

# MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA. U.S.A. 92253 Tel: 760-564-8656 • Fax: 760-564-2414

## SMDJ SERIES

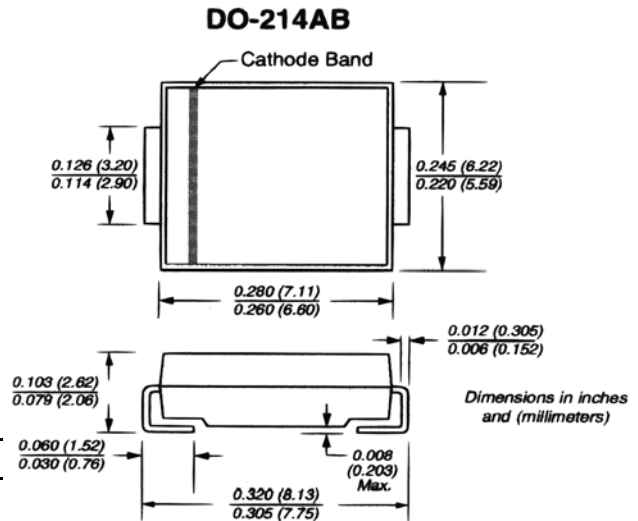
### SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE-5.0 TO 170 Volts 3000 Watt Peak Pulse Power

#### FEATURES

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition rate (duty cycle):0.01%
- Fast response time: typically less than 1.0 ps from 0 volts to BV for unidirectional types
- Typical IR less than 1 $\mu$ A above 10V
- High temperature soldering:  
250°C/10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O

#### MECHANICAL DATA

Case: JEDEC DO214AB. Molded plastic over glass passivated junction  
Terminals: Solder plated, solderable per MIL-STD-750, Method 2026  
Polarity: Color band denoted positive end (cathode) except Bidirectional  
Standard Packaging: 12mm tape (EIA STD RS-481)  
Weight: 0.007 ounces, 0.021 grams



#### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types SMDJ5.0 thru types SMDJ170 (e.g. SMDJ5.0C, SMDJ170CA)  
Electrical characteristics apply in both directions.

#### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (NOTE 1, 2, Fig.1)	P <sub>ppm</sub>	Minimum 3000	Watts
Peak Pulse Current of on 10/1000 $\mu$ s waveform (Note 1, Fig 3)	I <sub>ppm</sub>	SEE TABLE 1	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method)(Note2, 3)	I <sub>FSM</sub>	100	Amps
Operatings and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 +150	°C

#### NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above Ta=25 °C per Fig.2.
2. Mounted on Copper Pad area of 0.8x0.8" (20x20mm) per Fig.5.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

