

5.0SMDJ Series 5000W Transient Voltage Suppressors

Features

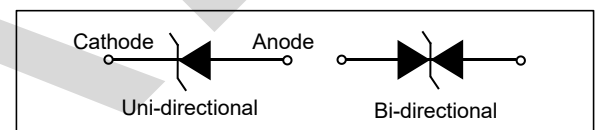
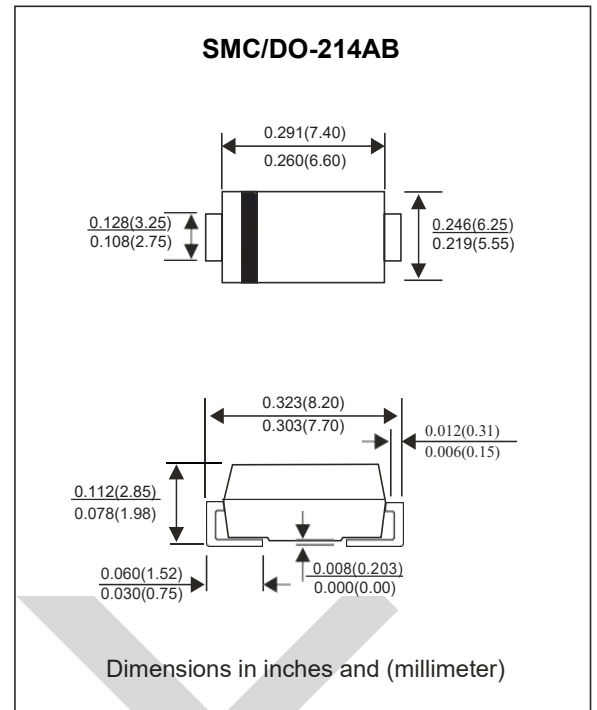
- Glass passivated chip.
- 5000W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- UL recognized file number: E541251 
- Range: 5.0SMDJ11A(CA) Thru. 5.0SMDJ440A(CA)

Mechanical Data

- Case: DO-214AB/SMC molded plastic.
- Epoxy: UL 94V-0 rate flame retardant.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denoted cathode end except bipolar.
- Moisture Sensitivity: Level 1 per J-STD-020.
- RoHS Compliant.

Circuit Diagram

- Terminal Connections: See Diagram Below Right



Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	5000	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	6.5	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	300	A
Maximum instantaneous forward voltage at 100 A for unidirectional only ⁽³⁾	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to +150	$^\circ\text{C}$

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above $T_A= 25^\circ\text{C}$ per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3) $V_F<3.5\text{V}$ for devices of $V_{BR}<200\text{V}$ and $V_F<5.0\text{V}$ for devices of $V_{BR}>201\text{V}$

Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V _{BR} @I _T			Maximum Reverse Leakage I _R @V _{RWM} (μA)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} (A)	Maximum Clamping Voltage V _C @I _{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I _T (mA)				
5.0SMDJ11A	5.0SMDJ11CA	5PDX	5BDX	12.20	13.50	10	800	11.0	274.73	18.2
5.0SMDJ12A	5.0SMDJ12CA	5PDZ	5BDZ	13.30	14.70	10	800	12.0	251.26	19.9
5.0SMDJ13A	5.0SMDJ13CA	5PEE	5BEE	14.40	15.90	10	500	13.0	232.56	21.5
5.0SMDJ14A	5.0SMDJ14CA	5PEG	5BEG	15.60	17.20	10	200	14.0	215.52	23.2
5.0SMDJ15A	5.0SMDJ15CA	5PEK	5BEK	16.70	18.50	1	100	15.0	204.92	24.4
5.0SMDJ16A	5.0SMDJ16CA	5PEM	5BEM	17.80	19.70	1	50	16.0	192.31	26.0
5.0SMDJ17A	5.0SMDJ17CA	5PEP	5BEP	18.90	20.90	1	20	17.0	181.16	27.6
5.0SMDJ18A	5.0SMDJ18CA	5PER	5BER	20.00	22.10	1	10	18.0	171.23	29.2
5.0SMDJ19A	5.0SMDJ19CA	5PET	5BET	21.10	23.30	1	10	19.0	162.44	30.8
5.0SMDJ20A	5.0SMDJ20CA	5PEV	5BEV	22.20	24.50	1	5	20.0	154.32	32.4
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	24.40	26.90	1	5	22.0	140.85	35.5
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	26.70	29.50	1	5	24.0	128.53	38.9
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	28.90	31.90	1	5	26.0	118.76	42.1
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	31.10	34.40	1	5	28.0	110.13	45.4
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	33.30	36.80	1	5	30.0	103.31	48.4
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	36.70	40.60	1	5	33.0	93.81	53.3
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	40.00	44.20	1	5	36.0	86.06	58.1
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	44.40	49.10	1	5	40.0	77.52	64.5
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	47.80	52.80	1	5	43.0	72.05	69.4
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	50.00	55.30	1	5	45.0	68.78	72.7
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	53.30	58.90	1	5	48.0	64.60	77.4
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	56.70	62.70	1	5	51.0	60.68	82.4
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	60.00	66.30	1	5	54.0	57.41	87.1
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	64.40	71.20	1	5	58.0	53.42	93.6
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	66.70	73.70	1	5	60.0	51.65	96.8
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	71.10	78.60	1	5	64.0	48.54	103.0
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	77.80	86.00	1	5	70.0	44.25	113.0
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	83.30	92.10	1	5	75.0	41.32	121.0
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	86.70	95.80	1	5	78.0	39.68	126.0
5.0SMDJ80A	5.0SMDJ80CA	5PGB	5BGB	88.80	97.60	1	5	80.0	38.58	129.6

Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V _{BR} @I _T			Maximum Reverse Leakage I _R @V _{RWM} (μA)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} (A)	Maximum Clamping Voltage V _C @I _{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I _T (mA)				
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	94.40	104.00	1	5	85.0	36.50	137.0
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	100.00	111.00	1	5	90.0	34.25	146.0
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	111.00	123.00	1	5	100.0	30.86	162.0
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	122.00	135.00	1	5	110.0	28.25	177.0
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	133.00	147.00	1	5	120.0	25.91	193.0
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	144.00	159.00	1	5	130.0	23.92	209.0
5.0SMDJ140A	5.0SMDJ140CA	5PHB	5BHB	155.00	171.00	1	5	140.0	22.05	226.8
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	167.00	185.00	1	5	150.0	20.58	243.0
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	178.00	197.00	1	5	160.0	19.31	259.0
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	189.00	209.00	1	5	170.0	18.18	275.0
5.0SMDJ180A	5.0SMDJ180CA	5PHT	5BHT	200.00	220.00	1	5	180.0	17.15	291.6
5.0SMDJ190A	5.0SMDJ190CA	5PHV	5BHV	211.00	232.00	1	5	190.0	16.24	307.8
5.0SMDJ200A	5.0SMDJ200CA	5PHW	5BHW	224.00	247.00	1	5	200.0	15.43	324.0
5.0SMDJ220A	5.0SMDJ220CA	5PHX	5BHX	246.00	272.00	1	5	220.0	14.04	356.0
5.0SMDJ250A	5.0SMDJ250CA	5PHZ	5BHZ	279.00	309.00	1	5	250.0	12.35	405.0
5.0SMDJ300A	5.0SMDJ300CA	5PJE	5BJE	335.00	371.00	1	5	300.0	10.29	486.0
5.0SMDJ350A	5.0SMDJ350CA	5PJG	5BJG	391.00	432.00	1	5	350.0	8.82	567.0
5.0SMDJ400A	5.0SMDJ400CA	5PJK	5BJK	447.00	494.00	1	5	400.0	7.72	648.0
5.0SMDJ440A	5.0SMDJ440CA	5PJM	5BJM	492.00	543.00	1	5	440.0	7.01	713.0

Note:

- 1.Add suffix ' CA ' after part number to specify Bi-directional devices
- 2.For Bi-Directional devices having V_R of 20 volts and under, the I_R limit is double

