

## Transient Voltage Suppressors (TVS) Data Sheet

## ● Description

The SMBJ 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 in order to optimize board space
- Low leakage
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 3000W peak pulse power capability at 10/1000μs waveform
- Fast response time
- High Temperature soldering: 260°C /10 seconds at terminals
- Typical maximum temperature coefficient  $\Delta V_{BR} = 0.1\% \times V_{BR}@25^{\circ}\text{C} \times \Delta T$
- Plastic package has Underwriters Laboratory Flammability 94V-0
- Matte tin lead-free Plated
- Meets MSL level 1, per J-STD-020
- Halogen free and RoHS compliant
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- IEC 61000-4-2 ESD 30KV(Air),30KV(contact)

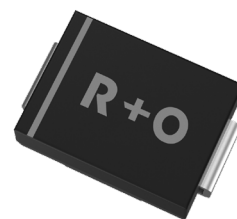
**Breakdown Voltage**

58 V

**Peak Pulse Power**

3000 W

DO-214AA(SMB)



Bi-directional



Uni-directional



## ● Applications

TVS devices are ideal for the protection of I/O interfaces, AC/DC power supply, Low frequency signal transmission line (RS232, RS485, etc.)

## ● Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER                                                                        | SYMBOL                            | VALUE          | SYMBOL |
|----------------------------------------------------------------------------------|-----------------------------------|----------------|--------|
| Peak Pulse Power Dissipation with a 10/1000μs waveform (Fig.1)(Note 1), (Note 2) | P <sub>PPM</sub>                  | 3000           | W      |
| Peak Pulse Current with a 10/1000μs waveform.(Note1, Fig.3)                      | I <sub>PP</sub>                   | See Next Table | A      |
| Power Dissipation on Infinite Heat Sink at Ta=75° C(Fig.5)                       | P <sub>M(AV)</sub>                | 6.5            | W      |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3, Fig.6)          | I <sub>FSM</sub>                  | 200            | A      |
| Operating junction and Storage Temperature Range                                 | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    | °C     |
| Typical thermal resistance junction to lead                                      | R <sub>θJ-L</sub>                 | 15             | °C /W  |
| Typical thermal resistance junction to ambient                                   | R <sub>θJ-A</sub>                 | 75             | °C /W  |

Note :

(1) Non-repetitive current pulse, per Fig. 3 and derated above Ta = 25°C per Fig. 2.

(2) Mounted on 5.0mm x 5.0mm Copper Pads to each terminal.

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

# 3.0SMBJ58CA

3000W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

## ● Package Outline Dimensions (SMB/DO-214AA)

| Symbol | Dimensions  |       |        |       |
|--------|-------------|-------|--------|-------|
|        | Millimeters |       | Inches |       |
|        | Min.        | Max.  | Min.   | Max.  |
| A      | 1.85        | 2.21  | 0.073  | 0.087 |
| B      | 4.25        | 4.85  | 0.167  | 0.191 |
| C      | 3.30        | 3.94  | 0.130  | 0.155 |
| D      | 2.15        | 2.65  | 0.085  | 0.104 |
| E      | 0.75        | 1.52  | 0.030  | 0.060 |
| F      | -           | 0.203 | -      | 0.008 |
| G      | 5.08        | 5.59  | 0.200  | 0.220 |
| H      | 0.15        | 0.31  | 0.006  | 0.012 |

## ● Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| M      | 2.26        | -    | 0.089  | -     |
| J      | 2.10        | -    | 0.085  | -     |
| K      | -           | 2.74 | -      | 0.107 |

