

# Transient Voltage Suppressors DO-214AB/SMC Package

5.0SMDJ Series

MERITEK

## FEATURE

- Peak Power Dissipation: 5000W
- Fast response time.  $I_R$  less than  $2\mu A$  above 22V. Duty cycle: 0.01%
- Excellent clamping capability, Low inductance, Built-in strain relief
- Glass passivated junction
- High Temperature soldering: 260°C, 10 seconds
- Flammability Classification 94V-O.
- UL/cUL safety approved: certification No: E223045



## MAXIMUM RATINGS AND CHARACTERISTICS

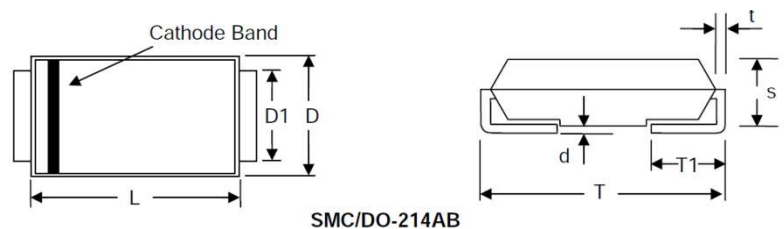
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 $\mu s$ waveform. (Note 1, Fig. 1)	$P_{PPM}$	Minimum 5000	Watts
Peak Pulse Current on 10/1000 $\mu s$ waveform. (Note 1, Fig. 3)	$I_{PPM}$	See Table	Amps
Steady State Power Dissipation at $T_L = 75^\circ C$ , Lead length .375" (9.5mm). (Fig. 5)	$P_{M(AV)}$	6.5	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load	$I_{FSM}$	300	Amps
Operating junction and Storage Temperature Range.	$T_J, T_{STG}$	-65 to +150	$^\circ C$

Ratings at 25°C ambient temperature unless otherwise specified.

1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25^\circ C$  per Fig. 2.
2. Mounted on 8.0mm x 8.0mm Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minute maximum.

## DIMENSIONS

Item	SMC/DO-214AB (mm)	
	Min.	Max.
L	6.60	7.11
D	5.59	6.22
D1	2.90	3.20
T	7.75	8.13
T1	0.76	1.52
d	-	0.203
s	2.06	2.62
t	0.152	0.305



## SPECIFICATIONS

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ $I_T$	Breakdown Voltage Max. @ $I_T$	Test Current	Maximum Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage @ $V_{RWM}$
Uni-Polar	Bi-Polar	Uni	Bi	$V_{RWM}(V)$	$V_{BR MIN.}(V)$	$V_{BR MAX.}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
5.0SMDJ11A	5.0SMDJ11CA	5PEN	5BEN	11.0	12.20	13.50	10	18.2	275.00	800
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12.0	13.30	14.70	10	19.9	252.00	800
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13.0	14.40	15.90	10	21.5	233.00	500
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14.0	15.60	17.20	10	23.2	216.00	200
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15.0	16.70	18.50	1	24.4	205.00	100
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16.0	17.80	19.70	1	26.0	193.00	50
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17.0	18.90	20.90	1	27.6	181.00	20
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18.0	20.00	22.10	1	29.2	172.00	10
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20.0	22.20	24.50	1	32.4	155.00	5

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## SPECIFICATIONS(CONTINUED)