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## RATING AND CHARACTERISTIC CURVES SMDJ SERIES

Figure 1  
PEAK PULSE POWER VS PULSE TIME

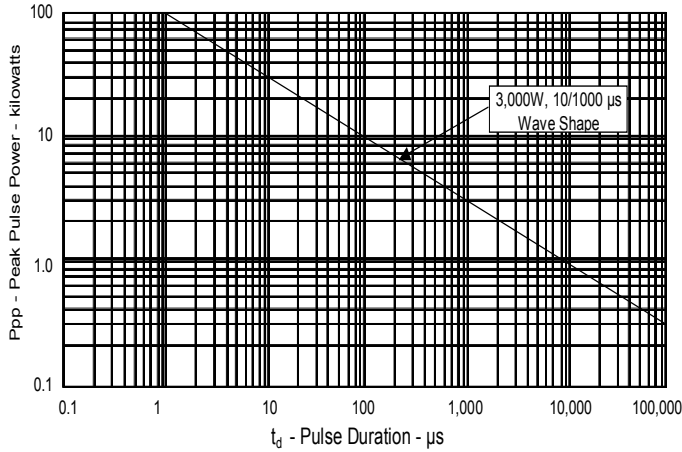


Fig. 2 – Pulse Derating Curve

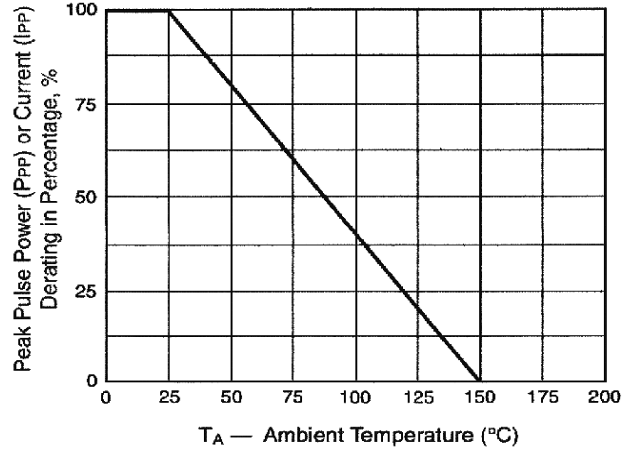


Fig. 3 – Pulse Waveform

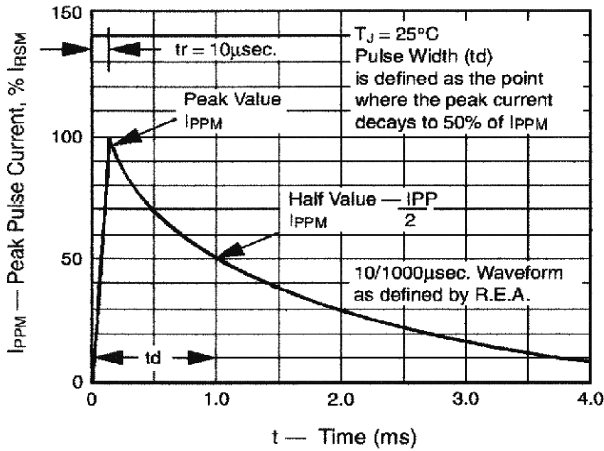


Fig. 4 – Typical Junction Capacitance

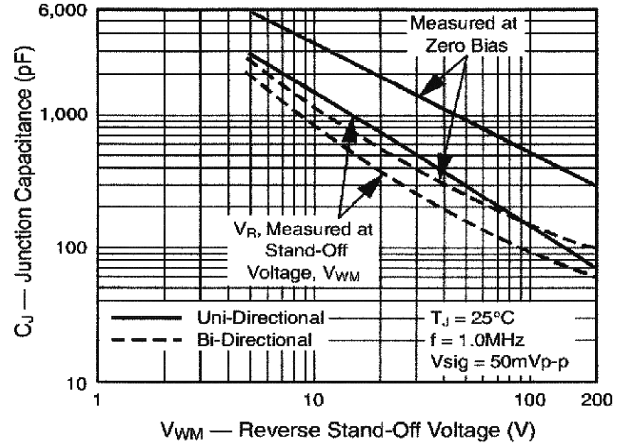


Fig. 5 – Typical Transient Thermal Impedance

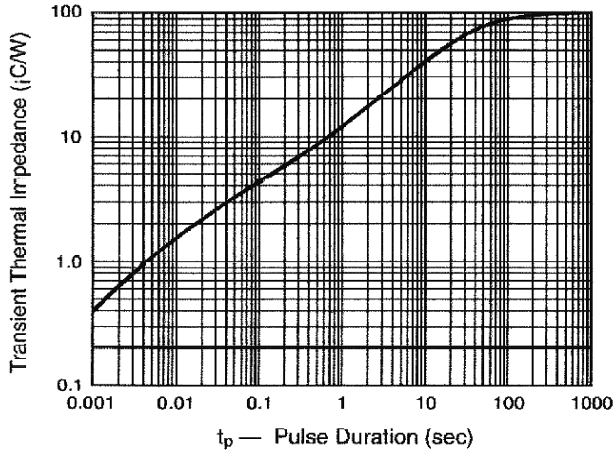
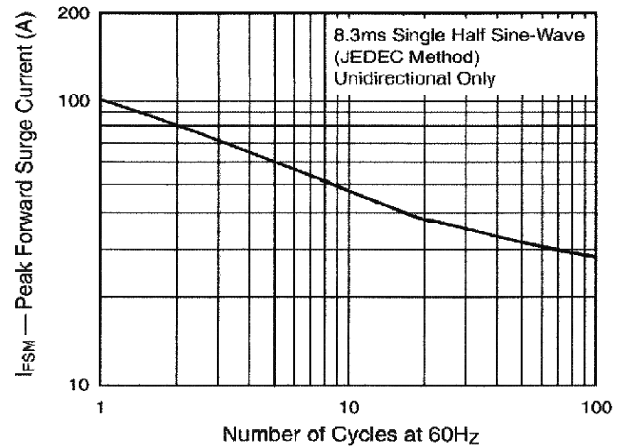


Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current



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## 3000 Watt Surface Mount TVS

