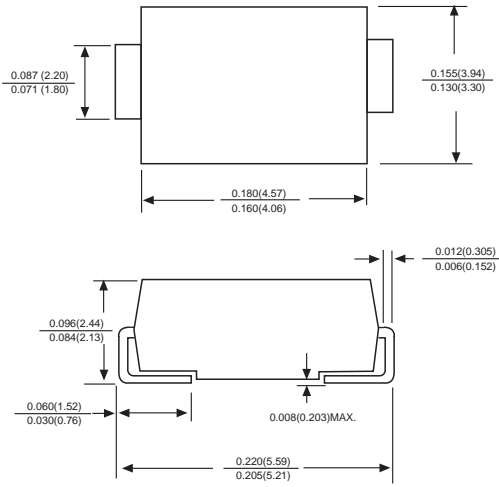


# SMBJ5.0 THRU SMBJ170CA

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Breakdown voltage: 5.0-170 Volts Peak pulse power: 600 Watts

### DO-214AA



Dimensions in inches and (millimeters)

### FEATURE

- ◆ Optimized for LAN protection applications
- ◆ Ideal for ESD protection of data lines in accordance with IEC 1000-4-2(IEC801-2)
- ◆ Ideal for EFT protection of data lines in accordance with IEC1000-4-4(IEC801-2)
- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Glass passivated junction
- ◆ 600w peak pulse power capability
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time: typically less than 1.0ps from 0v to  $V_{(BR)}$  min
- ◆ High temperature soldering guaranteed: 265°C/10S at terminals

### MECHANICAL DATA

**Case:** JEDEC DO-214AA molded plastic body over passivated junction

**Terminals:** Solder plated, solderable per MIL-STD 750, method 2026

**Polarity:** Color band denotes cathode except for bidirectional types

**Mounting Position:** Any

**Weight:** 0.003 ounce, 0.093 grams

### DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bidirectional use suffix C or CA for types SMBJ5.0 thru SMBJ170 (e.g. SMBJ5.0C, SMBJ170CA)  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

|  | SYMBOLS                           | VALUE        | UNITS |
|--|-----------------------------------|--------------|-------|
| Peak pulse power dissipation with a 10/1000μs wavetorm(NOTE 1,2,FIG.1)     | P <sub>PPM</sub>                  | Minimum 600  | Watts |
| Peak forward surge current (Note 1,2,3)                                    | I <sub>FSM</sub>                  | 100.0        | Amps  |
| Peak pulse current with a 10/1000μs waveform(NOTE 1)                       | I <sub>PPM</sub>                  | See Table 1  | Amps  |
| Steady state power dissipation (Note 3)                                    | P <sub>M(AV)</sub>                | 5.0          | Watts |
| Maximum instantaneous forward voltage at 50A(Note 3,4) unidirectional only | V <sub>F</sub>                    | 3.5/5.0      | Volts |
| Operating junction and storage temperature range                           | T <sub>STG</sub> , T <sub>J</sub> | -55 to + 150 | °C    |