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

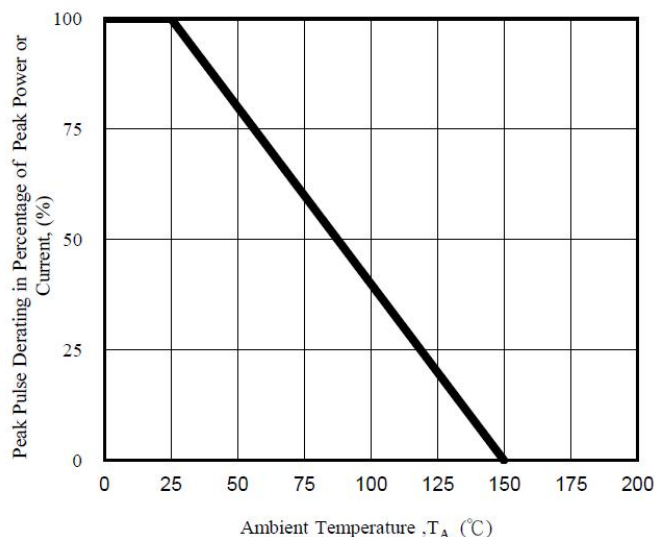


Fig. 1 - Pulse Derating Curve

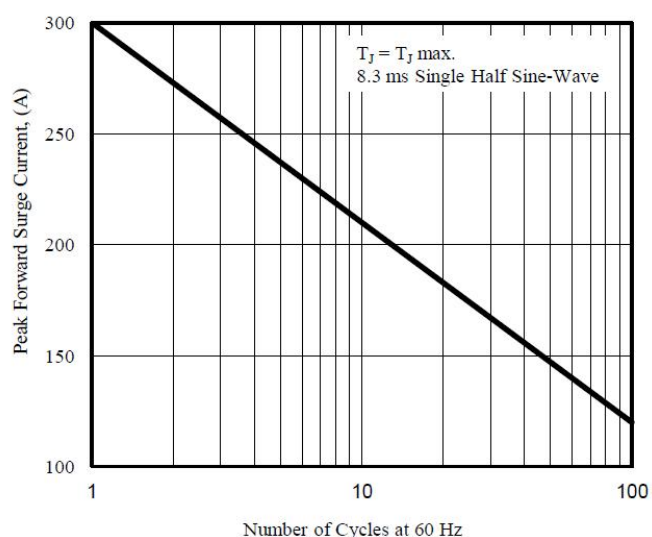


Fig. 2 - Maximum Non-Repetitive Surge Current

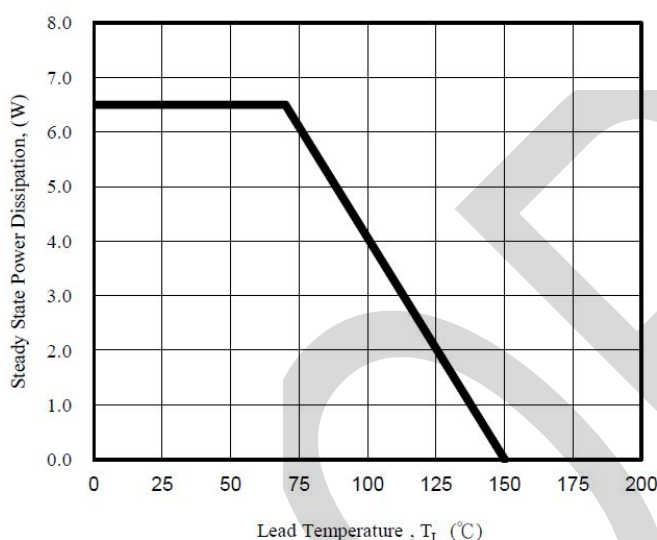


Fig. 3 - Steady State Power Derating Curve

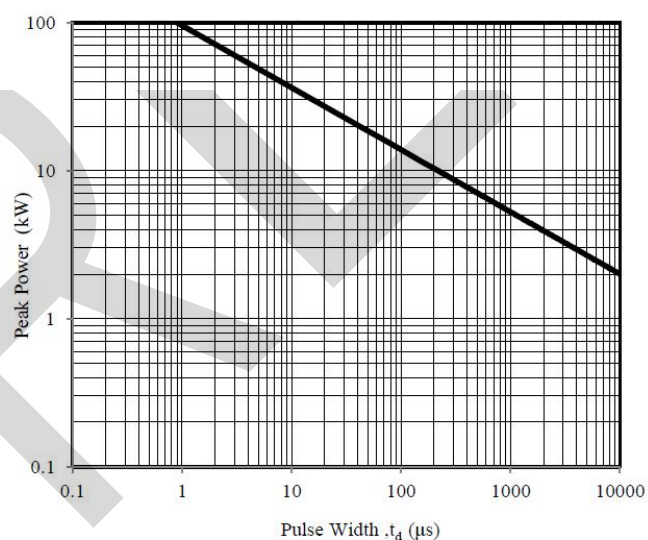


Fig. 4 - Peak Pulse Power Rating Curve

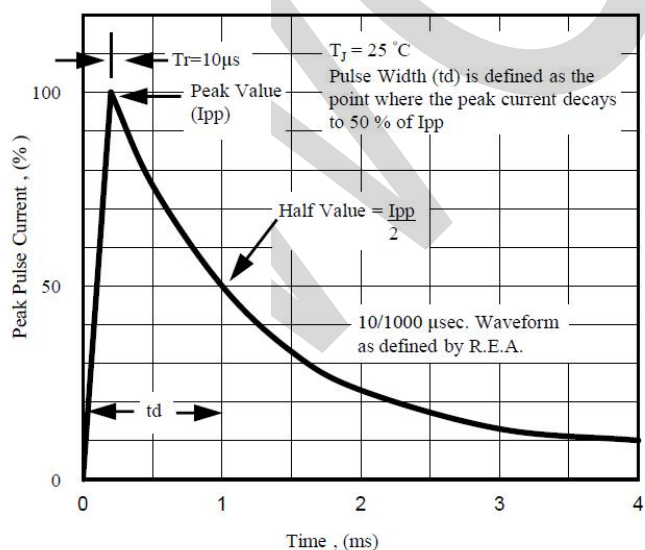


