



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



**SMC/DO-214AB**

### MECHANICAL DATA

- ✧ Case: JEDEC DO-214AB. Molded plastic over glass passivated junction.
- ✧ Terminal: Solder plated, solderable per MIL-STD-750, Method 2026.
- ✧ Polarity: Color band denotes 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 type SMDJ5.0 through type SMDJ220 (e.g. SMDJ5.0CA, SMDJ220CA);  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| RATING                                                                                                              | SYMBOL         | VALUE         | UNIT  |
|---------------------------------------------------------------------------------------------------------------------|----------------|---------------|-------|
| Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform. (Note 1, Note 2, Fig. 1)                                  | $P_{PPM}$      | Minimum 3,000 | Watts |
| Peak Pulse Current on 10/1000 $\mu$ s waveform. (Note 1, Fig. 3)                                                    | $I_{PPM}$      | See Table     | Amps  |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ , Lead length .375" (9.5mm). (Note 2, 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    |

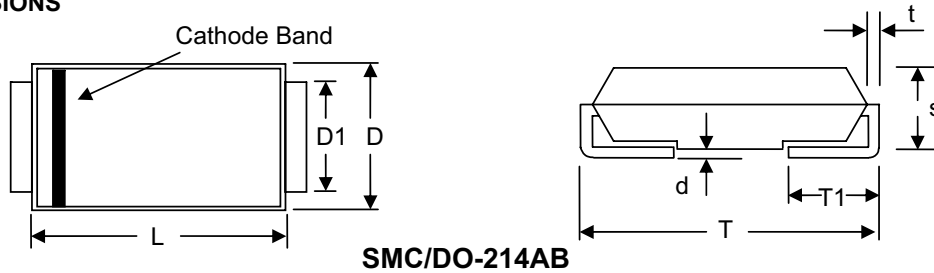
Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25^\circ\text{C}$  per Fig. 2.

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 minute maximum.



### PACKAGE DIMENSIONS



| 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 |

### SPECIFICATIONS

| Part Number |           | Device Marking Code |     | Reverse Stand-Off Voltage | Breakdown Voltage @ $I_T$ | Breakdown Voltage @ $I_T$ | Test Current | Maximum Clamping Voltage @ $I_{PP}$ | Peak Pulse Current | Reverse Leakage @ $V_{RWM}$ |
|-------------|-----------|---------------------|-----|---------------------------|---------------------------|---------------------------|--------------|-------------------------------------|--------------------|-----------------------------|
| UNI-POLAR   | BI-POLAR  | UNI                 | BI  | $V_{RWM}(V)$              | $V_{BR MIN.}(V)$          | $V_{BR MAX.}(V)$          | $I_T(mA)$    | $V_C(V)$                            | $I_{PP}(A)$        | $I_R(\mu A)$                |
| 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                           |

# Transient Voltage Suppressors



## SMDJ Series

## MERITEK

| Part Number |           | Device Marking Code |     | Reverse Stand-Off Voltage | Breakdown Voltage @I <sub>T</sub> | Breakdown Voltage @I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|-------------|-----------|---------------------|-----|---------------------------|-----------------------------------|-----------------------------------|---------------------|-------------------------------------------|---------------------|-----------------------------------|
| UNI-POLAR   | BI-POLAR  | UNI                 | BI  | V <sub>RWM</sub> (V)      | V <sub>BR MIN.</sub> (V)          | V <sub>BR MAX.</sub> (V)          | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (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                     | 198.00                            | 230.40                            | 1                   | 292.0                                     | 10.3                | 2                                 |
| SMDJ190A    | SMDJ190CA | HHV                 | IHV | 190.0                     | 209.00                            | 243.20                            | 1                   | 308.0                                     | 9.7                 | 2                                 |
| SMDJ200A    | SMDJ200CA | HHX                 | IHX | 200.0                     | 220.00                            | 256.00                            | 1                   | 324.0                                     | 9.3                 | 2                                 |
| SMDJ210A    | SMDJ210CA | HHZ                 | IHZ | 210.0                     | 231.00                            | 268.80                            | 1                   | 340.0                                     | 8.8                 | 2                                 |
| SMDJ220A    | SMDJ220CA | HIE                 | IIE | 220.0                     | 242.00                            | 281.60                            | 1                   | 356.0                                     | 8.4                 | 2                                 |

Note: For Bidirectional type having V<sub>RWM</sub> of 10 volts and less, the I<sub>R</sub> limit doubles.