**Notes:** 1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2

2. Mounted on 5.0mm<sup>2</sup> copper pads to each terminal

3. Measured on 8.3ms single half sine-wave. For uni-directional devices only.

4. V<sub>F</sub>=3.5V on SMB-5.0 thru SMB-90 devices and V<sub>F</sub>=5.0V on SMB-100 thru SMB-170 devices

## ELECTRICAL CHARACTERISTICS (at TA=25°C unless otherwise noted)

| Device   | Working Peak Reverse Voltage<br>V <sub>WM</sub> (Volts) | Breakdown Voltage<br>V <sub>(BR)</sub> (NOTE 1)<br>(Volts) at I <sub>T</sub> |      | Test Current<br>I <sub>T</sub> (mA) | Maximum Clamping Voltage at<br>I <sub>PPM</sub> V <sub>C</sub><br>(Volts) | Maximum Peak Pulse Reverse Current<br>I <sub>PPM</sub> (NOTE 2)<br>(Amps) | Maximum Reverse Leakage<br>a V <sub>WM</sub> (NOTE 5)<br>I <sub>D</sub> (μA) |
|----------|---|--|------|-------------------------------------|---|---|--|
|          |   | MIN  | MAX  |                                     |   |   |  |
| SMBJ5.0  | 5.0   | 6.40   | 7.81 | 10                                  | 9.6   | 62.5  | 800  |
| SMBJ5.0A | 5.0   | 6.40   | 7.08 | 10                                  | 9.2   | 65.2  | 800  |
| SMBJ6.0  | 6.0   | 6.67   | 8.15 | 10                                  | 11.4  | 52.6  | 800  |
| SMBJ6.0A | 6.0   | 6.67   | 7.37 | 10                                  | 10.3  | 58.3  | 800  |
| SMBJ6.5  | 6.5   | 7.22   | 8.82 | 10                                  | 12.3  | 48.8  | 500  |
| SMBJ6.5A | 6.5   | 7.22   | 7.98 | 10                                  | 11.2  | 53.6  | 500  |
| SMBJ7.0  | 7.0   | 7.78   | 9.51 | 10                                  | 13.3  | 45.1  | 200  |
| SMBJ7.0A | 7.0   | 7.78   | 8.60 | 10                                  | 12.0  | 50.0  | 200  |
| SMBJ7.5  | 7.5   | 8.33   | 10.3 | 1.0                                 | 14.3  | 42.0  | 100  |
| SMBJ7.5A | 7.5   | 8.33   | 9.21 | 1.0                                 | 12.9  | 46.5  | 100  |
| SMBJ8.0  | 8.0   | 8.89   | 10.9 | 1.0                                 | 15.0  | 40.0  | 50.0   |
| SMBJ8.0A | 8.0   | 8.89   | 9.83 | 1.0                                 | 13.6  | 44.1  | 50.0   |
| SMBJ8.5  | 8.5   | 9.44   | 11.5 | 1.0                                 | 15.9  | 37.7  | 10.0   |
| SMBJ8.5A | 8.5   | 9.44   | 10.4 | 1.0                                 | 14.4  | 41.7  | 10.0   |
| SMBJ9.0  | 9.0   | 10.0   | 12.2 | 1.0                                 | 16.9  | 35.5  | 5.0  |
| SMBJ9.0A | 9.0   | 10.0   | 11.1 | 1.0                                 | 15.4  | 39.0  | 5.0  |
| SMBJ10   | 10.00   | 11.1   | 13.6 | 1.0                                 | 18.8  | 31.9  | 5.0  |
| SMBJ10A  | 10.00   | 11.1   | 12.3 | 1.0                                 | 17.0  | 35.3  | 5.0  |
