

# TRANSIENT VOLTAGE SUPPRESSOR

## 5.0SMD Series

### Features

- 5000Watts peak pulse power (tp=10/1000μs)
- Low leakage.
- Quick response to surge voltage
- Excellent clamping capability.
- Uni and Bidirectional unit.
- Polarity: Color band denotes cathode end except bipolar



DO-214AB

### Mechanical Data

- Epoxy: UL 94V-0 rate flame retardant.
- Case: SMC/DO-214AB, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end except bipolar.
- Weight: 0.260 gram (approx.)
- RoHS Compliant



BI-directional



UNI-directional

### Maximum Ratings (@TA = 25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	$T_J/T_{STG}$	-55 to +150	°C
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/1000μs waveform	$P_{PP}$	5000	W
Maximum instantaneous forward voltage at 100A for unidirectional	$V_F$	5.0	V
Peak forward surge current, 8.3ms single half sine wave (1)	$I_{FSM}$	300	A
Typical thermal resistance junction to lead	$R_{\theta_{JL}}$	15	°C/W
Typical thermal resistance	$R_{\theta_{JA}}$	75	°C/W

Notes: 1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

**Electrical Characteristic** (@TA = 25°C, unless otherwise specified)

Part Number		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	IPP
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
5.0SMDJ11CA	5.0SMDJ11A	11	800	12.2	13.5	10	18.2	275
5.0SMDJ12CA	5.0SMDJ12A	12	800	13.3	14.7	10	19.9	252
5.0SMDJ13CA	5.0SMDJ13A	13	500	14.4	15.9	10	21.5	233
5.0SMDJ14CA	5.0SMDJ14A	14	200	15.6	17.2	10	23.2	216
5.0SMDJ15CA	5.0SMDJ15A	15	100	16.7	18.5	1	24.4	205
5.0SMDJ16CA	5.0SMDJ16A	16	50	17.8	19.7	1	26	193
5.0SMDJ17CA	5.0SMDJ17A	17	20	18.9	20.9	1	27.6	181
5.0SMDJ18CA	5.0SMDJ18A	18	10	20	22.1	1	29.2	172
5.0SMDJ20CA	5.0SMDJ20A	20	5	22.2	24.5	1	32.4	155
5.0SMDJ22CA	5.0SMDJ22A	22	5	24.4	26.9	1	35.5	141
5.0SMDJ24CA	5.0SMDJ24A	24	2	26.7	29.5	1	38.9	129
5.0SMDJ26CA	5.0SMDJ26A	26	2	28.9	31.9	1	42.1	119
5.0SMDJ28CA	5.0SMDJ28A	28	2	31.1	34.4	1	45.4	110
5.0SMDJ30CA	5.0SMDJ30A	30	2	33.3	36.8	1	48.4	103
5.0SMDJ33CA	5.0SMDJ33A	33	2	36.7	40.6	1	53.3	93.9
5.0SMDJ36CA	5.0SMDJ36A	36	2	40	44.2	1	58.1	86.1
5.0SMDJ40CA	5.0SMDJ40A	40	2	44.4	49.1	1	64.5	77.6
5.0SMDJ43CA	5.0SMDJ43A	43	2	47.8	52.8	1	69.4	72.1
5.0SMDJ45CA	5.0SMDJ45A	45	2	50	55.3	1	72.7	68.8
5.0SMDJ48CA	5.0SMDJ48A	48	2	53.3	58.9	1	77.4	64.7
5.0SMDJ51CA	5.0SMDJ51A	51	2	56.7	62.7	1	82.4	60.7
5.0SMDJ54CA	5.0SMDJ54A	54	2	60	66.3	1	87.1	57.5
5.0SMDJ58CA	5.0SMDJ58A	58	2	64.4	71.2	1	93.6	53.5
5.0SMDJ60CA	5.0SMDJ60A	60	2	66.7	73.7	1	96.8	51.7
5.0SMDJ64CA	5.0SMDJ64A	64	2	71.1	78.6	1	103	48.6
5.0SMDJ70CA	5.0SMDJ70A	70	2	77.8	86	1	113	44.3
5.0SMDJ75CA	5.0SMDJ75A	75	2	83.3	92.1	1	121	41.4
5.0SMDJ78CA	5.0SMDJ78A	78	2	86.7	95.8	1	126	39.7
5.0SMDJ85CA	5.0SMDJ85A	85	2	94.4	104	1	137	36.5
5.0SMDJ90CA	5.0SMDJ90A	90	2	100	111	1	146	34.3
5.0SMDJ100CA	5.0SMDJ100A	100	2	111	123	1	162	30.9
5.0SMDJ110CA	5.0SMDJ110A	110	2	122	135	1	177	28.3

