

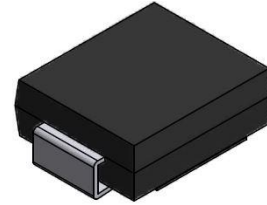
## Transient Voltage Suppressor

Version: A7 2020/08/12

### Features

- IEC 61000-4-2(ESD)  $\pm 15KV$ (air),  $\pm 8KV$ (contact)
- 3000Watts peak pulse power ( $t_p=10/1000\mu S$ )
- Quick response to surge voltage
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Molding compound meets UL 94 V-0 flammability rating
- EFT protection of data lines in accordance with IEC 61000-4-4(IEC801-4)

### Exterior



DO-214AB (SMC)

### Application Information

- DC Port
- RS485/232/422
- I/O Port

### Agency Approvals

Icon	Description
<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003
<b>UL</b>	UL Certificated E232249

### Schematic symbol



BI-directional



UNI-directional

### Part Number and Electrical Parameter

Part Number		Marking		$V_R(V)$	$V_{BR}$ min.( V)	$V_{BR}$ max.( V)	$I_t$ (mA)	Max $V_C@I_{PP}^{\oplus}(V)$	$I_{PP}^{\oplus}(A)$	$I_R@V_R$ ( $\mu A$ )
BI	UNI	BI	UNI							
BV-SMDJ5CA	BV-SMDJ5A	D5C	D5	5	6.4	7	10	9.2	326.1	800
BV-SMDJ6CA	BV-SMDJ6A	D6C	D6	6	6.67	7.37	10	10.3	291.3	800
BV-SMDJ6.5CA	BV-SMDJ6.5A	D6.5C	D6.5	6.5	7.22	7.98	10	11.2	267.9	500
BV-SMDJ7CA	BV-SMDJ7A	D7C	D7	7	7.78	8.6	10	12	250.0	200
BV-SMDJ7.5CA	BV-SMDJ7.5A	D7.5C	D7.5	7.5	8.33	9.21	1	12.9	232.6	100
BV-SMDJ8CA	BV-SMDJ8A	D8C	D8	8	8.89	9.83	1	13.6	220.6	50
BV-SMDJ8.5CA	BV-SMDJ8.5A	D8.5C	D8.5	8.5	9.44	10.4	1	14.4	208.3	20
BV-SMDJ9CA	BV-SMDJ9A	D9C	D9	9	10	11.1	1	15.4	194.8	10
BV-SMDJ10CA	BV-SMDJ10A	D10C	D10	10	11.1	12.3	1	17	176.5	5
BV-SMDJ11CA	BV-SMDJ11A	D11C	D11	11	12.2	13.5	1	18.2	164.8	2
BV-SMDJ12CA	BV-SMDJ12A	D12C	D12	12	13.3	14.7	1	19.9	150.8	1
BV-SMDJ13CA	BV-SMDJ13A	D13C	D13	13	14.4	15.9	1	21.5	139.5	1
BV-SMDJ14CA	BV-SMDJ14A	D14C	D14	14	15.6	17.2	1	23.2	129.3	1
BV-SMDJ15CA	BV-SMDJ15A	D15C	D15	15	16.7	18.5	1	24.4	123.0	1
BV-SMDJ16CA	BV-SMDJ16A	D16C	D16	16	17.8	19.7	1	26	115.4	1
BV-SMDJ17CA	BV-SMDJ17A	D17C	D17	17	18.9	20.9	1	27.6	108.7	1
BV-SMDJ18CA	BV-SMDJ18A	D18C	D18	18	20	22.1	1	29.2	102.7	1

