

# 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 $\mu$ 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 $\mu$ s waveform (Note 1,2, Fig.1)	P <sub>PPM</sub>	Min. 600	W
Peak pulse current with a 10/1,000 $\mu$ s waveform (Note 1)	I <sub>PPM</sub>	See Next Table	A
Typical thermal resistance, junction to ambient (Note 2)	R <sub><math>\theta</math>JA</sub>	100	°C/W
Peak forward surge current, 8.3ms single half sine-wave uni-directional only (Note 3)	I <sub>FSM</sub>	100	A
Typical thermal resistance, junction to ambient	R <sub><math>\theta</math>JL</sub>	20	°C/W
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

### Note:

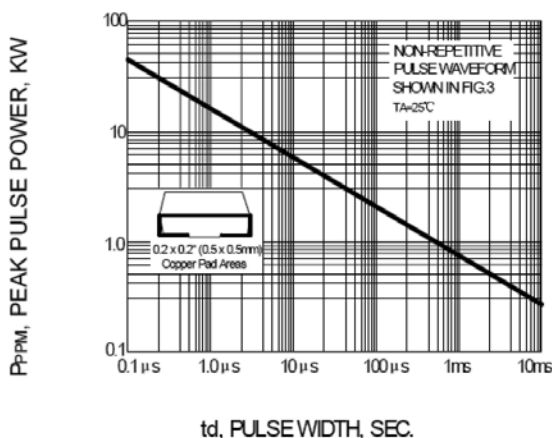
- (1) Non-repetitive current pulses, per Fig. 3 and derated above  $T_A=25$  per Fig. 2.
- (2) Mounted on minimum recommended pad layout.
- (3) Mounted on 0.2"  $\times$  0.2" (5mm  $\times$  5mm) copper pads to each terminal.

# Transient Voltage Suppressor

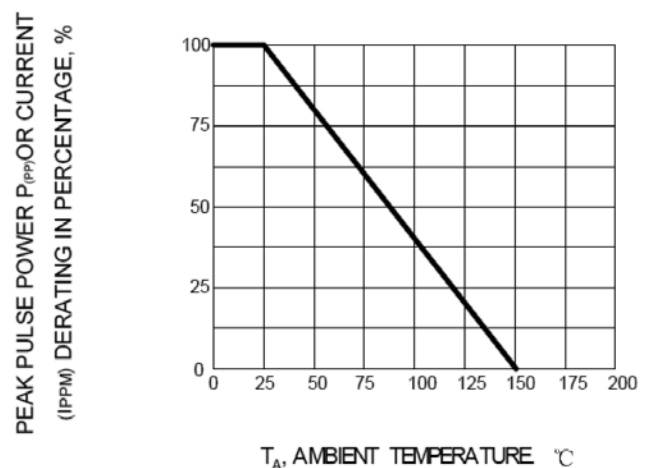
## Electrical Characteristics (T<sub>A</sub> = 25°C)

Part Number	Dynamic		V <sub>WM</sub>	I <sub>RM</sub>	I <sub>PPM</sub>	V <sub>C</sub>	
	V			V <sub>WM</sub>		I <sub>PPM</sub>	
	Min.	Max.		@I <sub>T</sub>		V	A
			mA	V	uA	A	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

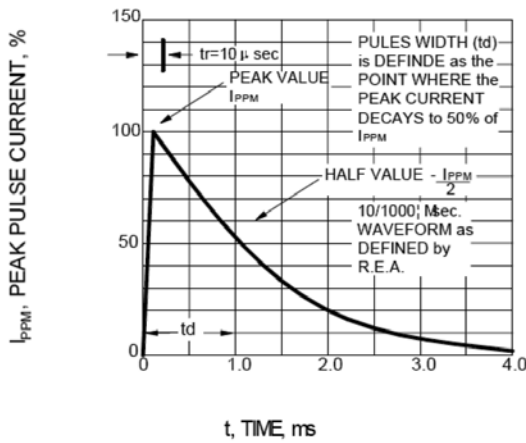
**FIG.1 – PEAK PULSE POWER RATING CURVE**



