

Working Voltage: 11 to 440 V

Peak Pulse Power: 5000 W

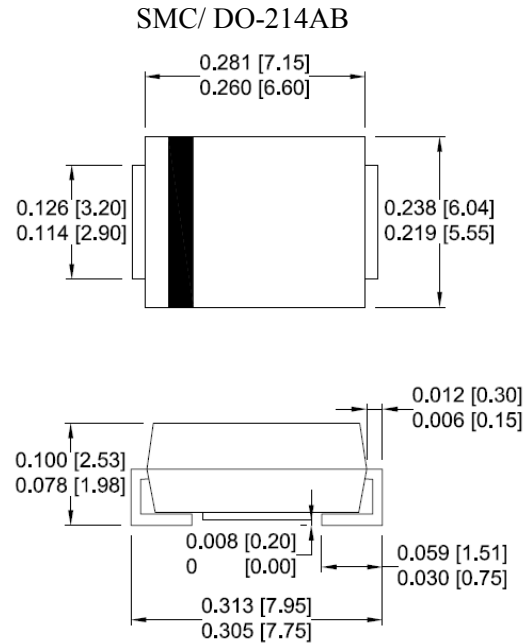
Surface Mount Transient Voltage Suppressors

Features

- Glass passivated chip
- 5000 W 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
- RoHS compliant

Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



Dimensions: inch[mm]