| SMBJ11   | 11.00   | 12.2   | 14.9 | 1.0                                 | 20.1  | 29.9  | 5.0  |
| SMBJ11A  | 11.00   | 12.2   | 13.5 | 1.0                                 | 18.2  | 33.0  | 5.0  |
| SMBJ12   | 12.00   | 13.3   | 16.3 | 1.0                                 | 22.0  | 27.3  | 5.0  |
| SMBJ12A  | 12.00   | 13.3   | 14.7 | 1.0                                 | 19.9  | 30.2  | 5.0  |
| SMBJ13   | 13.00   | 14.4   | 17.6 | 1.0                                 | 23.8  | 25.2  | 5.0  |
| SMBJ13A  | 13.00   | 14.4   | 15.9 | 1.0                                 | 21.5  | 27.9  | 5.0  |
| SMBJ14   | 14.00   | 15.6   | 19.1 | 1.0                                 | 25.8  | 23.3  | 5.0  |
| SMBJ14A  | 14.00   | 15.6   | 17.2 | 1.0                                 | 23.2  | 25.9  | 5.0  |
| SMBJ15   | 15.00   | 16.7   | 20.4 | 1.0                                 | 26.9  | 22.3  | 5.0  |
| SMBJ15A  | 15.00   | 16.7   | 18.5 | 1.0                                 | 24.4  | 24.6  | 5.0  |
| SMBJ16   | 16.00   | 17.8   | 21.8 | 1.0                                 | 28.8  | 20.8  | 5.0  |
| SMBJ16A  | 16.00   | 17.8   | 19.7 | 1.0                                 | 26.0  | 23.1  | 5.0  |
| SMBJ17   | 17.00   | 18.9   | 23.1 | 1.0                                 | 30.5  | 19.7  | 5.0  |
| SMBJ17A  | 17.00   | 18.9   | 20.9 | 1.0                                 | 27.6  | 21.7  | 5.0  |
| SMBJ18   | 18.00   | 20.0   | 24.4 | 1.0                                 | 32.2  | 18.6  | 5.0  |
| SMBJ18A  | 18.00   | 20.0   | 22.1 | 1.0                                 | 29.2  | 20.5  | 5.0  |
| SMBJ20   | 20.00   | 22.2   | 27.1 | 1.0                                 | 35.8  | 16.8  | 5.0  |
| SMBJ20A  | 20.00   | 22.2   | 24.5 | 1.0                                 | 32.4  | 18.5  | 5.0  |
| SMBJ22   | 22.00   | 24.4   | 29.8 | 1.0                                 | 39.4  | 15.2  | 5.0  |
| SMBJ22A  | 22.00   | 24.4   | 26.9 | 1.0                                 | 35.5  | 16.9  | 5.0  |
| SMBJ24   | 24.00   | 26.7   | 32.6 | 1.0                                 | 43.0  | 14.0  | 5.0  |
| SMBJ24A  | 24.00   | 26.7   | 29.5 | 1.0                                 | 38.9  | 15.4  | 5.0  |
| SMBJ26   | 26.00   | 28.9   | 35.3 | 1.0                                 | 46.6  | 12.9  | 5.0  |
| SMBJ26A  | 26.00   | 28.9   | 31.9 | 1.0                                 | 42.1  | 14.3  | 5.0  |
| SMBJ28   | 28.00   | 31.1   | 38.0 | 1.0                                 | 50.0  | 12.0  | 5.0  |
| SMBJ28A  | 28.00   | 31.1   | 34.4 | 1.0                                 | 45.4  | 13.2  | 5.0  |
| SMBJ30   | 30.00   | 33.3   | 40.7 | 1.0                                 | 53.5  | 11.2  | 5.0  |
| SMBJ30A  | 30.00   | 33.3   | 36.8 | 1.0                                 | 48.4  | 12.4  | 5.0  |