Part Number		Marking		V <sub>R</sub> (V)	V <sub>BR</sub> min.(V)	V <sub>BR</sub> max.(V)	I <sub>t</sub> (mA)	MaxVc@ I <sub>PP</sub> <sup>①</sup> (V)	I <sub>PP</sub> <sup>①</sup> (A)	I <sub>R</sub> @V <sub>R</sub> (uA)
BI	UNI	BI	UNI							
BV-SMDJ20CA	BV-SMDJ20A	D20C	D20	20	22.2	24.5	1	32.4	92.6	1
BV-SMDJ22CA	BV-SMDJ22A	D22C	D22	22	24.4	26.9	1	35.5	84.5	1
BV-SMDJ24CA	BV-SMDJ24A	D24C	D24	24	26.7	29.5	1	38.9	77.1	1
BV-SMDJ26CA	BV-SMDJ26A	D26C	D26	26	28.9	31.9	1	42.1	71.3	1
BV-SMDJ28CA	BV-SMDJ28A	D28C	D28	28	31.1	34.4	1	45.4	66.1	1
BV-SMDJ30CA	BV-SMDJ30A	D30C	D30	30	33.3	36.8	1	48.4	62.0	1
BV-SMDJ33CA	BV-SMDJ33A	D33C	D33	33	36.7	40.6	1	53.3	56.3	1
BV-SMDJ36CA	BV-SMDJ36A	D36C	D36	36	40	44.2	1	58.1	51.6	1
BV-SMDJ40CA	BV-SMDJ40A	D40C	D40	40	44.4	49.1	1	64.5	46.5	1
BV-SMDJ43CA	BV-SMDJ43A	D43C	D43	43	47.8	52.8	1	69.4	43.2	1
BV-SMDJ45CA	BV-SMDJ45A	D45C	D45	45	50	55.3	1	72.7	41.3	1
BV-SMDJ48CA	BV-SMDJ48A	D48C	D48	48	53.3	58.9	1	77.4	38.8	1
BV-SMDJ51CA	BV-SMDJ51A	D51C	D51	51	56.7	62.7	1	82.4	36.4	1
BV-SMDJ54CA	BV-SMDJ54A	D54C	D54	54	60	66.3	1	87.1	34.4	1
BV-SMDJ58CA	BV-SMDJ58A	D58C	D58	58	64.4	71.2	1	93.6	32.1	1
BV-SMDJ60CA	BV-SMDJ60A	D60C	D60	60	66.7	73.7	1	96.8	31.0	1
BV-SMDJ64CA	BV-SMDJ64A	D64C	D64	64	71.1	78.6	1	103	29.1	1
BV-SMDJ70CA	BV-SMDJ70A	D70C	D70	70	77.8	86	1	113	26.5	1
BV-SMDJ75CA	BV-SMDJ75A	D75C	D75	75	83.3	92.1	1	121	24.8	1
BV-SMDJ78CA	BV-SMDJ78A	D78C	D78	78	86.7	95.8	1	126	23.8	1
BV-SMDJ85CA	BV-SMDJ85A	D85C	D85	85	94.4	104	1	137	21.9	1
BV-SMDJ90CA	BV-SMDJ90A	D90C	D90	90	100	111	1	146	20.5	1
BV-SMDJ100CA	BV-SMDJ100A	D100C	D100	100	111	123	1	162	18.5	1
BV-SMDJ110CA	BV-SMDJ110A	D110C	D110	110	122	135	1	177	16.9	1
BV-SMDJ120CA	BV-SMDJ120A	D120C	D120	120	133	147	1	193	15.5	1
BV-SMDJ130CA	BV-SMDJ130A	D130C	D130	130	144	159	1	209	14.4	1
BV-SMDJ150CA	BV-SMDJ150A	D150C	D150	150	167	185	1	243	12.3	1
BV-SMDJ160CA	BV-SMDJ160A	D160C	D160	160	178	197	1	259	11.6	1
BV-SMDJ170CA	BV-SMDJ170A	D170C	D170	170	189	209	1	275	10.9	1

Note: absolute maximum ratings measured at T= 25°C RH = 45%-75% (unless otherwise noted).

① Surge Waveform: 10/1000μS

Mark



BI:DXXC



UNI:DXX

### Part Number System

BV SMDJ XX C A  
 (1) (2) (3) (4) (5)