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 $V_{BR} > 201\text{V}$

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

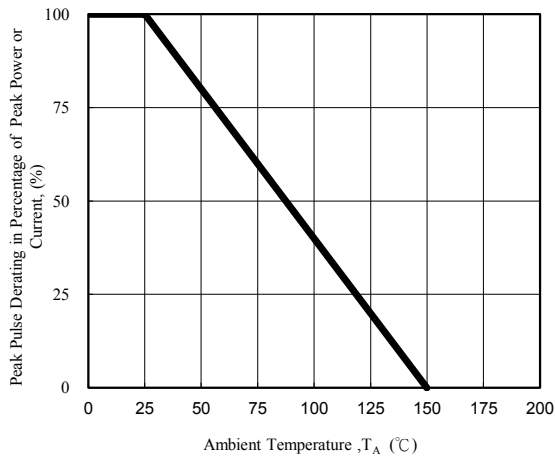


Fig. 1 - Pulse Derating Curve

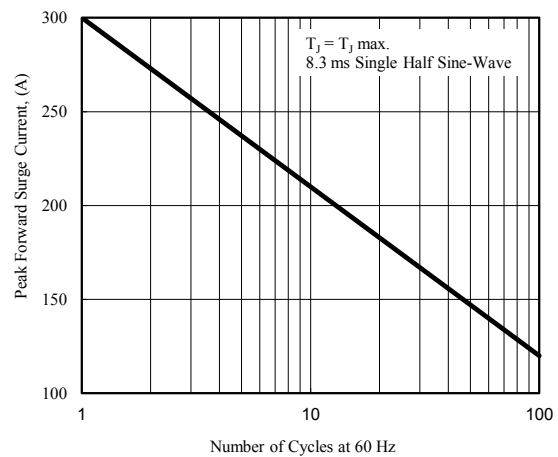


Fig. 2 - Maximum Non-Repetitive Surge Current

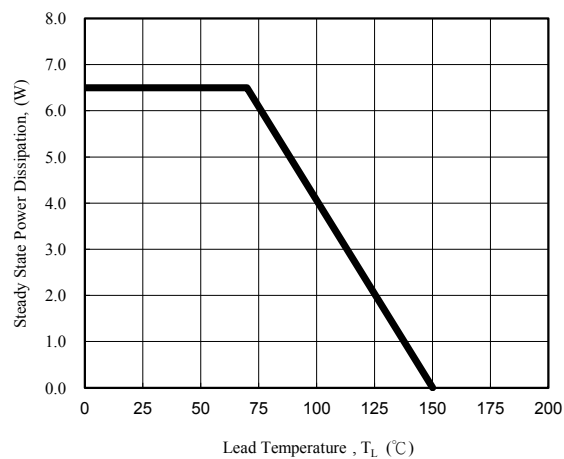


Fig. 3 - Steady State Power Derating Curve

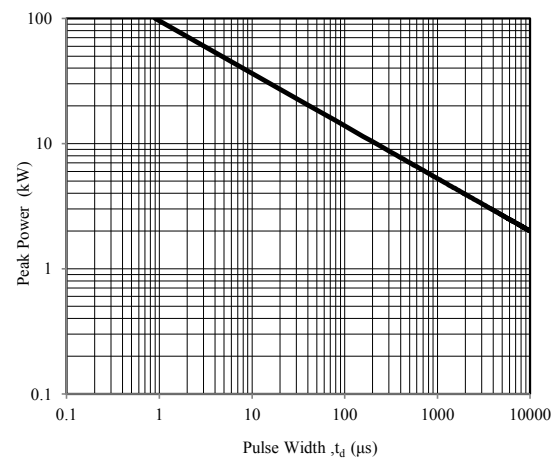


Fig. 4 - Peak Pulse Power Rating Curve

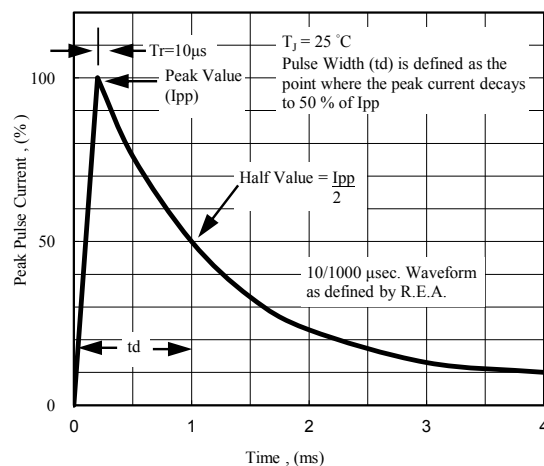


Fig. 5 - Pulse Waveform

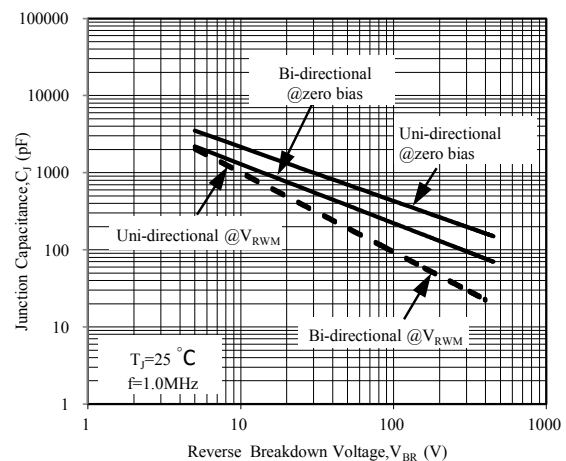


Fig. 6 - Typical Junction Capacitance

Electrical Characteristics ($T_A=25^\circ\text{C}$ 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)				
5.0SMDJ11	5.0SMDJ11C	SPDW	5BDW	12.20	14.90	10	800	11.0	248.76	20.1
5.0SMDJ11A	5.0SMDJ11CA	SPDX	5BDX	12.20	13.50	10	800	11.0	274.73	18.2
5.0SMDJ12	5.0SMDJ12C	SPDY	5BDY	13.30	16.30	10	800	12.0	227.27	22.0
5.0SMDJ12A	5.0SMDJ12CA	SPDZ	5BDZ	13.30	14.70	10	800	12.0	251.26	19.9
5.0SMDJ13	5.0SMDJ13C	SPED	5BED	14.40	17.60	10	500	13.0	210.08	23.8
5.0SMDJ13A	5.0SMDJ13CA	SPEE	5BEE	14.40	15.90	10	500	13.0	232.56	21.5
5.0SMDJ14	5.0SMDJ14C	SPEF	5BEF	15.60	19.10	10	200	14.0	193.80	25.8
5.0SMDJ14A	5.0SMDJ14CA	SPEG	5BEG	15.60	17.20	10	200	14.0	215.52	23.2
5.0SMDJ15	5.0SMDJ15C	SPEH	5BEH	16.70	20.40	1	100	15.0	185.87	26.9
5.0SMDJ15A	5.0SMDJ15CA	SPEK	5BEK	16.70	18.50	1	100	15.0	204.92	24.4
5.0SMDJ16	5.0SMDJ16C	SPEL	5BEL	17.80	21.80	1	50	16.0	173.61	28.8
5.0SMDJ16A	5.0SMDJ16CA	SPEM	5BEM	17.80	19.70	1	50	16.0	192.31	26.0
5.0SMDJ17	5.0SMDJ17C	SPEN	5BEN	18.90	23.10	1	20	17.0	163.93	30.5
5.0SMDJ17A	5.0SMDJ17CA	SPEP	5BEP	18.90	20.90	1	20	17.0	181.16	27.6
5.0SMDJ18	5.0SMDJ18C	SPEQ	5BEQ	20.00	24.40	1	10	18.0	155.28	32.2
5.0SMDJ18A	5.0SMDJ18CA	SPER	5BER	20.00	22.10	1	10	18.0	171.23	29.2
5.0SMDJ19	5.0SMDJ19C	SPES	5BES	21.13	25.76	1	10	19.0	147.02	34.0
5.0SMDJ19A	5.0SMDJ19CA	SPET	5BET	21.10	23.30	1	10	19.0	162.44	30.8
5.0SMDJ20	5.0SMDJ20C	SPEU	5BEU	22.20	27.10	1	5	20.0	139.66	35.8
5.0SMDJ20A	5.0SMDJ20CA	SPEV	5BEV	22.20	24.50	1	5	20.0	154.32	32.4
