WPM2080

Single P-Channel, -20V, -4.0A, Power MOSFET

Http://www.sh-willsemi.com

V_{DS} (V)	Typical R_{DS(on)} (mΩ)
-20	43 @ V_{GS}=-4.5V
	55 @ V_{GS}=-2.5V
	81 @ V_{GS}=-1.8V

Descriptions

The WPM2080 is P-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WPM2080 is Pb-free.

Features

● Trench Technology

● Supper high density cell design

● Excellent ON resistance

● Extremely Low Threshold Voltage

● Small package SOT-23-3L

Applications

● DC/DC converters

● Power supply converters circuit

● Load/Power Switching for portable device

SOT-23-3L

Pin configuration (Top view)

PDYW
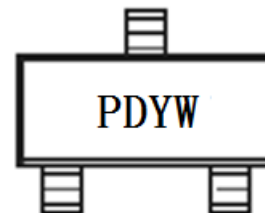
PD = Device Code
Y = Year
W = Week(A~z)

Marking

Order information

Device	Package	Shipping
WPM2080-3/TR	SOT-23-3L	3000/Tape&Reel

Absolute Maximum ratings

Parameter		Symbol	10 s	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	±12		V
Continuous Drain Current [a][d]	T_A=25°C	I_D	-4.0	-3.4	A
	T_A=70°C		-3.2	-2.7	
Maximum Power Dissipation [a][d]	T_A=25°C	P_D	1.4	1.0	W
	T_A=70°C		0.9	0.6	
Continuous Drain Current [b][d]	T_A=25°C	I_D	-3.5	-3.2	A
	T_A=70°C		-2.8	-2.6	
Maximum Power Dissipation [b][d]	T_A=25°C	P_D	1.1	0.9	W
	T_A=70°C		0.7	0.6	
Pulsed Drain Current [c]		I_{DM}	-20		A
Operating Junction Temperature		T_J	-55 to 150		°C
Lead Temperature		T_L	260		°C
Storage Temperature Range		T_{stg}	-55 to 150		°C

Thermal resistance ratings

Single Operation					
Parameter		Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance [a]	t ≤ 10 s	$R_{\theta JA}$	70	90	°C/W
	Steady State		90	125	
Junction-to-Ambient Thermal Resistance [b]	t ≤ 10 s	$R_{\theta JA}$	89	115	
	Steady State		115	140	
Junction-to-Case Thermal Resistance	Steady State	$R_{\theta JC}$	40	60	

a   Surface mounted on FR4 Board using 1 square inch pad size, 1oz copper

b   Surface mounted on FR4 board using minimum pad size, 1oz copper

c   Repetitive rating, pulse width limited by junction temperature, t_p=10μs, Duty Cycle=1%

d   Repetitive rating, pulse width limited by junction temperature T_J=150°C.

## Electronics Characteristics (Ta=25°C, unless otherwise noted)

| Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0$ V, $I_D = -250$uA	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} =-16$V, $V_{GS} = 0$V			-1	uA
Gate-to-source Leakage Current	I_{GSS}	$V_{DS} = 0$ V, $V_{GS} = \pm12$V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}$, $I_D = -250$uA	-0.35	-0.65	-1	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS} =-4.5$V, $I_D = -4.0$A		43	57	mΩ
		$V_{GS} = -2.5$V, $I_D = -3.0$A		55	70	
		$V_{GS} = -1.8$V, $I_D = -2.5$A		81	120	
Forward Transconductance	g_{FS}	$V_{DS} = -5$ V, $I_D = -4$A		6	16	S
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS} = 0$ V, f = 1.0MHz, $V_{DS} =$ -6 V		1062		pF
Output Capacitance	C_{OSS}			146		
Reverse Transfer Capacitance	C_{RSS}			124		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS} = -4.5$ V, $V_{DS} = -10$ V, $I_D =-3.3$ A		10		nC
Threshold Gate Charge	$Q_{G(TH)}$			0.8		
Gate-to-Source Charge	Q_{GS}			1.8		
Gate-to-Drain Charge	Q_{GD}			1.7		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	$V_{GS} = -4.5$ V, $V_{DS} =-6$ V, $I_D=-3.3$A, $R_G=6$Ω		11.4		ns
Rise Time	tr			6.8		
Turn-Off Delay Time	td(OFF)			67.6		
Fall Time	tf			16.8		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS} = 0$ V, $I_S = -2.5$A		-0.8	-1.5	V