## ELECTRICAL CHARACTERISTICS (at TA=25°C unless otherwise noted)

| Device   | Working Peak Reverse Voltage V <sub>WM</sub> (Volts) | Breakdown Voltage V <sub>(BR)</sub> (NOTE 1) (Volts) at I <sub>T</sub> |      | Test Current I <sub>T</sub> (mA) | Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>C</sub> (Volts) | Maximum Peak Pulse Reverse Current I <sub>PPM</sub> (NOTE 2) (Amps) | Maximum Reverse Leakage ID(NOTE3) (μA) |
|----------|--|--|------|----------------------------------|---|---|--|
|          |  | MIN  | MAX  |                                  |   |   |  |
| SMBJ33   | 33.00  | 36.7   | 44.9 | 1.0                              | 59.0  | 10.2  | 5.0                                    |
| SMBJ33A  | 33.00  | 36.7   | 40.6 | 1.0                              | 53.3  | 11.3  | 5.0                                    |
| SMBJ36   | 36.00  | 40.0   | 48.9 | 1.0                              | 64.3  | 9.3   | 5.0                                    |
| SMBJ36A  | 36.00  | 40.0   | 44.2 | 1.0                              | 58.1  | 10.3  | 5.0                                    |
| SMBJ40   | 40.00  | 44.4   | 54.3 | 1.0                              | 71.4  | 8.4   | 5.0                                    |
| SMBJ40A  | 40.00  | 44.4   | 49.1 | 1.0                              | 64.5  | 9.3   | 5.0                                    |
| SMBJ43   | 43.00  | 47.8   | 58.4 | 1.0                              | 76.7  | 7.8   | 5.0                                    |
| SMBJ43A  | 43.00  | 47.8   | 52.8 | 1.0                              | 69.4  | 8.6   | 5.0                                    |
| SMBJ45   | 45.00  | 50.0   | 61.1 | 1.0                              | 80.3  | 7.5   | 5.0                                    |
| SMBJ45A  | 45.00  | 50.0   | 55.3 | 1.0                              | 72.7  | 8.3   | 5.0                                    |
| SMBJ48   | 48.00  | 53.3   | 65.1 | 1.0                              | 85.5  | 7.0   | 5.0                                    |
| SMBJ48A  | 48.00  | 53.3   | 58.9 | 1.0                              | 77.4  | 7.8   | 5.0                                    |
| SMBJ51   | 51.00  | 56.7   | 69.3 | 1.0                              | 91.1  | 6.6   | 5.0                                    |
| SMBJ51A  | 51.00  | 56.7   | 62.7 | 1.0                              | 82.4  | 7.3   | 5.0                                    |
| SMBJ54   | 54.00  | 60.0   | 73.3 | 1.0                              | 96.3  | 6.2   | 5.0                                    |
| SMBJ54A  | 54.00  | 60.0   | 66.3 | 1.0                              | 87.1  | 6.9   | 5.0                                    |
| SMBJ58   | 58.00  | 64.4   | 78.7 | 1.0                              | 103.0   | 5.8   | 5.0                                    |
| SMBJ58A  | 58.00  | 64.4   | 71.2 | 1.0                              | 93.6  | 6.4   | 5.0                                    |
| SMBJ60   | 60.00  | 66.7   | 81.5 | 1.0                              | 107.0   | 5.6   | 5.0                                    |
| SMBJ60A  | 60.00  | 66.7   | 73.7 | 1.0                              | 96.8  | 6.2   | 5.0                                    |
| SMBJ64   | 64.00  | 71.1   | 86.4 | 1.0                              | 114.0   | 5.3   | 5.0                                    |
| SMBJ64A  | 64.00  | 71.1   | 78.6 | 1.0                              | 103.0   | 5.8   | 5.0                                    |
| SMBJ70   | 70.00  | 77.8   | 95.1 | 1.0                              | 125   | 4.8   | 5.0                                    |
| SMBJ70A  | 70.00  | 77.8   | 86.0 | 1.0                              | 113   | 5.3   | 5.0                                    |
| SMBJ75   | 75.00  | 83.3   | 102  | 1.0                              | 134   | 4.5   | 5.0                                    |
| SMBJ75A  | 75.00  | 83.3   | 92.1 | 1.0                              | 121   | 5.0   | 5.0                                    |
| SMBJ78   | 78.00  | 86.7   | 106  | 1.0                              | 139   | 4.3   | 5.0                                    |
| SMBJ78A  | 78.00  | 86.7   | 95.8 | 1.0                              | 126   | 4.8   | 5.0                                    |
| SMBJ85   | 85.00  | 94.4   | 115  | 1.0                              | 151   | 4.0   | 5.0                                    |
| SMBJ85A  | 85.00  | 94.4   | 104  | 1.0                              | 137   | 4.4   | 5.0                                    |
| SMBJ90   | 90.00  | 100  | 122  | 1.0                              | 160   | 3.8   | 5.0                                    |
| SMBJ90A  | 90.00  | 100  | 111  | 1.0                              | 146   | 4.1   | 5.0                                    |
| SMBJ100  | 100.00   | 111  | 136  | 1.0                              | 179   | 3.4   | 5.0                                    |
| SMBJ100A | 100.00   | 111  | 123  | 1.0                              | 162   | 3.7   | 5.0                                    |
| SMBJ110  | 110.00   | 122  | 149  | 1.0                              | 196   | 3.1   | 5.0                                    |
| SMBJ110A | 110.00   | 122  | 135  | 1.0                              | 177   | 3.4   | 5.0                                    |
| SMBJ120  | 120.00   | 133  | 163  | 1.0                              | 214   | 2.8   | 5.0                                    |
| SMBJ120A | 120.00   | 133  | 147  | 1.0                              | 193   | 3.1   | 5.0                                    |
| SMBJ130  | 130.00   | 144  | 176  | 1.0                              | 231   | 2.6   | 5.0                                    |
| SMBJ130A | 130.00   | 144  | 159  | 1.0                              | 209   | 2.9   | 5.0                                    |
| SMBJ150  | 150.00   | 167  | 204  | 1.0                              | 268   | 2.2   | 5.0                                    |
| SMBJ150A | 150.00   | 167  | 185  | 1.0                              | 243   | 2.5   | 5.0                                    |
| SMBJ160  | 160.00   | 178  | 218  | 1.0                              | 287   | 2.1   | 5.0                                    |
| SMBJ160A | 160.00   | 178  | 197  | 1.0                              | 259   | 2.3   | 5.0                                    |
| SMBJ170  | 170.00   | 189  | 231  | 1.0                              | 304   | 2.0   | 5.0                                    |
| SMBJ170A | 170.00   | 189  | 209  | 1.0                              | 275   | 2.2   | 5.0                                    |

