

# DATA SHEET

## TRANSIENT VOLTAGE SUPPRESSOR – SMDJ SERIES

### FEATURE

- ✧ For surface mounted applications in order to optimize board space.
- ✧ Low profile package.
- ✧ Built-in strain relief.
- ✧ Glass passivated junction.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ Repetition Rate (duty cycle):0.01%.
- ✧ Fast response time: typically less than 1.0ps from 0 Volts to BV for unidirectional types.
- ✧ Typical  $I_R$  less than 1 $\mu$ A above 10V.
- ✧ High Temperature soldering: 260°C/10 seconds at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-O.



**SMC/DO-214AB**

### MECHANICAL DATE

- ✧ Case: JEDEC DO214AC. Molded plastic over glass passivated junction.
- ✧ Terminal: Solder plated, solderable per MIL-STD-750, Method 2026.
- ✧ Polarity: Color band denoted positive end (cathode) except Bidirectional.
- ✧ Standard Packaging: 12mm tape (EIA STD RS-481).
- ✧ Weight: 0.007 ounce, 021 grams.

### DEVICES FOR BIPOLAR APPLICATION

For bidirectional use C or CA suffix for types SMDJ5.0 thru types SMDJ170 (e.g.SMDJ5.0CA, SMCJ170CA), electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

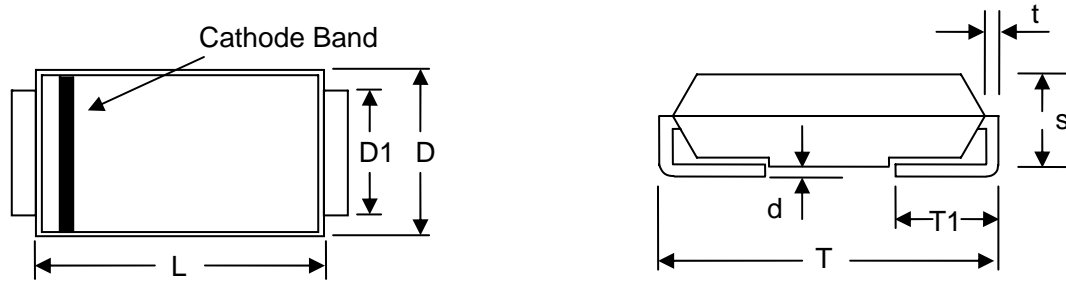
RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (Note 1, 2, FIG.1).	$P_{PPM}$	Minimum 3000	Watts
Peak Pulse Current of on 10/1000 $\mu$ s waveform (Note 1, FIG.3).	$P_{M(AV)}$	See Table 1	Amps
Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load,(JEDEC Method) (Note2,3)	$I_{FSM}$	300	Amps
Operating junction and Storage Temperature Range.	$T_J, T_{STG}$	-55 to +175	°C

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25^\circ\text{C}$  per Fig. 2.

2. Mounted on 0.8mm x 0.8mm Copper Pads to each terminal.

3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

**PACKAGE DIMENSIONS**



**SMC/DO-214AB**

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	6.60	7.11	0.260	0.280
D	5.59	6.22	0.220	0.245
D1	2.90	3.20	0.114	0.126
T	7.75	8.13	0.305	0.320
T1	0.76	1.52	0.030	0.060
d	-	0.203	-	0.008
s	2.06	2.62	0.079	0.103
t	0.152	0.305	0.006	0.012