Typical Characteristics (Ta=25°C, unless otherwise noted)
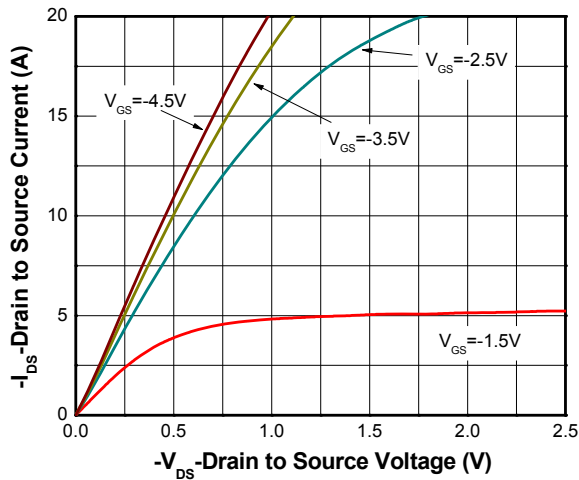

Output characteristics
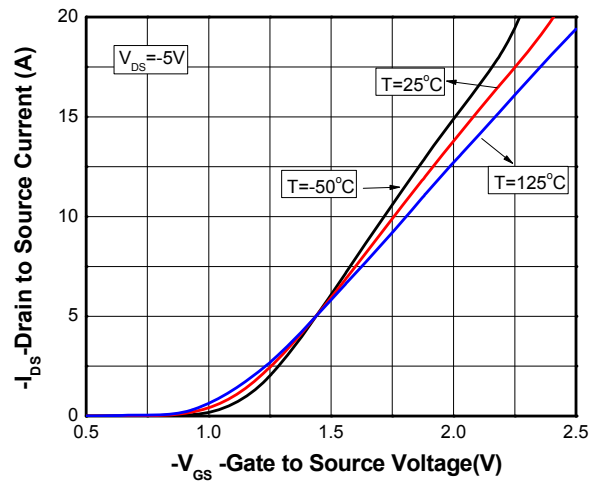
Transfer characteristics
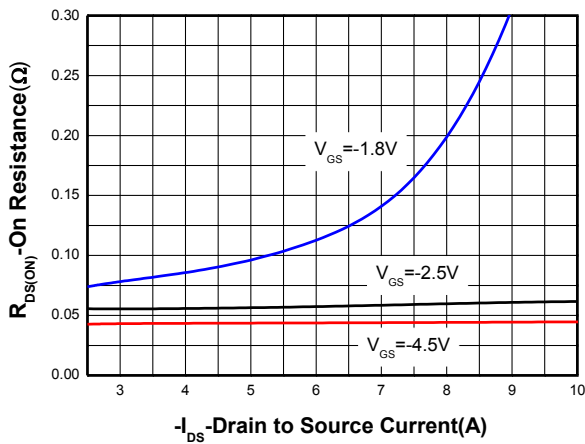
On-Resistance vs. Drain current
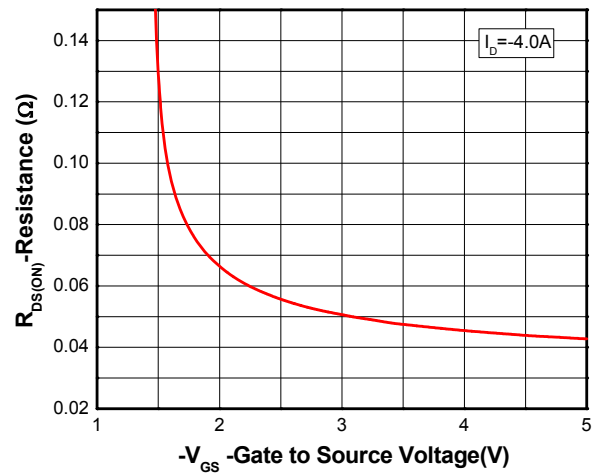
On-Resistance vs. Gate-to-source voltage
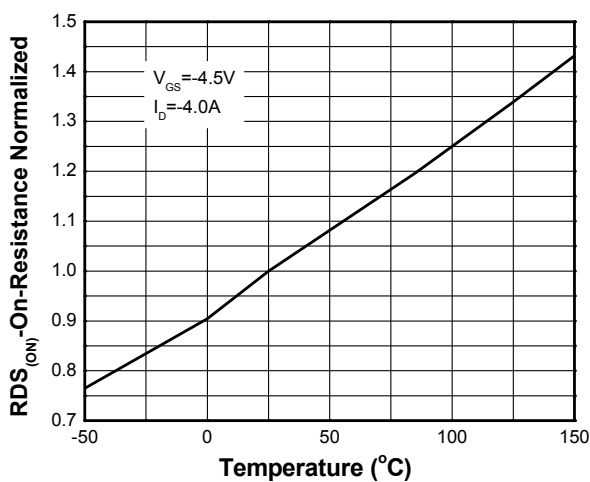
On-Resistance vs. Junction temperature