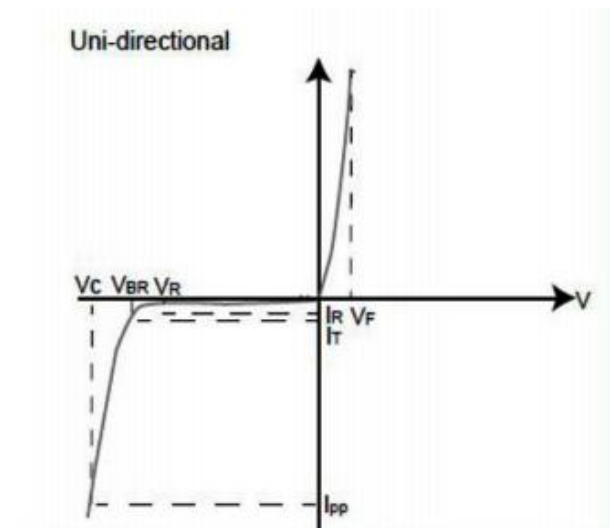
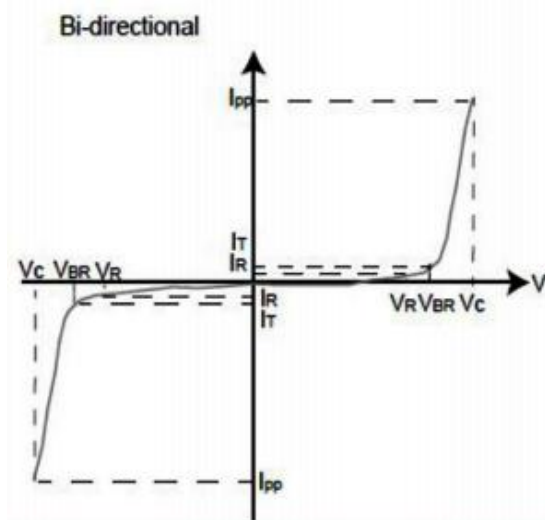
Part Number		$V_R$	$I_R@V_R$	$V_{BR}@I_T$		$I_T$	$V_C@I_{PP}$	IPP
Uni-Polar	Bi-Polar	V	$\mu A$	min(V)	max(V)	mA	max(V)	A
5.0SMDJ120CA	5.0SMDJ120A	120	2	133	147	1	193	26
5.0SMDJ130CA	5.0SMDJ130A	130	2	144	159	1	209	24
5.0SMDJ150CA	5.0SMDJ150A	150	2	167	185	1	243	20.6
5.0SMDJ160CA	5.0SMDJ160A	160	2	178	197	1	259	19.3
5.0SMDJ170CA	5.0SMDJ170A	170	2	189	209	1	275	18.2