**ELECTRICAL CHARACTERISTICS**

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @IPP	Peak Pulse Current	Reverse Leakage @VRWM
UNI-POLAR	BI-POLAR	UNI	BI	$V_{RWM}(V)$	$V_{BR MIN.}(V)$	$V_{BR MAX.}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
SMDJ5.0A	SMDJ5.0CA	HDE/RDE	IDE/DDE	5.0	6.40	7.00	10	9.2	326.1	800
SMDJ6.0A	SMDJ6.0CA	HDG/RDG	IDG/DDG	6.0	6.67	7.37	10	10.3	291.3	800
SMDJ6.5A	SMDJ6.5CA	HDK/RDK	IDK/DDK	6.5	7.22	7.98	10	11.2	267.9	500
SMDJ7.0A	SMDJ7.0CA	HDM/PDM	IDM/DDM	7.0	7.78	8.60	10	12.0	250.0	200
SMDJ7.5A	SMDJ7.5CA	HDP/PDP	IDP/DDP	7.5	8.33	9.21	1	12.9	232.6	100
SMDJ8.0A	SMDJ8.0CA	HDR/PDR	IDR/DDR	8.0	8.89	9.83	1	13.6	220.6	50
SMDJ8.5A	SMDJ8.5CA	HDT/PDT	IDT/DDT	8.5	9.44	10.40	1	14.4	208.3	20
SMDJ9.0A	SMDJ9.0CA	HDV/PDV	IDV/DDV	9.0	10.00	11.10	1	15.4	194.8	10
SMDJ10A	SMDJ10CA	HDX/PDX	IDX/DDX	10.0	11.10	12.30	1	17.0	176.5	5
SMDJ11A	SMDJ11CA	HDZ/PDZ	IDZ/DDZ	11.0	12.20	13.50	1	18.2	164.8	5
SMDJ12A	SMDJ12CA	HEE/PEE	IEE/DEE	12.0	13.30	14.70	1	19.9	150.8	5
SMDJ13A	SMDJ13CA	HEG/PEG	IEG/DEG	13.0	14.40	15.90	1	21.5	139.5	5
SMDJ14A	SMDJ14CA	HEK/PEK	IEK/DEK	14.0	15.60	17.20	1	23.2	129.3	5
SMDJ15A	SMDJ15CA	HEM/PEM	IEM/DEM	15.0	16.70	18.50	1	24.4	123.0	5
SMDJ16A	SMDJ16CA	HEP/PEP	IEP/DEP	16.0	17.80	19.70	1	26.0	115.4	5

