



Surface Mount Transient Voltage Suppressors

Peak Pulse Power 3000W Stand-off Voltage 5.0 to 440V

Features

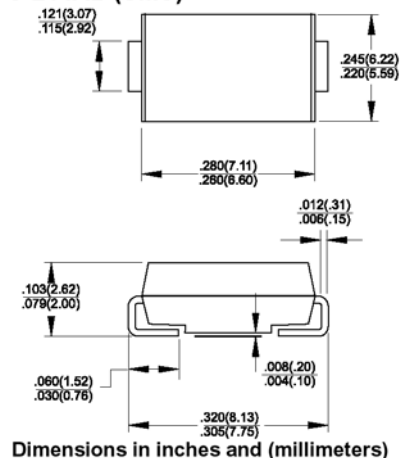
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Low profile package with built-in strain relief for surface mounted applications
- ◆ Glass passivated junction
- ◆ Low incremental surge resistance, excellent clamping capability
- ◆ 1500W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%
- ◆ Very fast response time
- ◆ High temperature soldering guaranteed: 250°C/10 seconds at terminals



Mechanical Data

- ◆ Case: JEDEC DO-214AB(SMC J-Bend) molded plastic over passivated junction
- ◆ Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- ◆ Polarity: For unidirectional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- ◆ Weight: 0.007oz., 0.21g

DO-214AB (SMC)



Devices for Bidirectional Applications

For bi-directional devices, use suffix CA (e.g. SMDJ10CA). Electrical characteristics apply in both directions.

Maximum Ratings and Thermal Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000us waveform ^{(1) (2)}	P_{PPM}	3000	W
Peak pulse current with a 10/1000us waveform ⁽¹⁾	I_{PPM}	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave uni-directional only ⁽²⁾	I_{FSM}	300	A
Typical thermal resistance, junction to ambient ⁽³⁾	$R_{\theta JA}$	75	°C/W
Typical thermal resistance, junction to lead	$R_{\theta JL}$	15	°C/W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°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 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal
 3. Mounted on minimum recommended pad layout