## ● Electrical Characteristics (Ta=25°C Unless otherwise specified)

| Part Number |             | Marking |      | Reverse Stand-Off Voltage | Breakdown Voltage $V_{BR}$ (V) @ $I_T$ |      | Test Current | Maximum Clamping Voltage @ $I_{PP}$ | Peak Pulse Current | Reverse Leakage @ $V_{RWM}$ |
|-------------|-------------|---------|------|---------------------------|----------------------------------------|------|--------------|-------------------------------------|--------------------|-----------------------------|
| Uni         | Bi          | Uni     | Bi   | $V_{RWM}$ (V)             | Min.                                   | Max. | $I_T$ (mA)   | $V_C$ (V)                           | $I_{PP}$ (A)       | $I_R$ ( $\mu$ A)            |
| 3.0SMBJ58A  | 3.0SMBJ58CA | 58A     | 58CA | 58                        | 64.4                                   | 71.2 | 1            | 93.6                                | 32.1               | 5                           |

Note :

(1) Suffix 'A' denotes 5% tolerance device.

(2) Add suffix 'CA' after part number to specify Bi-directional devices.

(3) For Bi-Directional devices having VR of 12 volts and less, the IR limit is double.

## ● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

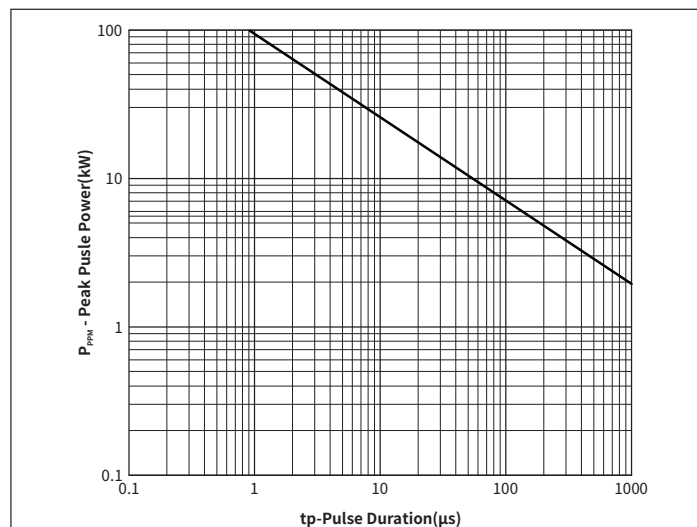


Fig. 1 Peak Pulse Power Rating Curve

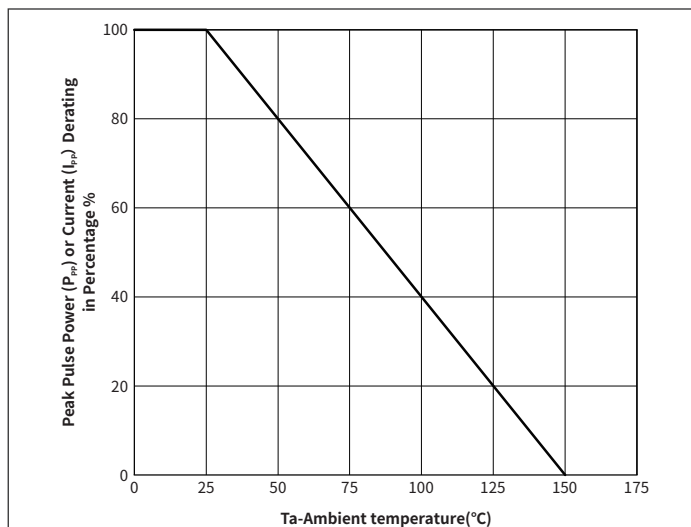


