

MDE Semiconductor, Inc.

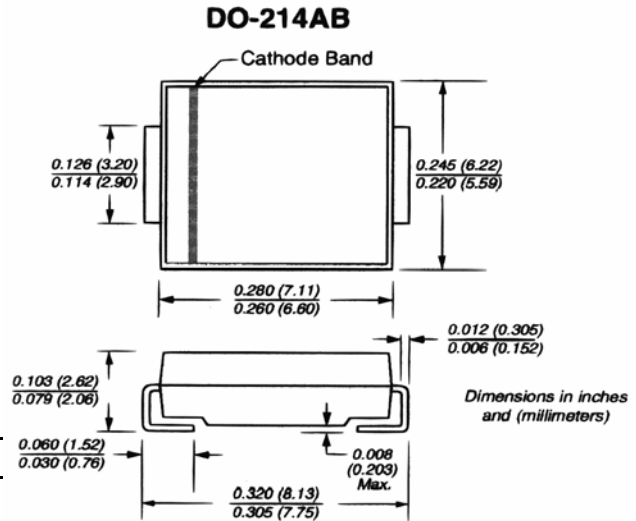
78-150 Calle Tampico, Unit 210, La Quinta, CA., USA 92253 Tel : 760-564-8656 • Fax : 760-564-2414
1-800-831-4881 Email: sales@mdesemiconductor.com Web: www.mdesemiconductor.com

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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RATING AND CHARACTERISTIC CURVES 3.0SMCJ SERIES