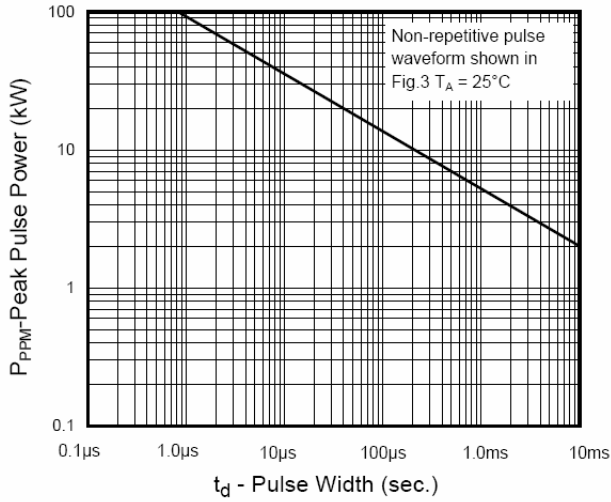
**ELECTRICAL CHARACTERISTICS**

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @IT	Breakdown Voltage @IT	Test Current	Maximum Clamping Voltage @IPP	Peak Pulse Current	Reverse Leakage @VRWM
UNI-POLAR	BI-POLAR	UNI	BI	V <sub>RWM</sub> (V)	V <sub>BR MIN.</sub> (V)	V <sub>BR MAX.</sub> (V)	I <sub>t</sub> (mA)	V <sub>c</sub> (V)	I <sub>PP</sub> (A)	I <sub>r</sub> (μA)
SMDJ17A	SMDJ17CA	HER/PER	IER/DER	17.0	18.90	20.90	1	27.6	108.7	5
SMDJ18A	SMDJ18CA	HET/PET	IET/DET	18.0	20.00	22.10	1	29.2	102.7	5
SMDJ20A	SMDJ20CA	HEV/PEV	IEV/DEV	20.0	22.20	24.50	1	32.4	92.6	5
SMDJ22A	SMDJ22CA	HEX/PEX	IEX/DEX	22.0	24.40	26.90	1	35.5	84.5	5
SMDJ24A	SMDJ24CA	HEZ/PEZ	IEZ/DEZ	24.0	26.70	29.50	1	38.9	77.1	5
SMDJ26A	SMDJ26CA	HFE/PFE	IFE/DFE	26.0	28.90	31.90	1	42.1	71.3	5
SMDJ28A	SMDJ28CA	HFG/PFG	IFG/DFG	28.0	31.10	34.40	1	45.4	66.1	5
SMDJ30A	SMDJ30CA	HFK/PFK	IFK/DFK	30.0	33.30	36.80	1	48.4	62.0	5
SMDJ33A	SMDJ33CA	HFM/PFM	IFM/DFM	33.0	36.70	40.60	1	53.3	56.3	5
SMDJ36A	SMDJ36CA	HFP/PFP	IFP/DFP	36.0	40.00	44.20	1	58.1	51.6	5
SMDJ40A	SMDJ40CA	HFR/PFR	IFR/DFR	40.0	44.40	49.10	1	64.5	46.5	5
SMDJ43A	SMDJ43CA	HFT/PFT	IFT/DFT	43.0	47.80	52.80	1	69.4	43.2	5
SMDJ45A	SMDJ45CA	HFV/PFV	IFV/DFV	45.0	50.00	55.30	1	72.7	41.3	5
SMDJ48A	SMDJ48CA	HFX/PFX	IFX/DFX	48.0	53.30	58.90	1	77.4	38.8	5
SMDJ51A	SMDJ51CA	HFZ/PFZ	IFZ/DFZ	51.0	56.70	62.70	1	82.4	36.4	5
SMDJ54A	SMDJ54CA	HGE/PGE	IGE/DGE	54.0	60.00	66.30	1	87.1	34.4	5
SMDJ58A	SMDJ58CA	HGG/PGG	IGG/DGG	58.0	64.40	71.20	1	93.6	32.1	5
SMDJ60A	SMDJ60CA	HGK/PGK	IGK/DGK	60.0	66.70	73.70	1	96.8	31.0	5
SMDJ64A	SMDJ64CA	HGM/PGM	IGM/DGM	64.0	71.10	78.60	1	103.0	29.1	5
SMDJ70A	SMDJ70CA	HGP/PGP	IGP/DGP	70.0	77.80	86.00	1	113.0	26.5	5
SMDJ75A	SMDJ75CA	HGR/PGR	IGR/DGR	75.0	83.30	92.10	1	121.0	24.8	5
SMDJ78A	SMDJ78CA	HGT/PGT	IGT/DGT	78.0	86.70	95.80	1	126.0	23.8	5
SMDJ85A	SMDJ85CA	HGV/PGV	IGV/DGV	85.0	94.40	104.00	1	137.0	21.9	5
SMDJ90A	SMDJ90CA	HGX/PGX	IGX/DGX	90.0	100.00	111.00	1	146.0	20.5	5
SMDJ100A	SMDJ100CA	HGZ/PGZ	IGZ/DGZ	100.0	111.00	123.00	1	162.0	18.5	5
SMDJ110A	SMDJ110CA	HHE/PHE	IHE/DHE	110.0	122.00	135.00	1	177.0	16.9	5
SMDJ120A	SMDJ120CA	HHG/PHG	IHG/DHG	120.0	133.00	147.00	1	193.0	15.5	5
SMDJ130A	SMDJ130CA	HHK/PHK	IHK/DHK	130.0	144.00	159.00	1	209.0	14.4	5
SMDJ150A	SMDJ150CA	HHM/PHM	IHM/DHM	150.0	167.00	185.00	1	243.0	12.3	5
SMDJ160A	SMDJ160CA	HHP/PHP	IHP/DHP	160.0	178.00	197.00	1	259.0	11.6	5
SMDJ170A	SMDJ170CA	HHR/PHR	IHR/DHR	170.0	189.00	209.00	1	275.0	10.9	5
SMDJ180A	SMDJ180CA	HHT	IHT	180.0	198.00	230.40	1	292.0	10.3	5
SMDJ190A	SMDJ190CA	HHV	IHV	190.0	209.00	243.20	1	308.0	9.7	5
SMDJ200A	SMDJ200CA	HHX	IHX	200.0	220.00	256.00	1	324.0	9.3	5
SMDJ210A	SMDJ210CA	HHZ	IHZ	210.0	231.00	268.80	1	340.0	8.8	5
SMDJ220A	SMDJ220CA	HIE	IIE	220.0	242.00	281.60	1	356.0	8.4	5

