.64	0.89	0.025	0.035
J	4.95	5.21	0.195	0.205
K	2.41	2.67	0.095	0.105
L	1.52	1.91	0.060	0.075
M	2.16	2.41	0.085	0.095
N	0.46	0.61	0.018	0.024
O	4.52	4.78	0.178	0.188
P	1.14	1.52	0.045	0.060
R	0.97	1.22	0.038	0.048

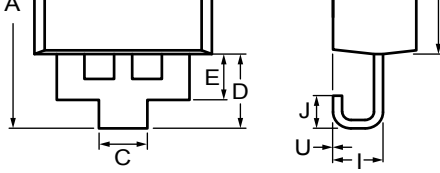
### L006a TO-92

g

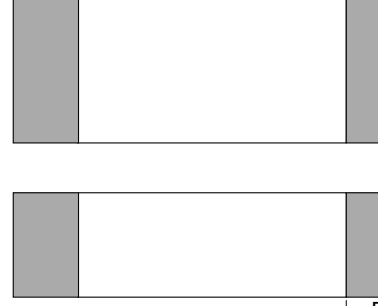
### L006b TO-92 (GAK)



Dim.	Millimeters		
	min	max	min
A	4.450	5.200	0.17
B	4.320	5.330	0.17
C	12.70		0.50
D	3.430		0.13
E	3.180	4.190	0.12
F	2.040	2.660	0.08
G	0.407	0.533	0.01
H	1.150	1.390	0.04
I	2.420	2.660	0.09
J	0.380	0.500	0.01



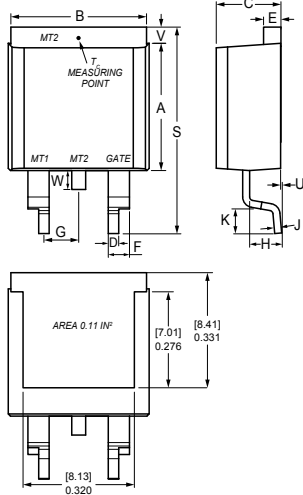
Dim.	Millimeters		Inches	
	min	max	min	max
A	14.44	15.24	0.568	0.600
B	9.65	10.67	0.38	0.420
C	2.50	2.90	0.098	0.114
D	4.30	4.80	0.169	0.189
E	2.60	3.00	0.102	0.118
F	4.52	4.78	0.178	0.188
G	1.14	1.52	0.045	0.06
H	9.14	9.40	0.360	0.370
I	2.69	3.09	0.106	0.122
J	1.75	2.25	0.069	0.089
U	0	0.25	0	0.010



Dim.	Millimeters		Inches	
	min	max	min	max
A	3.022	3.378	0.119	0.133
B	1.430	1.730	0.056	0.068
C	0.820	0.850	0.027	0.033
D	0.320	0.720	0.012	0.028

**L011b TO-263AB**

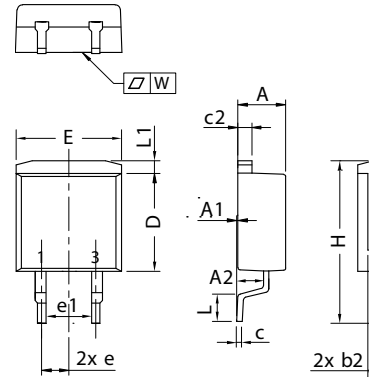
Weight = 1.5 g



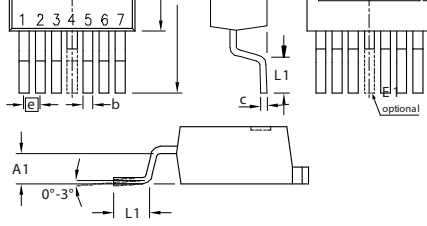
Dim.	Millimeter		Inches	
	min	max	min	max
A	9.14	9.40	0.360	0.370
B	9.65	10.67	0.380	0.420
C	4.52	4.78	0.178	0.188
D	0.64	0.89	0.025	0.035
E	1.14	1.52	0.045	0.060
F	1.52	1.91	0.060	0.075
G	2.41	2.67	0.095	0.105
H	2.34	2.59	0.092	0.102
J	0.46	0.61	0.018	0.024
K	2.29	2.79	0.090	0.110
S	14.99	15.88	0.590	0.625
V	0.89	1.14	0.035	0.045
U	0.05	0.25	0.002	0.010
W	1.02	1.78	0.040	0.070

