

## Description

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



## Features

- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-0
- Typical IR less than 5uA above 10V
- Fast response time: typically less than 1.0ps from 0 Volts to  $V_{BR}$  min

## Maximum Ratings And Electrical Characteristics

| Part Number<br>(BI) | Reverse Stand<br>Off Voltage $V_R$<br>(Volts) | Breakdown Voltage $V_{BR}$<br>(Volts)@ $I_T$ |        | Test Current<br>$I_T$ (mA) | Maximum Clamping<br>Voltage $V_C$ @ $I_{PP}$ (V) | Maximum Peak<br>Pulse Current<br>$I_{PP}$ (A) | Maximum<br>Reverse Leakage<br>$I_R$ @ $V_R$ ( $\mu$ A) |
|---------------------|---|--|--------|----------------------------|--|---|--|
|                     |   | MIN  | MAX    |                            |  |   |  |
| SMCJ130CA           | 130.0   | 144.00                                       | 165.50 | 1                          | 209.0  | 7.2   | 5  |

For bidirectional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.  
For parts without A ( $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts).

| Parameter   | Symbol          | Value      | Unit               |
|---|-----------------|------------|--------------------|
| Peak Pulse Power Dissipation at<br>$T_A=25^\circ\text{C}$ by $10 \times 1000\mu\text{s}$ waveform (Fig.1)(Note 1), (Note 2) | $P_{PPM}$       | 1500       | W                  |
| Power Dissipation on infinite heat sink at $T_A=50^\circ\text{C}$   | $P_{M(AV)}$     | 6.5        | W                  |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)  | $I_{FSM}$       | 200        | A                  |
| Maximum Instantaneous Forward Voltage at 25A for Unidirectional only<br>(Note 4)  | $V_F$           | 3.5V/5     | V                  |
| Operating Junction and Storage Temperature Range  | $T_J, T_{STG}$  | -65 to 150 | $^\circ\text{C}$   |
| Typical Thermal Resistance Junction to Lead   | $R_{\theta JL}$ | 15         | $^\circ\text{C/W}$ |
| Typical Thermal Resistance Junction to Ambient  | $R_{\theta JA}$ | 75         | $^\circ\text{C/W}$ |

### Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on  $5.0 \times 5.0\text{mm}$  copper pad to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only.
4.  $V_F < 3.5\text{V}$  for  $V_{BR} \leq 200\text{V}$  and  $V_F < 6.5\text{V}$  for  $V_{BR} \geq 201\text{V}$ .

Rating And Characteristic Curves

Ratings and Characteristic Curves (T<sub>A</sub>=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating

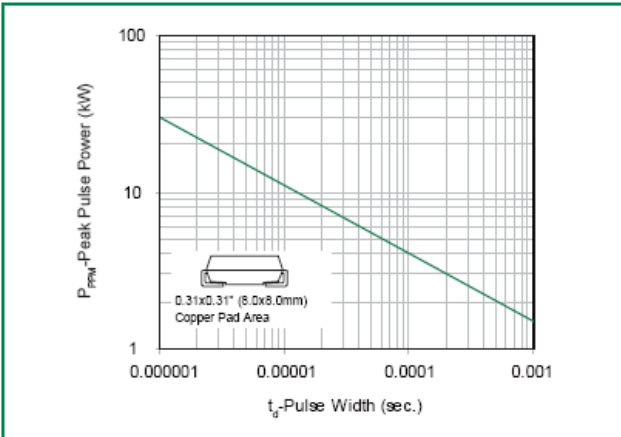


Figure 2 - Pulse Derating Curve

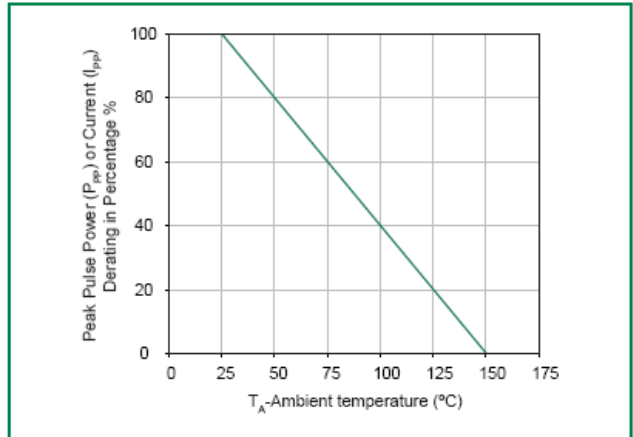


Figure 3 - Pulse Waveform

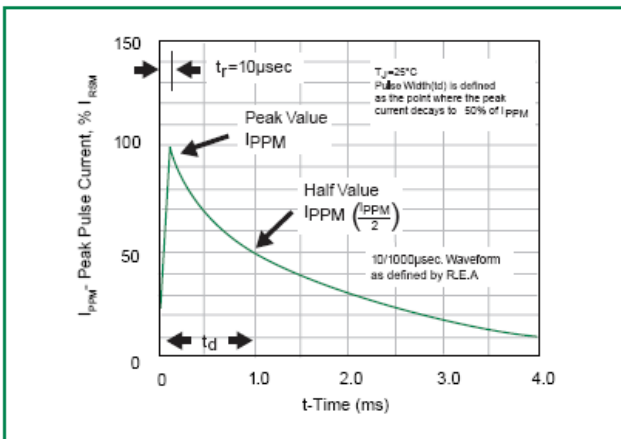


Figure 4 - Typical Junction Capacitance

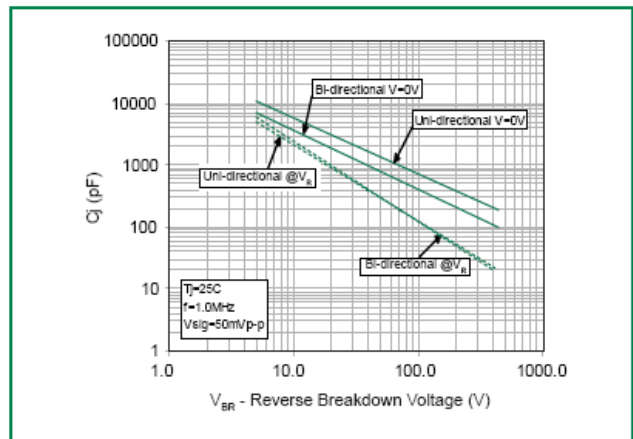


Figure 5 - Steady State Power Dissipation Derating Curve

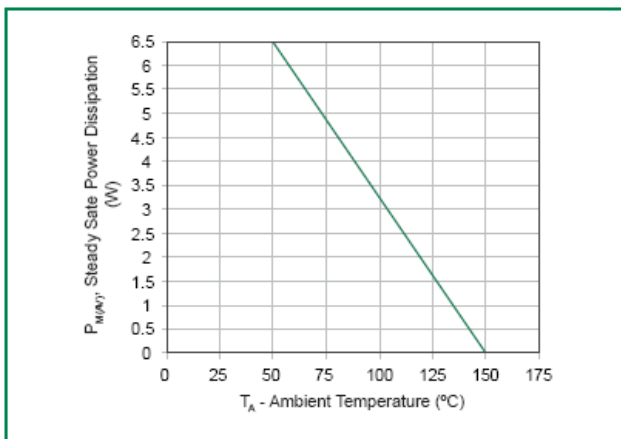
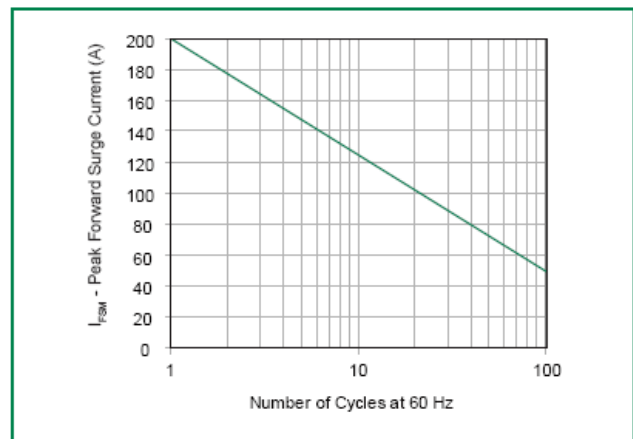
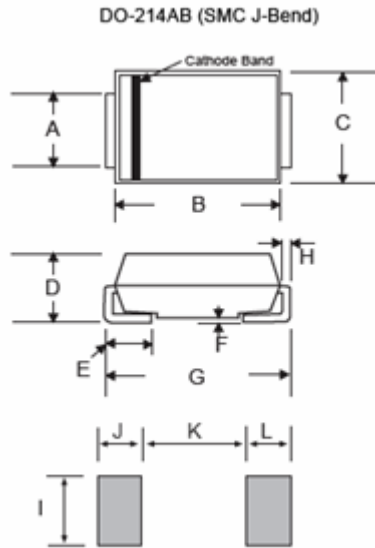



Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



**Dimensions**


| Dimension | Inches |       | Millimeters |       |
|-----------|--------|-------|-------------|-------|
|           | MIN    | MAX   | MIN         | MAX   |
| A         | 0.114  | 0.126 | 2.900       | 3.200 |
| B         | 0.260  | 0.280 | 6.600       | 7.110 |
| C         | 0.220  | 0.245 | 5.590       | 6.220 |
| D         | 0.079  | 0.103 | 2.060       | 2.620 |
| E         | 0.030  | 0.060 | 0.760       | 1.520 |
| F         | -      | 0.008 | -           | 0.203 |
| G         | 0.305  | 0.320 | 7.750       | 8.130 |
| H         | 0.006  | 0.012 | 0.152       | 0.305 |
| I         | 0.129  | -     | 3.300       | -     |
| J         | 0.094  | -     | 2.400       | -     |
| K         | -      | 0.165 | -           | 4.200 |
| L         | 0.094  | -     | 2.400       | -     |

**Summary of Packing Options**

| Package Type  | Description                | Packing Quantity | Industry Standard |
|---|----------------------------|------------------|-------------------|
| DO-214AB<br> | Embossed Carrier Reel Pack | 500 PCS          | EIA-481-1         |