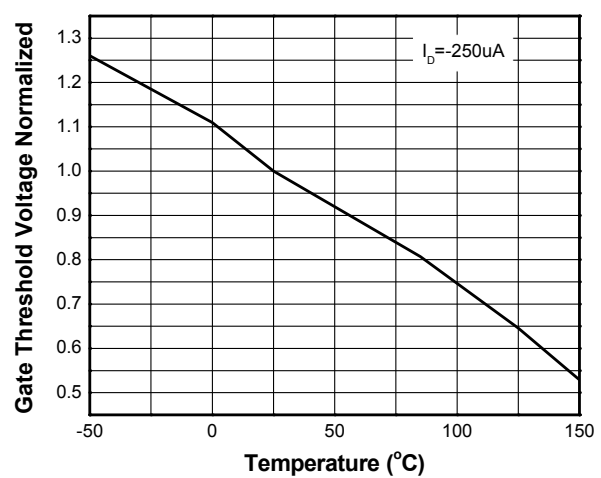
Threshold voltage vs. Temperature
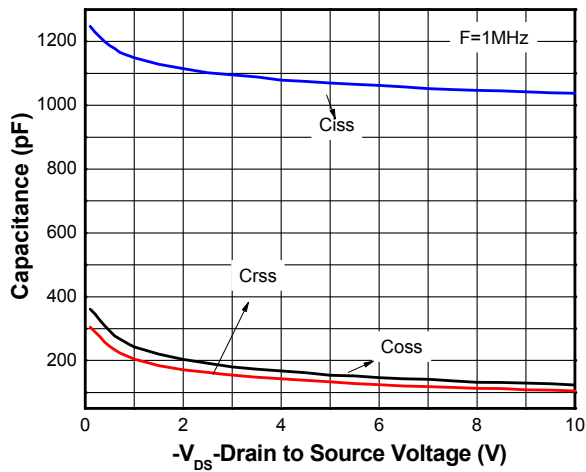
Capacitance
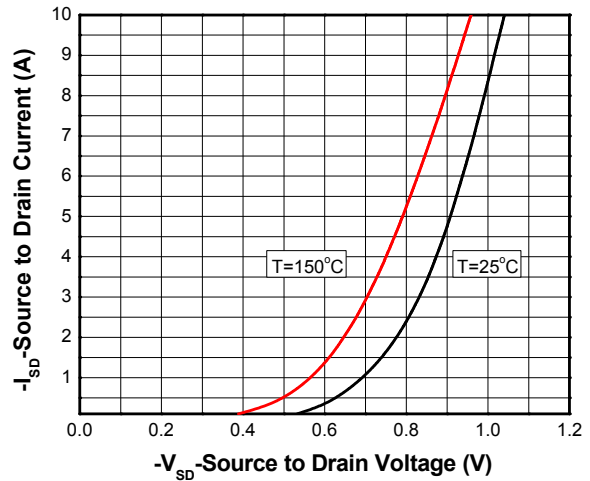
Body diode forward voltage
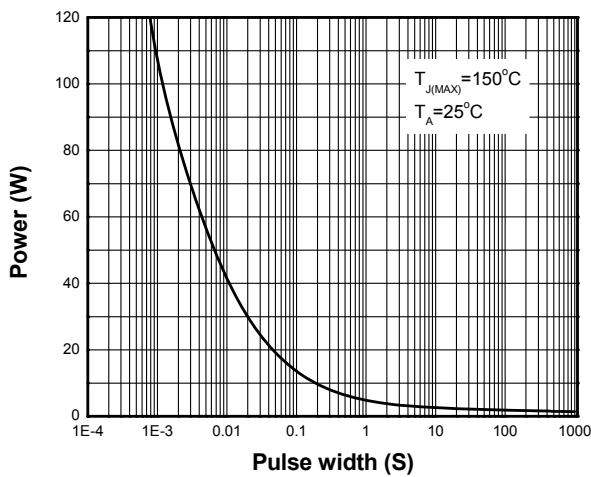
Single pulse power
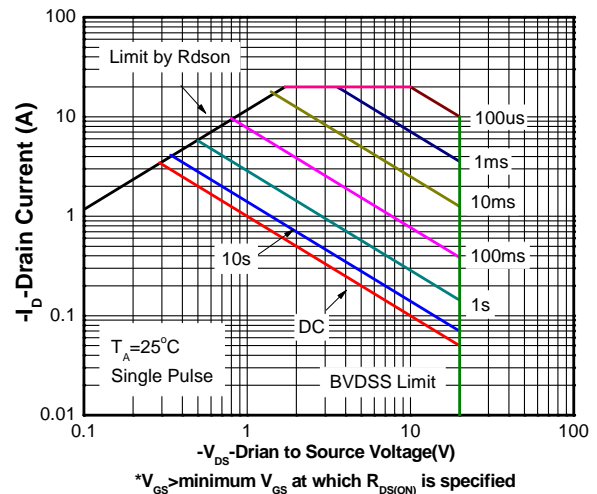
Safe operating power
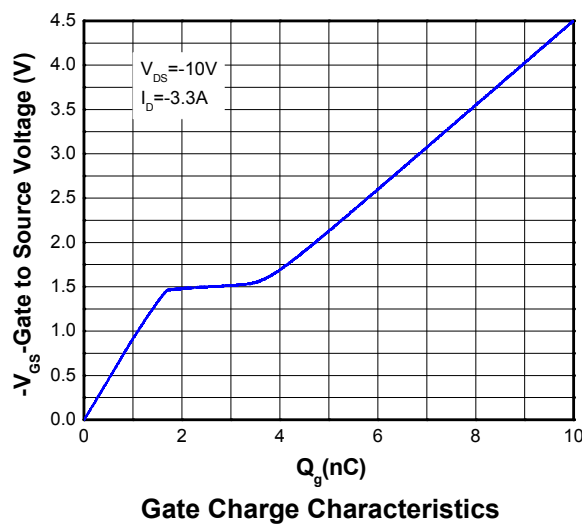
Gate Charge Characteristics