**NOTES:**

1. V<sub>(BR)</sub> measured after I<sub>T</sub> applied for 300μs, I<sub>T</sub>=square wave pulse or equivalent
2. Surge current waveform per Fig.3 and derated per Fig.2
3. For bidirectional types having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled
4. All items and symbols are consistent with ANSI/IEEE C62.35

# RATINGS AND CHARACTERISTIC CURVES SMBJ5.0 THUR 170CA

FIG. 1-PEAK PULSE POWER RATING CURVE

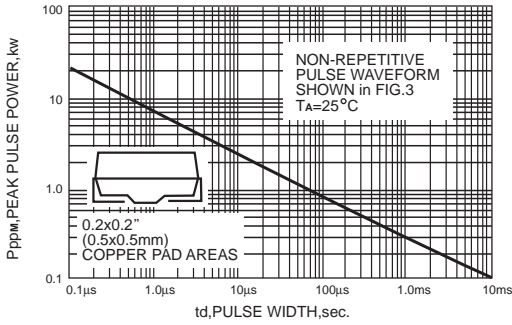


FIG. 2-PULSE DERATING CURVE

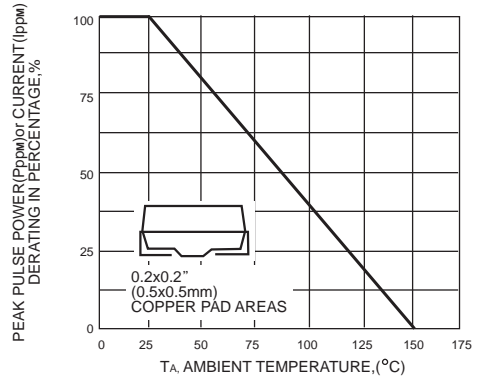


FIG. 3-PULSE WAVEFORM

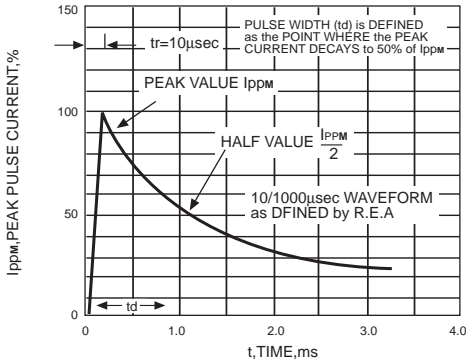


FIG. 4-TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

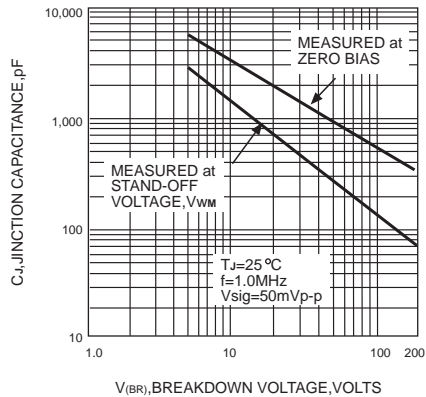


FIG. 5-STEADY STATE POWER DERATING CURVE

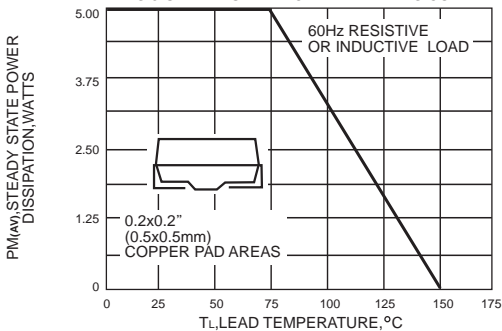
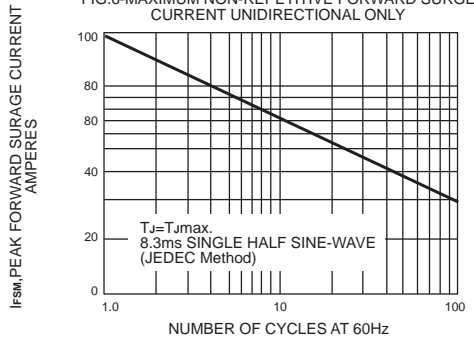


FIG. 6-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY



单击下面可查看定价，库存，交付和生命周期等信息

[>>STAR\\_SEA\(星海\)](#)