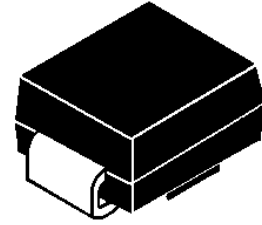




# 5000W Surface Mount Transient Voltage Suppressors

## Features

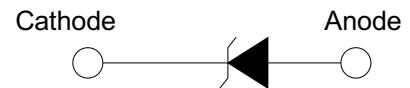
- Peak power dissipation 5000W @10 x 1000 us Pulse
- Low profile package.
- Excellent clamping capability.
- Glass passivated junction.
- Typical  $I_R$  less than 5uA when  $V_{BR}$  above 22V.
- Fast response time: typically less than 1.0ps from 0 Volts to BV min
- IEC 61000-4-2 ESD 30KV(Air), 30KV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- Halogen free and RoHS compliant
- Lead-free finish



**SMC**



Bi-directional



Uni-directional

## Mechanical Characteristics

- CASE: SMC (DO-214AB) Molded Plastic over glass passivated junction.
- Mounting Position: Any
- Polarity: by cathode band denotes uni-directional device, none cathode band denotes bi-directional device.
- Terminal: Solder plated

## Maximum Ratings and Characteristics @ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, 2, FIG.1)	$P_{PPM}$	5000	W
Power Dissipation on Infinite Heat Sink at $T_L=50^\circ\text{C}$	$P_D$	6.5	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	$I_{PPM}$	See Table 1	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2. 3)	$I_{FSM}$	300	A
Operating Junction Temperature Range	$T_J$	-55 to 150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ\text{C}$

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.
2. Mounted on  $8.0 \times 8.0 \text{mm}^2$  (0.03mm thick) Copper Pads to each terminal.
3. Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

