

# MDE Semiconductor, Inc.

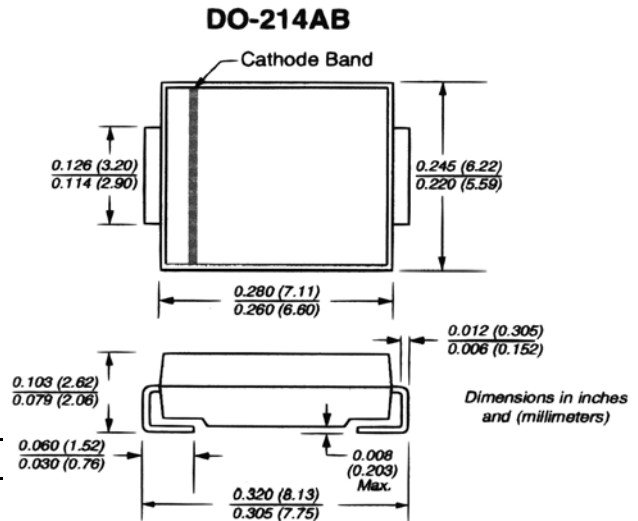
78-150 Calle Tampico, Unit 210, La Quinta, CA. U.S.A. 92253 Tel: 760-564-8656 • Fax: 760-564-2414

## 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

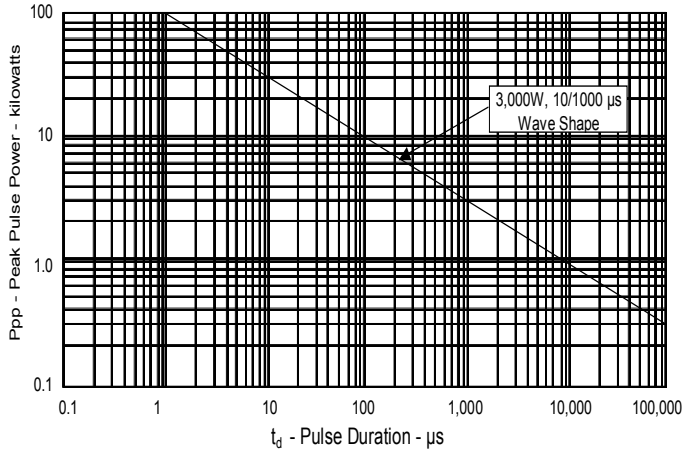


Fig. 2 – Pulse Derating Curve

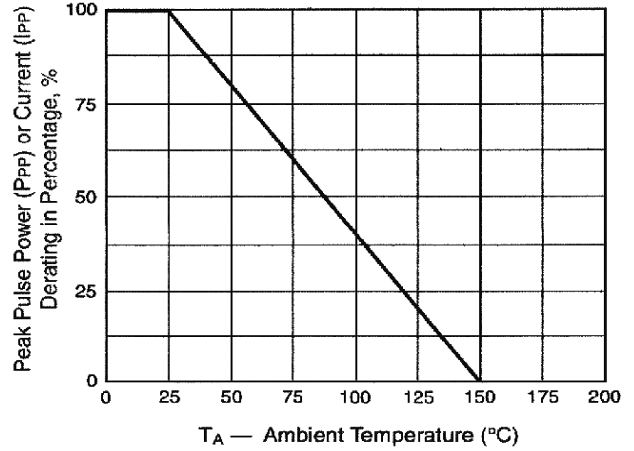


Fig. 3 – Pulse Waveform

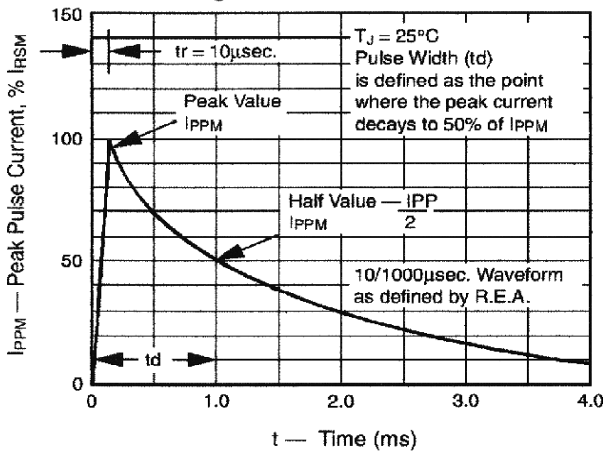


Fig. 4 – Typical Junction Capacitance

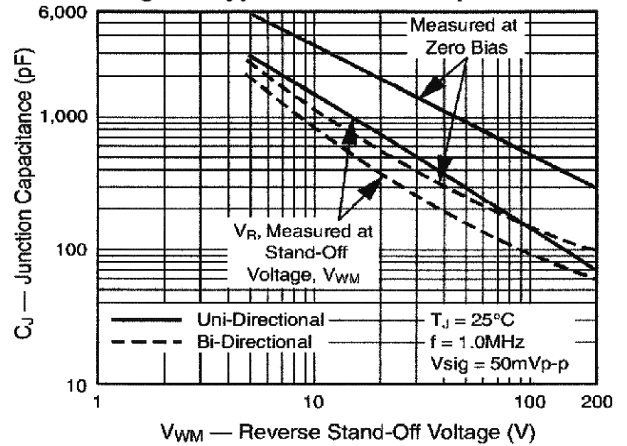


Fig. 5 – Typical Transient Thermal Impedance

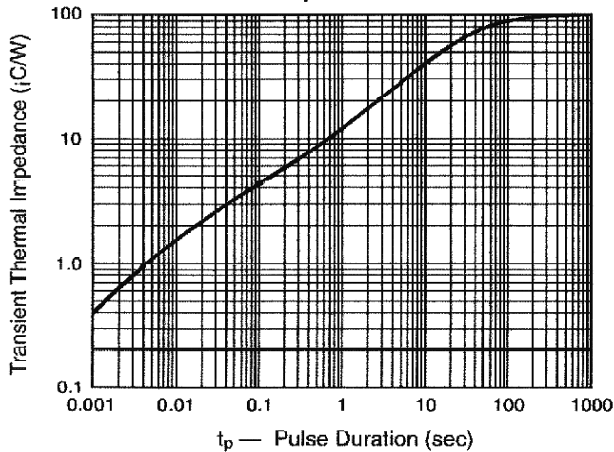
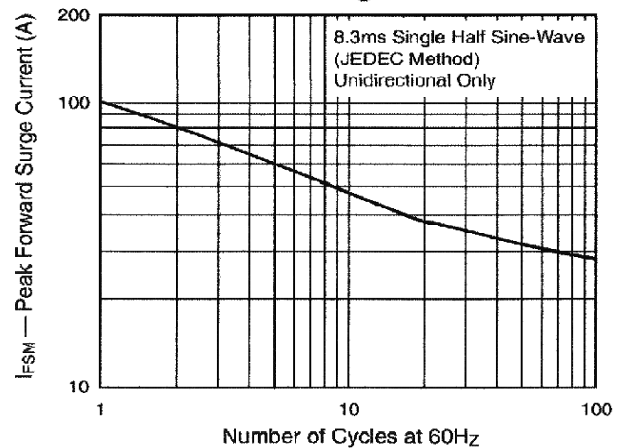


Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current



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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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