SMDJ5.0(C)A~SMDJ440(C)A

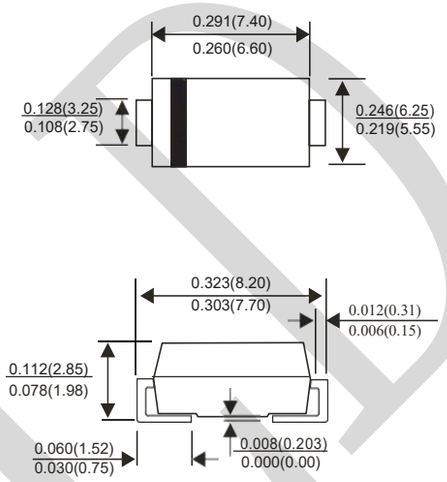
18-Mar-2023

SMDJ Series 3000W Transient Voltage Suppressors

Features

- Glass passivated chip.
- 3000W peak pulse power capability with a 10/1000μs waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.

SMC/DO-214AB



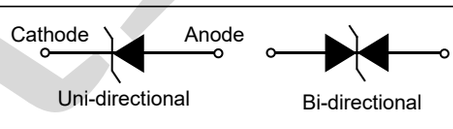
Dimensions in inches and (millimeter)

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°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform(1)	P_{PP}	3000	W
Peak pulse current with a 10/1000μs waveform(1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at T_L = 75 °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	°C

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above T_A= 25 °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<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

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)				
SMDJ5.0A	SMDJ5.0CA	PDE	DDE	6.40	7.00	10	800	5.0	326.09	9.2
SMDJ6.0A	SMDJ6.0CA	PDG	DDG	6.67	7.37	10	800	6.0	291.26	10.3
SMDJ6.5A	SMDJ6.5CA	PDK	DDK	7.22	7.98	10	500	6.5	267.86	11.2
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7.78	8.60	10	200	7.0	250.00	12.0
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	8.33	9.21	1	100	7.5	232.56	12.9
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8.89	9.83	1	50	8.0	220.59	13.6
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	9.44	10.40	1	20	8.5	208.33	14.4
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	10.00	11.10	1	10	9.0	194.81	15.4
SMDJ10A	SMDJ10CA	PDX	DDX	11.10	12.30	1	5	10.0	176.47	17.0
SMDJ11A	SMDJ11CA	PDZ	DDZ	12.20	13.50	1	2	11.0	164.84	18.2
SMDJ12A	SMDJ12CA	PEE	DEE	13.30	14.70	1	2	12.0	150.75	19.9
SMDJ13A	SMDJ13CA	PEG	DEG	14.40	15.90	1	2	13.0	139.53	21.5
SMDJ14A	SMDJ14CA	PEK	DEK	15.60	17.20	1	2	14.0	129.31	23.2
SMDJ15A	SMDJ15CA	PEM	DEM	16.70	18.50	1	2	15.0	122.95	24.4
SMDJ16A	SMDJ16CA	PEP	DEP	17.80	19.70	1	2	16.0	115.38	26.0
SMDJ17A	SMDJ17CA	PER	DER	18.90	20.90	1	2	17.0	108.70	27.6
SMDJ18A	SMDJ18CA	PET	DET	20.00	22.10	1	2	18.0	102.74	29.2
SMDJ19A	SMDJ19CA	PEB	DEB	21.10	23.30	1	2	19.0	97.47	30.8
SMDJ20A	SMDJ20CA	PEV	DEV	22.20	24.50	1	2	20.0	92.59	32.4
SMDJ22A	SMDJ22CA	PEX	DEX	24.40	26.90	1	2	22.0	84.51	35.5
SMDJ24A	SMDJ24CA	PEZ	DEZ	26.70	29.50	1	2	24.0	77.12	38.9
SMDJ26A	SMDJ26CA	PFE	DFE	28.90	31.90	1	2	26.0	71.26	42.1
SMDJ28A	SMDJ28CA	PFG	DFG	31.10	34.40	1	2	28.0	66.08	45.4
SMDJ30A	SMDJ30CA	PFK	DFK	33.30	36.80	1	2	30.0	61.98	48.4
SMDJ33A	SMDJ33CA	PFM	DFM	36.70	40.60	1	2	33.0	56.29	53.3
SMDJ36A	SMDJ36CA	PFP	DFP	40.00	44.20	1	2	36.0	51.64	58.1
SMDJ40A	SMDJ40CA	PFR	DFR	44.40	49.10	1	2	40.0	46.51	64.5
SMDJ43A	SMDJ43CA	PFT	DFT	47.80	52.80	1	2	43.0	43.23	69.4
SMDJ45A	SMDJ45CA	PFV	DFV	50.00	55.30	1	2	45.0	41.27	72.7
SMDJ48A	SMDJ48CA	PFX	DFX	53.30	58.90	1	2	48.0	38.76	77.4