UNI-DIRECTIONAL PART NUMBER	DEVICE MARKING CODE UNI-POLAR	DEVICE MARKING CODE BI-POLAR	REVERSE STANDOFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @ IT	BREAKDOWN VOLTAGE VBR (V) MAX. @ IT	TEST CURRENT (It) mA	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR (µA)
SMDJ5.0	RDD	DDD	5.00	6.40	7.30	10	9.6	312.5	800
SMDJ5.0A	RDE	DDE	5.00	6.40	7.00	10	9.2	326.1	800
SMDJ6.0	RDF	DDF	6.00	6.67	8.15	10	11.4	263.2	800
SMDJ6.0A	RDG	DDG	6.00	6.67	7.37	10	10.3	291.3	800
SMDJ6.5	RDH	DDH	6.50	7.22	8.82	10	12.3	243.9	500
SMDJ6.5A	RDK	DDK	6.50	7.22	7.98	10	11.2	267.9	500
SMDJ7.0	PDL	DDL	7.00	7.78	9.51	10	13.3	225.6	200
SMDJ7.0A	PDM	DDM	7.00	7.78	8.60	10	12.0	250.0	200
SMDJ7.5	PDN	DDN	7.50	8.33	10.20	1	14.3	209.8	100
SMDJ7.5A	PDP	DDP	7.50	8.33	9.21	1	12.9	232.6	100
SMDJ8.0	PDQ	DDQ	8.00	8.89	10.90	1	15.0	200.0	50
SMDJ8.0A	PDR	DDR	8.00	8.89	9.83	1	13.6	220.6	50
SMDJ8.5	PDS	DDS	8.50	9.44	11.50	1	15.9	188.7	20
SMDJ8.5A	PDT	DDT	8.50	9.44	10.40	1	14.4	208.3	20
SMDJ9.0	PDU	DDU	9.00	10.00	12.20	1	16.9	177.5	10
SMDJ9.0A	PDV	DDV	9.00	10.00	11.10	1	15.4	194.8	10
SMDJ10	PDW	DDW	10.00	11.10	13.60	1	18.8	159.6	5
SMDJ10A	PDX	DDX	10.00	11.10	12.30	1	17.0	176.5	5
SMDJ11	PDY	DDY	11.00	12.20	14.90	1	20.1	149.3	5
SMDJ11A	PDZ	DDZ	11.00	12.20	13.50	1	18.2	164.8	5
SMDJ12	PED	DED	12.00	13.30	16.30	1	22.0	136.4	5
SMDJ12A	PEE	DEE	12.00	13.30	14.70	1	19.9	150.8	5
SMDJ13	PEF	DEF	13.00	14.40	17.60	1	23.8	126.1	5
SMDJ13A	PEG	DEG	13.00	14.40	15.90	1	21.5	139.5	5
SMDJ14	PEH	DEH	14.00	15.60	19.10	1	25.8	116.3	5
SMDJ14A	PEK	DEK	14.00	15.60	17.20	1	23.2	129.3	5
SMDJ15	PEL	DEL	15.00	16.70	20.40	1	26.9	111.5	5
SMDJ15A	PEM	DEM	15.00	16.70	18.50	1	24.4	123.0	5
SMDJ16	PEN	DEN	16.00	17.80	21.80	1	28.8	104.2	5
SMDJ16A	PEP	DEP	16.00	17.80	19.70	1	26.0	115.4	5
SMDJ17	PEQ	DEQ	17.00	18.90	23.10	1	30.5	98.4	5
SMDJ17A	PER	DER	17.00	18.90	20.90	1	27.6	108.7	5
SMDJ18	PES	DES	18.00	20.00	24.40	1	32.2	93.2	5
SMDJ18A	PET	DET	18.00	20.00	22.10	1	29.2	102.7	5
SMDJ20	PEU	DEU	20.00	22.20	27.10	1	35.8	83.8	5
SMDJ20A	PEV	DEV	20.00	22.20	24.50	1	32.4	92.6	5
SMDJ22	PEW	DEW	22.00	24.40	29.80	1	39.4	76.1	5
SMDJ22A	PEX	DEX	22.00	24.40	26.90	1	35.5	84.5	5
SMDJ24	PEY	DEY	24.00	26.70	32.60	1	43.0	69.8	5
SMDJ24A	PEZ	DEZ	24.00	26.70	29.50	1	38.9	77.1	5
SMDJ26	PFD	DFD	26.00	28.90	35.30	1	46.6	64.4	5
SMDJ26A	PFE	DFE	26.00	28.90	31.90	1	42.1	71.3	5
SMDJ28	PFF	DFE	28.00	31.10	38.00	1	50.1	59.5	5
SMDJ28A	PFG	DFG	28.00	31.10	34.40	1	45.4	66.1	5
SMDJ30	PFH	DFH	30.00	33.30	40.70	1	53.5	56.1	5
SMDJ30A	PFK	DFK	30.00	33.30	36.80	1	48.4	62.0	5
SMDJ33	PFL	DFL	33.00	36.70	44.90	1	59.0	50.8	5
SMDJ33A	PFM	DFM	33.00	36.70	40.60	1	53.3	56.3	5

