

# MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA., USA 92253 Tel : 760-564-8656 • Fax : 760-564-2414  
1-800-831-4881 Email: sales@mdesemiconductor.com Web: www.mdesemiconductor.com

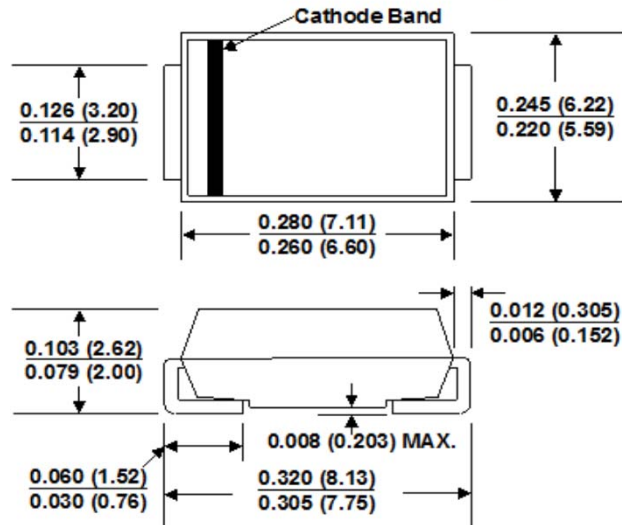
## 5.0 SMLJ SERIES

### SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE-12 TO 170 Volts 5000 Watt Peak Pulse Power

#### FEATURES

- For surface mounted applications in order to optimize board space
- Halogen-Free
- Typical maximum temperature coefficient  $\Delta VBR = 0.1\% \times VBR @ 25^\circ C \times \Delta T$
- 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 2µA above 12V
- High temperature soldering: 260°C/40 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Matte Tin Lead-free plated

#### DO-214AB (SMC J-Bend)



*Dimensions in inches and (millimeters)*

#### 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: 16mm tape (EIA STD RS-481)  
 Weight: 0.007 ounces, 0.021 grams

#### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 µs waveform (NOTE 1, 2, Fig.1)	$P_{PPM}$	Minimum 5000	Watts
Peak Pulse Current of on 10/1000 µs waveform (Note 1, Fig 3)	$I_{PPM}$	SEE TABLE 1	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method)(Note2, 3)	$I_{FSM}$	300	Amps
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 +150	°C

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25 °C per Fig.2.
2. Mounted on 8.0x8.0mm Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minute maximum.

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## 5000 Watt Surface Mount TVS

