

# 5.0SMDJ12A - 170CA

# SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

**V<sub>R</sub> : 12 - 170 Volts**

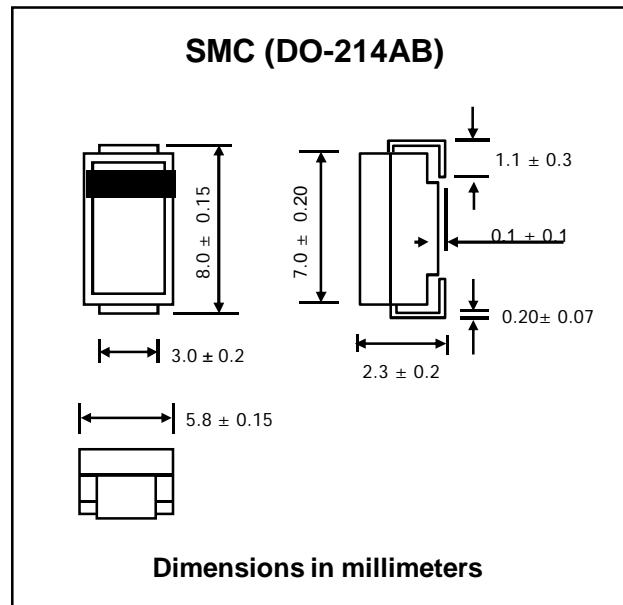
**P<sub>PK</sub> : 5,000 Watts**

### FEATURES :

- \* Glass passivated junction chip
- \* 5000W Peak Pulse Power
- \* Excellent clamping capability
- \* Low incremental surge resistance
- \* Pb / RoHS Free

### MECHANICAL DATA

- \* Case : SMC Molded plastic
- \* Epoxy : UL94V-0 rate flame retardant
- \* Lead : Lead Formed for Surface Mount
- \* Mounting position : Any
- \* Weight : 0.21 gram



### MAXIMUM RATINGS (T<sub>a</sub> = 25°C)

Rating	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μs waveform <sup>(1) (2)</sup>	P <sub>PPK</sub>	5000	W
Power Dissipation on infinite heat sink at T <sub>a</sub> = 50°C	P <sub>D</sub>	6.5	W
Maximum Instantaneous Forward Voltage at 100 A for Unidirectional only	V <sub>F</sub>	5.0	V
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(Note 3) for Unidirectional only	I <sub>FSM</sub>	300	A
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 65 to + 150	°C

#### Notes :

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above T<sub>a</sub> = 25 °C per Fig. 1
- (2) Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.
- (3) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.

## ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

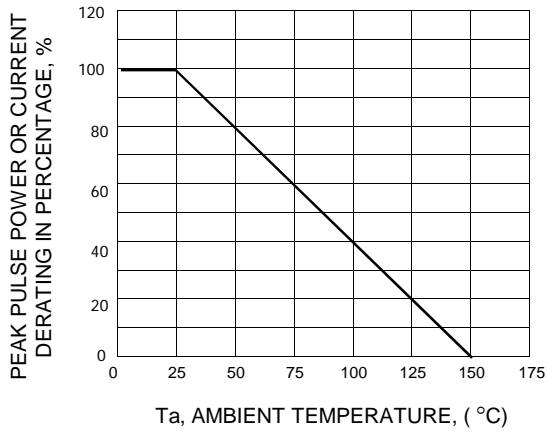
Part Number (Uni-directional)	Part Number (Bi-directional)	Reverse Stand Off Voltage	Breakdown Voltage @ I <sub>T</sub>			Maximum Reverse Leakage @ V <sub>R</sub>	Maximum Peak Pulse Current	Maximum Clamping Voltage @ I <sub>PP</sub>
			V <sub>WM</sub>	V <sub>BR</sub> (V)				
		(V)	Min.	Max.	(mA)	I <sub>R</sub> (μA)	I <sub>PPM</sub> (A)	V <sub>C</sub> (V)
5.0SMDJ12A	5.0SMDJ12CA	12	13.30	14.70	10.0	1000	252	19.9
5.0SMDJ13A	5.0SMDJ13CA	13	14.40	15.90	10.0	1000	233	21.5
5.0SMDJ14A	5.0SMDJ14CA	14	15.60	17.20	10.0	500	216	23.2
5.0SMDJ15A	5.0SMDJ15CA	15	16.70	18.50	1.0	200	205	24.4
5.0SMDJ16A	5.0SMDJ16CA	16	17.80	19.70	1.0	100	193	26.0
5.0SMDJ17A	5.0SMDJ17CA	17	18.90	20.90	1.0	50	181	27.6
5.0SMDJ18A	5.0SMDJ18CA	18	20.00	22.10	1.0	25	172	29.2
5.0SMDJ20A	5.0SMDJ20CA	20	22.20	24.50	1.0	10	155	32.4
5.0SMDJ22A	5.0SMDJ22CA	22	24.40	26.90	1.0	5	141	35.5
5.0SMDJ24A	5.0SMDJ24CA	24	26.70	29.50	1.0	5	129	38.9
5.0SMDJ26A	5.0SMDJ26CA	26	28.90	31.90	1.0	5	119	42.1
5.0SMDJ28A	5.0SMDJ28CA	28	31.10	34.40	1.0	5	110	45.4
5.0SMDJ30A	5.0SMDJ30CA	30	33.30	36.80	1.0	5	103	48.4
5.0SMDJ33A	5.0SMDJ33CA	33	36.70	40.60	1.0	5	93.9	53.3
5.0SMDJ36A	5.0SMDJ36CA	36	40.00	44.20	1.0	5	86.1	58.1
5.0SMDJ40A	5.0SMDJ40CA	40	44.40	49.10	1.0	5	77.6	64.5
5.0SMDJ43A	5.0SMDJ43CA	43	47.80	52.80	1.0	5	72.1	69.4
5.0SMDJ45A	5.0SMDJ45CA	45	50.00	55.30	1.0	5	68.8	72.7
5.0SMDJ48A	5.0SMDJ48CA	48	53.30	58.90	1.0	5	64.7	77.4
5.0SMDJ51A	5.0SMDJ51CA	51	56.70	62.70	1.0	5	60.7	82.4
5.0SMDJ54A	5.0SMDJ54CA	54	60.00	66.30	1.0	5	57.5	87.1
5.0SMDJ58A	5.0SMDJ58CA	58	64.40	71.20	1.0	5	53.5	94.0
5.0SMDJ60A	5.0SMDJ60CA	60	66.70	73.70	1.0	5	51.7	97.0
5.0SMDJ64A	5.0SMDJ64CA	64	71.10	78.60	1.0	5	48.6	103
5.0SMDJ70A	5.0SMDJ70CA	70	77.80	86.00	1.0	5	44.3	113
5.0SMDJ75A	5.0SMDJ75CA	75	83.30	92.10	1.0	5	41.4	121
5.0SMDJ78A	5.0SMDJ78CA	78	86.70	95.80	1.0	5	39.7	126
5.0SMDJ85A	5.0SMDJ85CA	85	94.40	104.00	1.0	5	36.5	137
5.0SMDJ90A	5.0SMDJ90CA	90	100.0	111.0	1.0	5	34.3	146
5.0SMDJ100A	5.0SMDJ100CA	100	111.0	123.0	1.0	5	30.9	162
5.0SMDJ110A	5.0SMDJ110CA	110	122.0	135.0	1.0	5	28.3	177
5.0SMDJ120A	5.0SMDJ120CA	120	133.0	147.0	1.0	5	26.0	194
5.0SMDJ130A	5.0SMDJ130CA	130	144.0	159.0	1.0	5	24.0	209
5.0SMDJ150A	5.0SMDJ150CA	150	167.0	184.0	1.0	5	20.6	238
5.0SMDJ160A	5.0SMDJ160CA	160	178.0	197.0	1.0	5	19.3	263
5.0SMDJ170A	5.0SMDJ170CA	170	189.0	209.0	1.0	5	18.2	275