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)				
SMDJ51A	SMDJ51CA	PFZ	DFZ	56.70	62.70	1	2	51.0	36.41	82.4
SMDJ54A	SMDJ54CA	PGE	DGE	60.00	66.30	1	2	54.0	34.44	87.1
SMDJ58A	SMDJ58CA	PGG	DGG	64.40	71.20	1	2	58.0	32.05	93.6
SMDJ60A	SMDJ60CA	PGK	DGK	66.70	73.70	1	2	60.0	30.99	96.8
SMDJ64A	SMDJ64CA	PGM	DGM	71.10	78.60	1	2	64.0	29.13	103.0
SMDJ70A	SMDJ70CA	PGP	DGP	77.80	86.00	1	2	70.0	26.55	113.0
SMDJ75A	SMDJ75CA	PGR	DGR	83.30	92.10	1	2	75.0	24.79	121.0
SMDJ78A	SMDJ78CA	PGT	DGT	86.70	95.80	1	2	78.0	23.81	126.0
SMDJ80A	SMDJ80CA	PGB	DGB	88.80	97.60	1	2	80.0	23.15	129.6
SMDJ85A	SMDJ85CA	PGV	DGV	94.40	104.00	1	2	85.0	21.90	137.0
SMDJ90A	SMDJ90CA	PGX	DGX	100.00	111.00	1	2	90.0	20.55	146.0
SMDJ100A	SMDJ100CA	PGZ	DGZ	111.00	123.00	1	2	100.0	18.52	162.0
SMDJ110A	SMDJ110CA	PHE	DHE	122.00	135.00	1	2	110.0	16.95	177.0
SMDJ120A	SMDJ120CA	PHG	DHG	133.00	147.00	1	2	120.0	15.54	193.0
SMDJ130A	SMDJ130CA	PHK	DHK	144.00	159.00	1	2	130.0	14.35	209.0
SMDJ140A	SMDJ140CA	PHB	DHB	155.00	171.00	1	2	140.0	13.23	226.8
SMDJ150A	SMDJ150CA	PHM	DHM	167.00	185.00	1	2	150.0	12.35	243.0
SMDJ160A	SMDJ160CA	PHP	DHP	178.00	197.00	1	2	160.0	11.58	259.0
SMDJ170A	SMDJ170CA	PHR	DHR	189.00	209.00	1	2	170.0	10.91	275.0
SMDJ180A	SMDJ180CA	PHT	DHT	200.00	220.00	1	2	180.0	10.29	291.6
SMDJ190A	SMDJ190CA	PHV	DHV	211.00	232.00	1	2	190.0	9.75	307.8
SMDJ200A	SMDJ200CA	PHW	DHW	224.00	247.00	1	2	200.0	9.26	324.0
SMDJ220A	SMDJ220CA	PHX	DHX	246.00	272.00	1	2	220.0	8.43	356.0
SMDJ250A	SMDJ250CA	PHZ	DHZ	279.00	309.00	1	2	250.0	7.41	405.0
SMDJ300A	SMDJ300CA	PJE	DJE	335.00	371.00	1	2	300.0	6.17	486.0
SMDJ350A	SMDJ350CA	PJG	DJG	391.00	432.00	1	2	350.0	5.29	567.0
SMDJ400A	SMDJ400CA	PJK	DJK	447.00	494.00	1	2	400.0	4.63	648.0
SMDJ440A	SMDJ440CA	PJM	DJM	492.00	543.00	1	2	440.0	4.21	713.0

Note:

