

# MDE Semiconductor, Inc.

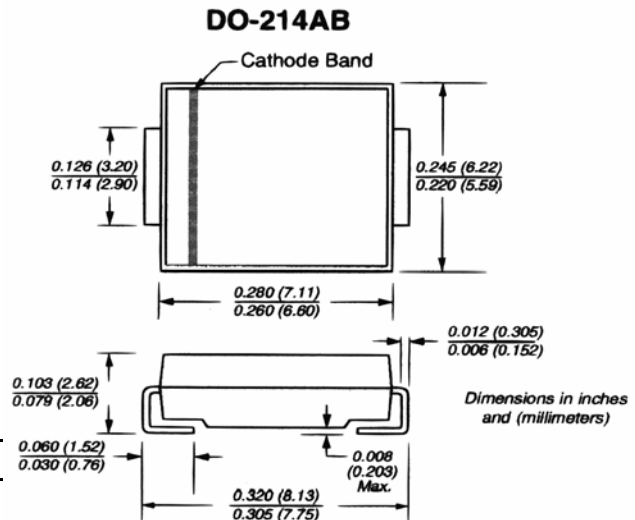
78-150 Calle Tampico, Unit 210, La Quinta, CA., USA 92253 Tel : 760-564-8656 • Fax : 760-564-2414  
1-800-831-4881 Email: sales@mdesemiconductor.com Web: www.mdesemiconductor.com

## 3.0SMCJ 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 1µA 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: 16mm 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 3.0SMCJ5.0 thru types 3.0SMCJ170 (e.g. 3.0SMCJ5.0C, 3.0SMCJ170CA)  
 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 µs waveform (NOTE 1, 2, Fig.1)	$P_{PPM}$	Minimum 3000	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
Operatings and Storage Temperature Range	$T_J, T_{STG}$	-55 +150	°C

**NOTES:**

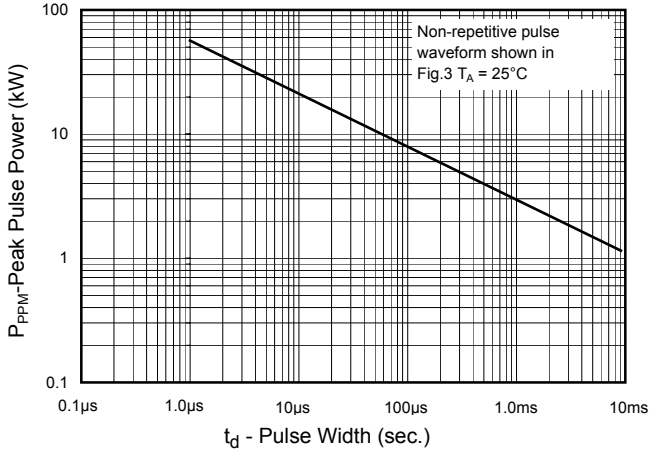
1. Non-repetitive current pulse, per Fig.3 and derated above  $T_a=25^\circ\text{C}$  per Fig.2.
2. Mounted on 8.0mm x 8.0mm Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

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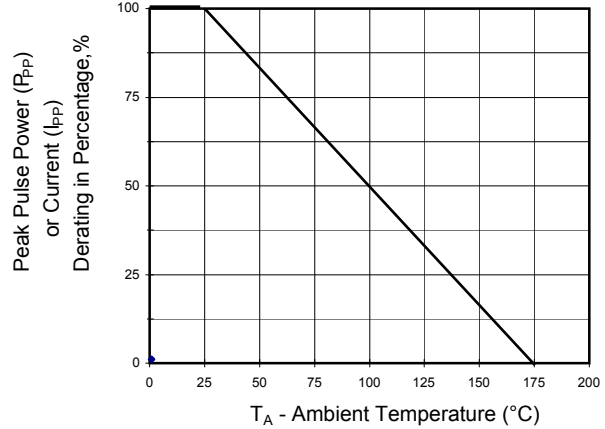
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## RATING AND CHARACTERISTIC CURVES 3.0SMCJ SERIES

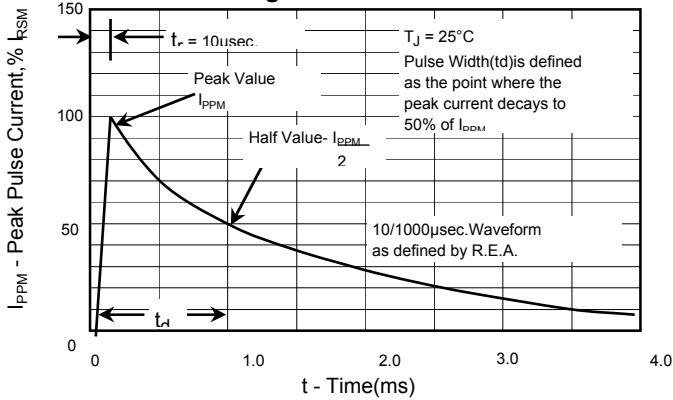
**Fig. 1 - Peak Pulse Power Rating Curve**



