

DATA SHEET

TRANSIENT VOLTAGE SUPPRESSORS – SMDJ SERIES

FEATURE

- ✧ 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 1.0ps from 0 Volts to BV for unidirectional types.
- ✧ Typical I_R less than 1 μ A above 10V.
- ✧ High Temperature soldering: 260°C/10 seconds at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-O.



SMC/DO-214AB

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MECHANICAL DATE

- ✧ Case: JEDEC DO214AB. Molded plastic over glass passivated junction.
- ✧ Terminal: 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 ounce, 0.21 grams.

DEVICES FOR BIPOLAR APPLICATION

For bidirectional use C or CA suffix for types SMDJ5.0 thru types SMDJ170 (e.g.SMDJ5.0CA, SMCJ170CA), electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

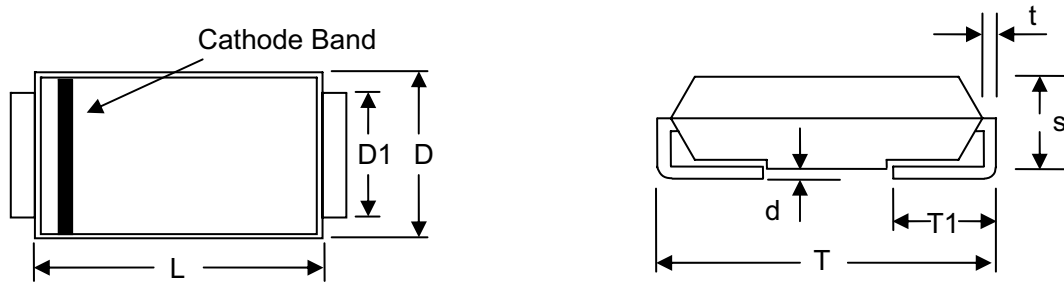
| RATING | SYMBOL | VALUE | UNITS |
|---|----------------|--------------|-------|
| Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note1,Note2, Fig.1). | P_{PPM} | Minimum 3000 | Watts |
| Peak Pulse Current of on 10/1000 μ s waveform.(Note1,Fig.3) | I_{PPM} | See Table | Amps |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$,Lead lengths.375", (9.5mm) (Note2,Fig.5). | $P_{M(AV)}$ | 6.5 | Watts |
| Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3,Fig.6). | I_{FSM} | 300 | Amps |
| Operating junction and Storage Temperature Range. | T_J, T_{STG} | -65 to +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 0.8mm x 0.8mm Copper Pads to each terminal.

3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

DIMENSIONS



SMC/DO-214AB

| Item | Millimeters | | Inches | |
|------|-------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| L | 6.60 | 7.11 | 0.260 | 0.280 |
| D | 5.59 | 6.22 | 0.220 | 0.245 |
| D1 | 2.90 | 3.20 | 0.114 | 0.126 |
| T | 7.75 | 8.13 | 0.305 | 0.320 |
| T1 | 0.76 | 1.52 | 0.030 | 0.060 |
| d | - | 0.203 | - | 0.008 |
| s | 2.06 | 2.62 | 0.079 | 0.103 |
| t | 0.152 | 0.305 | 0.006 | 0.012 |