SMDJ5.0 thru 400CA

■ Electrical Characteristics ($T_A = 25^\circ\text{C}$)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R^{(3)}$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage V_C @ I_{PP} (V)
		Min(V)	Max (V)	$IT^{(1)}$ (mA)				
SMDJ5.0	SMDJ5.0C	6.40	7.30	10.0	1000	5.0	312.5	9.6
SMDJ5.0A	SMDJ5.0CA ⁽⁴⁾	6.40	7.07	10.0	1000	5.0	326.1	9.2
SMDJ6.0	SMDJ6.0C	6.67	8.15	10.0	1000	6.0	263.1	11.4
SMDJ6.0A	SMDJ6.0CA	6.67	7.37	10.0	1000	6.0	291.2	10.3
SMDJ6.5	SMDJ6.5C	7.22	8.82	10.0	500	6.5	243.9	12.3
SMDJ6.5A	SMDJ6.5CA	7.22	7.98	10.0	500	6.5	267.8	11.2
SMDJ7.0	SMDJ7.0C	7.78	9.51	10.0	200	7.0	225.5	13.3
SMDJ7.0A	SMDJ7.0CA	7.78	8.60	10.0	200	7.0	250.0	12.0
SMDJ7.5	SMDJ7.5C	8.33	10.20	1.0	100	7.5	209.8	14.3
SMDJ7.5A	SMDJ7.5CA	8.33	9.21	1.0	100	7.5	232.5	12.9
SMDJ8.0	SMDJ8.0C	8.89	10.90	1.0	50	8.0	200.0	15.0
SMDJ8.0A	SMDJ8.0CA	8.89	9.83	1.0	50	8.0	220.6	13.6
SMDJ8.5	SMDJ8.5C	9.44	11.50	1.0	25	8.5	188.7	15.9
SMDJ8.5A	SMDJ8.5CA	9.44	10.40	1.0	25	8.5	208.3	14.4
SMDJ9.0	SMDJ9.0C	10.00	12.20	1.0	10	9.0	177.5	16.9
SMDJ9.0A	SMDJ9.0CA	10.00	11.10	1.0	10	9.0	194.8	15.4
SMDJ10	SMDJ10C	11.10	13.60	1.0	5	10.0	159.6	18.8
SMDJ10A	SMDJ10CA	11.10	12.30	1.0	5	10.0	176.4	17.0
SMDJ11	SMDJ11C	12.20	14.90	1.0	5	11.0	149.2	20.1
SMDJ11A	SMDJ11CA	12.20	13.50	1.0	5	11.0	164.8	18.2
SMDJ12	SMDJ12C	13.30	16.30	1.0	5	12.0	136.3	22.0
SMDJ12A	SMDJ12CA	13.30	14.70	1.0	5	12.0	150.7	19.9
SMDJ13	SMDJ13C	14.40	17.60	1.0	5	13.0	126.0	23.8
SMDJ13A	SMDJ13CA	14.40	15.90	1.0	5	13.0	139.5	21.5
SMDJ14	SMDJ14C	15.60	19.10	1.0	5	14.0	116.3	25.8
SMDJ14A	SMDJ14CA	15.60	17.20	1.0	5	14.0	129.3	23.2
SMDJ15	SMDJ15C	16.70	20.40	1.0	5	15.0	111.5	26.9
SMDJ15A	SMDJ15CA	16.70	18.50	1.0	5	15.0	122.9	24.4
SMDJ16	SMDJ16C	17.80	21.80	1.0	5	16.0	104.1	28.8
SMDJ16A	SMDJ16CA	17.80	19.70	1.0	5	16.0	115.4	26.0
SMDJ17	SMDJ17C	18.90	23.10	1.0	5	17.0	98.3	30.5
SMDJ17A	SMDJ17CA	18.90	20.90	1.0	5	17.0	108.7	27.6
SMDJ18	SMDJ18C	20.00	24.40	1.0	5	18.0	93.2	32.2
SMDJ18A	SMDJ18CA	20.00	22.10	1.0	5	18.0	102.7	29.2
SMDJ19	SMDJ19C	21.10	25.70	1.0	5	19.0	88.2	34.0
SMDJ19A	SMDJ19CA	21.10	23.30	1.0	5	19.0	97.4	30.8
SMDJ20	SMDJ20C	22.20	27.10	1.0	5	20.0	83.8	35.8
SMDJ20A	SMDJ20CA	22.20	24.50	1.0	5	20.0	92.6	32.4
SMDJ22	SMDJ22C	24.40	29.80	1.0	5	22.0	76.1	39.4
SMDJ22A	SMDJ22CA	24.40	26.90	1.0	5	22.0	84.5	35.5