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage Min.@I <sub>T</sub>	Breakdown Voltage Max.@I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RWM</sub>
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)
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22.0	24.40	26.90	1	35.5	141.00	5
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24.0	26.70	29.50	1	38.9	129.00	5
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26.0	28.90	31.90	1	42.1	119.00	5
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28.0	31.10	34.40	1	45.4	110.00	5
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30.0	33.30	36.80	1	48.4	103.00	5
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33.0	36.70	40.60	1	53.3	93.90	5
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36.0	40.00	44.20	1	58.1	86.10	5
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40.0	44.40	49.10	1	64.5	77.60	5
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43.0	47.80	52.80	1	69.4	72.10	5
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45.0	50.00	55.30	1	72.7	68.80	5
5.0SMDJ48A	---	5PFX	---	48.0	53.30	58.90	1	77.4	64.70	5
5.0SMDJ51A	---	5PFZ	---	51.0	56.70	62.70	1	82.4	60.70	5
5.0SMDJ54A	---	5RGE	---	54.0	60.00	66.30	1	87.1	57.50	5
5.0SMDJ58A	---	5PGG	---	58.0	64.40	71.20	1	93.6	53.50	5
5.0SMDJ60A	---	5PGK	---	60.0	66.70	73.70	1	96.8	51.70	5
5.0SMDJ64A	---	5PGM	---	64.0	71.10	78.60	1	103.0	48.60	5
5.0SMDJ70A	---	5PGP	---	70.0	77.80	86.00	1	113.0	44.30	5
5.0SMDJ75A	---	5PGR	---	75.0	83.30	92.10	1	121.0	41.40	5
5.0SMDJ78A	---	5PGT	---	78.0	86.70	95.80	1	126.0	39.70	5
5.0SMDJ85A	---	5PGV	---	85.0	94.40	104.00	1	137.0	36.50	5
5.0SMDJ90A	---	5PGX	---	90.0	100.00	111.00	1	146.0	34.30	5
5.0SMDJ100A	---	5PGZ	---	100.0	111.00	123.00	1	162.0	30.90	5
5.0SMDJ110A	---	5PHE	---	110.0	122.00	135.00	1	177.0	28.30	5
5.0SMDJ120A	---	5PHG	---	120.0	133.00	147.00	1	193.0	26.00	5
5.0SMDJ130A	---	5PHK	---	130.0	144.00	159.00	1	209.0	24.00	5
5.0SMDJ150A	---	5PHM	---	150.0	167.00	185.00	1	243.0	20.60	5
5.0SMDJ160A	---	5PHP	---	160.0	178.00	197.00	1	259.0	19.30	5
5.0SMDJ170A	---	5PHR	---	170.0	189.00	209.00	1	275.0	18.20	5

## RATING AND CHARACTERISTIC CURVES

Figure 1. Peak Pulse Power Rating Curve

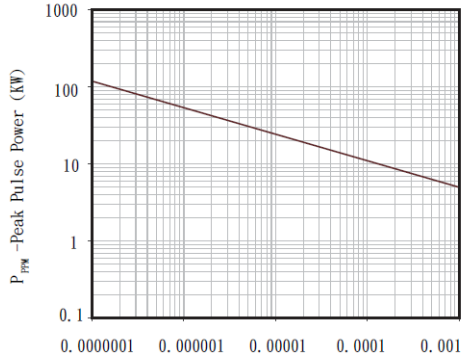


Figure 2. Pulse Derating Curve

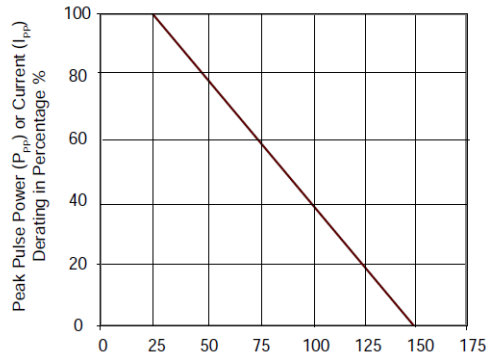


Figure 3. Pulse Waveform

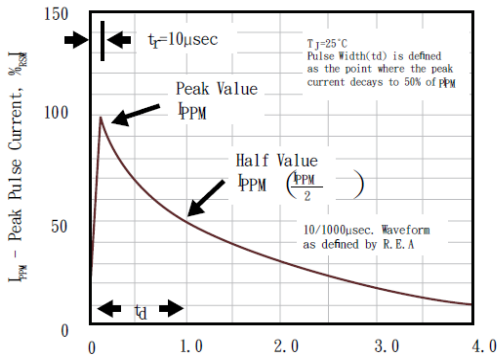


Figure 4. Typical Junction Capacitance

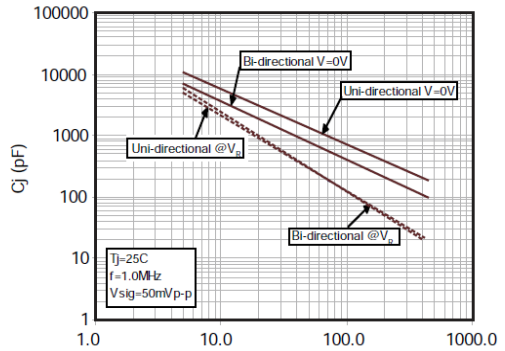


Figure 5. Steady Power Dissipation Derating Curve

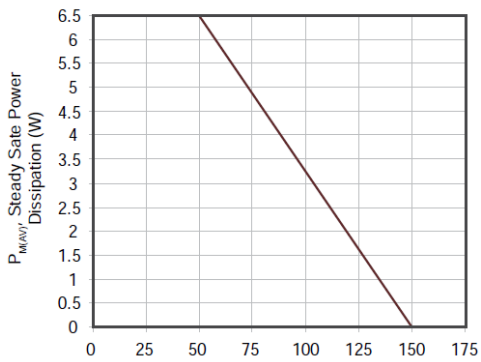
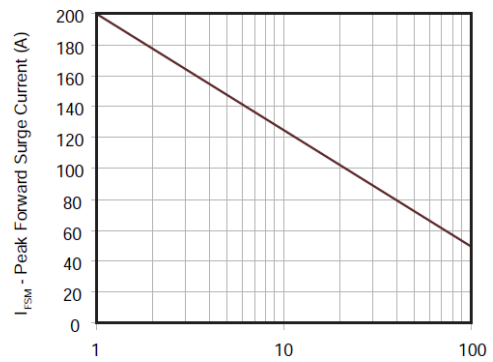