Transient thermal response (Junction-to-Ambient)

Normalized Thermal Transient Impedance, Junction-to-Ambient
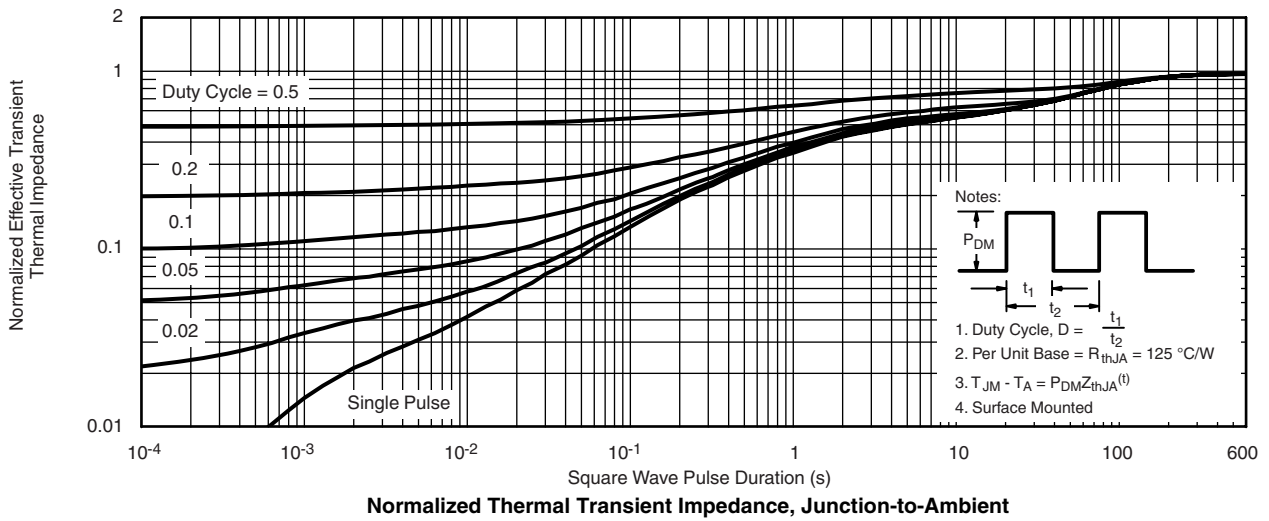
Package outline dimensions

