

Transient Voltage Suppressor



Features:

- Glass Passivated Junction
- Low Incremental Surge Resistance, Excellent Clamping Capability
- Low Profile Package With Built-In Strain Relief for Surface Mounted Applications
- 600W Peak Pulse Power Capability with a 10/1,000 μ s Wave Form, Repetition Rate (duty cycle): 0.01%
- Very Fast Response Time
- High Temperature Soldering Guaranteed : 250°C/10 seconds at Terminals

Mechanical Data

- Case: JEDEC DO-214AA molded plastic over passivated chip
- Terminals : solder plated, solderable per MIL-STD-750, method 2026
- Polarity : front-directional types the color band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- Mounting position : any Weight: 0.002oz, 0.64g

Devices for Bidirectional Applications

For bi-directional devices, use suffix C or CA (e.g. SMBJ10C, SMBJ10CA). Electrical characteristics apply in both directions.

Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Value	Unit
Peak power dissipation with a 10/1,000 μ s waveform (Note 1,2, Fig.1)	P _{PPM}	Min. 600	W
Peak pulse current with a 10/1,000 μ s waveform (Note 1)	I _{PPM}	See Next Table	A
Typical thermal resistance, junction to ambient (Note 2)	R _{θJA}	100	°C/W
Peak forward surge current, 8.3ms single half sine-wave uni-directional only (Note 3)	I _{FSM}	100	A
Typical thermal resistance, junction to ambient	R _{θJL}	20	°C/W
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C

Note:

- (1) Non-repetitive current pulses, per Fig. 3 and derated above $T_A=25$ per Fig. 2.
- (2) Mounted on minimum recommended pad layout.
- (3) Mounted on 0.2" \times 0.2" (5mm \times 5mm) copper pads to each terminal.

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Electrical Characteristics (T_A = 25°C)

Part Number	Dynamic		@I _T mA	V _{WM} V	I _{RM}	I _{PPM} A	V _C
	V				V _{WM}		V
	Min.	Max.			μA		V
SMBJ10A	11.1	12.3	1	10	5	35.3	17
SMBJ11A	12.2	13.5		11		33	18.2
SMBJ130	144	176		130		2.6	231
SMBJ130A	144	159		130		2.9	209
SMBJ13A	14.4	15.9		13		27.9	21.5
SMBJ160A	178	197		160		2.3	259
SMBJ22A	24.4	26.9		22		16.9	35.5
SMBJ33A	36.7	40.6		33		11.3	53.3
SMBJ48A	53.3	58.9		48		7.8	77.4
SMBJ58A	64.4	71.2		58		6.4	93.6
SMBJ7.0A	7.78	8.6		7		200	50