Notes: 2.  $V_{BR}$  measured with  $I_T$  current pulse = 10 ~ 15ms

3. Per 10 x 1000 $\mu s$  waveform

4. For bidirectional type having  $V_R$  of 20 volts and less, the  $I_R$  limit is double

### V-I Curve



**Typical Performance Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise Specified)

Fig.1 - Pulse Derating Curve

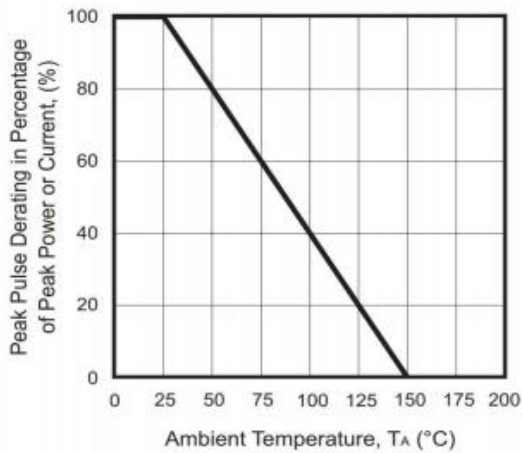


Fig.2 - Steady State Power Derating Curve

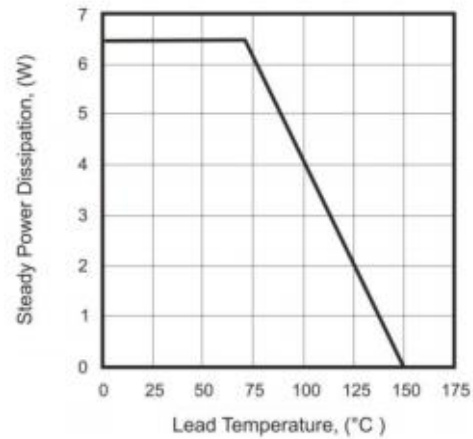


Fig.3 - Pulse Waveform

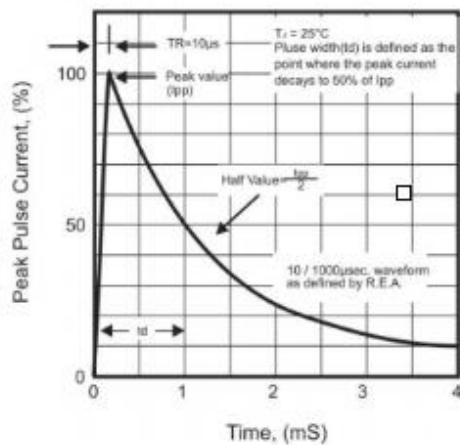
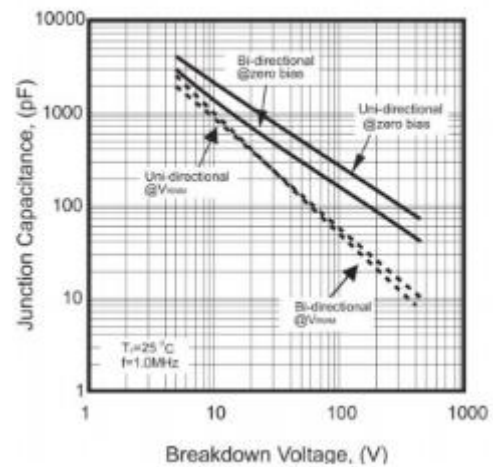
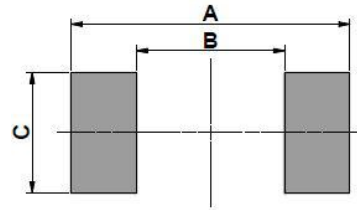
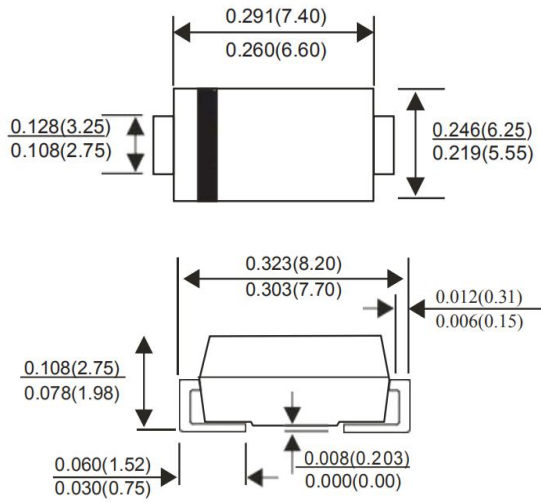