# 5.0SMDJ Series

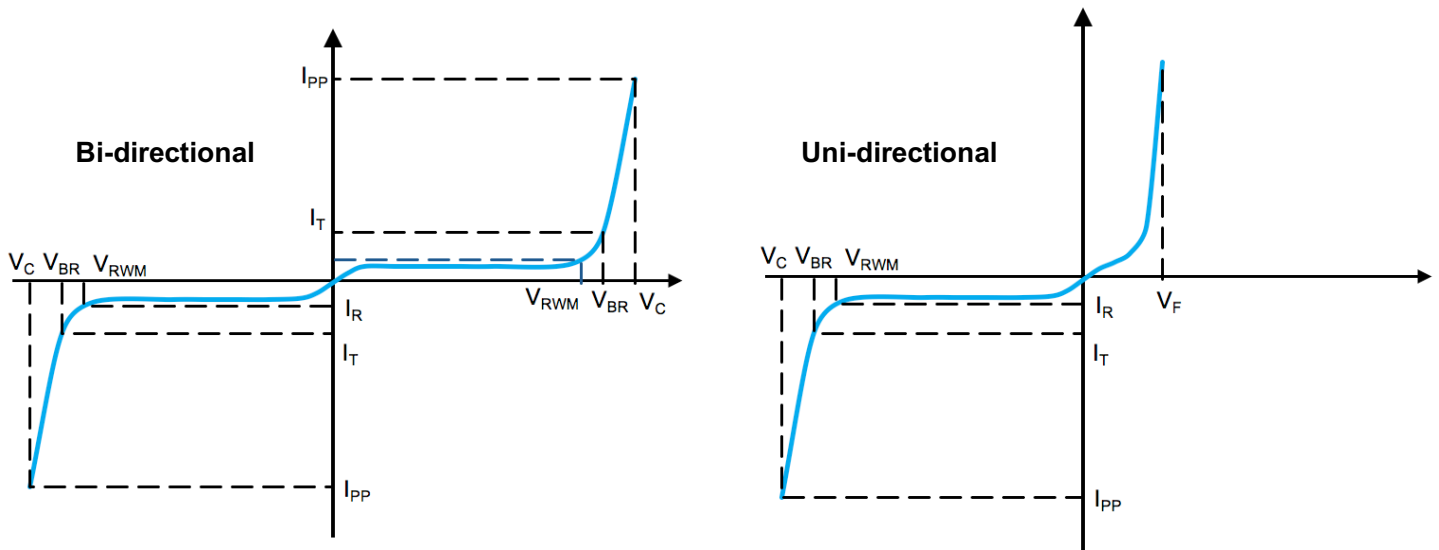
## Electrical Specification @ Tamb 25°C

Type Number		Marking		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)	(Bi)	(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> ( $\mu$ A)
5.0SMDJ5.0A	5.0SMDJ5.0CA	5PDP	5BDP	5	6.4	7.14	50	9.2	543	800
5.0SMDJ6.0A	5.0SMDJ6.0CA	5PDR	5BDR	6	6.67	7.37	50	10.3	485	800
5.0SMDJ6.5A	5.0SMDJ6.5CA	5PDS	5BDS	6.5	7.22	7.98	50	11.2	446	500
5.0SMDJ7.0A	5.0SMDJ7.0CA	5PDT	5BDT	7	7.78	8.6	50	12	417	200
5.0SMDJ7.5A	5.0SMDJ7.5CA	5PDU	5BDU	7.5	8.33	9.21	5	12.9	388	100
5.0SMDJ8.0A	5.0SMDJ8.0CA	5PDV	5BDV	8	8.89	9.83	5	13.6	368	50
5.0SMDJ8.5A	5.0SMDJ8.5CA	5PDW	5BDW	8.5	9.44	10.4	5	14.4	347	50
5.0SMDJ9.0A	5.0SMDJ9.0CA	5PDX	5BDX	9	10	11.1	5	15.4	325	20
5.0SMDJ10A	5.0SMDJ10CA	5PDZ	5BDZ	10	11.1	12.3	5	17	294	10
5.0SMDJ11A	5.0SMDJ11CA	5PDE	5BDE	11	12.2	13.5	5	18.2	275	5
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12	13.3	14.7	5	19.9	251	5
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13	14.4	15.9	5	21.5	233	2
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14	15.6	17.2	5	23.2	216	2
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15	16.7	18.5	5	24.4	205	2
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16	17.8	19.7	5	26	192	2
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17	18.9	20.9	5	27.6	181	2
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18	20	22.1	5	29.2	171	2
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20	22.2	24.5	5	32.4	154	2
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22	24.4	26.9	5	35.5	141	2
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24	26.7	29.5	5	38.9	129	2
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26	28.9	31.9	5	42.1	119	2
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28	31.1	34.4	5	45.4	110	2
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30	33.3	36.8	5	48.4	103	2
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33	36.7	40.6	5	53.3	94	2
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36	40	44.2	5	58.1	86	2
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40	44.4	49.1	5	64.5	78	2
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43	47.8	52.8	5	69.4	72	2
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45	50	55.3	5	72.7	69	2
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	48	53.3	58.9	5	77.4	65	2
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	51	56.7	62.7	5	82.4	61	2
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	54	60	66.3	5	87.1	57	2
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	58	64.4	71.2	5	93.6	53	2
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	60	66.7	73.7	5	96.8	52	2
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	64	71.1	78.6	5	103	49	2
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	70	77.8	86	5	113	44	2
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	75	83.3	92.1	5	121	41	2

# 5.0SMDJ Series

Type Number		Marking		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)	(Bi)	(Uni)	(Bi)	$V_{RWM}(V)$	$V_{BR MIN}(V)$	$V_{BR MAX}(V)$	$I_T (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	78	86.7	95.8	5	126	40	2
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	85	94.4	104	5	137	36	2
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	90	100	111	5	146	34	2
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	100	111	123	5	162	31	2
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	110	122	135	5	177	28	2
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	120	133	147	5	193	26	2
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	130	144	159	5	209	24	2
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	150	167	185	5	243	21	2
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	160	178	197	5	259	19	2
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	170	189	209	5	275	18	2
5.0SMDJ180A	5.0SMDJ180CA	5PHT	5BHT	180	200	221	5	289	17	2
5.0SMDJ200A	5.0SMDJ200CA	5PHV	5BHV	200	211	233	5	310	16	2