1.Add suffix ' CA ' after part number to specify Bi-directional devices

2.For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double

Ratings and Characteristics Curves (T_A=25°C unless otherwise noted)

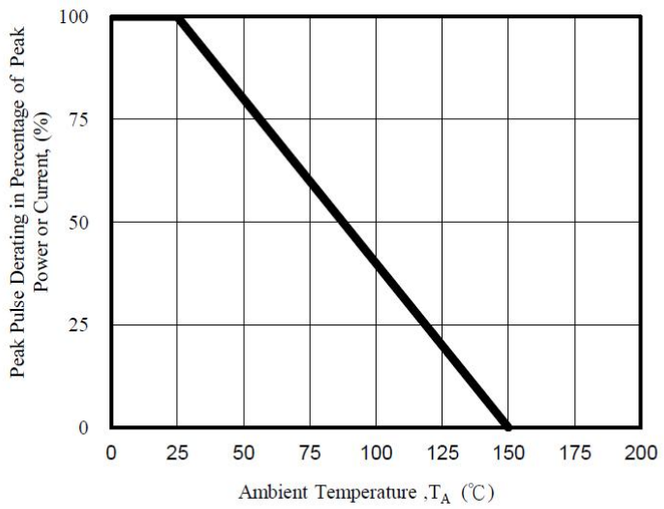


Fig. 1 - Pulse Derating Curve

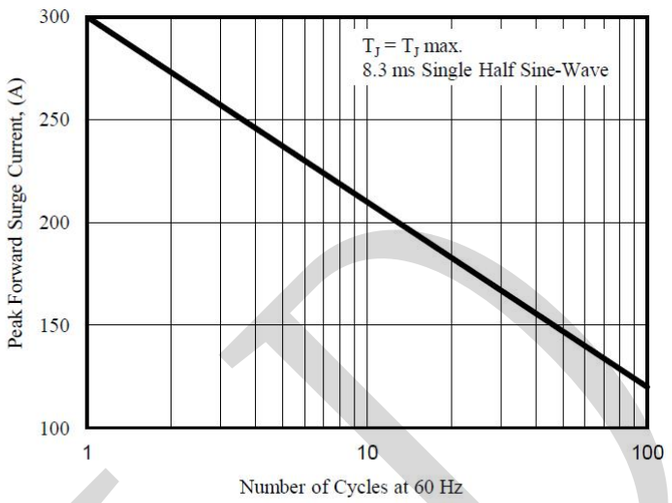


Fig. 2 - Maximum Non-Repetitive Surge Current

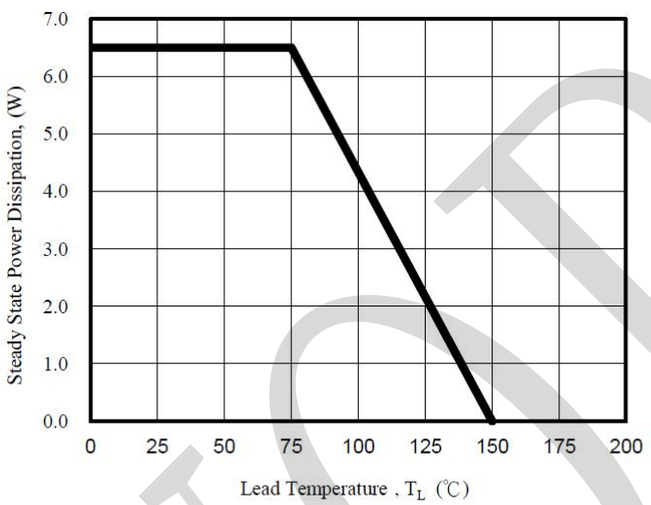


Fig. 3 - Steady State Power Derating Curve

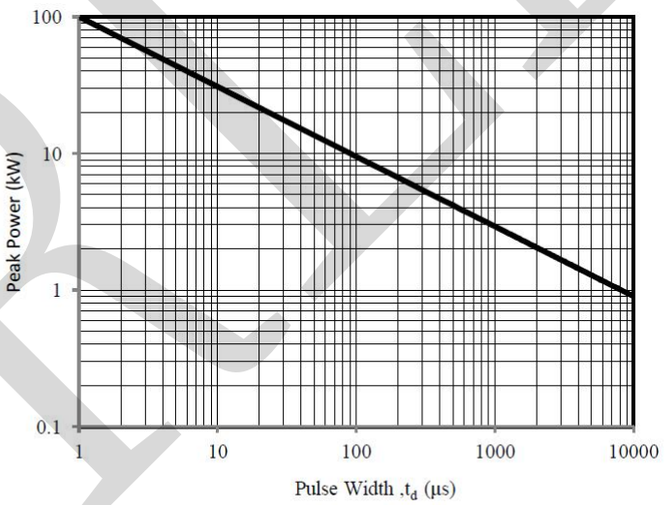


Fig. 4 - Peak Pulse Power Rating Curve

