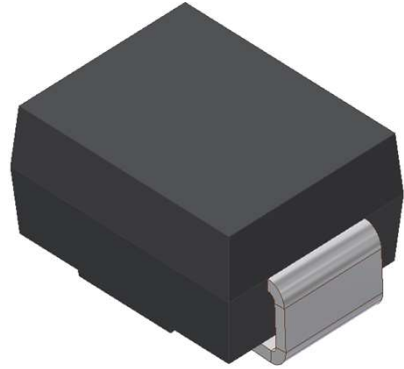


# SMBJ\*\*\* CA Series

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR  
VOLTAGE 5.0 TO 440 Volts, 600 Watt Peak Pulse Power

## 1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- 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
- Typical IR less than 1mA above 10V
- High temperature soldering guaranteed:  
260°C/10 seconds,
- Weight: 0.088g



## 2. MECHANICAL DATA

**Case:** Epoxy, Molded

**Terminals:** Plated leads, solderable per MIL-STD-202, Method 208

**Polarity:** Without Color band denoted cathode

**Mounting Position:** Any

## 3. MAXIMUM RATINGS (Ta = 25°C)

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

| RATING   | VALUE       | UNITS |
|--|-------------|-------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_P=1\text{ms}$ (Note 1) | Minimum 600 | Watts |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$                     | 3.0         | Watts |
| Operating Temperature Range  | -55 to +150 | °C    |
| Storage Temperature Range  | -55 to +150 | °C    |
| Max junction capacitance at 4.0V, 1MHz                                       | 550         | PF    |

NOTES:

