

# SMDJ SERIES



SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS



## FEATURES

- \* For surface mount application
- \* Built-in strain relief
- \* Excellent clamping capability
- \* Low profile package
- \* Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- \* Typical  $I_R$  less than 1 $\mu$ A above 10V

## MECHANICAL DATA

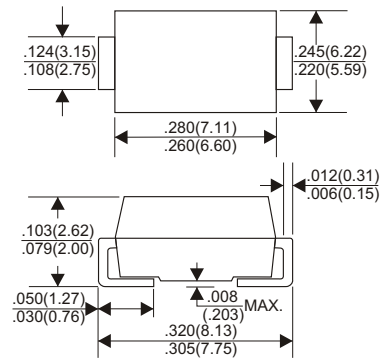
- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end except Bidirectional
- \* Mounting position: Any

## VOLTAGE RANGE

5.0 to 440 Volts

3000 Watts Peak Power

### DO-214AB



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.  
Single phase half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_P=1\text{ms}$ (NOTE 1)	$P_{PK}$	Minimum 3000	Watts
Power Dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	$P_D$	6.0	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	$I_{FSM}$	300	Amps
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	$V_F$	3.5/5.0	Volts
Operating and Storage Temperature Range	$T_J, T_{STG}$	-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. 8.3ms single half sine-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  $V_{BR} > 201\text{V}$ .

## DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types SMDJ5.0 thru SMDJ440.
2. Electrical characteristics apply in both directions.

