

The SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

### MECHANICAL DATA

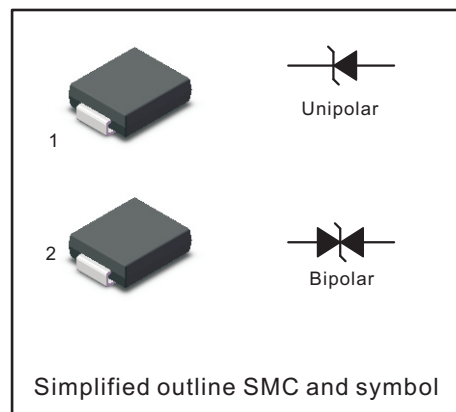
- Case: SMC
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.22g / 0.0077oz

### FEATURES

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated chip junction
- 3000W peak pulse power capability at 10x1000Us waveform, repetition rate {duty cycles}:0.01 %
- Excellent clamping capability
- Low incremental surge resistance
- Matte Tin Lead-free Plated

### PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |



### Maximum Ratings and Thermal Characteristics (TA=25°C unless otherwise noted)

| Parameter                                                                                             | Symbol                          | Value      | Unit |
|-------------------------------------------------------------------------------------------------------|---------------------------------|------------|------|
| Peak Pulse Power Dissipation at T <sub>A</sub> =25°C by 10x1000 us waveform (Fig.1)(Note 1), (Note 2) | P <sub>PPM</sub>                | 3000       | W    |
| Power Dissipation on infinite heat sink at TA=50°C                                                    | P <sub>M(AV)</sub>              | 6.5        | W    |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)                                      | I <sub>FSM</sub>                | 300        | A    |
| Maximum Instantaneous Forward Voltage at 100A for Unidirectional only                                 | V <sub>F</sub>                  | 3.5        | V    |
| Operating Junction and Storage Temperature Range                                                      | T <sub>J</sub> T <sub>STG</sub> | -65 to 150 | °C   |
| Typical Thermal Resistance Junction to Lead                                                           | R <sub>UJL</sub>                | 15         | °C/W |
| Typical Thermal Resistance Junction to Ambient                                                        | R <sub>UJA</sub>                | 75         | °C/W |

Notes:

1. Non-repetitive current pulse . per Fig 3 and derated above Ta = 25°C per Fig. 2
2. Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