SMDJ5.0 thru 400CA

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R^{(3)}$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current $IPP^{(2)}$ (A)	Maximum Clamping Voltage V_c @ I_{PP} (V)
		Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
SMDJ24	SMDJ24C	26.70	32.60	1.0	5	24.0	69.8	43.0
SMDJ24A	SMDJ24CA	26.70	29.50	1.0	5	24.0	77.1	38.9
SMDJ26	SMDJ26C	28.90	35.30	1.0	5	26.0	64.4	46.6
SMDJ26A	SMDJ26CA	28.90	31.90	1.0	5	26.0	71.2	42.1
SMDJ28	SMDJ28C	31.10	38.00	1.0	5	28.0	60.0	50.0
SMDJ28A	SMDJ28CA	31.10	34.40	1.0	5	28.0	66.1	45.4
SMDJ30	SMDJ30C	33.30	40.70	1.0	5	30.0	56.1	53.5
SMDJ30A	SMDJ30CA	33.30	36.80	1.0	5	30.0	62.0	48.4
SMDJ33	SMDJ33C	36.70	44.90	1.0	5	33.0	50.8	59.0
SMDJ33A	SMDJ33CA	36.70	40.60	1.0	5	33.0	56.3	53.3
SMDJ36	SMDJ36C	40.00	48.90	1.0	5	36.0	46.6	64.3
SMDJ36A	SMDJ36CA	40.00	44.20	1.0	5	36.0	51.6	58.1
SMDJ40	SMDJ40C	44.40	54.30	1.0	5	40.0	42.0	71.4
SMDJ40A	SMDJ40CA	44.40	49.10	1.0	5	40.0	46.5	64.5
SMDJ43	SMDJ43C	47.80	58.40	1.0	5	43.0	39.1	76.7
SMDJ43A	SMDJ43CA	47.80	52.80	1.0	5	43.0	43.2	69.4
SMDJ45	SMDJ45C	50.00	61.10	1.0	5	45.0	37.3	80.3
SMDJ45A	SMDJ45CA	50.00	55.30	1.0	5	45.0	41.2	72.7
SMDJ48	SMDJ48C	53.30	65.10	1.0	5	48.0	35.1	85.5
SMDJ48A	SMDJ48CA	53.30	58.90	1.0	5	48.0	38.7	77.4
SMDJ51	SMDJ51C	56.70	69.30	1.0	5	51.0	32.9	91.1
SMDJ51A	SMDJ51CA	56.70	62.70	1.0	5	51.0	36.4	82.4
SMDJ54	SMDJ54C	60.00	73.30	1.0	5	54.0	31.1	96.3
SMDJ54A	SMDJ54CA	60.00	66.30	1.0	5	54.0	34.4	87.1
SMDJ58	SMDJ58C	64.40	78.70	1.0	5	58.0	29.1	103.0
SMDJ58A	SMDJ58CA	64.40	71.20	1.0	5	58.0	32.0	93.6
SMDJ60	SMDJ60C	66.70	81.50	1.0	5	60.0	28.0	107.0
SMDJ60A	SMDJ60CA	66.70	73.70	1.0	5	60.0	31.0	96.8
SMDJ64	SMDJ64C	71.10	86.90	1.0	5	64.0	26.3	114.0
SMDJ64A	SMDJ64CA	71.10	78.60	1.0	5	64.0	29.1	103.0
SMDJ70	SMDJ70C	77.80	95.10	1.0	5	70.0	24.0	125.0
SMDJ70A	SMDJ70CA	77.80	86.00	1.0	5	70.0	26.5	113.0
SMDJ75	SMDJ75C	83.30	102.00	1.0	5	75.0	22.4	134.0
SMDJ75A	SMDJ75CA	83.30	92.10	1.0	5	75.0	24.8	121.0
SMDJ78	SMDJ78C	86.70	106.00	1.0	5	78.0	21.6	139.0
SMDJ78A	SMDJ78CA	86.70	95.80	1.0	5	78.0	23.8	126.0
SMDJ80	SMDJ80C	88.96	108.80	1.0	5	80.0	20.9	143.2
SMDJ80A	SMDJ80CA	88.80	97.60	1.0	5	80.0	23.1	129.6
SMDJ85	SMDJ85C	94.40	115.00	1.0	5	85.0	19.8	151.0
SMDJ85A	SMDJ85CA	94.40	104.00	1.0	5	85.0	21.9	137.0