## I-V Curve Characteristics



**$P_{PPM}$**  Peak Pulse Power Dissipation - Max power dissipation

**$V_{RWM}$**  Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation

**$V_{BR}$**  Breakdown Voltage – Maximum voltage that flows through the TVS at a specified current ( $I_T$ )

**$V_C$**  Clamping Voltage – Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)

**$I_R$**  Reverse Leakage Current – Current measured at  $V_R$

**$V_F$**  Forward Voltage Drop for Uni-directional

## Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

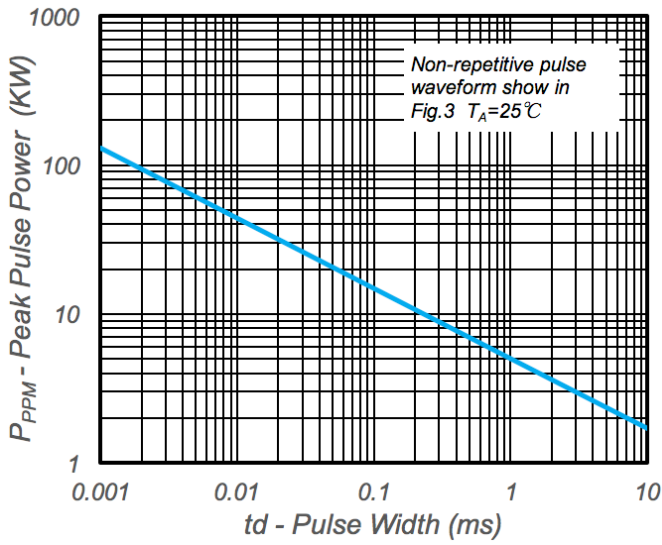


Fig.1 - Peak Pulse Power Rating

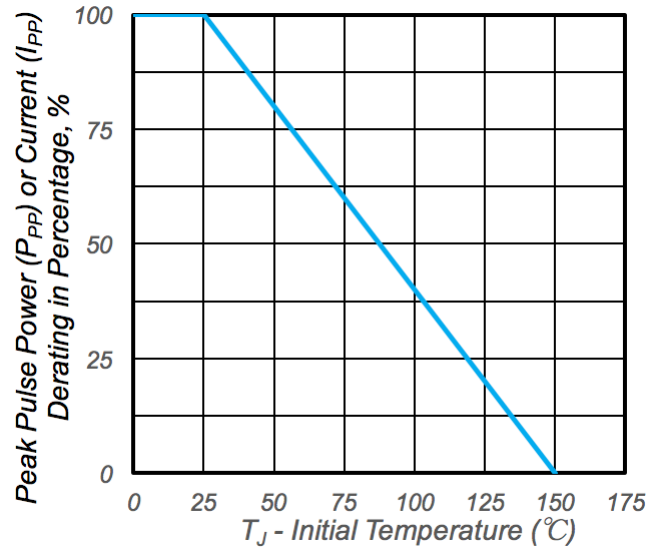


Fig.2 - Pulse Derating Curve

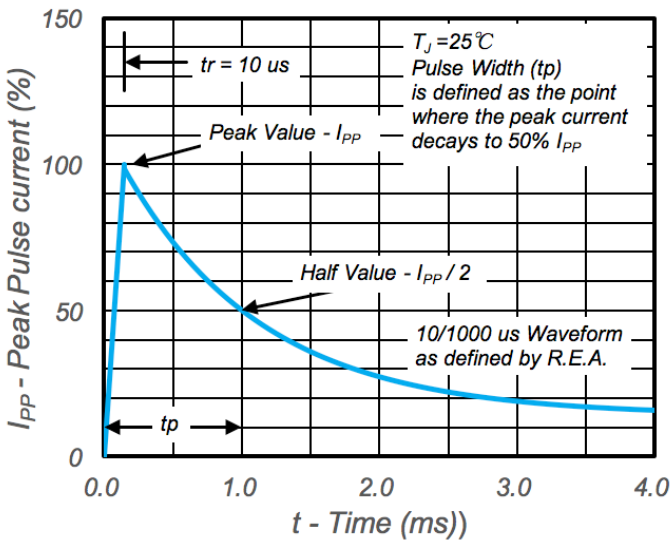


Fig.3 - Pulse Waveform

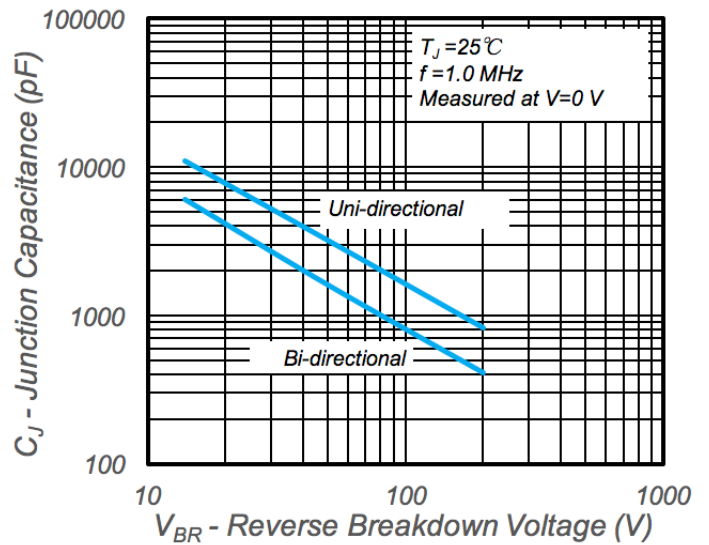
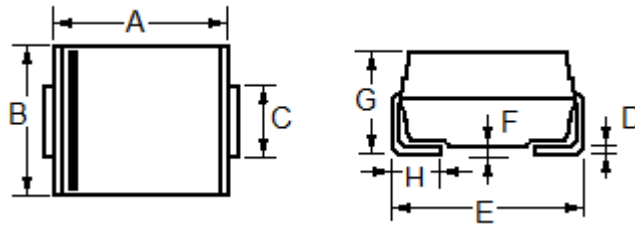


Fig.4 - Typical Junction Capacitance

## Package Outline Dimensions and Pad Layouts

### DO-214AB (SMC)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	6.60	7.11	0.260	0.280
B	5.59	6.22	0.220	0.245
C	2.90	3.20	0.114	0.126
D	0.125	0.305	0.006	0.012
E	7.75	8.13	0.305	0.320
F	----	0.203	----	0.008
G	2.06	2.62	0.079	0.103
H	0.76	1.52	0.030	0.060