Characteristics at Ta = 25°C

Table 1

| Type     |           | Reverse Stand-off Voltage | Breakdown Voltage |      | Test Current | Max.Clamp Voltage | Max. Peak Pulse Current | Max. Reverse Leakage | Package |                      |
|----------|-----------|---------------------------|-------------------|------|--------------|-------------------|-------------------------|----------------------|---------|----------------------|
|          |           |                           | $V_{BR} @ I_T$    |      |              |                   |                         |                      | SMC     |                      |
|          |           |                           | $V_{RMW}$         | Min  | Max          | $I_T$             | $V_c @ I_{PP}$          | $I_{PP}$             | IR@VR   | Device Marking Ccode |
| UNI      | BI        | V                         | V                 | V    | mA           | V                 | A                       | uA                   | UNI     | BI                   |
| SMDJ5.0A | SMDJ5.0CA | 5.0                       | 6.4               | 7    | 10           | 9.2               | 326.1                   | 500                  | RDE     | DDE                  |
| SMDJ6.0A | SMDJ6.0CA | 6.0                       | 6.67              | 7.37 | 10           | 10.3              | 291.3                   | 500                  | RDG     | DDG                  |
| SMDJ6.5A | SMDJ6.5CA | 6.5                       | 7.22              | 7.98 | 10           | 11.2              | 267.9                   | 400                  | RDK     | DDK                  |
| SMDJ7.0A | SMDJ7.0CA | 7.0                       | 7.78              | 8.6  | 10           | 12                | 250                     | 150                  | PDM     | DDM                  |
| SMDJ7.5A | SMDJ7.5CA | 7.5                       | 8.33              | 9.21 | 1            | 12.9              | 232.6                   | 100                  | PDP     | DDP                  |
| SMDJ8.0A | SMDJ8.0CA | 8.0                       | 8.89              | 9.83 | 1            | 13.6              | 220.6                   | 50                   | PDR     | DDR                  |
| SMDJ8.5A | SMDJ8.5CA | 8.5                       | 9.44              | 10.4 | 1            | 14.4              | 208.3                   | 20                   | PDT     | DDT                  |
| SMDJ9.0A | SMDJ9.0CA | 9.0                       | 10                | 11.1 | 1            | 15.4              | 194.8                   | 10                   | PDV     | DDV                  |
| SMDJ10A  | SMDJ10CA  | 10.0                      | 11.1              | 12.3 | 1            | 17                | 176.5                   | 5                    | PDX     | DDX                  |
| SMDJ11A  | SMDJ11CA  | 11.0                      | 12.2              | 13.5 | 1            | 18.2              | 164.8                   | 2                    | PDZ     | DDZ                  |
| SMDJ12A  | SMDJ12CA  | 12.0                      | 13.3              | 14.7 | 1            | 19.9              | 150.8                   | 2                    | PEE     | DEE                  |
| SMDJ13A  | SMDJ13CA  | 13.0                      | 14.4              | 15.9 | 1            | 21.5              | 139.5                   | 2                    | PEG     | DEG                  |
| SMDJ14A  | SMDJ14CA  | 14.0                      | 15.6              | 17.2 | 1            | 23.2              | 129.3                   | 2                    | PEK     | DEK                  |
| SMDJ15A  | SMDJ15CA  | 15.0                      | 16.7              | 18.5 | 1            | 24.4              | 123                     | 2                    | PEM     | DEM                  |
| SMDJ16A  | SMDJ16CA  | 16.0                      | 17.8              | 19.7 | 1            | 26                | 115.4                   | 2                    | PEP     | DEP                  |
| SMDJ17A  | SMDJ17CA  | 17.0                      | 18.9              | 20.9 | 1            | 27.6              | 108.7                   | 2                    | PER     | DER                  |
| SMDJ18A  | SMDJ18CA  | 18.0                      | 20                | 22.1 | 1            | 29.2              | 102.7                   | 2                    | PET     | DET                  |
| SMDJ20A  | SMDJ20CA  | 20.0                      | 22.2              | 24.5 | 1            | 32.4              | 92.6                    | 2                    | PEV     | DEV                  |
| SMDJ22A  | SMDJ22CA  | 22.0                      | 24.4              | 26.9 | 1            | 35.5              | 84.5                    | 2                    | PEX     | DEX                  |
| SMDJ24A  | SMDJ24CA  | 24.0                      | 26.7              | 29.5 | 1            | 38.9              | 77.1                    | 2                    | PEZ     | DEZ                  |