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



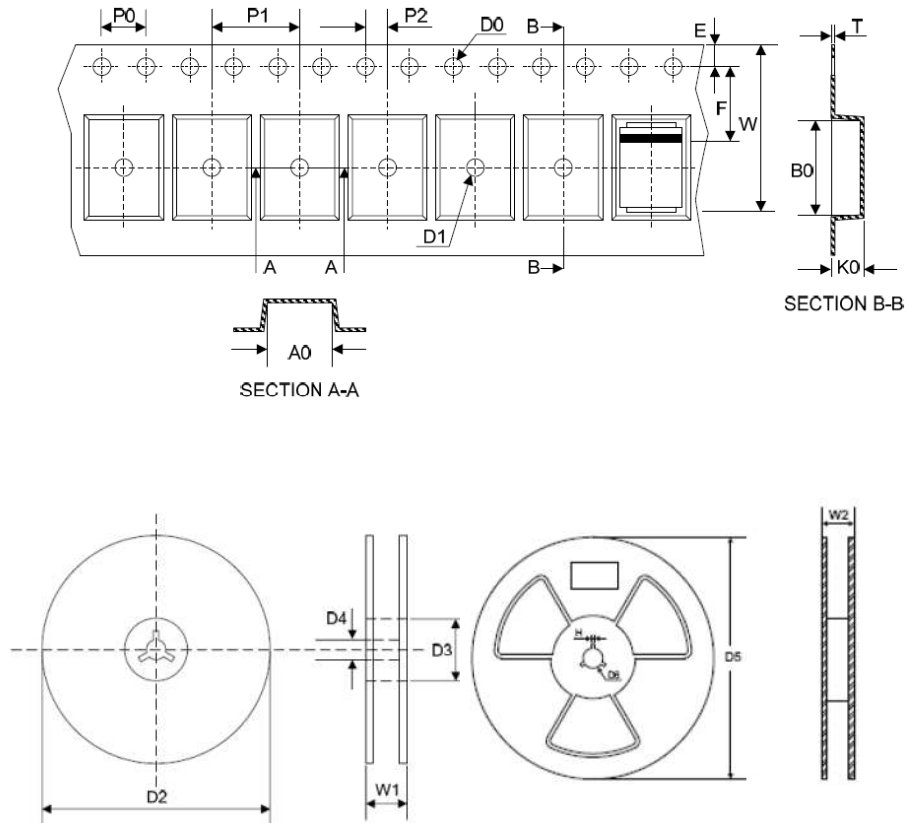
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## PACKAGING SPECIFICATION

Tape	
Symbol	Dimension(mm)
W	16.00±0.20
P0	4.00±0.10
P1	8.00±0.10
P2	2.00±0.10
D0	Φ1.5±0.10
D1	Φ1.5±0.10
E	1.75±0.10
F	7.50±0.10
A0	6.27±0.10
B0	8.30±0.10
K0	3.15±0.15
T	0.30±0.05
D2	Φ178.0±2.0
D3	Φ50.0Min.
D4	Φ13.0±0.5
W1	20.0±2.0
Quantity	500PCS
Reel	
Symbol	Dimension(mm)
D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	20.0±2.0
Quantity	3000PCS



## RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	150°C
	Tempe. Max $T_{s(max)}$	200°C
	Time (min. to max.) ( $t_s$ )	60-180 seconds
Average ramp up rate (Liquidus Temperature) ( $T_A$ ) to peak		3°C/second max.
$T_{s(max)}$ to $T_A$ (Ramp-up rate)		3°C/second max.
Reflow	Temp. ( $T_A$ ) (Liquidus)	217°C
	Time (min. to max.) ( $t_s$ )	60-150 seconds
Peak Temperature ( $T_P$ )		260 <sup>+/-0.5</sup> °C
Time within 5°C of actual peak Temperature ( $t_p$ )		20-40 seconds
Ramp-down Rate		6°C/second max.
Time 25°C to peak Temp. ( $T_P$ )		8 minutes max.