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SMDJ36	PFN	DFN	36.00	40.00	48.90	1	64.3	46.7	5
SMDJ36A	PFP	DFP	36.00	40.00	44.20	1	58.1	51.6	5
SMDJ40	PFQ	DFQ	40.00	44.40	54.30	1	71.4	42.0	5
SMDJ40A	PFR	DFR	40.00	44.40	49.10	1	64.5	46.5	5
SMDJ43	PFS	DFR	43.00	47.80	58.40	1	76.7	39.1	5
SMDJ43A	PFT	DFT	43.00	47.80	52.80	1	69.4	43.2	5
SMDJ45	PFU	DFU	45.00	50.00	61.10	1	80.3	37.4	5
SMDJ45A	PFV	DFV	45.00	50.00	55.30	1	72.7	41.3	5
SMDJ48	PFW	DFW	48.00	53.30	65.20	1	85.5	35.1	5
SMDJ48A	PFX	DFX	48.00	53.30	58.90	1	77.4	38.8	5
SMDJ51	PFY	DFY	51.00	56.70	69.30	1	91.1	32.9	5
SMDJ51A	PFZ	DFZ	51.00	56.70	62.70	1	82.4	36.4	5
SMDJ54A	PGD	DGD	54.00	60.00	73.30	1	96.3	31.2	5
SMDJ54A	PGE	DGE	54.00	60.00	66.30	1	87.1	34.4	5
SMDJ58	PGF	DGF	58.00	64.40	78.70	1	103.0	29.1	5
SMDJ58A	PGG	DGG	58.00	64.40	71.20	1	93.6	32.1	5
SMDJ60	PGH	DGH	60.00	66.70	81.50	1	107.0	28.0	5
SMDJ60A	PGK	DGK	60.00	66.70	73.70	1	96.8	31.0	5
SMDJ64	PGL	DGL	64.00	71.10	86.90	1	114.0	26.3	5
SMDJ64A	PGM	DGM	64.00	71.10	78.60	1	103.0	29.1	5
SMDJ70	PGN	DGN	70.00	77.80	95.10	1	125.0	24.0	5
SMDJ70A	PGP	DGP	70.00	77.80	86.00	1	113.0	26.5	5
SMDJ75	PGQ	DGQ	75.00	83.30	102.00	1	134.0	22.4	5
SMDJ75A	PGR	DGR	75.00	83.30	92.10	1	121.0	24.8	5
SMDJ78	PGS	DGS	78.00	86.70	106.00	1	139.0	21.6	5
SMDJ78A	PGT	DGT	78.00	86.70	95.80	1	126.0	23.8	5
SMDJ85	PGU	DGU	85.00	94.40	115.00	1	151.0	19.9	5
SMDJ85A	PGV	DGV	85.00	94.40	104.00	1	137.0	21.9	5
SMDJ90	PGW	DGW	90.00	100.00	122.00	1	160.0	18.8	5
SMDJ90A	PGX	DGX	90.00	100.00	111.00	1	146.0	20.5	5
SMDJ100	PGY	DGY	100.00	111.00	136.00	1	179.0	16.8	5
SMDJ100A	PGZ	DGZ	100.00	111.00	123.00	1	162.0	18.5	5
SMDJ110	PHD	DHD	110.00	122.00	149.00	1	196.0	15.3	5
SMDJ110A	PHE	DHE	110.00	122.00	135.00	1	177.0	16.9	5
SMDJ120	PHF	DHF	120.00	133.00	163.00	1	214.0	14.0	5
SMDJ120A	PHG	DHG	120.00	133.00	147.00	1	193.0	15.5	5
SMDJ130	PHH	DHH	130.00	144.00	176.00	1	230.0	13.0	5
SMDJ130A	PHK	DHK	130.00	144.00	159.00	1	209.0	14.4	5
SMDJ150	PHL	DHL	150.00	167.00	204.00	1	268.0	11.2	5
SMDJ150A	PHM	DHM	150.00	167.00	185.00	1	243.0	12.3	5
SMDJ160	PHN	DHN	160.00	178.00	218.00	1	287.0	10.5	5
SMDJ160A	PHP	DHP	160.00	178.00	197.00	1	259.0	11.6	5
SMDJ170	PHQ	DHQ	170.00	189.00	231.00	1	304.0	9.9	5
SMDJ170A	PHR	DHR	170.00	189.00	209.00	1	275.0	10.9	5

For Bidirectional type having Vrwm of 10volts and less, the IR limit is double.