Fig. 5 - Pulse Waveform

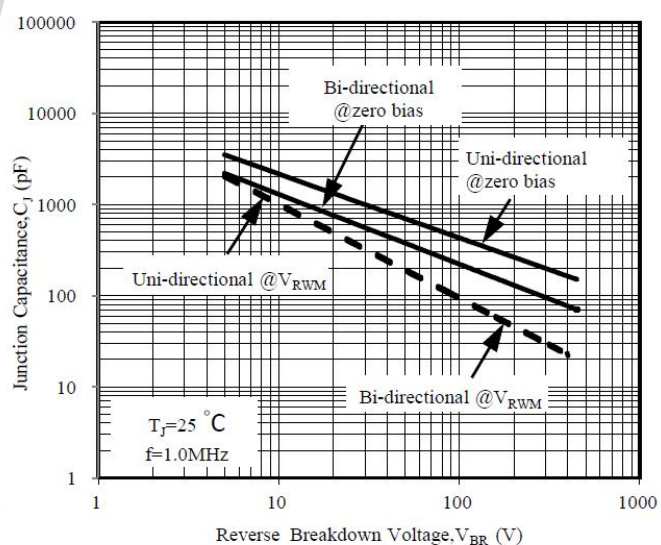
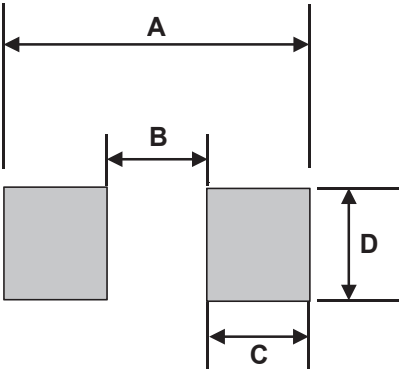


Fig. 6 - Typical Junction Capacitance

Suggested PAD Layout

SIZE	DO-214AB(SMC)		
	(mm)	(inch)	
A	8.13	0.320	
B	4.69 MAX	0.185 MAX	
C	1.52 MIN	0.06 MIN	
D	3.20 MIN	0.126 MIN	

Marking Code

Part Number	
5.0SMDJ11A(CA) Thru. 5.0SMDJ440A(CA)	
Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.) 5PDX: Marking Code XXXX: Tracking Code	