UNI-POLAR	BI-POLAR	DEVICE MARKING CODE		REVERSE STANDOFF VOLTAGE $V_{RWM}$ (V)	BREAKDOWN VOLTAGE $V_{BR}$ (V) MIN. @ $I_T$	BREAKDOWN VOLTAGE $V_{BR}$ (V) MAX. @ $I_T$	TEST CURRENT ( $I_T$ ) mA	MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ $V_C$ (V)	PEAK PULSE CURRENT $I_{PP}$ (A)	REVERSE LEAKAGE @ $V_{RWM}$ $I_R$ ( $\mu$ A)
		UNI	BI							
5.0SMLJ12A	5.0SMLJ12CA	5PEP	5BEP	12.00	13.30	14.70	1	19.9	252.0	2
5.0SMLJ13A	5.0SMLJ13CA	5PEQ	5BEQ	13.00	14.40	15.90	1	21.5	233.0	2
5.0SMLJ14A	5.0SMLJ14CA	5PER	5BER	14.00	15.60	17.20	1	23.2	216.0	2
5.0SMLJ15A	5.0SMLJ15CA	5PES	5BES	15.00	16.70	18.50	1	24.4	205.0	2
5.0SMLJ16A	5.0SMLJ16CA	5PET	5BET	16.00	17.80	19.70	1	26.0	193.0	2
5.0SMLJ17A	5.0SMLJ17CA	5PEU	5BEU	17.00	18.90	20.90	1	27.6	181.0	2
5.0SMLJ18A	5.0SMLJ18CA	5PFV	5BFV	18.00	20.00	22.10	1	29.2	172.0	2
5.0SMLJ20A	5.0SMLJ20CA	5PEW	5BEW	20.00	22.20	24.50	1	32.4	155.0	2
5.0SMLJ22A	5.0SMLJ22CA	5PEX	5BEX	22.00	24.40	26.90	1	35.5	141.0	2
5.0SMLJ24A	5.0SMLJ24CA	5PEZ	5BEZ	24.00	26.70	29.50	1	38.9	129.0	2
5.0SMLJ26A	5.0SMLJ26CA	5PFE	5BFE	26.00	28.90	31.90	1	42.1	119.0	2
5.0SMLJ28A	5.0SMLJ28CA	5PFG	5BFG	28.00	31.10	34.40	1	45.4	110.0	2
5.0SMLJ30A	5.0SMLJ30CA	5PFK	5BFK	30.00	33.30	36.80	1	48.4	103.0	2
5.0SMLJ33A	5.0SMLJ33CA	5PFM	5BFM	33.00	36.70	40.60	1	53.3	93.9	2
5.0SMLJ36A	5.0SMLJ36CA	5PFP	5BFP	36.00	40.00	44.20	1	58.1	86.1	2
5.0SMLJ40A	5.0SMLJ40CA	5PFR	5BFR	40.00	44.40	49.10	1	64.5	77.6	2
5.0SMLJ43A	5.0SMLJ43CA	5PFT	5BFT	43.00	47.80	52.80	1	69.4	72.1	2
5.0SMLJ45A	5.0SMLJ45CA	5PFV	5BFV	45.00	50.00	55.30	1	72.7	68.8	2
5.0SMLJ48A		5PFX		48.00	53.30	58.90	1	77.4	64.7	2
5.0SMLJ51A		5PFZ		51.00	56.70	62.70	1	82.4	60.7	2
5.0SMLJ54A		5PGE		54.00	60.00	66.30	1	87.1	57.5	2
5.0SMLJ58A		5PGG		58.00	64.40	71.20	1	93.6	53.5	2
5.0SMLJ60A		5PGK		60.00	66.70	73.70	1	96.8	51.7	2
5.0SMLJ64A		5PGM		64.00	71.10	78.60	1	103.0	48.6	2
5.0SMLJ70A		5PGP		70.00	77.80	86.00	1	113.0	44.3	2
5.0SMLJ75A		5PGR		75.00	83.30	92.10	1	121.0	41.4	2
5.0SMLJ78A		5PGT		78.00	86.70	95.80	1	126.0	39.7	2
5.0SMLJ85A		5PGV		85.00	94.40	104.00	1	137.0	36.5	2
5.0SMLJ90A		5PGX		90.00	100.00	111.00	1	146.0	34.3	2
5.0SMLJ100A		5PGZ		100.00	111.00	123.00	1	162.0	30.9	2
5.0SMLJ110A		5PHE		110.00	122.00	135.00	1	177.0	28.3	2
5.0SMLJ120A		5PHG		120.00	133.00	147.00	1	193.0	26.0	2
5.0SMLJ130A		5PHK		130.00	144.00	159.00	1	209.0	24.0	2
5.0SMLJ150A		5PHM		150.00	167.00	185.00	1	243.0	20.6	2
5.0SMLJ160A		5PHP		160.00	178.00	197.00	1	259.0	19.3	2
5.0SMLJ170A		5PHR		170.00	189.00	209.00	1	275.0	18.2	2

For bidirectional type having  $V_{RWM}$  of 20 volts and less, the  $I_R$  limit is double.

