Description

The 10SMBJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.



Features

- 1000W peak pulsepower capability at 10 x 1000μs waveform, repetition rate (duty cycle): 0.01%
- Glass Passivated chip junction
- For surface mounted applications to optimize board space
- Low profile package
- Built-in strain relief
- Low incremental surge resistance
- Excellent clamping capability
- Plastic package has UL flammability classification 94V-O
- Fast response time: typically less than 1.0ps from 0 Volts to BV min
- Typical IR less than 1uA above 12V
- High temperature soldering: 260°C/40 seconds at terminals
- IEC-61000-4-2 ESD 15KV(Air),8KV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2(IEC801-2)
- EFT protection of data lines in accordance with IEC61000-4-4(IEC801-4)

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Applications

TVS devices are ideal for the protection of I/O Interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Maximum Ratings and Electrical Characteristics

(TA=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25℃ by 10x1000μs waveform (Fig.2)(Note 1) (Note 2)	P_{PPM}	1000	W
Power Dissipation on infinite heat sink at TA=50℃	P_D	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only(Note 3)	I_{FSM}	150	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	V_F	3.5V/5.0	V
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to ＋150	℃
Typical Thermal Resistance Junction to Lead	R_{uJL}	15	℃/W
Typical Thermal Resistance Junction to Ambient	R_{uJA}	75	℃/W

Notes:

1. Non-repetitive current pulse, per Fig.3and derated above TA=25℃ per Fig. 2.

2. Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.

3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

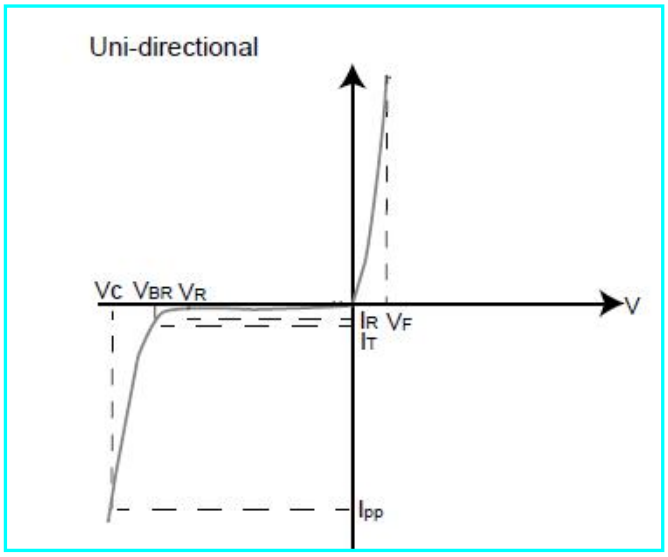
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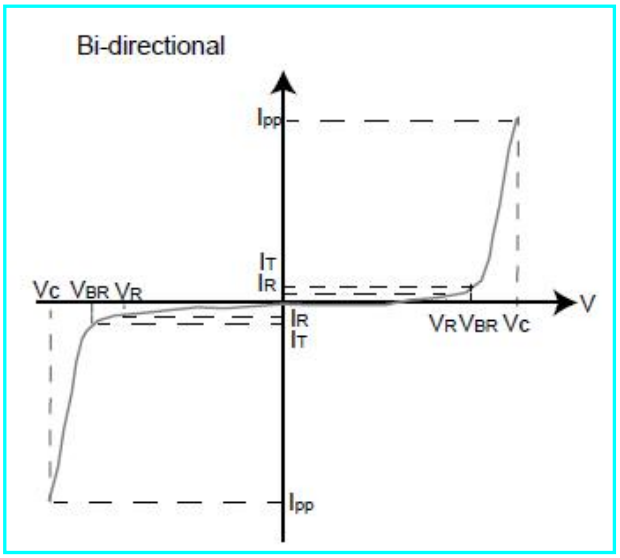
Electrical Characteristics

PART NUMBER		REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE VBR(V)MAX. @IT		TEST CURRENT	REVERSE LEAKAGE @VRWM	PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE @Ipp
BI- POLAR	UNI-POLAR	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	IR (μA)	Ipp (A)	Vc (v)
10SMBJ5.0CA	10SMBJ5.0A	5.0	6.40	7.15	10	300	108.7	9.2
10SMBJ6.0CA	10SMBJ6.0A	6.0	6.67	7.37	10	150	97.1	10.3
10SMBJ8.0CA	10SMBJ8.0A	8.0	8.89	9.83	1	10	73.5	13.6
10SMBJ12CA	10SMBJ12A	12.0	13.30	14.70	1	1	50.3	19.9
10SMBJ15CA	10SMBJ15A	15.0	16.70	19.20	1	1	41.0	24.4
10SMBJ18CA	10SMBJ18A	18.0	20.0	23.3	1	1	34.25	29.2
10SMBJ20CA	10SMBJ20A	20.0	22.2	25.5	1	1	39.7	30.1
10SMBJ33CA	10SMBJ33A	33.0	36.7	42.2	1	1	24.2	49.3

Notes:
For bidirectional type having VRWM of 20 volts and less, the IR limit is double.
For parts without A (VBR is ± 10% and VC is 5% higher than A parts