Fig.4 - Typical Junction Capacitance



**Product Dimensions And Suggested PAD Layout**

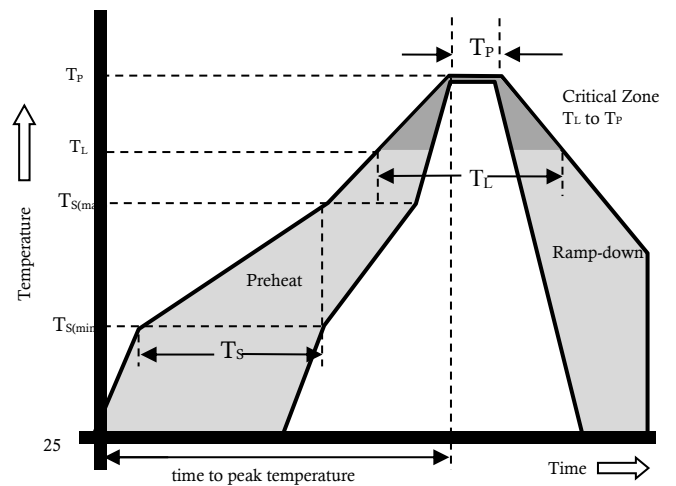


REF	mm	inch
A	8.13	0.32
B	4.69max	0.185max
C	3.2min	0.126min

**SMC/DO-214AB**

**Reflow Profile**

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60 – 180 seconds
Average ramp up rate (Liquidus Temp (T <sub>L</sub> ) to peak)		3°C/second max
T <sub>S(max)</sub> to T <sub>L</sub> - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T <sub>L</sub> ) (Liquidus)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 seconds
Peak Temp (T <sub>P</sub> )		260+0/-5 °C
Time within 5°C of actual Peak Temp (T <sub>P</sub> )		8-15 seconds
Ramp-down Rate		6°C/s max
Time 25°C to peak Temp (T <sub>P</sub> )		8 min max.
Do not exceed		260°C



### Part Number System

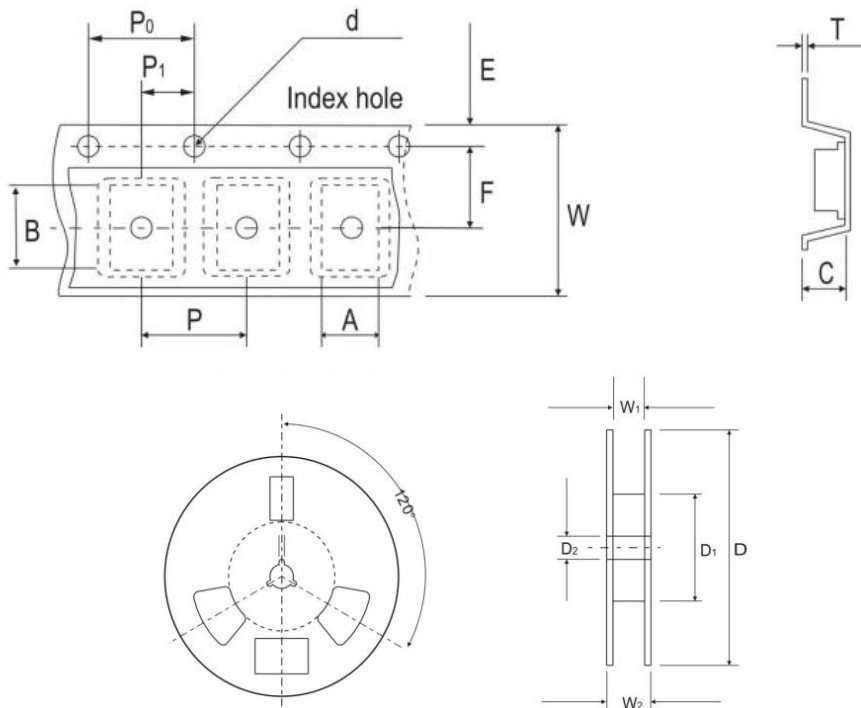
5.0SMDJ XXX C A  
(1) (2) (3) (4)

- (1) Series Code
- (2) Reverse Stand-Off Voltage
- (3)BI-directional
- (4)Suffix 'A' denotes 5% tolerance devices

### Marking Codes

Part Number	5.0SMDJXXXXA
	5.0SMDJXXXXCA
Marking Code	5.0SDJXXXXA
	5.0SMDJXXXXCA

### Reel Taping Specification



DO-214AB (SMC)	SYMBOL	A	B	C	d	T	D	D1	D2
	(mm)	See Note 1			1.55 ± 0.05	0.40 (Max.)	330	50.00 (Min.)	13.00 + 0.50 - 0.20
	(inch)	See Note 1			0.061 ± 0.002	0.016 (Max.)	13	1.969 (Min.)	0.512 + 0.020 - 0.008
	SYMBOL	E	F	P	P0	P1	W	W1	W2
	(mm)	1.75 ± 0.10	7.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	16.00 ± 0.10	16.40 + 2.00 - 0.00	22.40 (Max.)
	(inch)	0.069 ± 0.004	0.295 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.630 ± 0.004	0.646 + 0.079 - 0.000	0.882 (Max.)

### Ordering information

Package	Base qty	Reel Size	Delivery mode
DO-214AB(SMC)	3000 PCS	13 inch	Tape and reel



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