For parts without A , the  $V_{BR}$  is  $\pm 10\%$

Certified RoHS Compliant

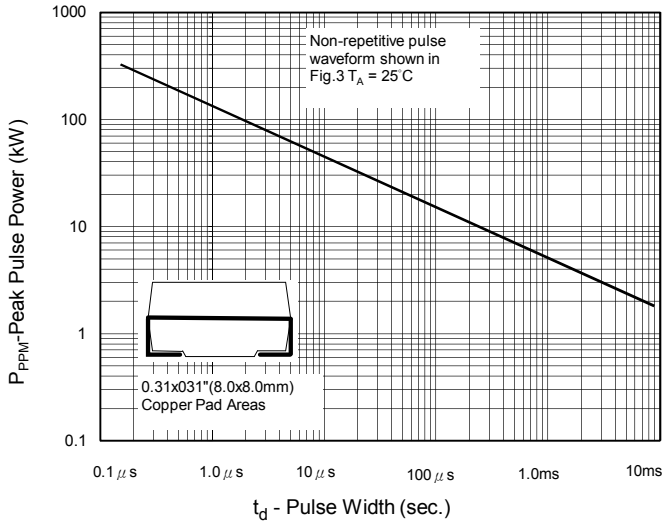
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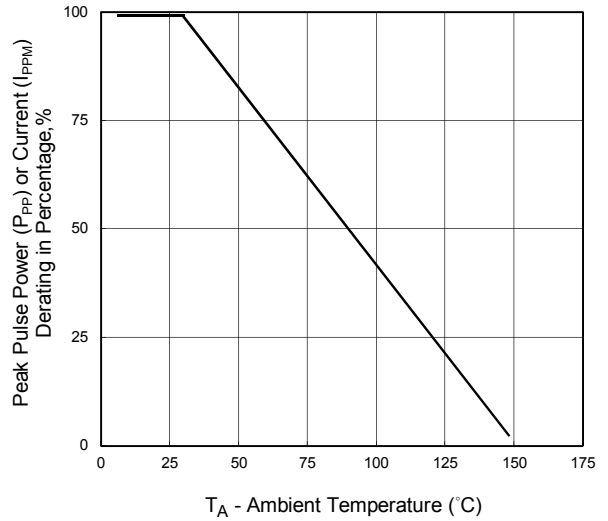
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## RATING AND CHARACTERISTIC CURVES 5.0SMLJ SERIES

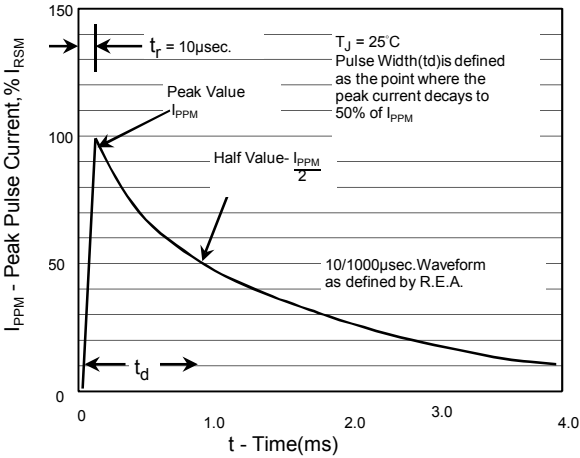
**Fig. 1 - Peak Pulse Power Rating Curve**