(1) Bencent Transient Voltage Suppressor

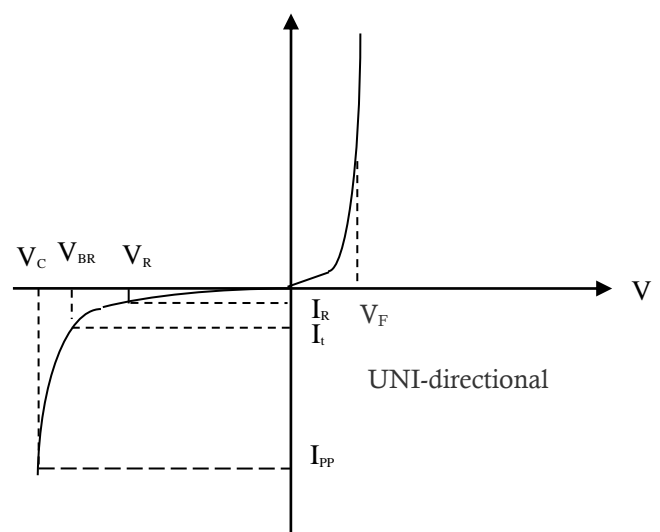
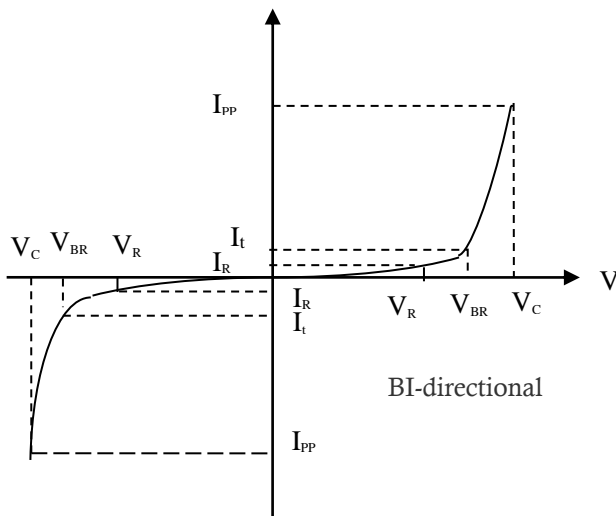
(2) Series Code

(3)  $V_R=XXV$

(4) BI-directional

(5) Suffix 'A' denotes 5% tolerance devices

### V-I Curve



Parameters	Definition
$V_F$	Forward Voltage drop for UNI-directional
$V_C$	Clamping Voltage
$I_{pp}$	Surge Waveform 10/1000 $\mu$ s
$V_R$	Stand-off Voltage
$V_{BR}$	Breakdown Voltage
$I_R$	Reverse Leakage Current
$I_t$	Test Current
$P_{pp}$	Peak Pulse Power Dissipation

### Thermal Considerations

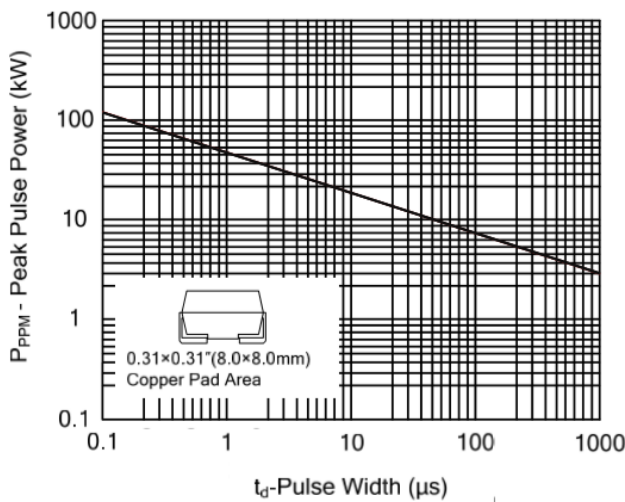
symbol	Parameter	Value	Unit
$T_J$	Operating Junction Temperature Range	-55 to +150	°C
$T_S$	Storage Temperature Range	-55 to +150	°C
VF	Maximum Instantaneous Forward; Voltage at 100A for Unidirectional Only (Note 1)	3.5/5	V
$I_{FSM}$	Peak Forward Surge Current, 8.3ms;Single Half Sine Wave (Note 2)	300	A

Notes:

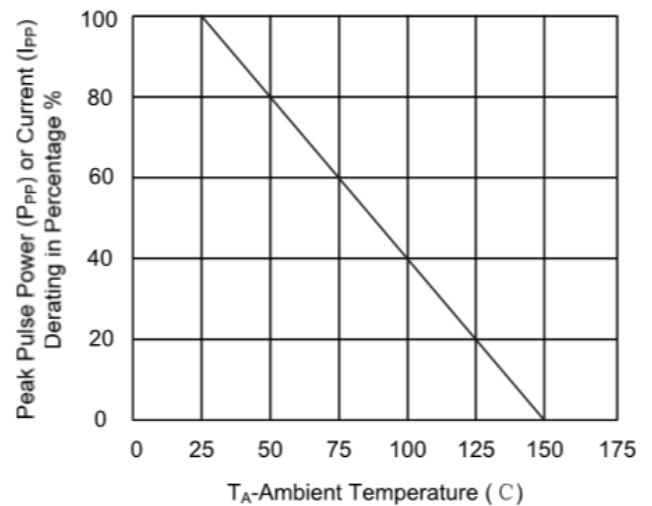
1. VF < 3.5V for single die parts and VF < 5.0V for stacked-die parts.
2. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only.