SMDJ5.0 thru 440CA

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R^{(3)}$ (uA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage V_C @ I_{PP} (V)
		Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
SMDJ90	SMDJ90C	100.00	122.00	1 0	5	90.0	18.7	160.0
SMDJ90A	SMDJ90CA	100.00	111.00	1 0	5	90.0	20.5	146.0
SMDJ100	SMDJ100C	111.00	136.00	1 0	5	100.0	16.7	179.0
SMDJ100A	SMDJ100CA	111.00	123.00	1 0	5	100.0	18.5	162.0
SMDJ110	SMDJ110C	122.00	149.00	1 0	5	110.0	15.3	196.0
SMDJ110A	SMDJ110CA	122.00	135.00	1 0	5	110.0	16.9	177.0
SMDJ120	SMDJ120C	133.00	163.00	1 0	5	120.0	14.0	214.0
SMDJ120A	SMDJ120CA	133.00	147.00	1 0	5	120.0	15.5	193.0
SMDJ130	SMDJ130C	144.00	176.00	1 0	5	130.0	13.0	231.0
SMDJ130A	SMDJ130CA	144.00	159.00	1 0	5	130.0	14.3	209.0
SMDJ140	SMDJ140C	155.70	190.40	1 0	5	140.0	12.0	250.6
SMDJ140A	SMDJ140CA	155.00	171.00	1 0	5	140.0	13.2	226.8
SMDJ150	SMDJ150C	167.00	204.00	1 0	5	150.0	11.2	268.0
SMDJ150A	SMDJ150CA	167.00	185.00	1 0	5	150.0	12.3	243.0
SMDJ160	SMDJ160C	178.00	218.00	1 0	5	160.0	10.4	287.0
SMDJ160A	SMDJ160CA	178.00	197.00	1 0	5	160.0	11.6	259.0
SMDJ170	SMDJ170C	189.00	231.00	1 0	5	170.0	9.8	304.0
SMDJ170A	SMDJ170CA	189.00	209.00	1 0	5	170.0	10.9	275.0
SMDJ180	SMDJ180C	200.20	244.80	1 0	5	180.0	9.3	322.2
SMDJ180A	SMDJ180CA	200.00	220.00	1 0	5	180.0	10.9	291.6
SMDJ190	SMDJ190C	211.30	258.40	1 0	5	190.0	8.8	340.1
SMDJ190A	SMDJ190CA	211.00	232.00	1 0	5	190.0	9.7	307.8
SMDJ200A	SMDJ200CA	224.00	247.00	1 0	5	200.0	9.2	324.0
SMDJ220A	SMDJ220CA	246.00	272.00	1 0	5	220.0	8.4	356.0
SMDJ250A	SMDJ250CA	279.00	309.00	1 0	5	250.0	7.4	405.0
SMDJ300A	SMDJ300CA	335.00	371.00	1 0	5	300.0	6.1	486.0
SMDJ350A	SMDJ350CA	391.00	432.00	1 0	5	350.0	5.3	567.0
SMDJ400A	SMDJ400CA	447.00	494.00	1 0	5	400.0	4.6	648.0
SMDJ440A	SMDJ440CA	492.00	543.00	1 0	5	440.0	4.2	713.0

Notes:

- (1) $t_p=50ms$ Pulse test: $t_p=50ms$
- (2) Surge current waveform per Fig. 3 and derated per Fig.2.
- (3) For bi-directional types having V_{WM} of 10 V and less, the I_R limit is doubled
- (4) For the bi-directional SMCJ5.0CA, the maximum V_{BR} is 7.25 V