FIG.1 – PEAK PULSE POWER RATING CURVE

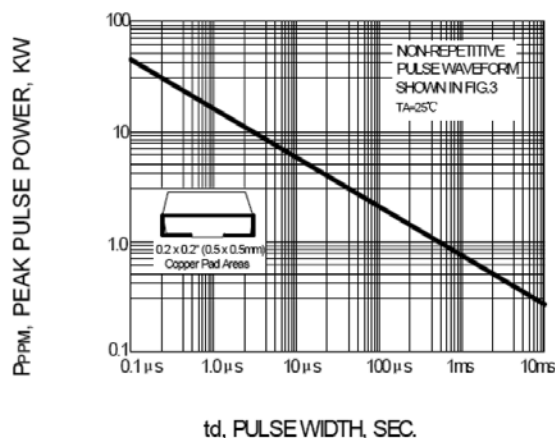


FIG.2 – PULSE DERATING CURVE

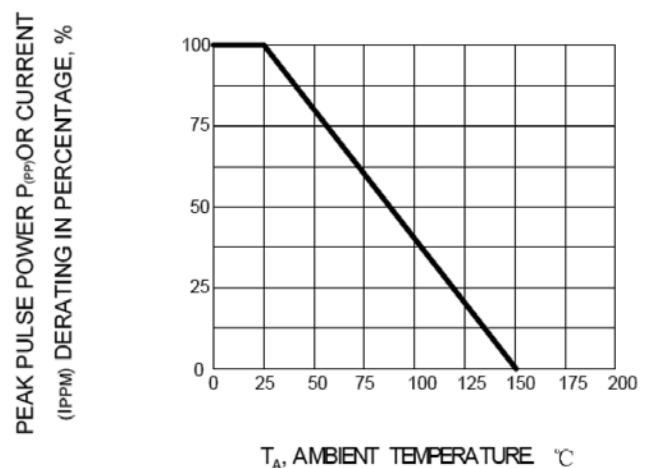


FIG.3 – PULSE WAVEFORM

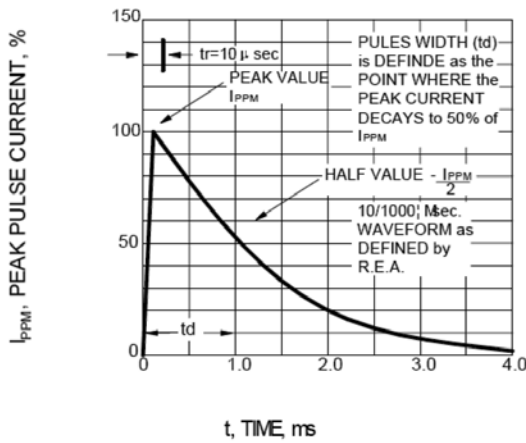


FIG.4 – TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

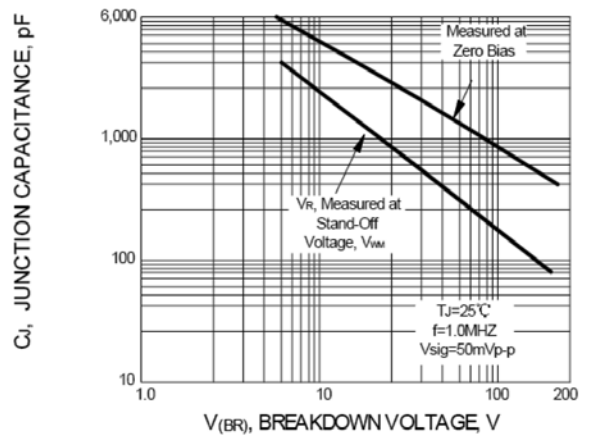


FIG.5 – TYPICAL TRANSIENT THERMAL IMPEDANCE

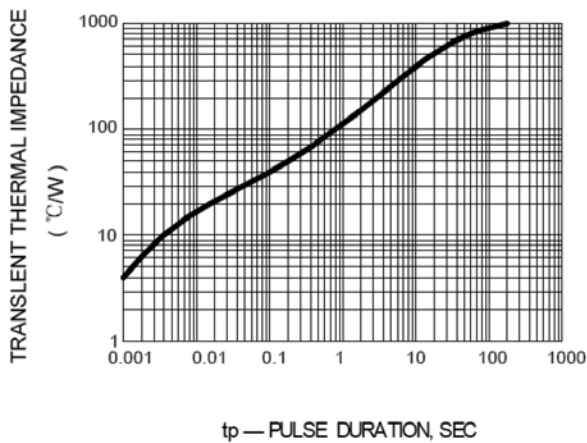
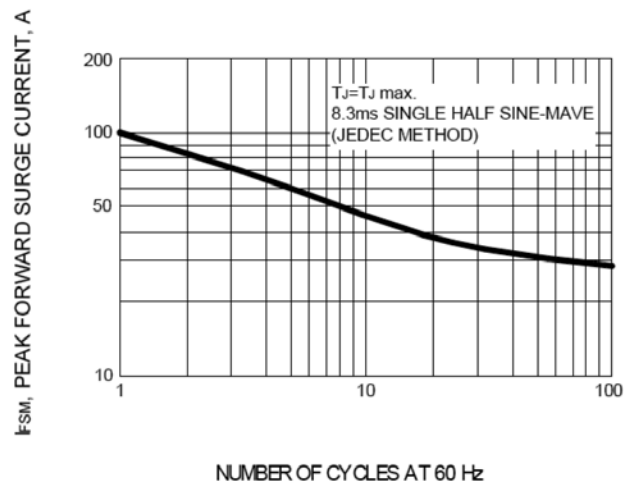
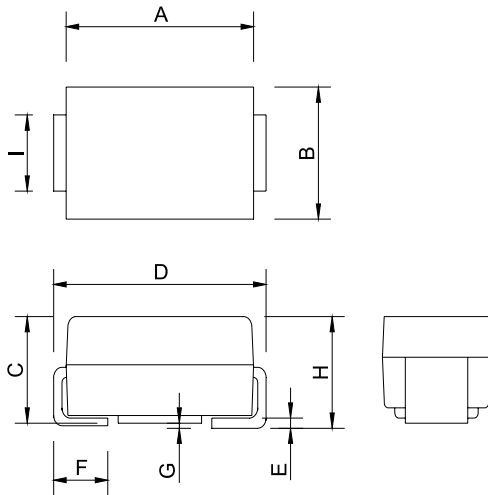


FIG.6 – MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



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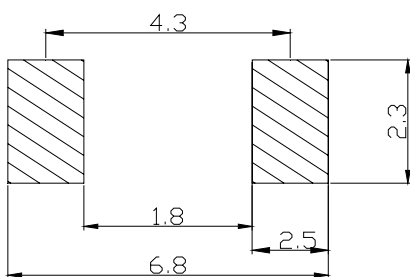
Package Outline Dimensions



DO-214AA(SMB)		
Dim.	Min.	Max.
A	4.3	4.7
B	3.3	3.7
C	2	2.3
D	5.05	5.55
E	0.1	0.3
F	0.95	1.55
G	0.2 Max.	
H	2.1	2.5
I	1.85	2.15

Dimensions : Millimetres

Soldering Footprint



Dimensions : Millimetres

Package Information

Device	Package	Shipping
SMBJ10A-13-F SMBJ11CA-13-F SMBJ130A-13-F SMBJ130CA-13-F SMBJ13CA-13-F SMBJ160CA-13-F SMBJ22CA-13-F SMBJ33CA-13-F SMBJ48A-13-F SMBJ58A-13-F SMBJ7.0CA-13-F	DO-214AA(SMB)	3,000 / Tape & Reel

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Part Number Table

Description	Part Number
Transient Voltage Suppressor	SMBJ10A-13-F
	SMBJ11CA-13-F
	SMBJ130A-13-F
	SMBJ130CA-13-F
	SMBJ13CA-13-F
	SMBJ160CA-13-F
	SMBJ22CA-13-F
	SMBJ33CA-13-F
	SMBJ48A-13-F
	SMBJ58A-13-F
	SMBJ7.0CA-13-F

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