ELECTRICAL CHARACTERISTICS

| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage NIN.@IT | Breakdown Voltage MAX.@IT | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|-------------|-----------|---------------------|-----|---------------------------|---------------------------|---------------------------|--------------|-------------------------------|--------------------|-----------------------|
| UNT-POLAR | BI-POLAR | UNI | BI | VRWM(V) | VBR MIN.(V) | VBR MAX.(V) | IT(mA) | VC(V) | IPP(A) | IR(μA) |
| SMDJ5.0A | SMDJ5.0CA | RDE | DDE | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 326.1 | 800 |
| SMDJ6.0A | SMDJ6.0CA | RDG | DDG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 291.3 | 800 |
| SMDJ6.5A | SMDJ6.5CA | RDK | DDK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 267.9 | 500 |
| SMDJ7.0A | SMDJ7.0CA | PDM | DDM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 250.0 | 200 |
| SMDJ7.5A | SMDJ7.5CA | PDP | DDP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 232.6 | 100 |
| SMDJ8.0A | SMDJ8.0CA | PDR | DDR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 220.6 | 50 |
| SMDJ8.5A | SMDJ8.5CA | PDT | DDT | 8.5 | 9.44 | 10.40 | 1 | 14.4 | 208.3 | 20 |
| SMDJ9.0A | SMDJ9.0CA | PDV | DDV | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 194.8 | 10 |
| SMDJ10A | SMDJ10CA | PDX | DDX | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 176.5 | 5 |
| SMDJ11A | SMDJ11CA | PDZ | DDZ | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 164.8 | 2 |
| SMDJ12A | SMDJ12CA | PEE | DEE | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 150.8 | 2 |
| SMDJ13A | SMDJ13CA | PEG | DEG | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 139.5 | 2 |
| SMDJ14A | SMDJ14CA | PEK | DEK | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 129.3 | 2 |
| SMDJ15A | SMDJ15CA | PEM | DEM | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 123.0 | 2 |
| SMDJ16A | SMDJ16CA | PEP | DEP | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 115.4 | 2 |

ELECTRICAL CHARACTERISTICS

| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage NIN.@IT | Breakdown Voltage MAX.@IT | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|-------------|-----------|---------------------|-----|---------------------------|---------------------------|---------------------------|--------------|-------------------------------|--------------------|-----------------------|
| UNT-POLAR | BI-POLAR | UNI | BI | VRWM(V) | VBR MIN.(V) | VBR MAX.(V) | IT(mA) | Vc(V) | IPP(A) | IR(μA) |
| SMDJ17A | SMDJ17CA | PER | DER | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 108.7 | 2 |
| SMDJ18A | SMDJ18CA | PET | DET | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 102.7 | 2 |
| SMDJ20A | SMDJ20CA | PEV | DEV | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 92.6 | 2 |
| SMDJ22A | SMDJ22CA | PEX | DEX | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 84.5 | 2 |