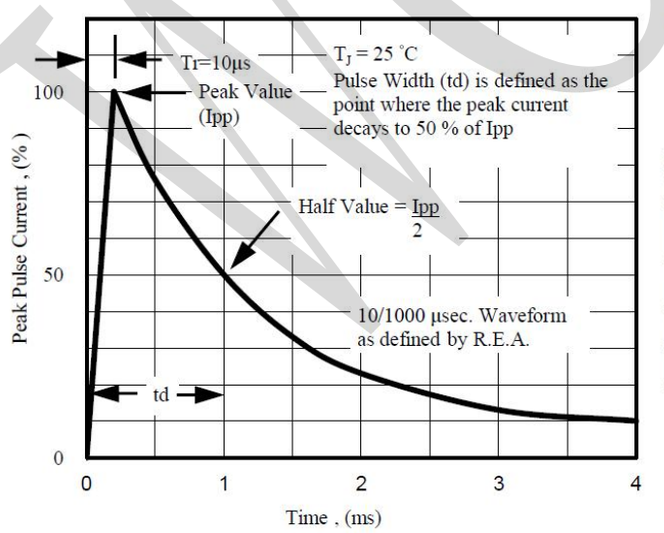


Fig. 5 - Pulse Waveform

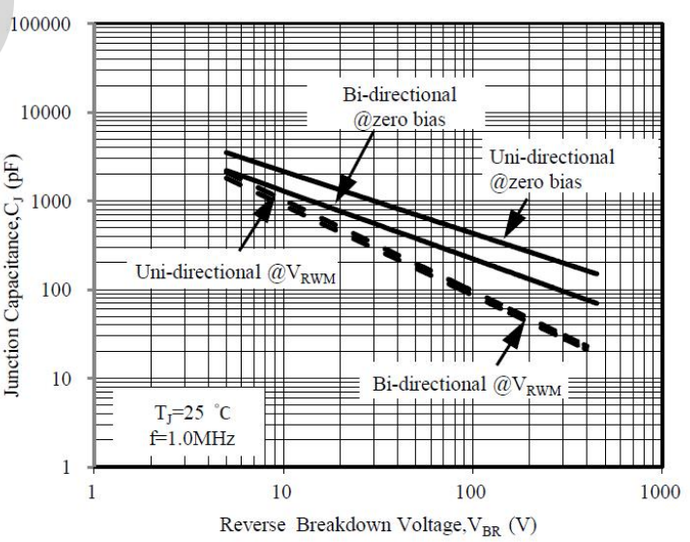
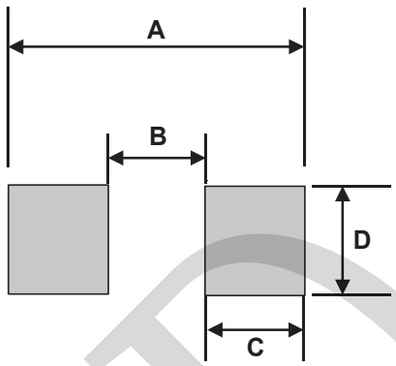


Fig. 6 - Typical Junction Capacitance

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
SMDJ5.0(C)A~SMDJ440(C)A
Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.) **PDE: Marking Code** **XXXX: Tracking Code**

Ordering Information

Part Number	Package	Weight	Base qty	Reel Size	Delivery mode
		grams(approx.)	(pcs)	(inch)	
SMDJ5.0(C)A~SMDJ 440(C)A	DO-214AB (SMC)	0.230	3000	13	Tape and reel