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

## SMBJ\*\*\* CA Series

| Bi-Directional Part Number | Device marking code | Reverse Stand-off Voltage VRWM (V) | Breakdown Voltage VBR (V) | Breakdown Voltage VBR (V) | Test Current IT (mA) | Maximum Clamping Voltage @IPP VC (V) | Peak Pulse Current Ipp (A) | Reverse Leakage @VRWM IR (uA) |
|----------------------------|---------------------|------------------------------------|---------------------------|---------------------------|----------------------|--------------------------------------|----------------------------|-------------------------------|
|                            |                     |                                    | Min. @IT                  | Max. @IT                  |                      |                                      |                            |                               |
| SMBJ5.0CA                  | SMBJ5.0CA           | 5.00                               | 6.40                      | 7.00                      | 10.00                | 9.20                                 | 65.30                      | 800                           |
| SMBJ6.0CA                  | SMBJ6.0CA           | 6.00                               | 6.67                      | 7.37                      | 10.00                | 10.30                                | 58.30                      | 800                           |
| SMBJ6.5CA                  | SMBJ6.5CA           | 6.50                               | 7.22                      | 7.98                      | 10.00                | 11.20                                | 53.60                      | 500                           |
| SMBJ7.0CA                  | SMBJ7.0CA           | 7.00                               | 7.78                      | 8.60                      | 10.00                | 12.00                                | 50.00                      | 200                           |
| SMBJ7.5CA                  | SMBJ7.5CA           | 7.50                               | 8.33                      | 9.21                      | 1.00                 | 12.90                                | 46.60                      | 100                           |
| SMBJ8.0CA                  | SMBJ8.0CA           | 8.00                               | 8.89                      | 9.83                      | 1.00                 | 13.60                                | 44.20                      | 50                            |
| SMBJ8.5CA                  | SMBJ8.5CA           | 8.50                               | 9.44                      | 10.40                     | 1.00                 | 14.40                                | 41.70                      | 20                            |
| SMBJ9.0CA                  | SMBJ9.0CA           | 9.00                               | 10.00                     | 11.10                     | 1.00                 | 15.40                                | 39.00                      | 10                            |
| SMBJ10CA                   | SMBJ10CA            | 10.00                              | 11.10                     | 12.30                     | 1.00                 | 17.00                                | 35.30                      | 1                             |
| SMBJ11CA                   | SMBJ11CA            | 11.00                              | 12.20                     | 13.50                     | 1.00                 | 18.20                                | 33.00                      | 1                             |
| SMBJ12CA                   | SMBJ12CA            | 12.00                              | 13.30                     | 14.70                     | 1.00                 | 19.90                                | 30.20                      | 1                             |
| SMBJ13CA                   | SMBJ13CA            | 13.00                              | 14.40                     | 15.90                     | 1.00                 | 21.50                                | 28.00                      | 1                             |
| SMBJ14CA                   | SMBJ14CA            | 14.00                              | 15.60                     | 17.20                     | 1.00                 | 23.20                                | 25.90                      | 1                             |
| SMBJ15CA                   | SMBJ15CA            | 15.00                              | 16.70                     | 18.50                     | 1.00                 | 24.40                                | 24.60                      | 1                             |
| SMBJ16CA                   | SMBJ16CA            | 16.00                              | 17.80                     | 19.70                     | 1.00                 | 26.00                                | 23.10                      | 1                             |
| SMBJ17CA                   | SMBJ17CA            | 17.00                              | 18.90                     | 20.90                     | 1.00                 | 27.60                                | 21.80                      | 1                             |
| SMBJ18CA                   | SMBJ18CA            | 18.00                              | 20.00                     | 22.10                     | 1.00                 | 29.20                                | 20.60                      | 1                             |
| SMBJ20CA                   | SMBJ20CA            | 20.00                              | 22.20                     | 24.50                     | 1.00                 | 32.40                                | 18.60                      | 1                             |
| SMBJ22CA                   | SMBJ22CA            | 22.00                              | 24.40                     | 26.90                     | 1.00                 | 35.50                                | 16.90                      | 1                             |
| SMBJ24CA                   | SMBJ24CA            | 24.00                              | 26.70                     | 29.50                     | 1.00                 | 38.90                                | 15.50                      | 1                             |
| SMBJ26CA                   | SMBJ26CA            | 26.00                              | 28.90                     | 31.90                     | 1.00                 | 42.10                                | 14.30                      | 1                             |
| SMBJ28CA                   | SMBJ28CA            | 28.00                              | 31.10                     | 34.40                     | 1.00                 | 45.40                                | 13.30                      | 1                             |
| SMBJ30CA                   | SMBJ30CA            | 30.00                              | 33.30                     | 36.80                     | 1.00                 | 48.40                                | 12.40                      | 1                             |
| SMBJ33CA                   | SMBJ33CA            | 33.00                              | 36.70                     | 40.60                     | 1.00                 | 53.30                                | 11.30                      | 1                             |
| SMBJ36CA                   | SMBJ36CA            | 36.00                              | 40.00                     | 44.20                     | 1.00                 | 58.10                                | 10.40                      | 1                             |
| SMBJ40CA                   | SMBJ40CA            | 40.00                              | 44.40                     | 49.10                     | 1.00                 | 64.50                                | 9.30                       | 1                             |