I-V Curve Characteristics





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Ratings and Characteristic Curves (TA=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

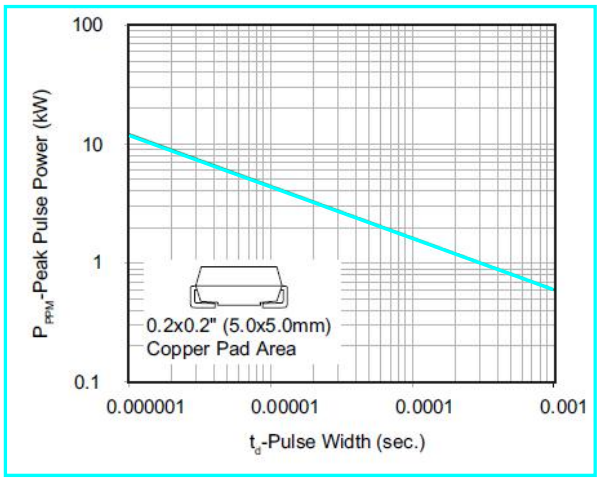


Figure 2 - Pulse Derating Curve

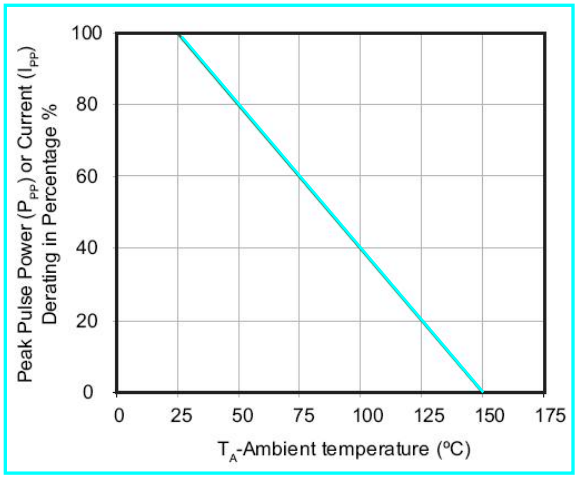


Figure 3 - Pulse Waveform

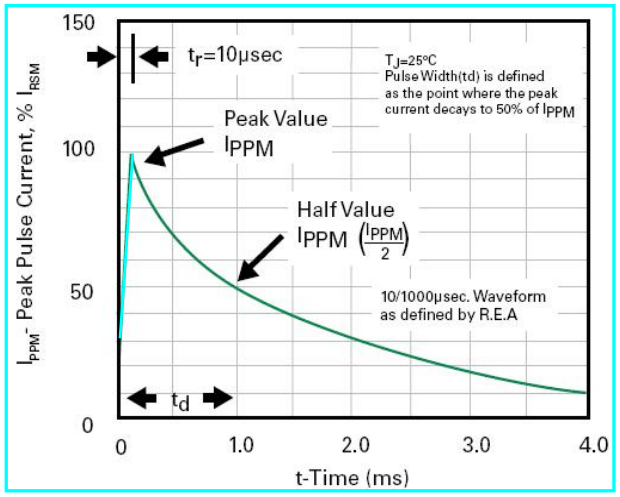


Figure 4 - Typical Junction Capacitance

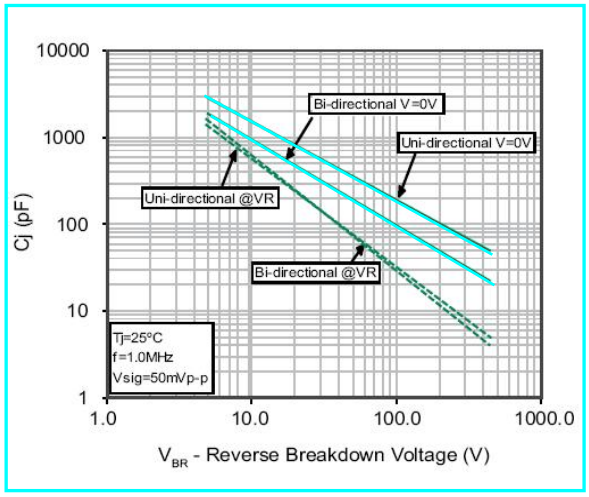


Figure 5 - Steady State Power Dissipation Derating Curve

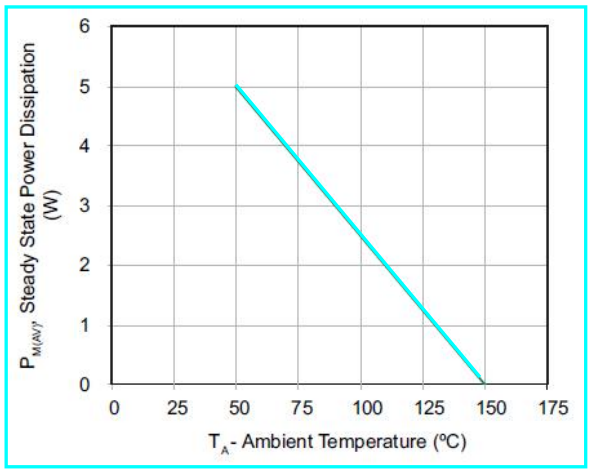
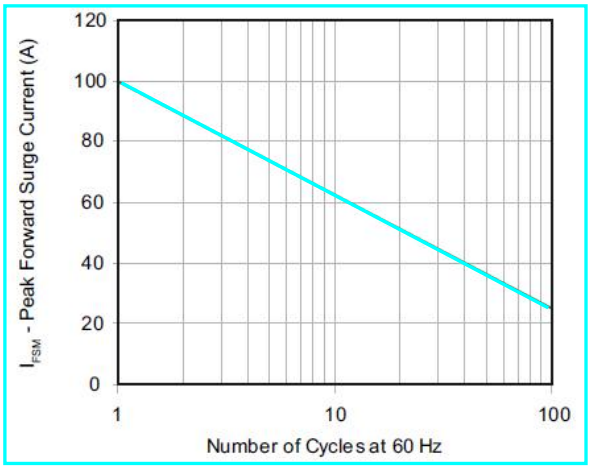


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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Part Numbering System

10SMBJ	XXX	C	A
(1)	(2)	(3)	(4)

(1) SERIES.

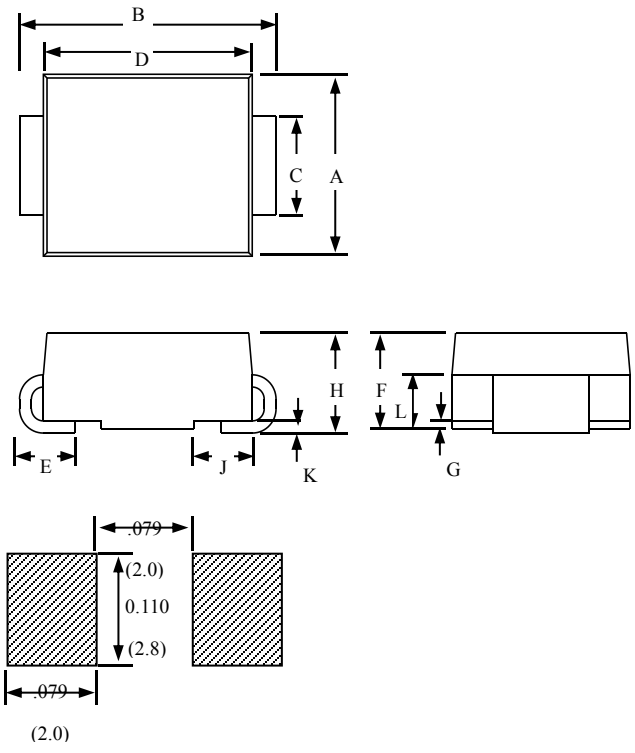
(2) VR VOLTAGE.

(3) BI-DIRECTIONAL AND UNI-DIRECTIONAL.

(4) 5% VOLTAGE TOLERANCE.