**X011c TO-263 AB (D<sup>2</sup>PAK HV)**

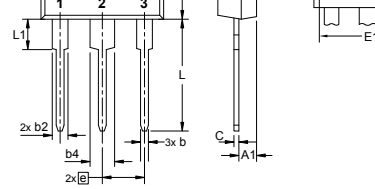
g



Dim.	Millimeters		Inches
	min	max	min
A	4.06	4.83	0.160
A1	typ 0.10		typ 0.004
A2	2.41		0.095
b	0.51	0.99	0.020
b2	1.14	1.40	0.045
c	0.40	0.74	0.016
c2	1.14	1.40	0.045
D	8.38	9.40	0.330
D1	8.00	8.89	0.315
D2	2.5		0.098
E	9.65	10.41	0.380
E1	6.22	8.50	0.245
e	2.54 BSC		0.100
e1	4.28		0.168
H	14.61	15.88	0.575
L	1.78	2.79	0.070
L2	1.02	1.68	0.040
W	typ 0.02	0.040	typ 0.0008



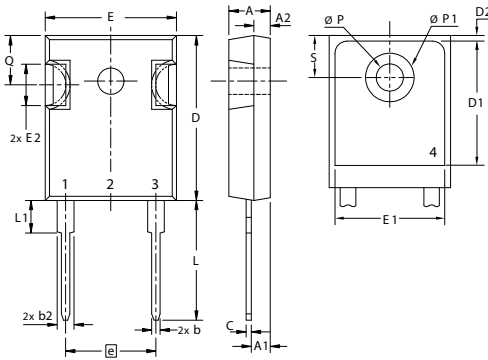
Dim.	Millimeter		Inches	
	min	max	min	max
A	4.20	4.60	0.165	0.181
A1	2.45	2.75	0.096	0.108
b	0.65	0.90	0.026	0.035
c	0.40	0.60	0.016	0.024
c2	1.14	1.40	0.045	0.055
D	8.38	8.64	0.330	0.340
D1	6.10	6.35	0.240	0.250
E	10.00	10.30	0.394	0.406
E1	7.34	8.00	0.290	0.315
e	1.27 BSC		0.050 BSC	
L	14.73	15.75	0.580	0.620
L1	2.24	2.84	0.088	0.112
L2	1.35	1.55	0.053	0.061



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.530	-
E2	4.31	5.48	0.170	0.216
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

**L014b TO-247 AD**

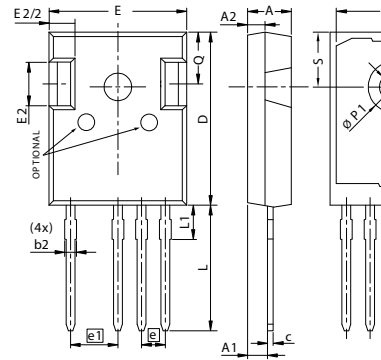
Weight = 6 g



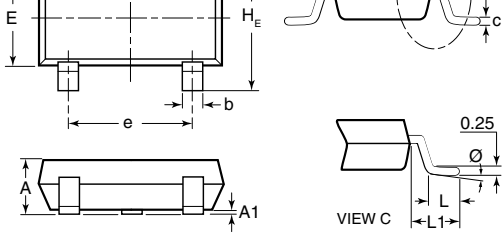
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.530	-
E2	4.31	5.48	0.170	0.216
e	10.90 BSC		0.430 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