SOT-23-3L
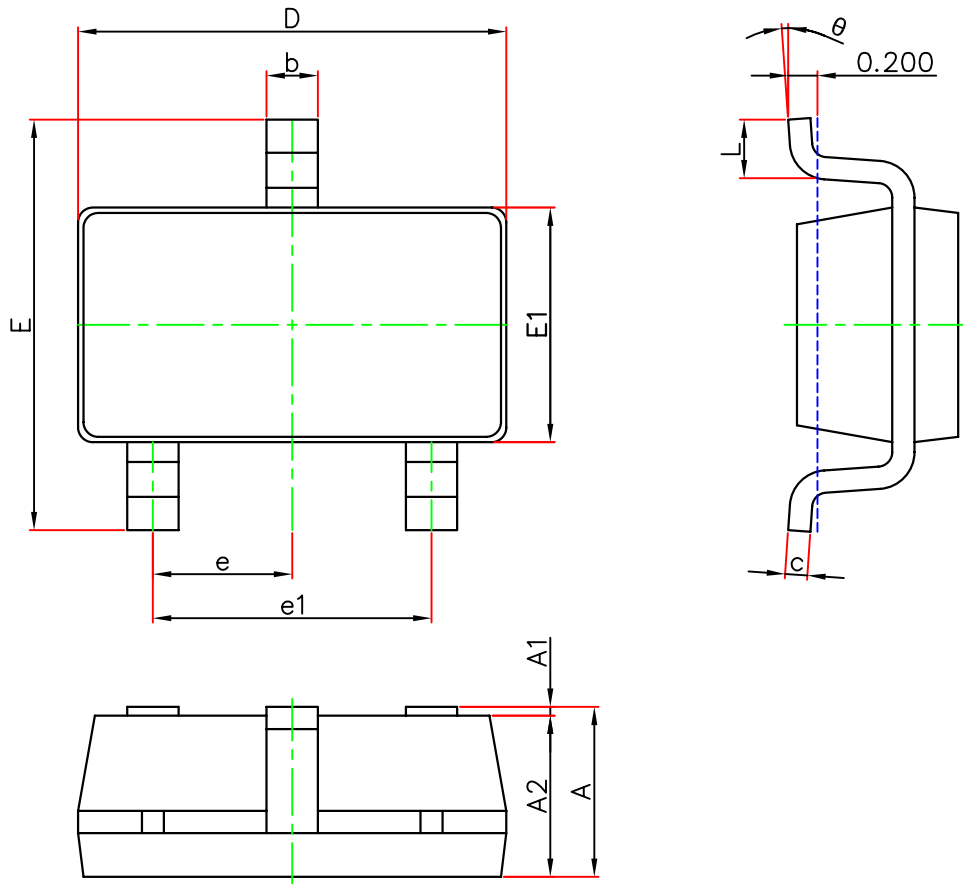
Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	-	-	1.250
A1	0.000	-	0.150
A2	1.000	1.100	1.200
b	0.300	-	0.500
c	0.140	-	0.200
D	2.820	-	3.026
E	2.600	2.800	3.000
E1	1.500	-	1.726
e	0.950 BSC		
e1	1.800	1.900	2.000
L	0.300	0.450	0.600
θ	0 °	-	8 °