Fig.2 Pulse Derating Curve

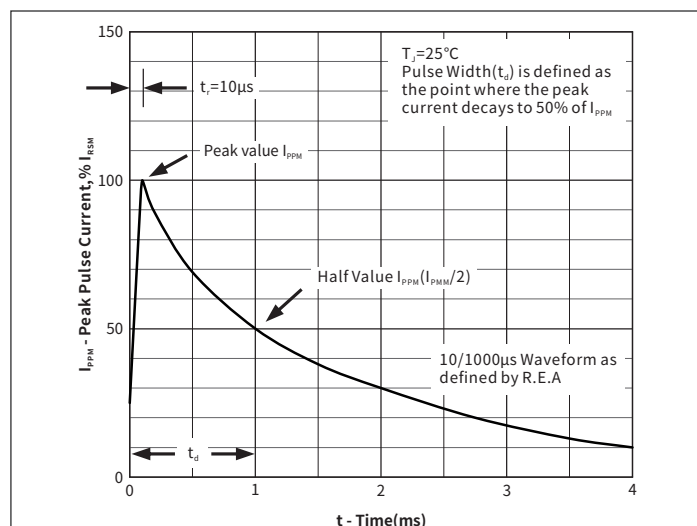


Fig.3 Pulse Waveform

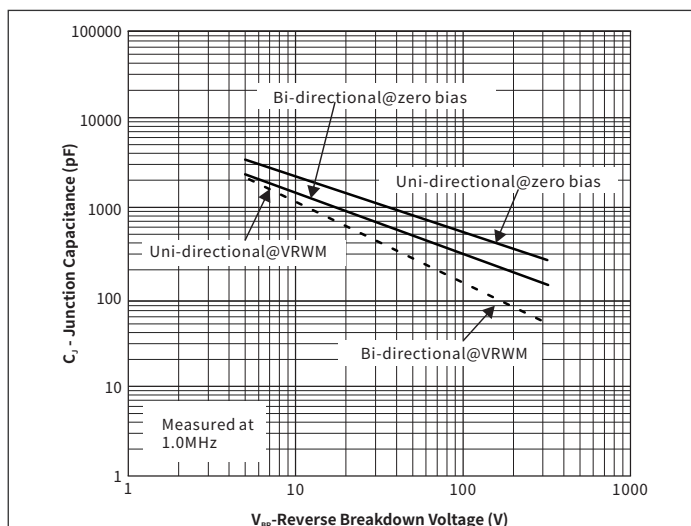


Fig.4 Typical Junction Capacitance

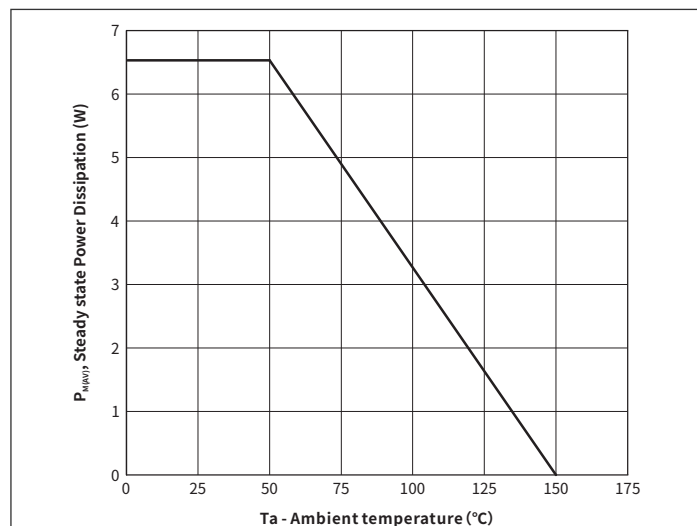


Fig.5 Steady State Power Dissipation Derating Curve

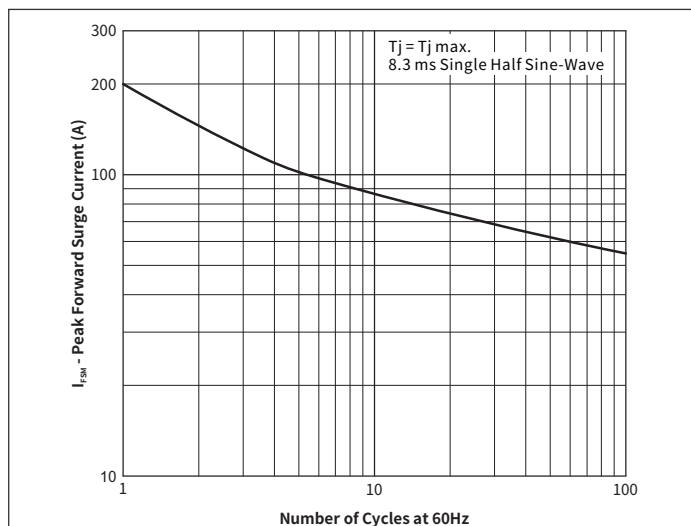
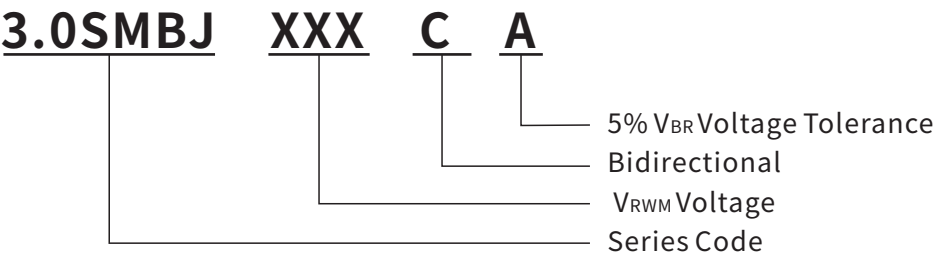


Fig.6 Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

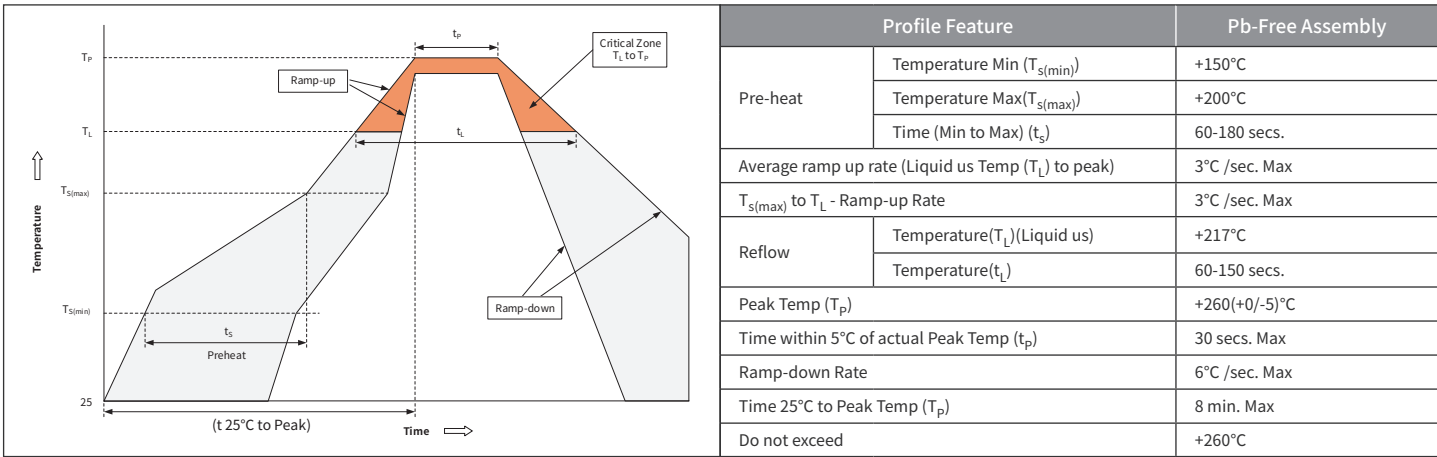
● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SMB     | R3           | 0.098          | 3000      | 6000     | 48000       | 13"           |

● Part Numbering



● Soldering Parameters



● Packaging (SMB/DO-214AA)