**L014d TO-247-4L**

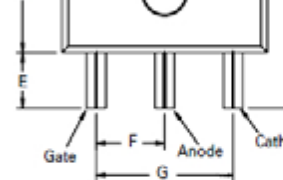
g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.31	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.85	2.16	0.073	0.087
b	1.10	1.30	0.043	0.051
b2	1.30	1.50	0.051	0.060
c	0.50	0.89	0.020	0.035
D	20.80	21.46	0.819	0.845
D1	13.50	-	-	-
e	2.54 BSC		0.100 BSC	
e1	5.08 BSC		0.200 BSC	
E	15.49	16.26	0.610	0.640
E1	13.06	14.15	0.514	0.557
E2	4.32	4.83	0.170	0.190
L	19.81	20.57	0.780	0.800
L1	3.81	4.50	0.150	0.177
Ø P	3.55	3.70	0.140	0.146
Ø P1	7.00	7.40	0.276	0.291
Q	5.38	6.20	0.212	0.244
S	6.15 BSC		0.242 BSC	



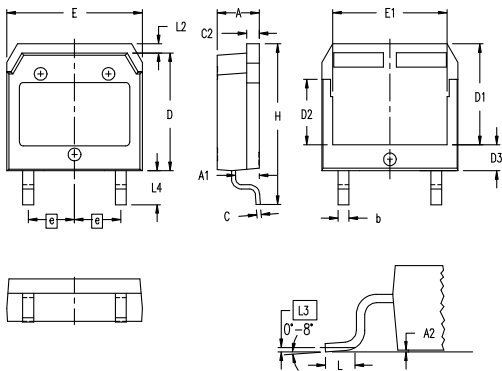
Dim.	Millimeter		Inches	
	min	max	min	max
A	0.89	1.17	0.035	0.046
A1	0.05	0.15	0.001	0.006
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
e	1.90 BSC		0.075 BSC	
L	0.40	0.58	0.016	0.023
L1	0.46	0.64	0.018	0.025
H <sub>E</sub>	2.10	2.49	0.083	0.098
∅	0° 10°		0° 10°	



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.40	4.60	0.173	0.181
B	2.29	2.60	0.090	0.102
C	1.40	1.60	0.055	0.063
D	3.94	4.25	0.155	0.167
E	0.89	1.20	0.035	0.047
F	1.42	1.57	0.056	0.062
G	2.92	3.07	0.115	0.121
H	0.35	0.44	0.014	0.017
I	0.36	0.48	0.014	0.019
J	1.62	1.83	0.064	0.072

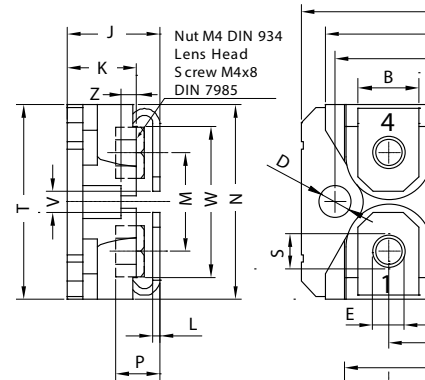
### L019a TO-268 AA (D<sup>3</sup>PAK HV)