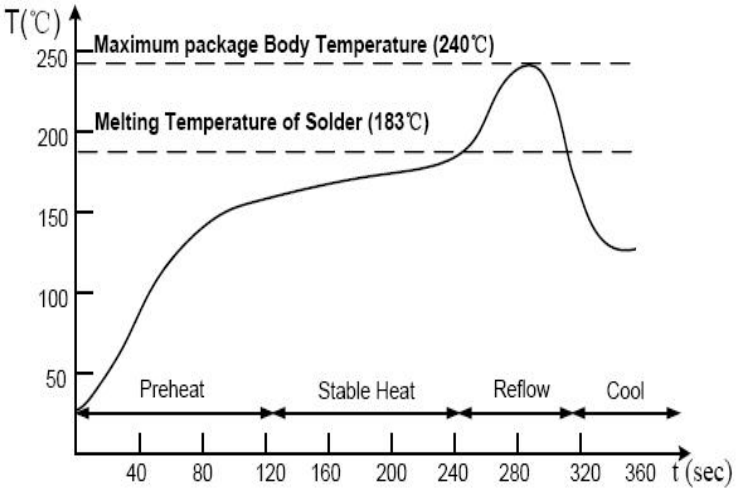
Product Dimensions

Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.134	0.155	3.40	3.94
B	0.205	0.22	5.21	5.59
C	0.075	0.083	1.90	2.11
D	0.166	0.185	4.22	4.70
E	0.036	0.056	0.91	1.42
F	0.073	0.087	1.85	2.2
G	0.002	0.008	0.05	0.20
H	0.077	0.094	1.95	2.40
J	0.043	0.053	1.09	1.35
K	0.008	0.014	0.20	0.35
L	0.039	0.049	0.99	1.24



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Solder Reflow Recommendations



- Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
- The device can be exposed to a maximum temperature of 265°C for 10 seconds.
- Devices can be cleaned using standard industry methods and solvents.

Notes: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Summary of Packing Options

Package Type	Description	Packing Quantity	Industry Standard
DO-214AA(SMB) 	Embossed Carrier Reel Pack	3000PCS	EIA-481-D

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