TAPE AND REEL INFORMATION

Reel Dimensions
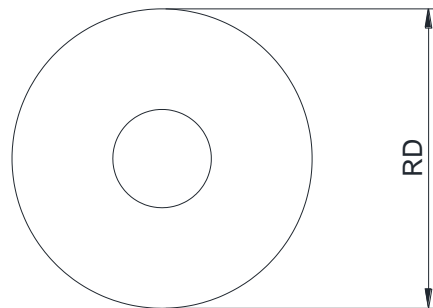
Tape Dimensions
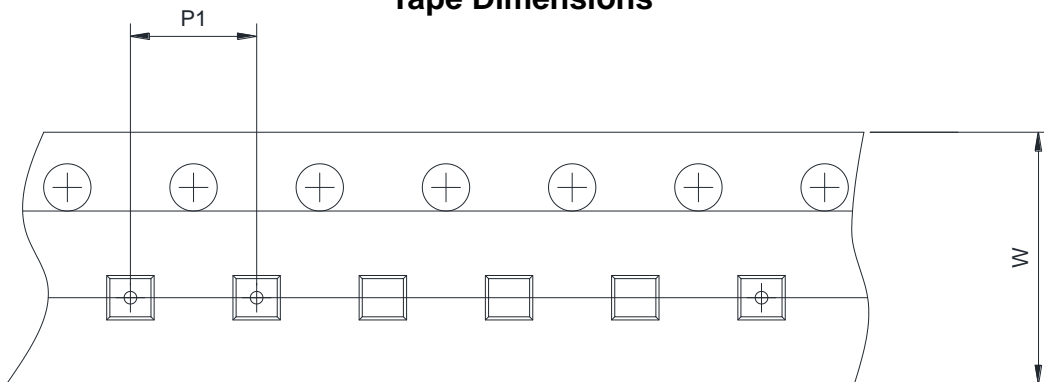
Quadrant Assignments For PIN1 Orientation In Tape

User Direction of Feed
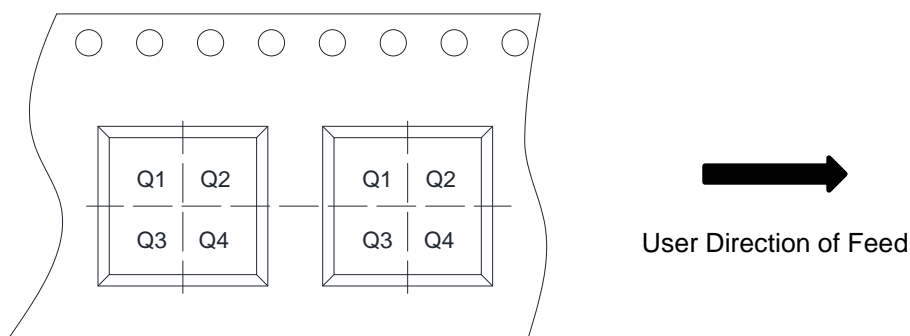
RD	Reel Dimension	☑ 7inch	☐ 13inch		
W	Overall width of the carrier tape	☑ 8mm	☐ 12mm	☐ 16mm	
P1	Pitch between successive cavity centers	☐ 2mm	☑ 4mm	☐ 8mm	
Pin1	Pin1 Quadrant	☐ Q1	☐ Q2	☑ Q3	☐ Q4

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by Will Semiconductor *manufacturer:*

Other Similar products are found below :

IRFD120 JANTX2N5237 2SK2267(Q) BUK455-60A/B TK100A10N1,S4X(S MIC4420CM-TR VN1206L NDP4060 SI4482DY IRS2092STRPBF-EL IPS70R2K0CEAKMA1 SQM120N06-3M5L-GE3 TK31J60W5,S1VQ(O TK31J60W,S1VQ(O TK16J60W,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 EFC2J004NUZTDG P85W28HP2F-7071 NTE2384 DMC2700UDMQ-7 DMN2080UCB4-7 DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 DMP22D4UFO-7B IPS60R3K4CEAKMA1 DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 IRF40H233XTMA1 STU5N65M6 DMN6022SSD-13 DMN13M9UCA6-7 DMTH10H4M6SPS-13 IPS60R360PFD7SAKMA1 DMN2990UFB-7B SSM3K35CT,L3F IPLK60R1K0PFD7ATMA1 2N7002W-G MCAC30N06Y-TP IPWS65R035CFD7AXKSA1 MCQ7328-TP SSM3J143TU,LXHF PJMF280N65E1_T0_00201 PJMF380N65E1_T0_00201 PJMF280N60E1_T0_00201 PJMF600N65E1_T0_00201 PJMF900N65E1_T0_00201 PJMF900N60E1_T0_00201