SMDJ5.0 turu 440CA

RATINGS AND CHARACTERISTIC CURVES

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

Figure 1
PEAK PULSE POWER VS PULSE TIME

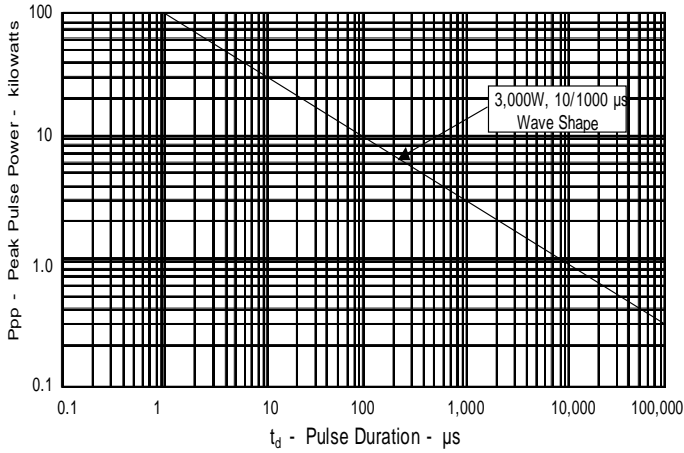


Fig. 2 – Pulse Derating Curve

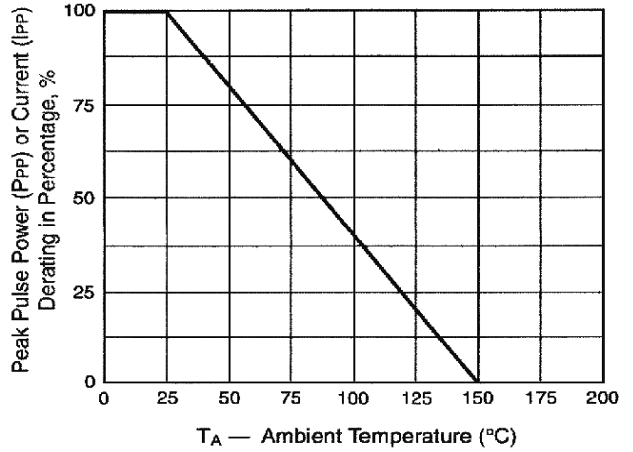


Fig. 3 – Pulse Waveform

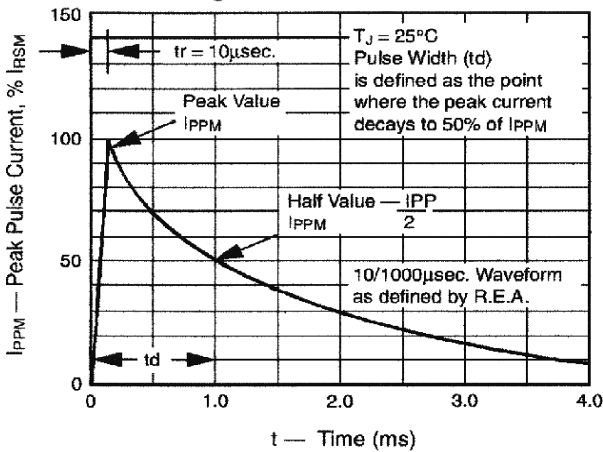


Fig. 4 – Typical Junction Capacitance

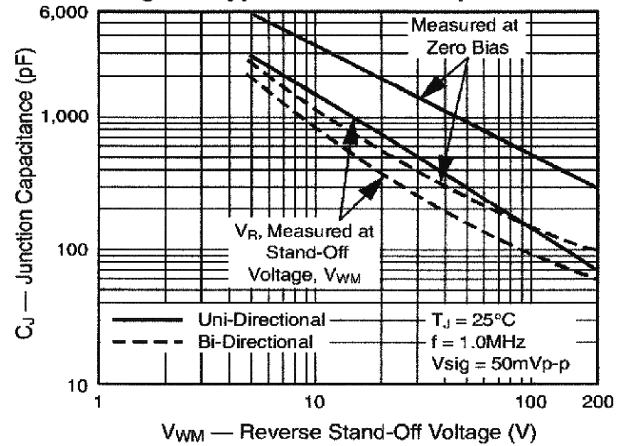


Fig. 5 – Typical Transient Thermal Impedance

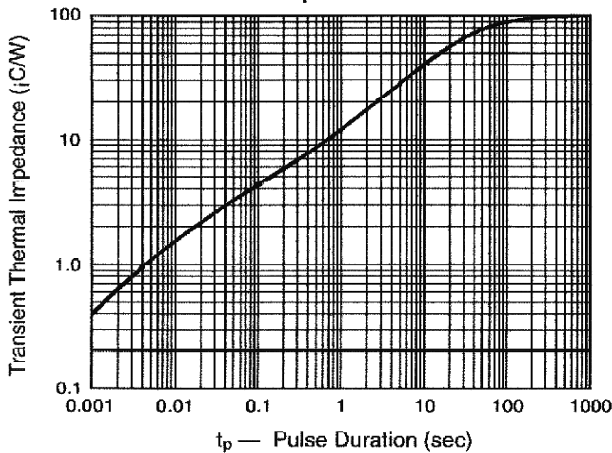


Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current