### Typical Characteristics

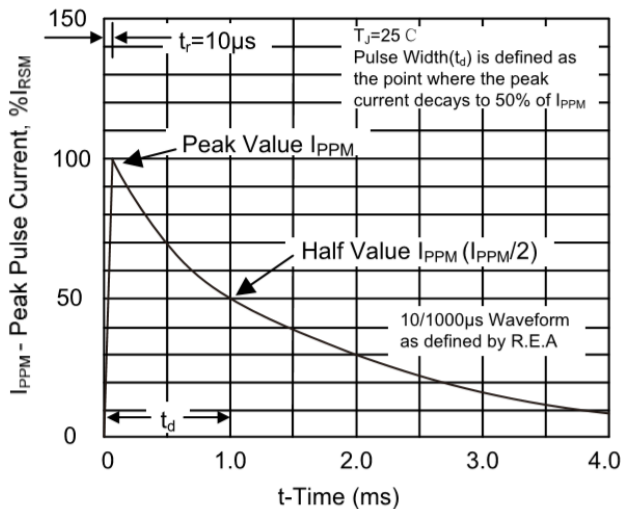
Peak Pulse Power Rating Curve



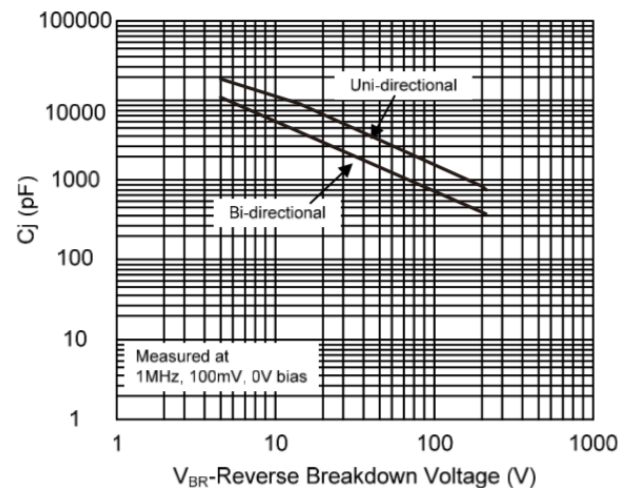
Pulse Derating Curve



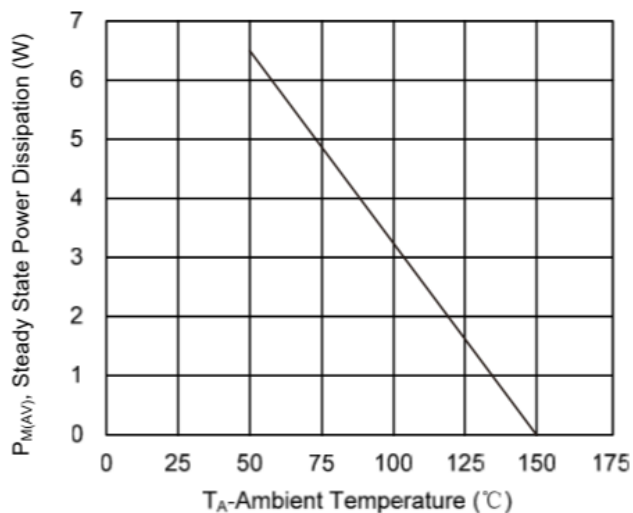
Pulse Waveform



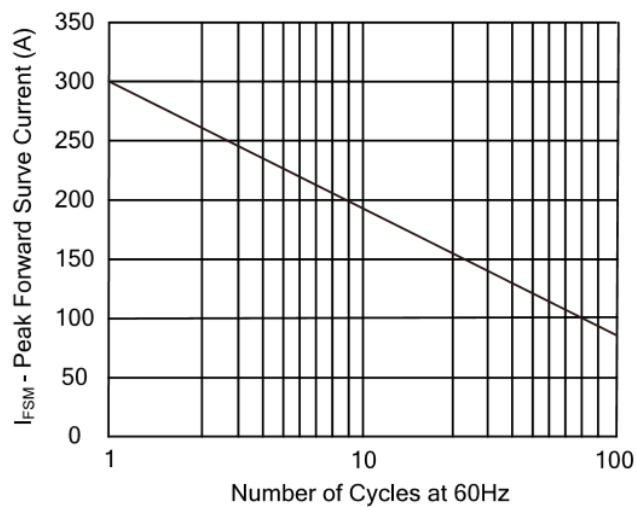
Typical Junction Capacitance



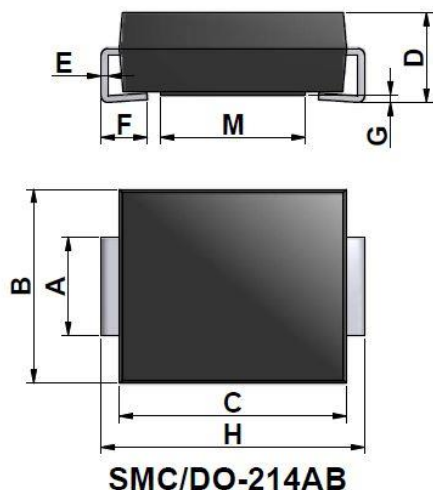
Steady State Power Dissipation Derating Curve



Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

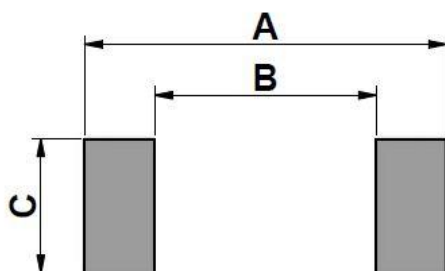


### Product Dimensions



REF	mm	inch
A	$3 \pm 0.1$	$0.118 \pm 0.004$
B	$5.9 \pm 0.3$	$0.232 \pm 0.012$
C	$7 \pm 0.2$	$0.276 \pm 0.008$
D	$2.6 \pm 0.35$	$0.102 \pm 0.014$
E	$0.2 \pm 0.1$	$0.008 \pm 0.004$
F	$1.3 \pm 0.4$	$0.051 \pm 0.016$
G	$0 \sim 0.4$	$0.000 \sim 0.016$
H	$8 \pm 0.3$	$0.315 \pm 0.012$
M	$4.4 \pm 0.2$	$0.173 \pm 0.008$