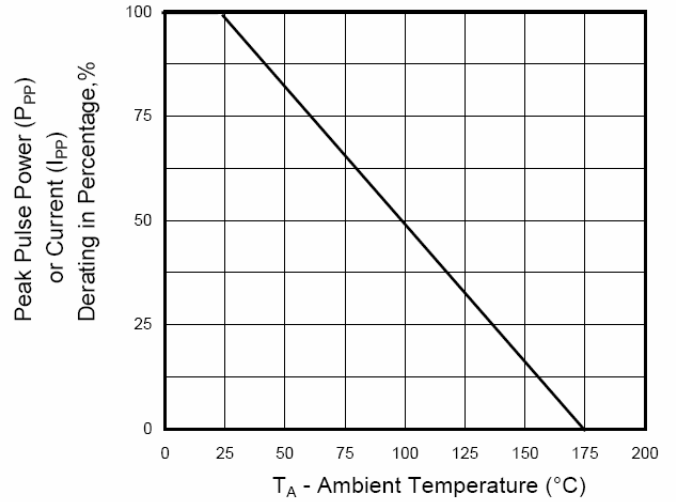
Notes: For bidirectional type having V<sub>RWM</sub> of 10 volts and less, the I<sub>r</sub> limit is double.

**RATINGS AND CHARACTERISTIC CURVES** (TA=25°C unless otherwise noted)

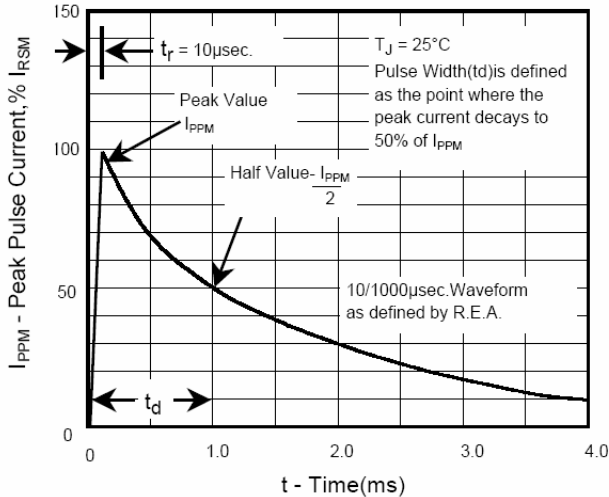
**Fig. 1 - Peak Pulse Power Rating Curve**



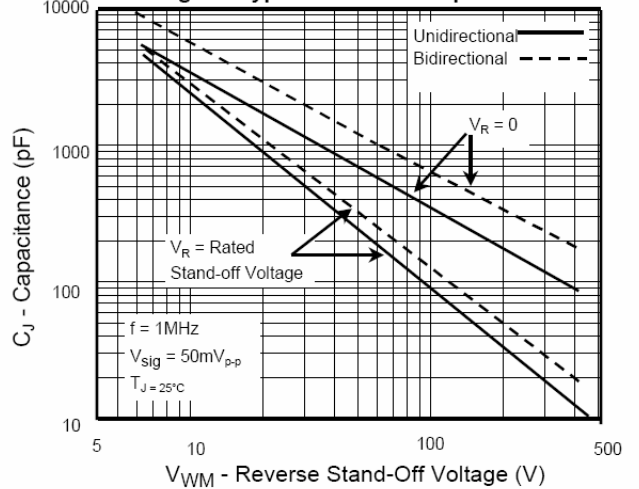
**Fig.2 - Pulse Derating Curve**



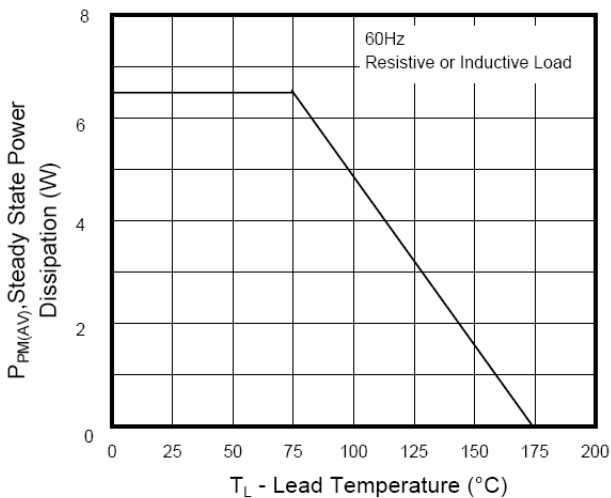
**Fig.3 - Pulse Waveform**



**Fig. 4 - Typical Junction Capacitance**



**Fig. 5 - Steady State Power Derating Curve**



**Fig.6 - Maximum Non-repetitive Forward Surge current**