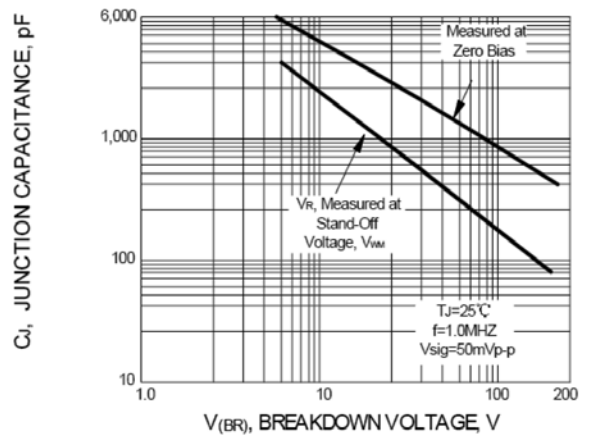
**FIG.2 – PULSE DERATING CURVE**



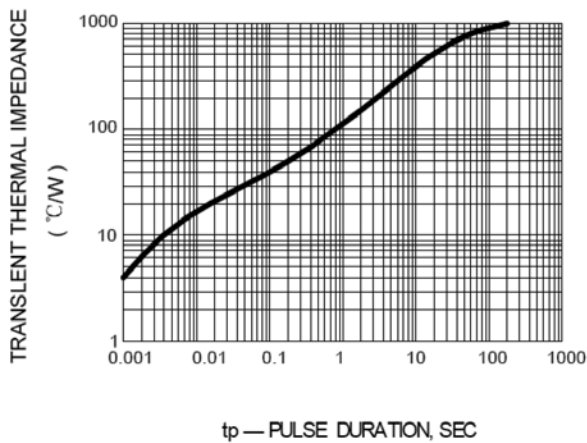
**FIG.3 – PULSE WAVEFORM**



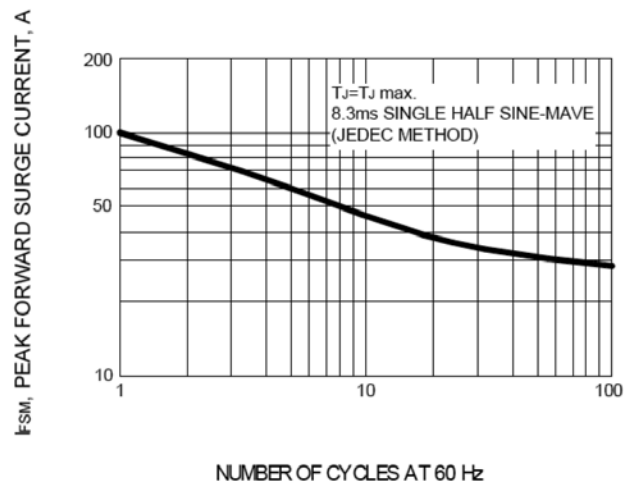
**FIG.4 – TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL**



**FIG.5 – TYPICAL TRANSIENT THERMAL IMPEDANCE**

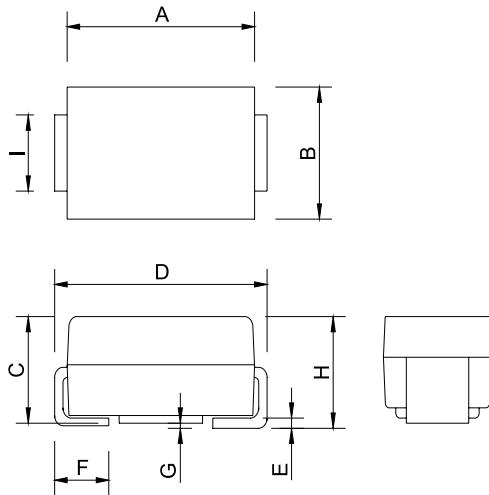


**FIG.6 – MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



# Transient Voltage Suppressor

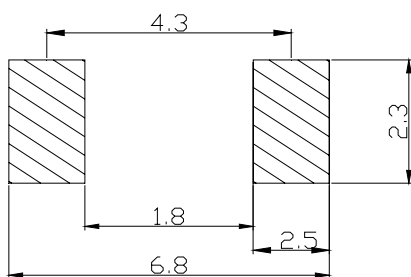
## Package Outline Dimensions



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

# Transient Voltage Suppressor

## 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

**Important Notice** : This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2012.

[www.element14.com](http://www.element14.com)  
[www.farnell.com](http://www.farnell.com)  
[www.newark.com](http://www.newark.com)