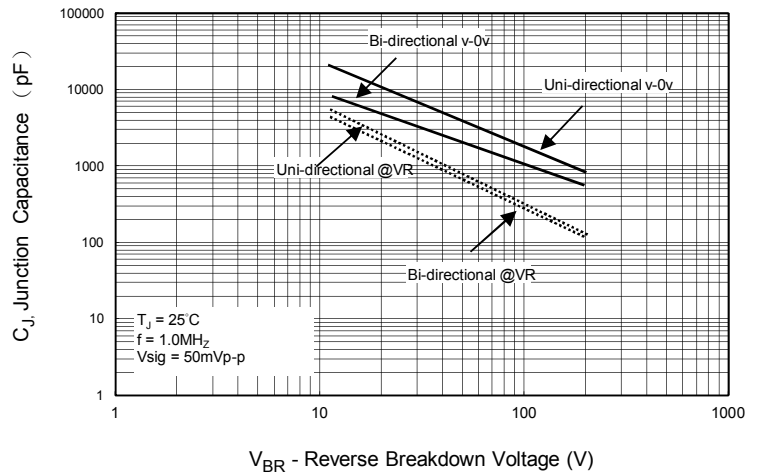
**Fig.2 - Pulse Derating Curve**



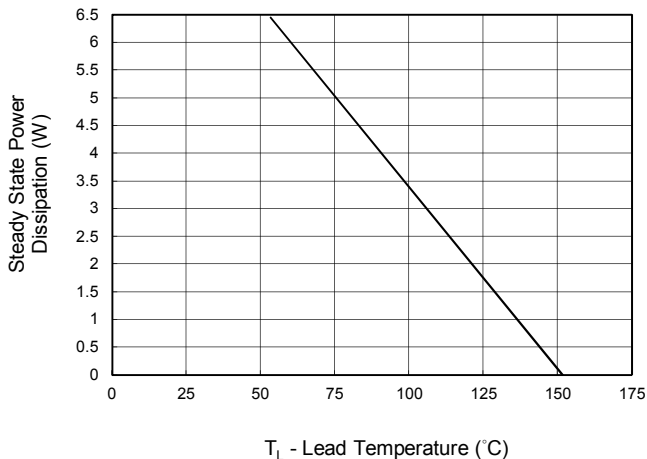
**Fig.3 - Pulse Waveform**



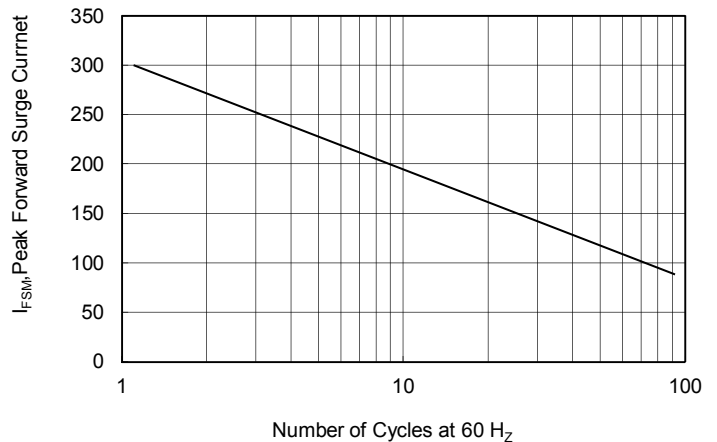
**Fig. 4 - Typical Junction Capacitance**



**Fig. 5 - Steady State Power Derating Curve**



**Fig.6 - Maximum Non-repetitive Forward Surge current uni-directional only**



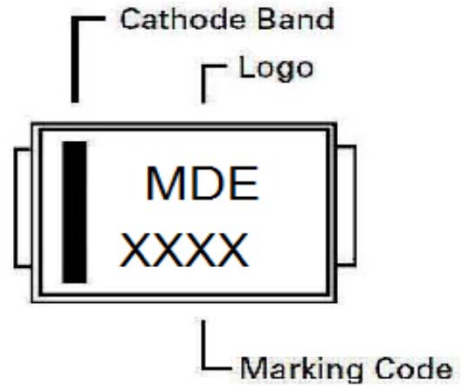
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## **5.0 SMLJ SERIES**

**SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR**  
**VOLTAGE-12 TO 170 Volts**  
**5000 Watt Peak Pulse Power**

5.0SMLJ XXX C A  
└── SERIES  
└── VOLTAGE  
└── BI-DIRECTIONAL  
└── 5% VOLTAGE TOLERANCE



Part number	Component Package	Quantity	Packaging Option	Packaging Specification
5.0SMLJxxxXX	DO-214AB	3000	Tape & Reel - 16mm/13" tape	EIA STD RS-481
5.0SMLJxxxXX	DO-214AB	500	Tape & Reel - 16mm/ 7" tape	EIA STD RS-481