| SMDJ24A | SMDJ24CA | PEZ | DEZ | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 77.1 | 2 |
| SMDJ26A | SMDJ26CA | PFE | DFE | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 71.3 | 2 |
| SMDJ28A | SMDJ28CA | PFG | DFG | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 66.1 | 2 |
| SMDJ30A | SMDJ30CA | PFK | DFK | 30.0 | 33.30 | 36.80 | 1 | 48.4 | 62.0 | 2 |
| SMDJ33A | SMDJ33CA | PFM | DFM | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 56.3 | 2 |
| SMDJ36A | SMDJ36CA | PFP | DFP | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 51.6 | 2 |
| SMDJ40A | SMDJ40CA | PFR | DFR | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 46.5 | 2 |
| SMDJ43A | SMDJ43CA | PFT | DFT | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 43.2 | 2 |
| SMDJ45A | SMDJ45CA | PFV | DFV | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 41.3 | 2 |
| SMDJ48A | SMDJ48CA | PFX | DFX | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 38.8 | 2 |
| SMDJ51A | SMDJ51CA | PFZ | DFZ | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 36.4 | 2 |
| SMDJ54A | SMDJ54CA | PGE | DGE | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 34.4 | 2 |
| SMDJ58A | SMDJ58CA | PGG | DGG | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 32.1 | 2 |
| SMDJ60A | SMDJ60CA | PGK | DGK | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 31.0 | 2 |
| SMDJ64A | SMDJ64CA | PGM | DGM | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 29.1 | 2 |
| SMDJ70A | SMDJ70CA | PGP | DGP | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 26.5 | 2 |
| SMDJ75A | SMDJ75CA | PGR | DGR | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 24.8 | 2 |
| SMDJ78A | SMDJ78CA | PGT | DGT | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 23.8 | 2 |
| SMDJ85A | SMDJ85CA | PGV | DGV | 85.0 | 94.40 | 104.00 | 1 | 137.0 | 21.9 | 2 |
| SMDJ90A | SMDJ90CA | PGX | DGX | 90.0 | 100.00 | 111.00 | 1 | 146.0 | 20.5 | 2 |
| SMDJ100A | SMDJ100CA | PGZ | DGZ | 100.0 | 111.00 | 123.00 | 1 | 162.0 | 18.5 | 2 |
| SMDJ110A | SMDJ110CA | PHE | DHE | 110.0 | 122.00 | 135.00 | 1 | 177.0 | 16.9 | 2 |
| SMDJ120A | SMDJ120CA | PHG | DHG | 120.0 | 133.00 | 147.00 | 1 | 193.0 | 15.5 | 2 |
| SMDJ130A | SMDJ130CA | PHK | DHK | 130.0 | 144.00 | 159.00 | 1 | 209.0 | 14.4 | 2 |
| SMDJ150A | SMDJ150CA | PHM | DHM | 150.0 | 167.00 | 185.00 | 1 | 243.0 | 12.3 | 2 |
| SMDJ160A | SMDJ160CA | PHP | DHP | 160.0 | 178.00 | 197.00 | 1 | 259.0 | 11.6 | 2 |
| SMDJ170A | SMDJ170CA | PHR | DHR | 170.0 | 189.00 | 209.00 | 1 | 275.0 | 10.9 | 2 |
| SMDJ180A | SMDJ180CA | HHT | IHT | 180.0 | 201.00 | 222.00 | 1 | 292.0 | 10.3 | 2 |
| SMDJ190A | SMDJ190CA | HHV | IHV | 190.0 | 211.00 | 233.00 | 1 | 308.0 | 9.7 | 2 |
| SMDJ200A | SMDJ200CA | HHX | IHX | 200.0 | 224.00 | 247.00 | 1 | 324.0 | 9.3 | 2 |
| SMDJ210A | SMDJ210CA | HHZ | IHZ | 210.0 | 237.00 | 263.00 | 1 | 340.0 | 8.8 | 2 |
| SMDJ220A | SMDJ220CA | HIE | IIE | 220.0 | 246.00 | 272.00 | 1 | 356.0 | 8.4 | 2 |