## RATING AND CHARACTERISTIC CURVES (SMDJ SERIES)

FIG.1-PEAK PULSE POWER DERATING CURVE

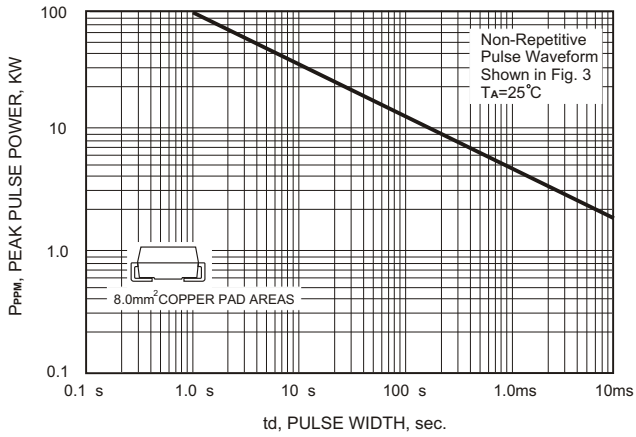


FIG.2-PULSE DERATING CURVE

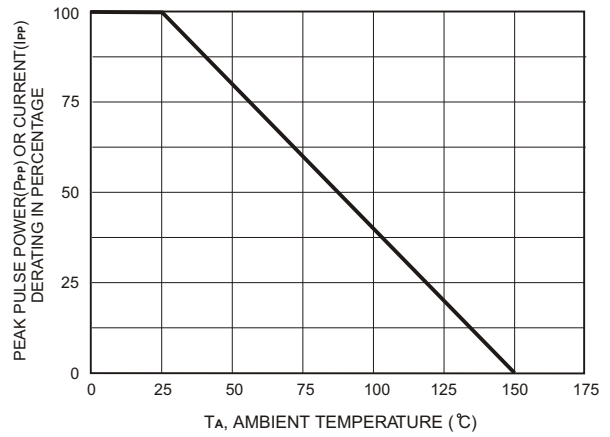


FIG.3-PULSE WAVE FORM

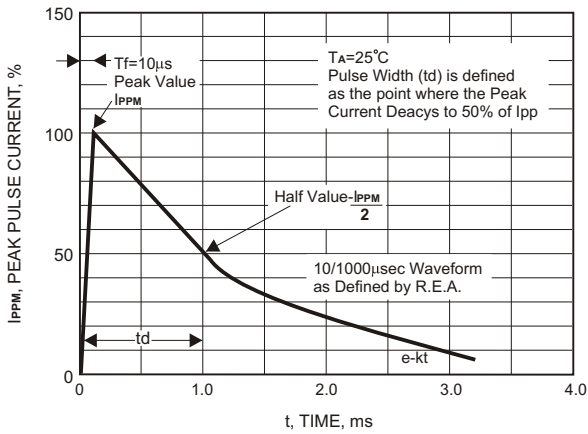


FIG.4-TYPICAL JUNCTION CAPACITANCE

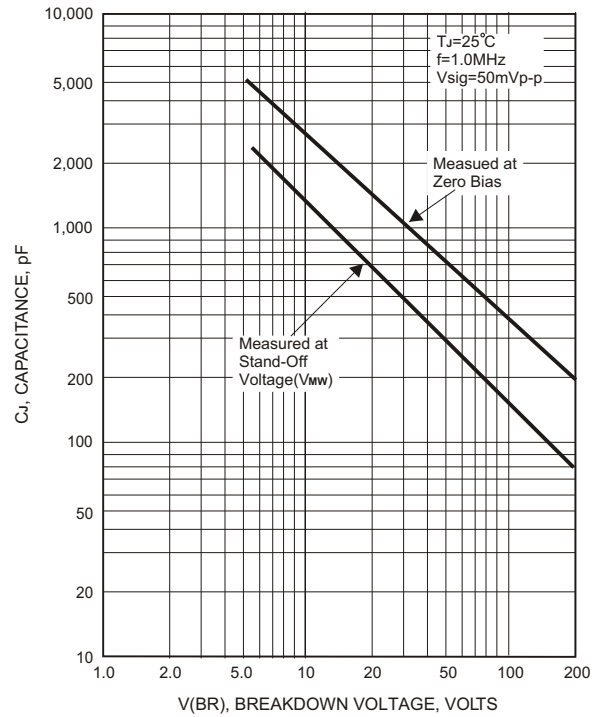
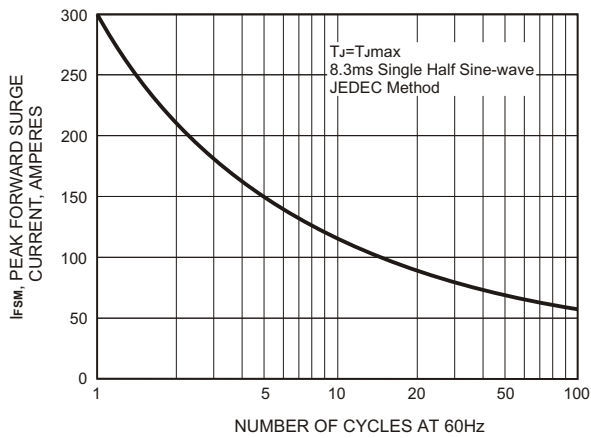


FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



# 3000 Watt Surface Mount TVS



Part Number (Uni)	Part Number (Bi)	Device Marking Code		Reverse Standoff Voltage	Breakdown Voltage $V_{BR}$ @ $I_T$			Maximum Reverse Leakage @ $V_R$	Maximum Peak Pulse Current	Maximum Clamping Voltage @ $I_{pp}$
		Uni	Bi		$V_R$ (V)	Min (V)	Max (V)			
SMDJ5.0	SMDJ5.0C	PDD	DDD	5.0	6.40	7.30	50	5000	312.50	9.6
SMDJ5.0A	SMDJ5.0CA	PDE	DDE	5.0	6.40	7.00	50	5000	326.09	9.2
SMDJ6.0	SMDJ6.0C	PDF	DDF	6.0	6.67	8.15	50	5000	263.16	11.4
SMDJ6.0A	SMDJ6.0CA	PDG	DDG	6.0	6.67	7.37	50	5000	291.26	10.3
SMDJ6.5	SMDJ6.5C	PDH	DDH	6.5	7.22	8.82	50	2000	243.90	12.3
SMDJ6.5A	SMDJ6.5CA	PDK	DDK	6.5	7.22	7.98	50	2000	267.86	11.2
SMDJ7.0	SMDJ7.0C	PDL	DDL	7.0	7.78	9.51	50	1000	225.56	13.3
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7.0	7.78	8.60	50	1000	250.00	12.0
SMDJ7.5	SMDJ7.5C	PDN	DDN	7.5	8.33	10.20	5	250	209.79	14.3
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	7.5	8.33	9.21	5	250	232.56	12.9
SMDJ8.0	SMDJ8.0C	PDQ	DDQ	8.0	8.89	10.90	5	150	200.00	15.0
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8.0	8.89	9.83	5	150	220.59	13.6
SMDJ8.5	SMDJ8.5C	PDS	DDS	8.5	9.44	11.50	5	50	188.68	15.9
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	8.5	9.44	10.40	5	50	208.33	14.4
SMDJ9.0	SMDJ9.0C	PDU	DDU	9.0	10.00	12.20	5	20	177.51	16.9
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	9.0	10.00	11.10	5	20	194.81	15.4
SMDJ10	SMDJ10C	PDW	DDW	10.0	11.10	13.60	5	15	159.57	18.8
SMDJ10A	SMDJ10CA	PDX	DDX	10.0	11.10	12.30	5	15	176.47	17.0
SMDJ11	SMDJ11C	PDY	DDY	11.0	12.20	14.90	5	5	149.25	20.1
SMDJ11A	SMDJ11CA	PDZ	DDZ	11.0	12.20	13.50	5	5	164.84	18.2
SMDJ12	SMDJ12C	PED	DED	12.0	13.30	16.30	5	5	136.36	22.0