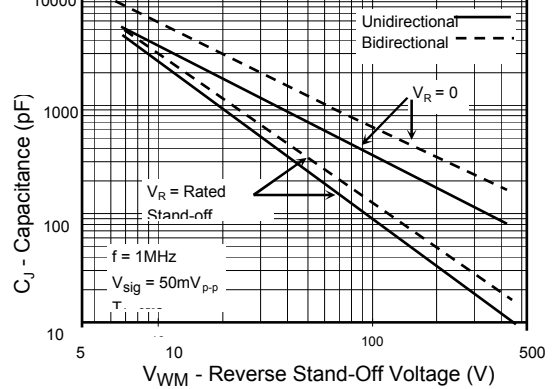
**Fig.2 - Pulse Derating Curve**



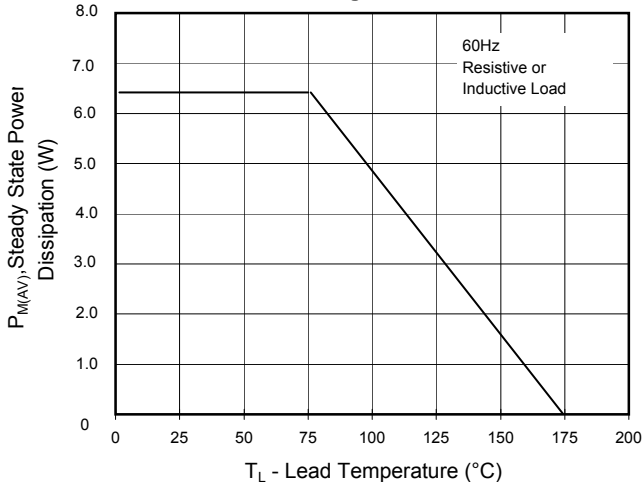
**Fig.3 - Pulse Waveform**



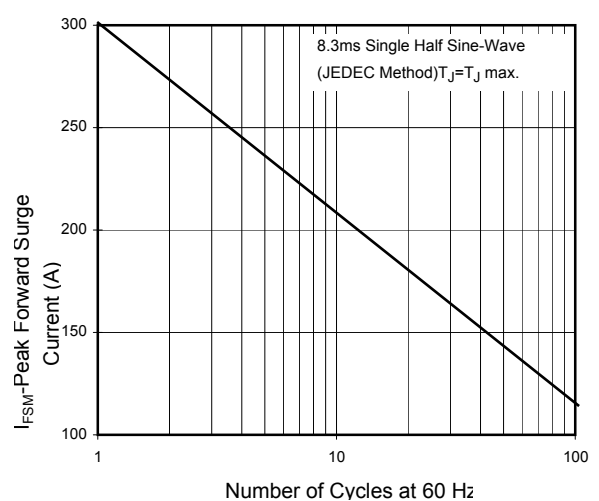
**Fig. 4 - Typical Junction Capacitance**



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



**Fig.6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only**



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## 3000 Watt Surface Mount TVS