### RATING AND CHARACTERISTIC CURVES (T<sub>A</sub>: 25°C UNLESS OTHERWISE SPECIFIED)

Figure 1 - Peak Pulse Power Rating Curve

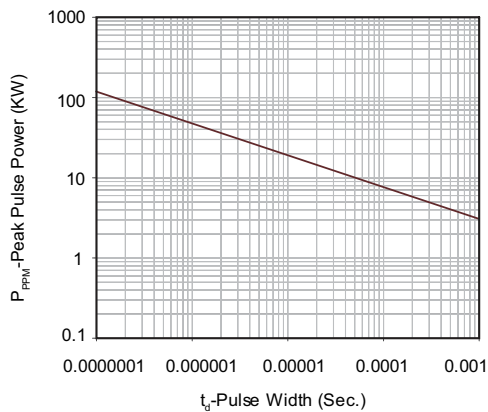


Figure 2 - Pulse Derating Curve

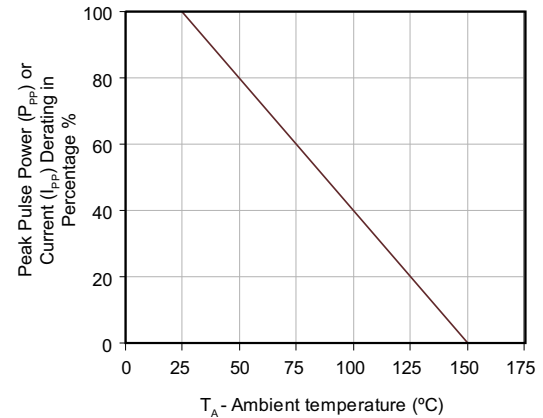


Figure 3 - Pulse Waveform

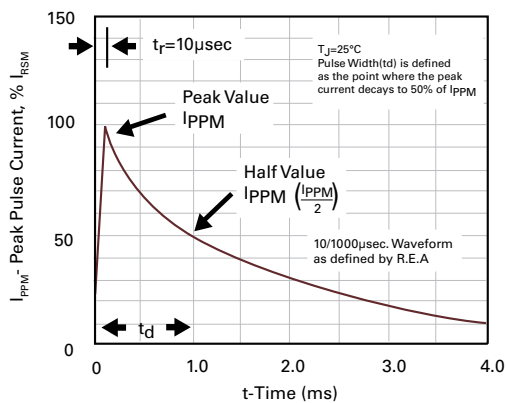


Figure 4 - Typical Junction Capacitance

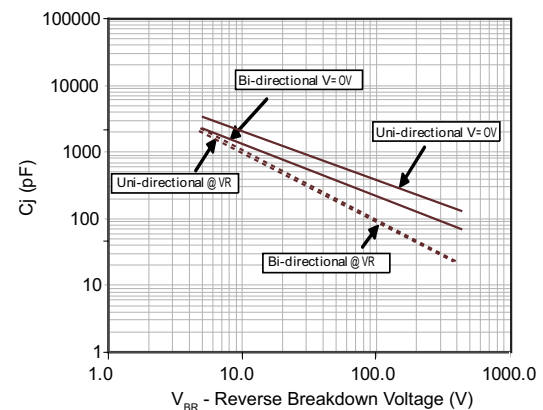


Figure 5 - Steady State Power Dissipation Derating Curve

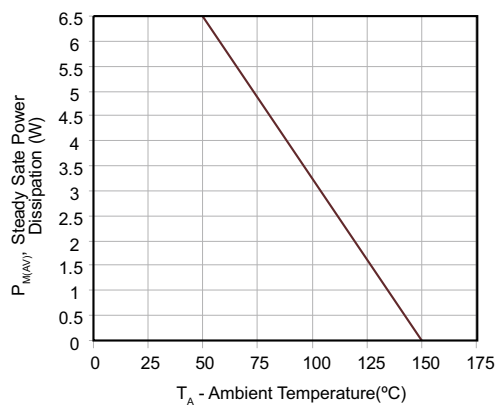
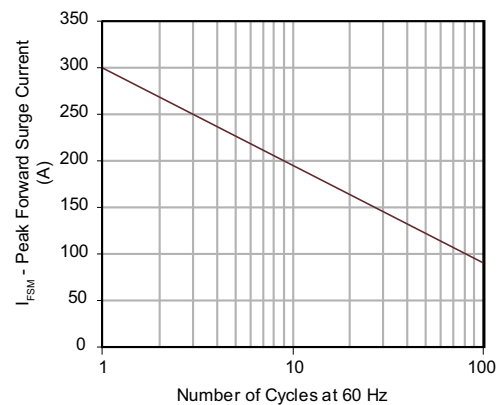


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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