**Notes:**

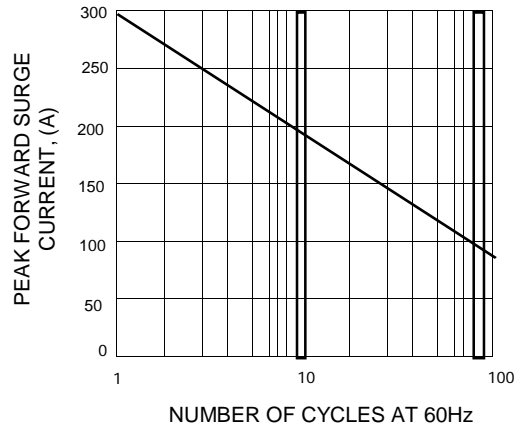
- (1) For Bi-directional devices having V<sub>R</sub> of 20 Volts and under the I<sub>R</sub> limit is doubled.
- (2) "SMDJ" will be omitted on marking of the diode.

**RATING AND CHARACTERISTIC CURVES ( 5.0SMDJ12A - 170CA )**

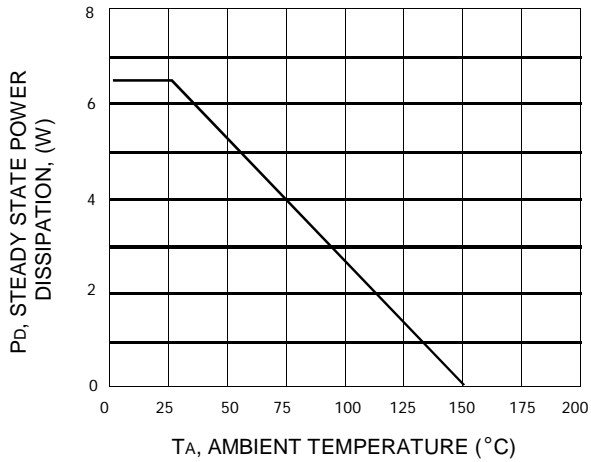
**FIG.1 - PULSE DERATING CURVE**



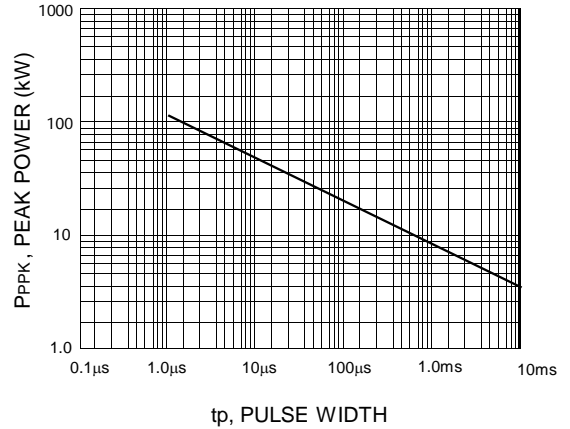
**FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



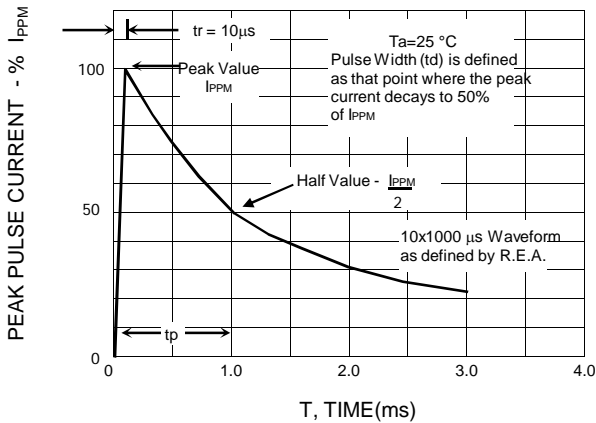
**FIG.3 - STEADY STATE POWER DERATING**



**FIG.4 - PEAK PULSE POWER RATING CURVE**



**FIG.5 - PULSE WAVEFORM**



**FIG.6 - TYPICAL JUNCTION CAPACITANCE**