| SMDJ26A  | SMDJ26CA  | 26.0                      | 28.9              | 31.9 | 1            | 42.1              | 71.3                    | 2                    | PFE     | DFE                  |
| SMDJ28A  | SMDJ28CA  | 28.0                      | 31.1              | 34.4 | 1            | 45.4              | 66.1                    | 2                    | PFG     | DFG                  |
| SMDJ30A  | SMDJ30CA  | 30.0                      | 33.3              | 36.8 | 1            | 48.4              | 62                      | 2                    | PFK     | DFK                  |
| SMDJ33A  | SMDJ33CA  | 33.0                      | 36.7              | 40.6 | 1            | 53.3              | 56.3                    | 2                    | PFM     | DFM                  |
| SMDJ36A  | SMDJ36CA  | 36.0                      | 40                | 44.2 | 1            | 58.1              | 51.6                    | 2                    | PFP     | DFP                  |
| SMDJ40A  | SMDJ40CA  | 40.0                      | 44.4              | 49.1 | 1            | 64.5              | 46.5                    | 2                    | PFR     | DFR                  |
| SMDJ43A  | SMDJ43CA  | 43.0                      | 47.8              | 52.8 | 1            | 69.4              | 43.2                    | 2                    | PFT     | DFT                  |
| SMDJ45A  | SMDJ45CA  | 45.0                      | 50                | 55.3 | 1            | 72.7              | 41.3                    | 2                    | PFV     | DFV                  |
| SMDJ48A  | SMDJ48CA  | 48.0                      | 53.3              | 58.9 | 1            | 77.4              | 38.8                    | 2                    | PFX     | DFX                  |
| SMDJ51A  | SMDJ51CA  | 51.0                      | 56.7              | 62.7 | 1            | 82.4              | 36.4                    | 2                    | PFZ     | DFZ                  |
| SMDJ54A  | SMDJ54CA  | 54.0                      | 60                | 66.3 | 1            | 87.1              | 34.4                    | 2                    | RGE     | DGE                  |
| SMDJ58A  | SMDJ58CA  | 58.0                      | 64.4              | 71.2 | 1            | 93.6              | 32.1                    | 2                    | PGG     | DGG                  |
| SMDJ60A  | SMDJ60CA  | 60.0                      | 66.7              | 73.7 | 1            | 96.8              | 31                      | 2                    | PGK     | DGK                  |
| SMDJ64A  | SMDJ64CA  | 64.0                      | 71.1              | 78.6 | 1            | 103               | 29.1                    | 2                    | PGM     | DGM                  |
| SMDJ70A  | SMDJ70CA  | 70.0                      | 77.8              | 86   | 1            | 113               | 26.5                    | 2                    | PGP     | DGP                  |
| SMDJ75A  | SMDJ75CA  | 75.0                      | 83.3              | 92.1 | 1            | 121               | 24.8                    | 2                    | PGR     | DGR                  |
| SMDJ78A  | SMDJ78CA  | 78.0                      | 86.7              | 95.8 | 1            | 126               | 23.8                    | 2                    | PGT     | DGT                  |
| SMDJ85A  | SMDJ85CA  | 85.0                      | 94.4              | 104  | 1            | 137               | 21.9                    | 2                    | PGV     | DGV                  |
| SMDJ90A  | SMDJ90CA  | 90.0                      | 100               | 111  | 1            | 146               | 20.5                    | 2                    | PGX     | DGX                  |
| SMDJ100A | SMDJ100CA | 100.0                     | 111               | 123  | 1            | 162               | 18.5                    | 2                    | PGZ     | DGZ                  |
| SMDJ110A | SMDJ110CA | 110.0                     | 122               | 135  | 1            | 177               | 16.9                    | 2                    | PHE     | DHE                  |
| SMDJ120A | SMDJ120CA | 120.0                     | 133               | 147  | 1            | 193               | 15.5                    | 2                    | PHG     | DHG                  |
| SMDJ130A | SMDJ130CA | 130.0                     | 144               | 159  | 1            | 209               | 14.4                    | 2                    | PHK     | DHK                  |
| SMDJ150A | SMDJ150CA | 150.0                     | 167               | 185  | 1            | 243               | 12.3                    | 2                    | PHM     | DHM                  |
| SMDJ160A | SMDJ160CA | 160.0                     | 178               | 197  | 1            | 259               | 11.6                    | 2                    | PHP     | DHP                  |
| SMDJ170A | SMDJ170CA | 170.0                     | 189               | 209  | 1            | 275               | 10.9                    | 2                    | PHR     | DHR                  |