| SMBJ43CA                   | SMBJ43CA            | 43.00                              | 47.80                     | 52.80                     | 1.00                 | 69.40                                | 8.70                       | 1                             |
| SMBJ45CA                   | SMBJ45CA            | 45.00                              | 50.00                     | 55.30                     | 1.00                 | 72.70                                | 8.30                       | 1                             |
| SMBJ48CA                   | SMBJ48CA            | 48.00                              | 53.30                     | 58.90                     | 1.00                 | 77.40                                | 7.80                       | 1                             |
| SMBJ51CA                   | SMBJ51CA            | 51.00                              | 56.70                     | 62.70                     | 1.00                 | 82.40                                | 7.30                       | 1                             |
| SMBJ54CA                   | SMBJ54CA            | 54.00                              | 60.00                     | 66.30                     | 1.00                 | 87.10                                | 6.90                       | 1                             |
| SMBJ58CA                   | SMBJ58CA            | 58.00                              | 64.40                     | 71.20                     | 1.00                 | 93.60                                | 6.50                       | 1                             |
| SMBJ60CA                   | SMBJ60CA            | 60.00                              | 66.70                     | 73.70                     | 1.00                 | 96.80                                | 6.20                       | 1                             |
| SMBJ64CA                   | SMBJ64CA            | 64.00                              | 71.10                     | 78.60                     | 1.00                 | 103.00                               | 5.90                       | 1                             |
| SMBJ70CA                   | SMBJ70CA            | 70.00                              | 77.80                     | 86.00                     | 1.00                 | 113.00                               | 5.30                       | 1                             |
| SMBJ75CA                   | SMBJ75CA            | 75.00                              | 83.30                     | 92.10                     | 1.00                 | 121.00                               | 5.00                       | 1                             |
| SMBJ78CA                   | SMBJ78CA            | 78.00                              | 86.70                     | 95.80                     | 1.00                 | 126.00                               | 4.80                       | 1                             |
| SMBJ85CA                   | SMBJ85CA            | 85.00                              | 94.40                     | 104.00                    | 1.00                 | 137.00                               | 4.40                       | 1                             |
| SMBJ90CA                   | SMBJ90CA            | 90.00                              | 100.00                    | 111.00                    | 1.00                 | 146.00                               | 4.10                       | 1                             |
| SMBJ100CA                  | SMBJ100CA           | 100.00                             | 111.00                    | 123.00                    | 1.00                 | 162.00                               | 3.70                       | 1                             |
| SMBJ110CA                  | SMBJ110CA           | 110.00                             | 122.00                    | 135.00                    | 1.00                 | 177.00                               | 3.40                       | 1                             |
| SMBJ120CA                  | SMBJ120CA           | 120.00                             | 133.00                    | 147.00                    | 1.00                 | 193.00                               | 3.10                       | 1                             |
| SMBJ130CA                  | SMBJ130CA           | 130.00                             | 144.00                    | 159.00                    | 1.00                 | 209.00                               | 2.90                       | 1                             |
| SMBJ150CA                  | SMBJ150CA           | 150.00                             | 167.00                    | 185.00                    | 1.00                 | 243.00                               | 2.50                       | 1                             |
| SMBJ160CA                  | SMBJ160CA           | 160.00                             | 178.00                    | 197.00                    | 1.00                 | 259.00                               | 2.30                       | 1                             |
| SMBJ170CA                  | SMBJ170CA           | 170.00                             | 189.00                    | 209.00                    | 1.00                 | 275.00                               | 2.20                       | 1                             |
| SMBJ180CA                  | SMBJ180CA           | 180.00                             | 198.00                    | 221.00                    | 1.00                 | 291.00                               | 2.10                       | 1                             |
| SMBJ190CA                  | SMBJ190CA           | 190.00                             | 209.00                    | 233.00                    | 1.00                 | 307.00                               | 2.00                       | 1                             |
| SMBJ200CA                  | SMBJ200CA           | 200.00                             | 220.00                    | 246.00                    | 1.00                 | 324.00                               | 1.90                       | 1                             |
| SMBJ220CA                  | SMBJ220CA           | 220.00                             | 246.00                    | 272.00                    | 1.00                 | 356.00                               | 1.70                       | 1                             |
| SMBJ250CA                  | SMBJ250CA           | 250.00                             | 279.00                    | 309.00                    | 1.00                 | 405.00                               | 1.50                       | 1                             |
| SMBJ300CA                  | SMBJ300CA           | 300.00                             | 335.00                    | 371.00                    | 1.00                 | 486.00                               | 1.30                       | 1                             |
| SMBJ350CA                  | SMBJ350CA           | 350.00                             | 391.00                    | 432.00                    | 1.00                 | 567.00                               | 1.10                       | 1                             |
| SMBJ400CA                  | SMBJ400CA           | 400.00                             | 447.00                    | 494.00                    | 1.00                 | 648.00                               | 0.90                       | 1                             |
| SMBJ440CA                  | SMBJ440CA           | 440.00                             | 492.00                    | 543.00                    | 1.00                 | 713.00                               | 0.90                       | 1                             |