UNI-POLAR	BI-POLAR	DEVICE MARKING CODE		REVERSE STANDOFF VOLTAGE V <sub>RWM</sub> (V)	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MIN. @ I <sub>T</sub>	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MAX. @ I <sub>T</sub>	TEST CURRENT (I <sub>T</sub> ) mA	MAXIMUM CLAMPING VOLTAGE @I <sub>PP</sub> V <sub>C</sub> (V)	PEAK PULSE CURRENT I <sub>PP</sub> (A)	REVERSE LEAKAGE @ V <sub>RWM</sub> I <sub>R</sub> (μA)
		UNI	BI							
3.0SMCJ5.0A	3.0SMCJ5.0CA	RDE	DDE	5.00	6.40	7.00	10	9.2	326.1	800
3.0SMCJ6.0A	3.0SMCJ6.0CA	RDG	DDG	6.00	6.67	7.37	10	10.3	291.3	800
3.0SMCJ6.5A	3.0SMCJ6.5CA	RDK	DDK	6.50	7.22	7.98	10	11.2	267.9	500
3.0SMCJ7.0A	3.0SMCJ7.0CA	PDM	DDM	7.00	7.78	8.60	10	12.0	250.0	200
3.0SMCJ7.5A	3.0SMCJ7.5CA	PDP	DDP	7.50	8.33	9.21	1	12.9	232.6	100
3.0SMCJ8.0A	3.0SMCJ8.0CA	PDR	DDR	8.00	8.89	9.83	1	13.6	220.6	50
3.0SMCJ8.5A	3.0SMCJ8.5CA	PDT	DDT	8.50	9.44	10.40	1	14.4	208.3	20
3.0SMCJ9.0A	3.0SMCJ9.0CA	PDV	DDV	9.00	10.00	11.10	1	15.4	194.8	10
3.0SMCJ10A	3.0SMCJ10CA	PDX	DDX	10.00	11.10	12.30	1	17.0	176.5	5
3.0SMCJ11A	3.0SMCJ11CA	PDZ	DDZ	11.00	12.20	13.50	1	18.2	164.8	5
3.0SMCJ12A	3.0SMCJ12CA	PEE	DEE	12.00	13.30	14.70	1	19.9	150.8	5
3.0SMCJ13A	3.0SMCJ13CA	PEG	DEG	13.00	14.40	15.90	1	21.5	139.5	5
3.0SMCJ14A	3.0SMCJ14CA	PEK	DEK	14.00	15.60	17.20	1	23.2	129.3	5
3.0SMCJ15A	3.0SMCJ15CA	PEM	DEM	15.00	16.70	18.50	1	24.4	123.0	5
3.0SMCJ16A	3.0SMCJ16CA	PEP	DEP	16.00	17.80	19.70	1	26.0	115.4	5
3.0SMCJ17A	3.0SMCJ17CA	PER	DER	17.00	18.90	20.90	1	27.6	108.7	5
3.0SMCJ18A	3.0SMCJ18CA	PET	DET	18.00	20.00	22.10	1	29.2	102.7	5
3.0SMCJ20A	3.0SMCJ20CA	PEV	DEV	20.00	22.20	24.50	1	32.4	92.6	5
3.0SMCJ22A	3.0SMCJ22CA	PEX	DEX	22.00	24.40	26.90	1	35.5	84.5	5
3.0SMCJ24A	3.0SMCJ24CA	PEZ	DEZ	24.00	26.70	29.50	1	38.9	77.1	5
3.0SMCJ26A	3.0SMCJ26CA	PFE	DFE	26.00	28.90	31.90	1	42.1	71.3	5
3.0SMCJ28A	3.0SMCJ28CA	PFG	DFG	28.00	31.10	34.40	1	45.4	66.1	5
3.0SMCJ30A	3.0SMCJ30CA	PFK	DFK	30.00	33.30	36.80	1	48.4	62.0	5
3.0SMCJ33A	3.0SMCJ33CA	PFM	DFM	33.00	36.70	40.60	1	53.3	56.3	5
3.0SMCJ36A	3.0SMCJ36CA	PFP	DFP	36.00	40.00	44.20	1	58.1	51.6	5
3.0SMCJ40A	3.0SMCJ40CA	PFR	DFR	40.00	44.40	49.10	1	64.5	46.5	5
3.0SMCJ43A	3.0SMCJ43CA	PFT	DFT	43.00	47.80	52.80	1	69.4	43.2	5
3.0SMCJ45A	3.0SMCJ45CA	PFV	DFV	45.00	50.00	55.30	1	72.7	41.3	5
3.0SMCJ48A	3.0SMCJ48CA	PFX	DFX	48.00	53.30	58.90	1	77.4	38.8	5
3.0SMCJ51A	3.0SMCJ51CA	PFZ	DFZ	51.00	56.70	62.70	1	82.4	36.4	5
3.0SMCJ54A	3.0SMCJ54CA	PGE	DGE	54.00	60.00	66.30	1	87.1	34.4	5
3.0SMCJ58A	3.0SMCJ58CA	PGG	DGG	58.00	64.40	71.20	1	93.6	32.1	5
3.0SMCJ60A	3.0SMCJ60CA	PGK	DGK	60.00	66.70	73.70	1	96.8	31.0	5
3.0SMCJ64A	3.0SMCJ64CA	PGM	DGM	64.00	71.10	78.60	1	103.0	29.1	5
3.0SMCJ70A	3.0SMCJ70CA	PGP	DGP	70.00	77.80	86.00	1	113.0	26.5	5
3.0SMCJ75A	3.0SMCJ75CA	PGR	DGR	75.00	83.30	92.10	1	121.0	24.8	5
3.0SMCJ78A	3.0SMCJ78CA	PGT	DGT	78.00	86.70	95.80	1	126.0	23.8	5
3.0SMCJ85A	3.0SMCJ85CA	PGV	DGV	85.00	94.40	104.00	1	137.0	21.9	5
3.0SMCJ90A	3.0SMCJ90CA	PGX	DGX	90.00	100.00	111.00	1	146.0	20.5	5
3.0SMCJ100A	3.0SMCJ100CA	PGZ	DGZ	100.00	111.00	123.00	1	162.0	18.5	5
3.0SMCJ110A	3.0SMCJ110CA	PHE	DHE	110.00	122.00	135.00	1	177.0	16.9	5
3.0SMCJ120A	3.0SMCJ120CA	PHG	DHG	120.00	133.00	147.00	1	193.0	15.5	5
3.0SMCJ130A	3.0SMCJ130CA	PHK	DHK	130.00	144.00	159.00	1	209.0	14.4	5
3.0SMCJ150A	3.0SMCJ150CA	PHM	DHM	150.00	167.00	185.00	1	243.0	12.3	5
3.0SMCJ160A	3.0SMCJ160CA	PHP	DHP	160.00	178.00	197.00	1	259.0	11.6	5
3.0SMCJ170A	3.0SMCJ170CA	PHR	DHR	170.00	189.00	209.00	1	275.0	10.9	5

For bidirectional type having V<sub>RWM</sub> of 10 volts and less, the IR limit is double.

For parts without A , the VBR is ± 10%

Certified RoHS Compliant

UL File # E223026