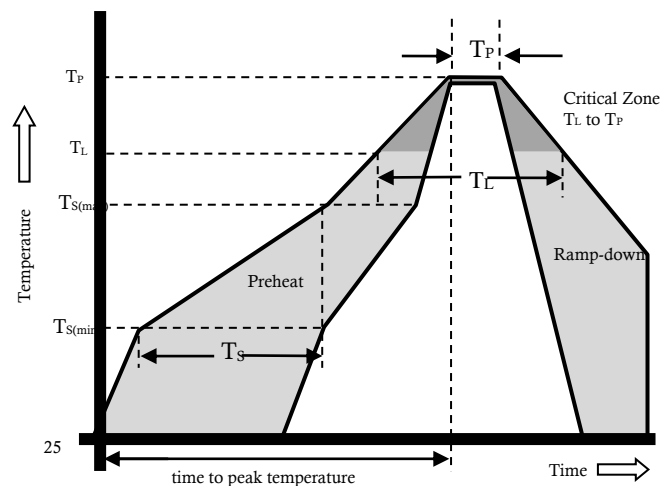
### Recommended Soldering Pad



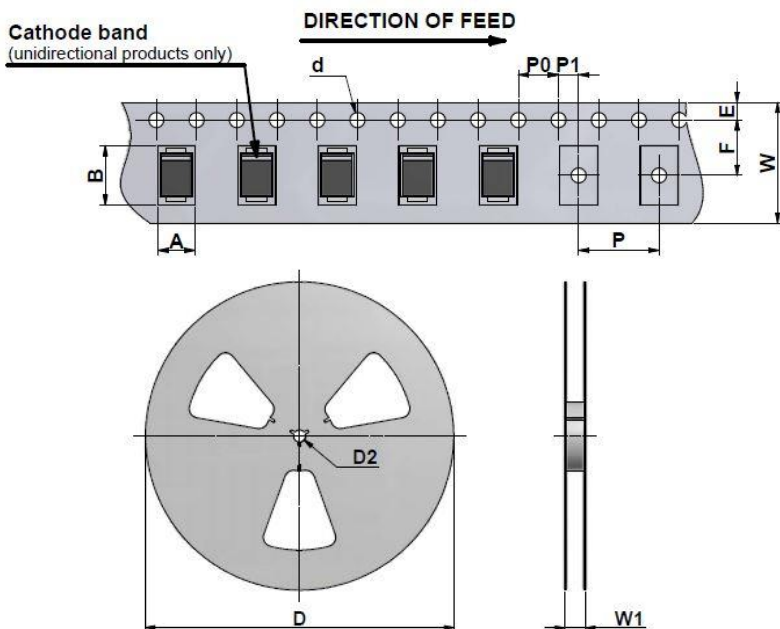
REF	mm	inch
A	8.25	0.325
B	5.05	0.199
C	3.05	0.120

### Reflow Profile

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60 – 180 seconds
Average ramp up rate (Liquidus Temp (T <sub>L</sub> ) to peak)		3°C/second max
T <sub>S(max)</sub> to T <sub>L</sub> - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T <sub>L</sub> ) (Liquidus)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 seconds
Peak Temp (T <sub>P</sub> )		260+0/-5 °C
Time within 5°C of actual Peak Temp (T <sub>P</sub> )		8-15 seconds
Ramp-down Rate		6°C/s max
Time 25°C to peak Temp (T <sub>P</sub> )		8 min max.
Do not exceed		260°C



### Package Reel Information



REF.	mm	inch
A	6.1±0.3	0.240±0.012
B	8.3±0.3	0.327±0.012
d	1.5±0.1	0.059±0.004
D	330.0	13.0
D2	13±1.5	0.512±0.059
E	1.7±0.3	0.067±0.012
F	7.5±0.3	0.295±0.012
P	8±0.3	0.315±0.012
P0	4±0.3	0.157±0.012
P1	2±0.3	0.079±0.012
W	16±0.5	0.630±0.020
W1	23±3	0.906±0.118

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3,000	48,000	330	360	360	385

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [ESD Suppressors / TVS Diodes](#) category:*

*Click to view products by [Bencent](#) manufacturer:*

Other Similar products are found below :

[60KS200C](#) [D18V0L1B2LP-7B](#) [D5V0F4U5P5-7](#) [DESD5V0U1BB-7](#) [NTE4902](#) [P4KE27CA](#) [P6KE11CA](#) [P6KE39CA-TP](#) [P6KE8.2A](#)  
[SA110CA](#) [SA60CA](#) [SA64CA](#) [SMBJ12CATR](#) [SMBJ33CATR](#) [SMBJ8.0A](#) [ESD101-B1-02ELS E6327](#) [ESD105-B1-02EL E6327](#) [ESD112-B1-02EL E6327](#) [ESD119B1W01005E6327XTSA1](#) [ESD5V0L1B02VH6327XTSA1](#) [ESD7451N2T5G](#) [19180-510](#) [CPDT-5V0USP-HF](#)  
[3.0SMCJ33CA-F](#) [3.0SMCJ36A-F](#) [HSPC16701B02TP](#) [D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [DESD5V0U1BL-7B](#) [DRTR5V0U4SL-7](#)  
[SCM1293A-04SO](#) [ESD200-B1-CSP0201 E6327](#) [SM12-7](#) [SMF8.0A-TP](#) [SMLJ45CA-TP](#) [CEN955 W/DATA](#) [82350120560](#) [VESD12A1A-](#)  
[HD1-GS08](#) [CPDUR5V0R-HF](#) [CPDQC5V0U-HF](#) [CPDQC5V0USP-HF](#) [CPDQC5V0-HF](#) [D1213A-01LP4-7B](#) [D1213A-02WL-7](#)  
[1SMB33CAT3G-XYZ](#) [MMAD1108/TR13](#) [5KP100A](#) [5KP15A](#) [5KP18A](#) [5KP48A](#)