SMDJ12A	SMDJ12CA	PEE	DEE	12.0	13.30	14.70	5	5	150.75	19.9
SMDJ13	SMDJ13C	PEF	DEF	13.0	14.40	17.60	5	5	126.05	23.8
SMDJ13A	SMDJ13CA	PEG	DEG	13.0	14.40	15.90	5	5	139.53	21.5
SMDJ14	SMDJ14C	PEH	DEH	14.0	15.60	19.10	5	5	116.28	25.8
SMDJ14A	SMDJ14CA	PEK	DEK	14.0	15.60	17.20	5	5	129.31	23.2
SMDJ15	SMDJ15C	PEL	DEL	15.0	16.70	20.40	5	5	111.52	26.9
SMDJ15A	SMDJ15CA	PEM	DEM	15.0	16.70	18.50	5	5	122.95	24.4
SMDJ16	SMDJ16C	PEN	DEN	16.0	17.80	21.80	5	5	104.17	28.8
SMDJ16A	SMDJ16CA	PEP	DEP	16.0	17.80	19.70	5	5	115.38	26.0
SMDJ17	SMDJ17C	PEQ	DEQ	17.0	18.90	23.10	5	5	98.36	30.5
SMDJ17A	SMDJ17CA	PER	DER	17.0	18.90	20.90	5	5	108.70	27.6
SMDJ18	SMDJ18C	PES	DES	18.0	20.00	24.40	5	5	93.17	32.2
SMDJ18A	SMDJ18CA	PET	DET	18.0	20.00	22.10	5	5	102.74	29.2
SMDJ20	SMDJ20C	PEU	DEU	20.0	22.20	27.10	5	5	83.80	35.8
SMDJ20A	SMDJ20CA	PEV	DEV	20.0	22.20	24.50	5	5	92.59	32.4
SMDJ22	SMDJ22C	PEW	DEW	22.0	24.40	29.80	5	5	76.14	39.4
SMDJ22A	SMDJ22CA	PEX	DEX	22.0	24.40	26.90	5	5	84.51	35.5
SMDJ24	SMDJ24C	PEY	DEY	24.0	26.70	32.60	5	5	69.77	43.0
SMDJ24A	SMDJ24CA	PEZ	DEZ	24.0	26.70	29.50	5	5	77.12	38.9
SMDJ26	SMDJ26C	PFD	DFD	26.0	28.90	35.30	5	5	64.38	46.6
SMDJ26A	SMDJ26CA	PFE	DFE	26.0	28.90	31.90	5	5	71.26	42.1
SMDJ28	SMDJ28C	PFF	DFE	28.0	31.10	38.00	5	5	60.00	50.0
SMDJ28A	SMDJ28CA	PFG	DFG	28.0	31.10	34.40	5	5	66.08	45.4
SMDJ30	SMDJ30C	PFH	DFH	30.0	33.30	40.70	5	5	56.07	53.5
SMDJ30A	SMDJ30CA	PFK	DFK	30.0	33.30	36.80	5	5	61.98	48.4
SMDJ33	SMDJ33C	PFL	DFL	33.0	36.70	44.90	5	5	50.85	59.0
SMDJ33A	SMDJ33CA	PFM	DFM	33.0	36.70	40.60	5	5	56.29	53.3
SMDJ36	SMDJ36C	PFN	DFN	36.0	40.00	48.90	5	5	46.66	64.3
SMDJ36A	SMDJ36CA	PFQ	DFQ	36.0	40.00	44.20	5	5	51.64	58.1
SMDJ40	SMDJ40C	PFQ	DFQ	40.0	44.40	54.30	5	5	42.02	71.4
SMDJ40A	SMDJ40CA	PFR	DFR	40.0	44.40	49.10	5	5	46.51	64.5