Fig. 1 - Peak Pulse Power Rating Curve

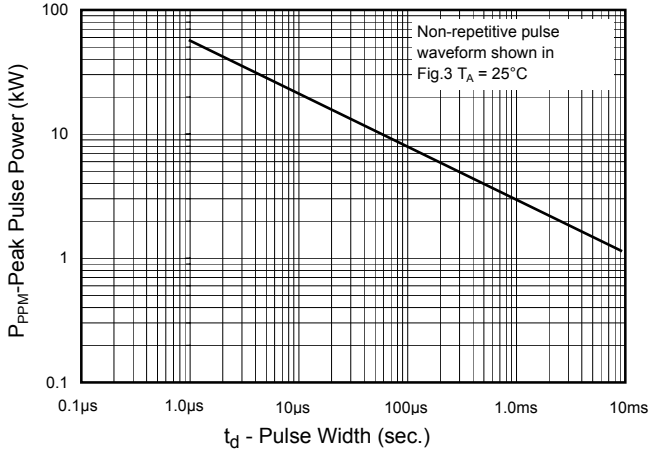


Fig.2 - Pulse Derating Curve

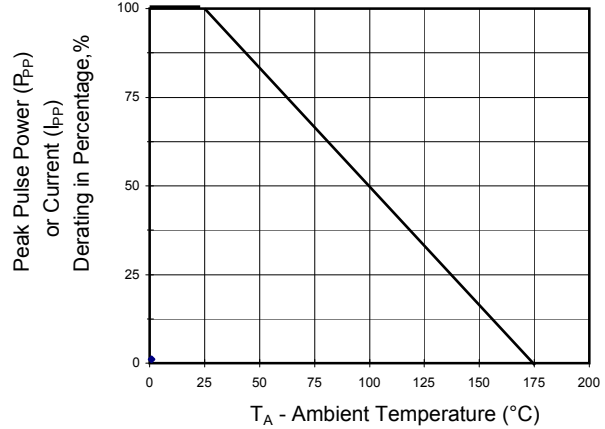


Fig.3 - Pulse Waveform

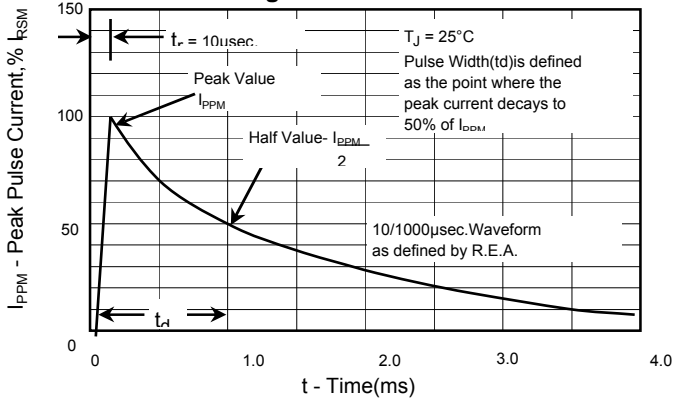


Fig. 4 - Typical Junction Capacitance

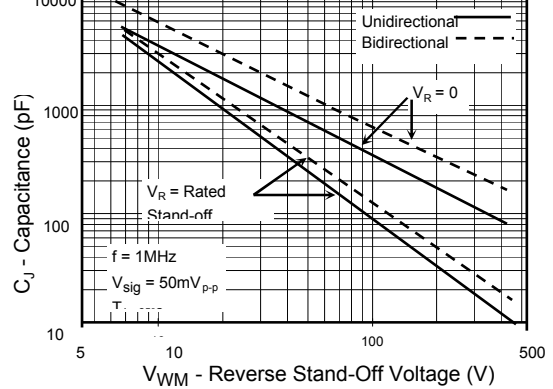


Fig. 5 - Steady State Power Derating Curve

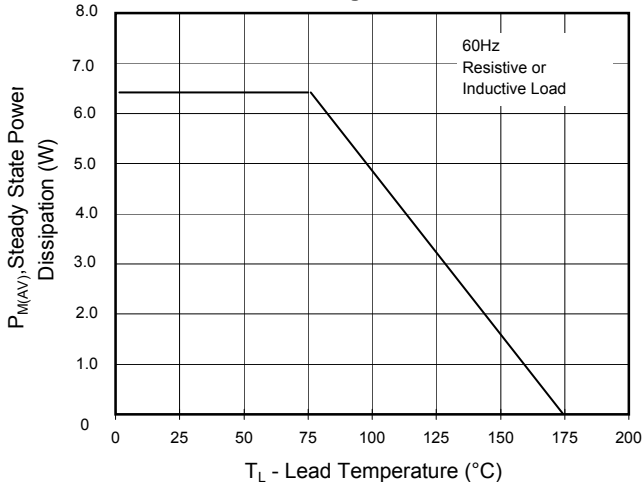
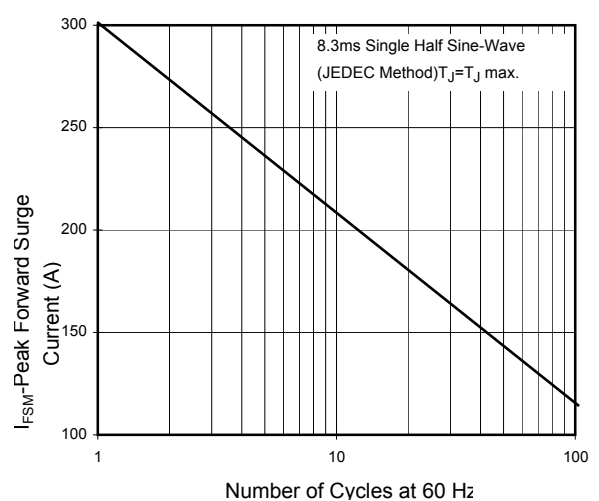


Fig.6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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3000 Watt Surface Mount TVS

| UNI-POLAR | BI-POLAR | DEVICE MARKING CODE | | REVERSE STANDOFF VOLTAGE V _{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 (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_{rwm} of 10 volts and less, the IR limit is double.

For parts without A , the VBR is ± 10%

Certified RoHS Compliant

UL File # E223026