5.0SMDJ22	5.0SMDJ22C	SPEW	5BEW	24.40	29.80	1	5	22.0	126.90	39.4
5.0SMDJ22A	5.0SMDJ22CA	SPEX	5BEX	24.40	26.90	1	5	22.0	140.85	35.5
5.0SMDJ24	5.0SMDJ24C	SPEY	5BEY	26.70	32.60	1	5	24.0	116.28	43.0
5.0SMDJ24A	5.0SMDJ24CA	SPEZ	5BEZ	26.70	29.50	1	5	24.0	128.53	38.9
5.0SMDJ26	5.0SMDJ26C	SPFD	5BFD	28.90	35.30	1	5	26.0	107.30	46.6
5.0SMDJ26A	5.0SMDJ26CA	SPFE	5BFE	28.90	31.90	1	5	26.0	118.76	42.1
5.0SMDJ28	5.0SMDJ28C	SPFF	5BFF	31.10	38.00	1	5	28.0	100.00	50.0
5.0SMDJ28A	5.0SMDJ28CA	SPFG	5BFG	31.10	34.40	1	5	28.0	110.13	45.4
5.0SMDJ30	5.0SMDJ30C	SPFH	5BFH	33.30	40.70	1	5	30.0	93.46	53.5
5.0SMDJ30A	5.0SMDJ30CA	SPFK	5BFK	33.30	36.80	1	5	30.0	103.31	48.4
5.0SMDJ33	5.0SMDJ33C	SPFL	5BFL	36.70	44.90	1	5	33.0	84.75	59.0
5.0SMDJ33A	5.0SMDJ33CA	SPFM	5BFM	36.70	40.60	1	5	33.0	93.81	53.3
5.0SMDJ36	5.0SMDJ36C	SPFN	5BFN	40.00	48.90	1	5	36.0	77.76	64.3
5.0SMDJ36A	5.0SMDJ36CA	SPFP	5BFP	40.00	44.20	1	5	36.0	86.06	58.1
5.0SMDJ40	5.0SMDJ40C	SPFQ	5BFQ	44.40	54.30	1	5	40.0	70.03	71.4
5.0SMDJ40A	5.0SMDJ40CA	SPFR	5BFR	44.40	49.10	1	5	40.0	77.52	64.5
5.0SMDJ43	5.0SMDJ43C	SPFS	5BFS	47.80	58.40	1	5	43.0	65.19	76.7
5.0SMDJ43A	5.0SMDJ43CA	SPFT	5BFT	47.80	52.80	1	5	43.0	72.05	69.4
5.0SMDJ45	5.0SMDJ45C	SPFU	5BFU	50.00	61.10	1	5	45.0	62.27	80.3
5.0SMDJ45A	5.0SMDJ45CA	SPFV	5BFV	50.00	55.30	1	5	45.0	68.78	72.7
5.0SMDJ48	5.0SMDJ48C	SPFW	5BFW	53.30	65.10	1	5	48.0	58.48	85.5
5.0SMDJ48A	5.0SMDJ48CA	SPFX	5BFX	53.30	58.90	1	5	48.0	64.60	77.4
5.0SMDJ51	5.0SMDJ51C	SPFY	5BFY	56.70	69.30	1	5	51.0	54.88	91.1
5.0SMDJ51A	5.0SMDJ51CA	SPFZ	5BFZ	56.70	62.70	1	5	51.0	60.68	82.4
5.0SMDJ54	5.0SMDJ54C	SPGD	5BGD	60.00	73.30	1	5	54.0	51.92	96.3
5.0SMDJ54A	5.0SMDJ54CA	SPGE	5BGE	60.00	66.30	1	5	54.0	57.41	87.1
5.0SMDJ58	5.0SMDJ58C	SPGF	5BGF	64.40	78.70	1	5	58.0	48.54	103.0
5.0SMDJ58A	5.0SMDJ58CA	SPGG	5BGG	64.40	71.20	1	5	58.0	53.42	93.6
5.0SMDJ60	5.0SMDJ60C	SPGH	5BGH	66.70	81.50	1	5	60.0	46.73	107.0
5.0SMDJ60A	5.0SMDJ60CA	SPGK	5BGK	66.70	73.70	1	5	60.0	51.65	96.8
5.0SMDJ64	5.0SMDJ64C	SPGL	5BGL	71.10	86.90	1	5	64.0	43.86	114.0
5.0SMDJ64A	5.0SMDJ64CA	SPGM	5BGM	71.10	78.60	1	5	64.0	48.54	103.0