Notes: For bidirectional type having VRWM of 10 volts and less, the IR limit is double.

RATINGS AND CHARACTERISTIC CURVES (TA=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

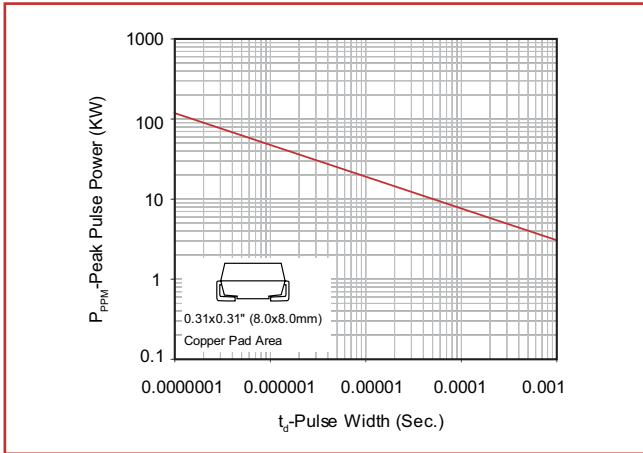


Figure 2 - Pulse Derating Curve

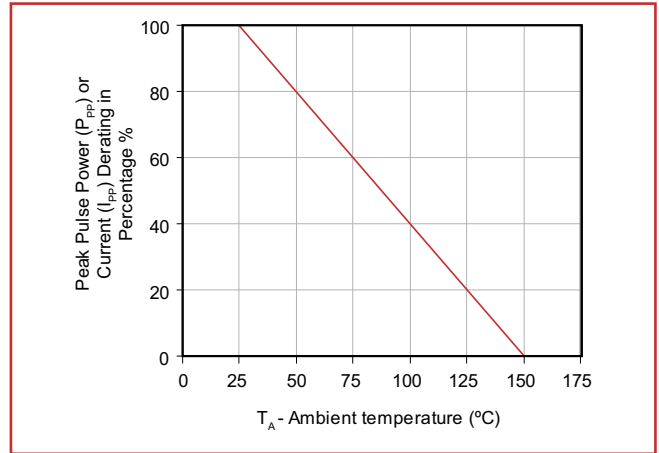


Figure 3 - Pulse Waveform

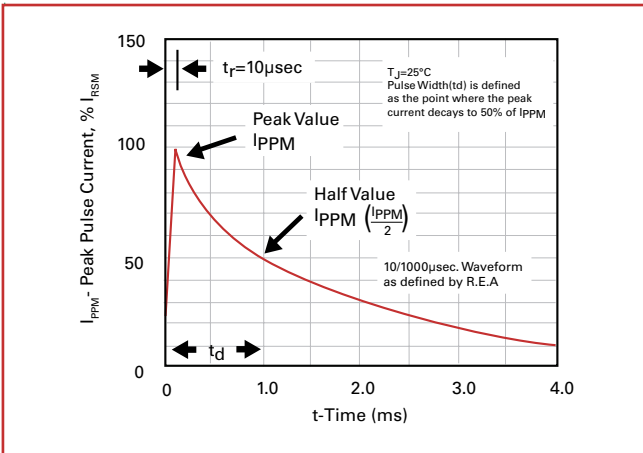


Figure 4 - Typical Junction Capacitance

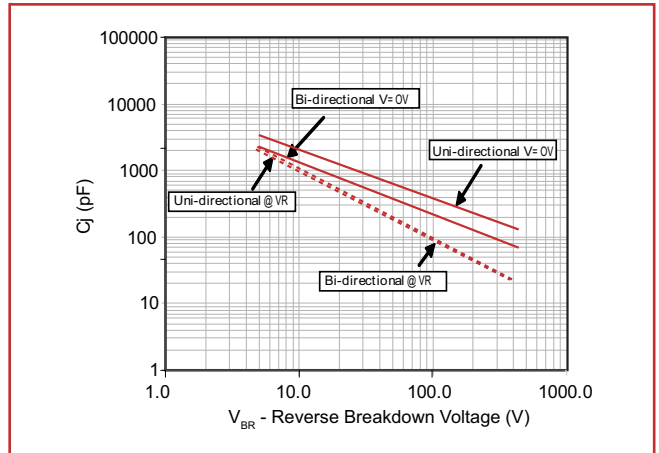


Figure 5 - Steady State Power Dissipation Derating Curve

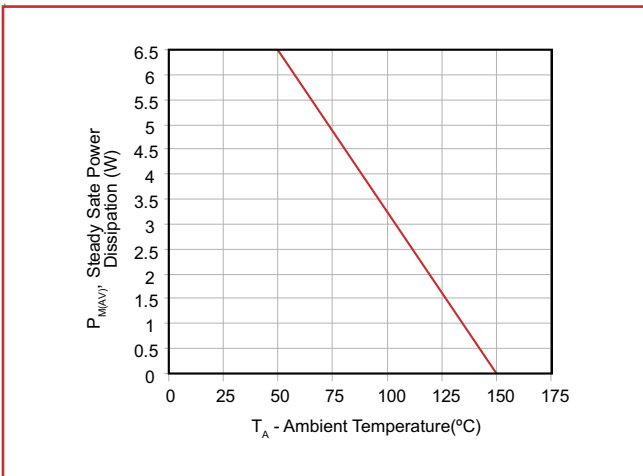
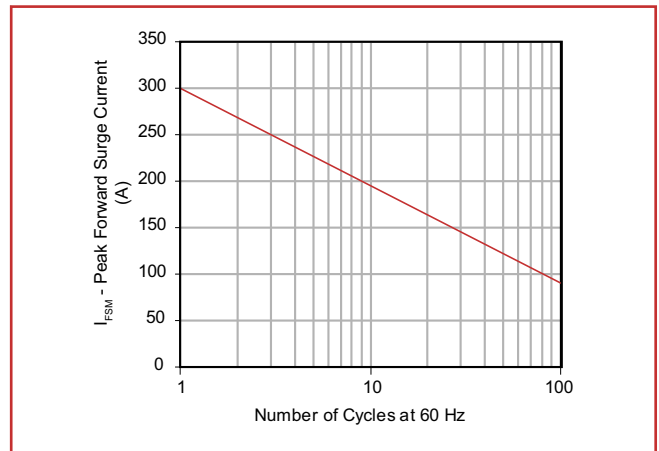


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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