### 5. ELECTRICAL CHARACTERISTICS CURVES

Fig. 1-Peak Pulse Power Rating Curve

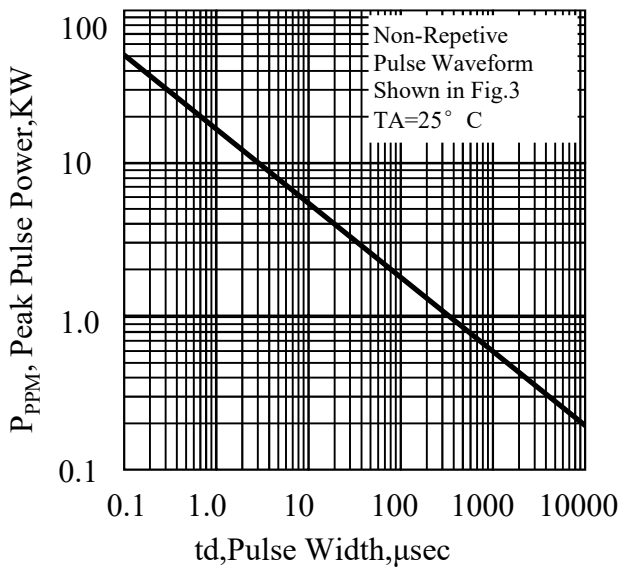


Fig. 2-Pulse Derating Curve

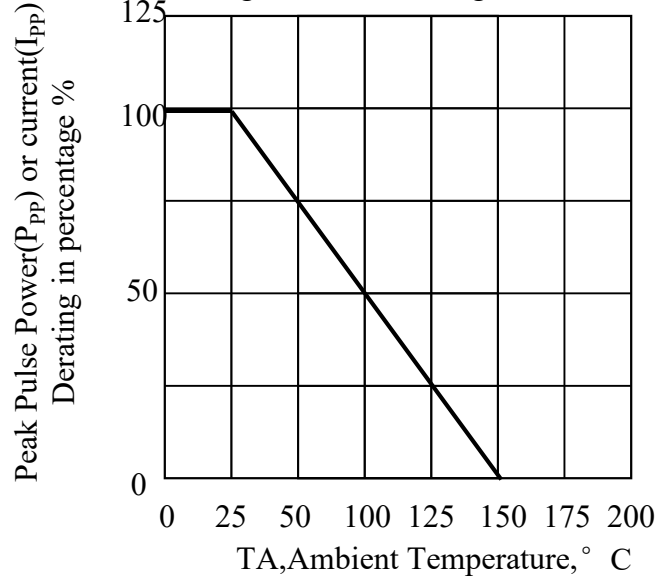


Fig. 3-Pulse Waveform

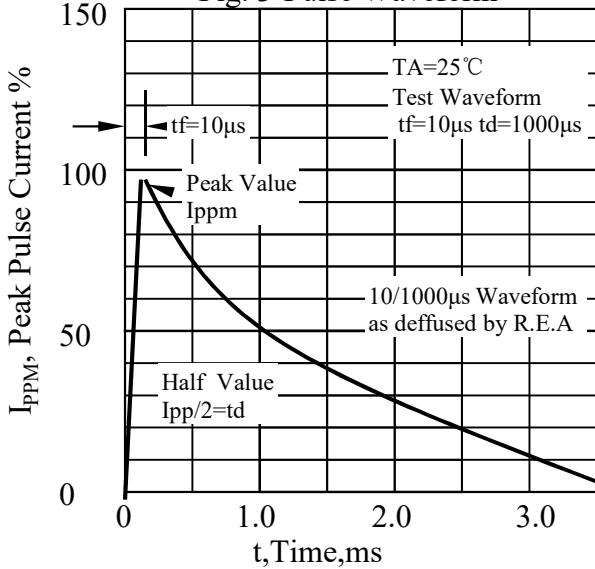
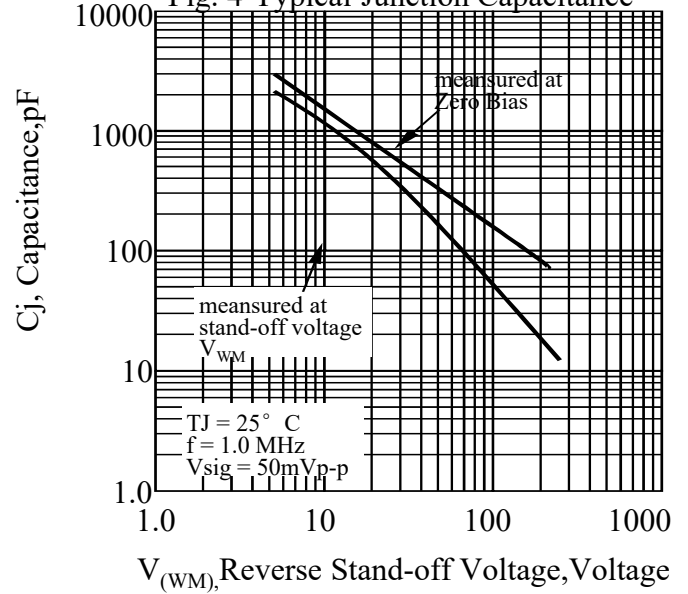
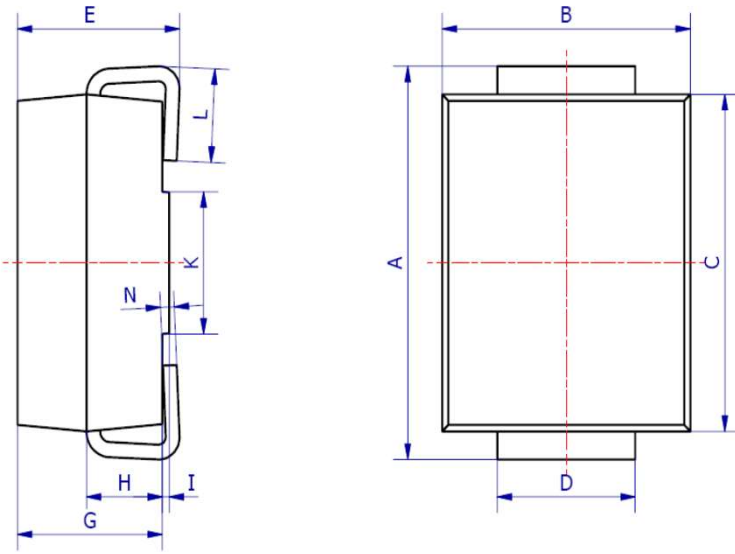


Fig. 4-Typical Junction Capacitance

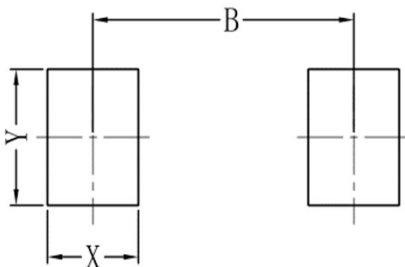


## 6. OUTLINE AND DIMENSIONS



| SMB                  |      |      |      |
|----------------------|------|------|------|
| DIM                  | Min  | Max  | Typ. |
| A                    | 5.00 | 5.45 | 5.25 |
| B                    | 3.20 | 4.00 | 3.60 |
| C                    | 4.30 | 4.70 | 4.50 |
| D                    | 1.80 | 2.20 | 2.00 |
| E                    | 2.20 | 2.50 | 2.35 |
| G                    | 1.90 | 2.30 | 2.10 |
| H                    | 0.95 | 1.25 | 1.10 |
| I                    | 0.05 | 0.15 | 0.10 |
| K                    | 1.70 | 2.10 | 1.90 |
| L                    | 0.90 | 1.50 | 1.20 |
| N                    | 0.10 | 0.30 | 0.20 |
| All Dimensions in mm |      |      |      |

## 7. SOLDERING FOOTPRINT



| SMB |      |
|-----|------|
| DIM | (mm) |
| X   | 1.60 |
| Y   | 2.20 |
| B   | 4.60 |