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		Uni	Bi		$V_R$ (V)	Min (V)	Max (V)			
SMDJ43	SMDJ43C	PFS	DFS	43.0	47.80	58.40	5	5	39.11	76.7
SMDJ43A	SMDJ43CA	PFT	DFT	43.0	47.80	52.80	5	5	43.23	69.4
SMDJ45	SMDJ45C	PFU	DFU	45.0	50.00	61.10	5	5	37.36	80.3
SMDJ45A	SMDJ45CA	PFV	DFV	45.0	50.00	55.30	5	5	41.27	72.7
SMDJ48	SMDJ48C	PFW	DFW	48.0	53.30	65.10	5	5	35.09	85.5
SMDJ48A	SMDJ48CA	PFX	DFX	48.0	53.30	58.90	5	5	38.76	77.4
SMDJ51	SMDJ51C	PFY	DFY	51.0	56.70	69.30	5	5	32.93	91.1
SMDJ51A	SMDJ51CA	PFZ	DFZ	51.0	56.70	62.70	5	5	36.41	82.4
SMDJ54	SMDJ54C	PGD	DGD	54.0	60.00	73.30	5	5	31.15	96.3
SMDJ54A	SMDJ54CA	PGE	DGE	54.0	60.00	66.30	5	5	34.44	87.1
SMDJ58	SMDJ58C	PGF	DGF	58.0	64.40	78.70	5	5	29.13	103.0
SMDJ58A	SMDJ58CA	PGG	DGG	58.0	64.40	71.20	5	5	32.05	93.6
SMDJ60	SMDJ60C	PGH	DGH	60.0	66.70	81.50	5	5	28.04	107.0
SMDJ60A	SMDJ60CA	PGK	DGK	60.0	66.70	73.70	5	5	30.99	96.8
SMDJ64	SMDJ64C	PGL	DGL	64.0	71.10	86.40	5	5	26.32	114.0
SMDJ64A	SMDJ64CA	PGM	DGM	64.0	71.10	78.60	5	5	29.13	103.0
SMDJ70	SMDJ70C	PGN	DGN	70.0	77.80	95.10	5	5	24.00	125.0
SMDJ70A	SMDJ70CA	PGP	DGP	70.0	77.80	86.00	5	5	26.55	113.0
SMDJ75	SMDJ75C	PGQ	DGQ	75.0	83.30	102.00	5	5	22.39	134.0
SMDJ75A	SMDJ75CA	PGR	DGR	75.0	83.30	92.10	5	5	24.79	121.0
SMDJ78	SMDJ78C	PGS	DGS	78.0	86.70	106.00	5	5	21.58	139.0
SMDJ78A	SMDJ78CA	PGT	DGT	78.0	86.70	95.80	5	5	23.81	126.0
SMDJ85	SMDJ85C	PGU	DGU	85.0	94.40	115.00	5	5	19.87	151.0
SMDJ85A	SMDJ85CA	PGV	DGV	85.0	94.40	104.00	5	5	21.90	137.0
SMDJ90	SMDJ90C	PGW	DGW	90.0	100.00	122.00	5	5	18.75	160.0
SMDJ90A	SMDJ90CA	PGX	DGX	90.0	100.00	111.00	5	5	20.55	146.0
SMDJ100	SMDJ100C	PGY	DGY	100.0	111.00	136.00	5	5	16.76	179.0
SMDJ100A	SMDJ100CA	PGZ	DGZ	100.0	111.00	123.00	5	5	18.52	162.0
SMDJ110	SMDJ110C	PHD	DHD	110.0	122.00	149.00	5	5	15.31	196.0
SMDJ110A	SMDJ110CA	PHE	DHE	110.0	122.00	135.00	5	5	16.95	177.0
SMDJ120	SMDJ120C	PHF	DHF	120.0	133.00	163.00	5	5	14.02	214.0
SMDJ120A	SMDJ120CA	PHG	DHG	120.0	133.00	147.00	5	5	15.54	193.0
SMDJ130	SMDJ130C	PHH	DHH	130.0	144.00	176.00	5	5	12.99	231.0
SMDJ130A	SMDJ130CA	PHK	DHK	130.0	144.00	159.00	5	5	14.35	209.0
SMDJ150	SMDJ150C	PHL	DHL	150.0	167.00	204.00	5	5	11.19	268.0
SMDJ150A	SMDJ150CA	PHM	DHM	150.0	167.00	185.00	5	5	12.35	243.0
SMDJ160	SMDJ160C	PHN	DHN	160.0	178.00	218.00	5	5	10.45	287.0
SMDJ160A	SMDJ160CA	PHP	DHP	160.0	178.00	197.00	5	5	11.58	259.0
SMDJ170	SMDJ170C	PHQ	DHQ	170.0	189.00	231.00	5	5	9.87	304.0
SMDJ170A	SMDJ170CA	PHR	DHR	170.0	189.00	209.00	5	5	10.91	275.0
SMDJ180	SMDJ180C	PHS	DHS	180.0	200.00	244.00	5	5	9.31	322.2
SMDJ180A	SMDJ180CA	PHT	DHT	180.0	200.00	220.00	5	5	10.29	291.6
SMDJ190	SMDJ190C	PHU	DHU	190.0	211.00	258.00	5	5	8.82	340.1
SMDJ190A	SMDJ190CA	PHV	DHV	190.0	211.00	232.00	5	5	9.75	307.8
SMDJ200A	SMDJ200CA	PHW	DHW	200.0	224.00	247.00	5	5	9.26	324.0
SMDJ220A	SMDJ220CA	PHX	DHX	220.0	246.00	272.00	5	5	8.43	356.0
SMDJ250A	SMDJ250CA	PHZ	DHZ	250.0	279.00	309.00	5	5	7.41	405.0
SMDJ300A	SMDJ300CA	PJE	DJE	300.0	335.00	371.00	5	5	6.17	486.0
SMDJ350A	SMDJ350CA	PJG	DJG	350.0	391.00	432.00	5	5	5.29	567.0
SMDJ400A	SMDJ400CA	PJK	DJK	400.0	447.00	494.00	5	5	4.63	648.0
SMDJ440A	SMDJ440CA	PJM	DJM	440.0	492.00	543.00	5	5	4.21	713.0