Fig.1 Peak Pulse Power Rating Curve

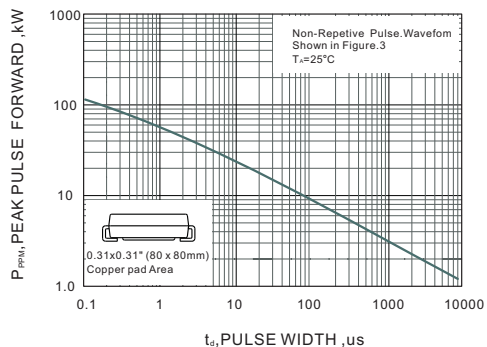


Fig.2 Forward Current Derating Curve

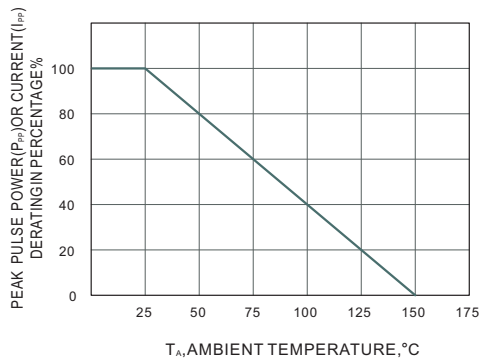


Fig.3 Pulse Waveform

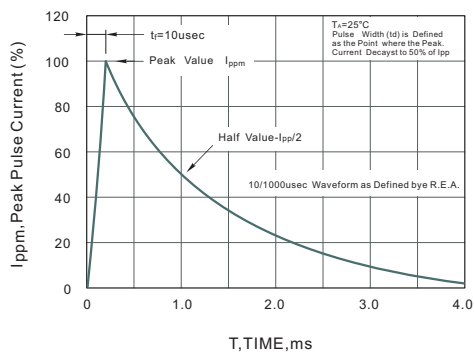


Fig.4 Typical Junction Capacitance

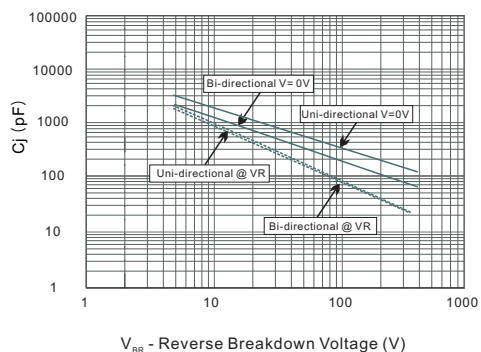


Fig.5 Steady State Power Derating Curve

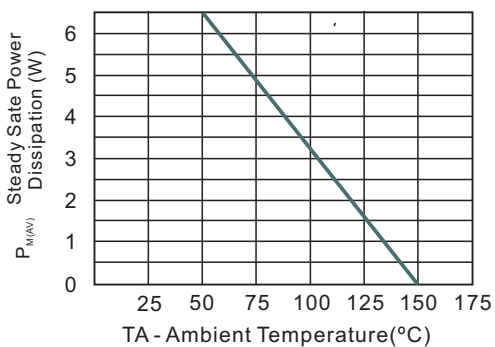
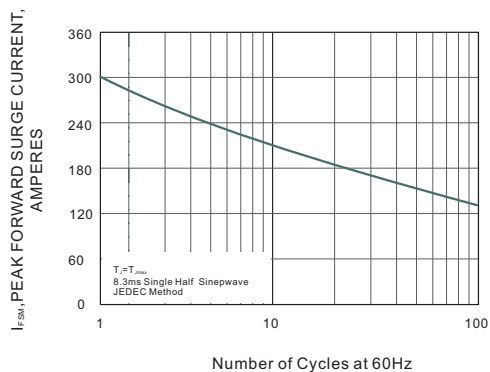
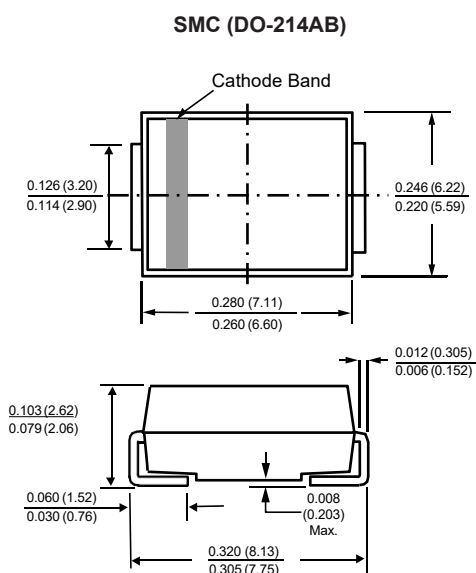


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current

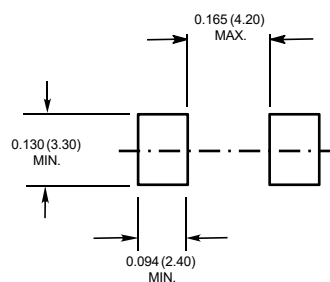


### PACKAGE OUTLINE

Plastic surface mounted package; 2 leads



**Mounting Pad Layout**



### Ordering Information (Example)

| PREFERED P/N            | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|-------------------------|----------------------|-------------------------|----------------------------|---------------|
| SMDJ5.0A THRU SMDJ170CA | 3000                 | 6000                    | 48000                      | 13" reel      |