Note:

1. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 20 volts and under, the I_R limit is double

Electrical Characteristics($T_A=25^{\circ}\text{C}$ 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}	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @ I_{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
5.0SMDJ70	5.0SMDJ70C	5PGN	5BGN	77.80	95.10	1	5	70.0	40.00	125.0
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	77.80	86.00	1	5	70.0	44.25	113.0
5.0SMDJ75	5.0SMDJ75C	5PGQ	5BGQ	83.30	102.00	1	5	75.0	37.31	134.0
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	83.30	92.10	1	5	75.0	41.32	121.0
5.0SMDJ78	5.0SMDJ78C	5PGS	5BGS	86.70	106.00	1	5	78.0	35.97	139.0
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	86.70	95.80	1	5	78.0	39.68	126.0
5.0SMDJ80	5.0SMDJ80C	5PGA	5BGA	88.96	108.80	1	5	80.0	34.92	143.2
5.0SMDJ80A	5.0SMDJ80CA	5PGB	5BGB	88.80	97.60	1	5	80.0	38.58	129.6
5.0SMDJ85	5.0SMDJ85C	5PGU	5BGU	94.40	115.00	1	5	85.0	33.11	151.0
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	94.40	104.00	1	5	85.0	36.50	137.0
5.0SMDJ90	5.0SMDJ90C	5PGW	5BGW	100.00	122.00	1	5	90.0	31.25	160.0
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	100.00	111.00	1	5	90.0	34.25	146.0
5.0SMDJ100	5.0SMDJ100C	5PGY	5BGY	111.00	136.00	1	5	100.0	27.93	179.0
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	111.00	123.00	1	5	100.0	30.86	162.0
5.0SMDJ110	5.0SMDJ110C	5PHD	5BHD	122.00	149.00	1	5	110.0	25.51	196.0
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	122.00	135.00	1	5	110.0	28.25	177.0
5.0SMDJ120	5.0SMDJ120C	5PHF	5BHF	133.00	163.00	1	5	120.0	23.36	214.0
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	133.00	147.00	1	5	120.0	25.91	193.0
5.0SMDJ130	5.0SMDJ130C	5PHH	5BHH	144.00	176.00	1	5	130.0	21.65	231.0
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	144.00	159.00	1	5	130.0	23.92	209.0
5.0SMDJ140	5.0SMDJ140C	5PHA	5BHA	155.68	190.40	1	5	140.0	19.95	250.6
5.0SMDJ140A	5.0SMDJ140CA	5PHB	5BHB	155.00	171.00	1	5	140.0	22.05	226.8
5.0SMDJ150	5.0SMDJ150C	5PHL	5BHL	167.00	204.00	1	5	150.0	18.66	268.0
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	167.00	185.00	1	5	150.0	20.58	243.0
5.0SMDJ160	5.0SMDJ160C	5PHN	5BHN	178.00	218.00	1	5	160.0	17.42	287.0
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	178.00	197.00	1	5	160.0	19.31	259.0
5.0SMDJ170	5.0SMDJ170C	5PHQ	5BHQ	189.00	231.00	1	5	170.0	16.45	304.0
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	189.00	209.00	1	5	170.0	18.18	275.0
5.0SMDJ180	5.0SMDJ180C	5PHS	5BHS	200.16	244.80	1	5	180.0	15.52	322.2
5.0SMDJ180A	5.0SMDJ180CA	5PHT	5BHT	200.00	220.00	1	5	180.0	17.15	291.6
5.0SMDJ190	5.0SMDJ190C	5PHU	5BHU	211.28	258.40	1	5	190.0	14.70	340.1
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