Weight = 4 g



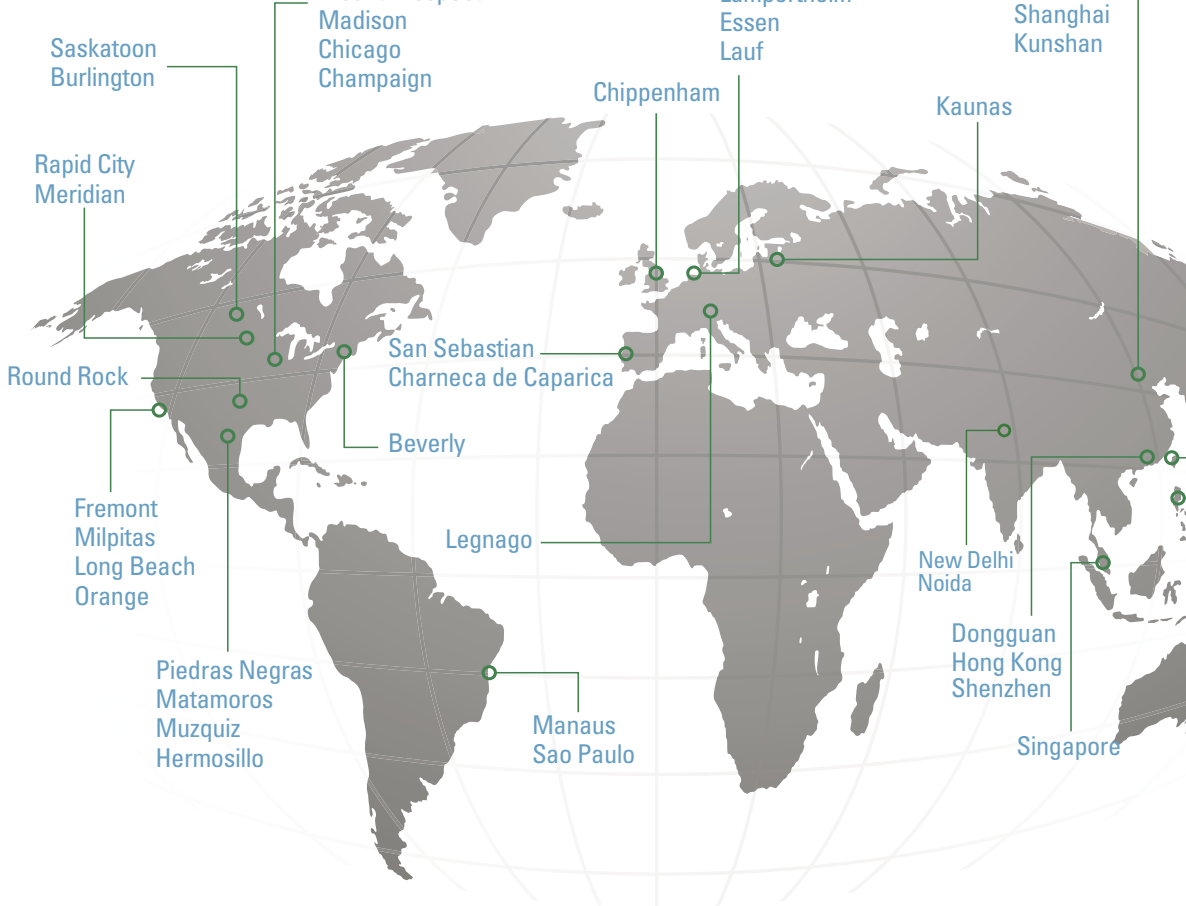
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	11.80	12.10	0.465	0.476
D2	7.50	7.80	0.295	0.307
D3	2.90	3.20	0.114	0.126
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	1.70	2.00	0.067	0.079
L2	1.00	1.15	0.039	0.045
L3	0.25 BSC		0.010 BSC	
L4	3.80	4.10	0.150	0.161

### L027a SOT-227 B miniBLOC

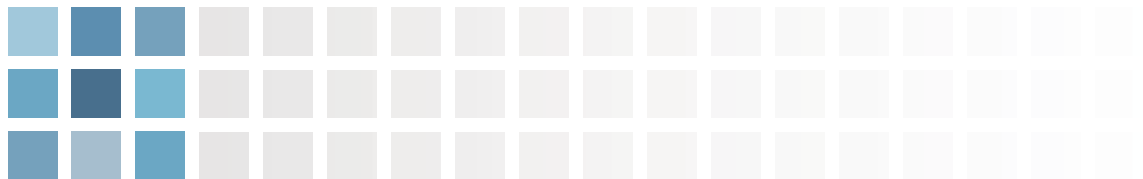


Dim.	Millimeters		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106





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[25.330.4753.1](#) [25.330.5253.1](#) [25.334.3253.1](#) [25.334.3353.1](#) [25.350.2053.0](#) [25.352.4753.1](#) [25.522.3253.0](#) [T483C](#) [T484C](#) [T485F](#) [T485H](#)  
[T512F-YEB](#) [T513F](#) [T514F](#) [T554](#) [T612FSE](#) [25.161.3453.0](#) [25.179.2253.0](#) [25.194.3253.0](#) [25.325.1253.1](#) [25.326.4253.1](#) [25.330.0953.1](#)  
[25.332.4353.1](#) [25.350.1653.0](#) [25.350.2453.0](#) [25.352.1453.0](#) [25.352.1653.0](#) [25.352.2453.0](#) [25.352.5453.1](#) [25.522.3353.0](#) [25.602.4053.0](#)  
[25.640.5053.0](#)