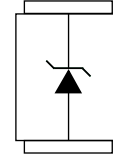


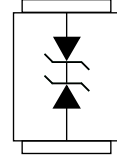
**Surface Mount-600W Transient Voltage Suppression Diodes**
**Description**

The SMBJ Series are designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Unidirectional



Bidirectional


**Feature**

- Halogen-Free
- RoHS compliant
- For surface mounted application to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Fast response time: typical less than 1.2ps from 0V to  $V_{BR}$  min
- 600W peak pulse power capability at  $10 \times 1000\mu s$  waveform, repetition rate (duty cycle): 0.01%

**Applications**

TVS device are ideal for the protection of I/O interfaces,  $V_{CC}$  bus and other vulnerable circuits used in telecom, computer industrial and consumer electronic application

**Absolute maximum rating @25°C**

| Rating  | Symbol         | Value       | Units |
|---|----------------|-------------|-------|
| Peak Pulse Power ( $t_p=10/700\mu s$ )  | $P_{pp}$       | 600         | W     |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) | $I_{FSM}$      | 100         | A     |
| Instantaneous Forward Voltage @ $I_{PP}=35A$<br>$V_{BR} < 100V$<br>$V_{BR} \geq 100V$             | $V_F$          | 3.5<br>5.0  | V     |
| Operating and Storage Temperature   | $T_J, T_{STG}$ | -55 to +150 | °C    |

## Electrical characteristics per line@25°C ( unless otherwise specified)

| Part Number (Uni) | Part Number (Bi) | Reverse Stand off Voltage $V_R$ (V) | Breakdown Voltage $V_{BR}@ I_T$ (V) |       | Test Current $I_T$ (mA) | Maximum Clamping Voltage $V_C @ I_{PP}$ (V) | Maximum Peak Pulse Current $I_{PP}$ | Maximum Reverse Leakage $I_R @ V_R$ ( $\mu A$ ) |
|-------------------|------------------|-------------------------------------|-------------------------------------|-------|-------------------------|---|-------------------------------------|---|
|                   |                  |                                     | MIN                                 | MAX   |                         |   |                                     |   |
| SMBJ5.0A          | SMBJ5.0CA        | 5.0                                 | 6.40                                | 7.00  | 10                      | 9.2   | 65.3                                | 800   |
| SMBJ6.0A          | SMBJ6.0CA        | 6.0                                 | 6.67                                | 7.37  | 10                      | 10.3  | 58.3                                | 800   |
| SMBJ6.5A          | SMBJ6.5CA        | 6.5                                 | 7.22                                | 7.98  | 10                      | 11.2  | 53.6                                | 500   |
| SMBJ7.0A          | SMBJ7.0CA        | 7.0                                 | 7.78                                | 8.60  | 10                      | 12.0  | 50.0                                | 200   |
| SMBJ7.5A          | SMBJ7.5CA        | 7.5                                 | 8.33                                | 9.21  | 1                       | 12.9  | 46.6                                | 100   |
| SMBJ8.0A          | SMBJ8.0CA        | 8.0                                 | 8.89                                | 9.83  | 1                       | 13.6  | 44.2                                | 50  |
| SMBJ8.5A          | SMBJ8.5CA        | 8.5                                 | 9.44                                | 10.40 | 1                       | 14.4  | 41.7                                | 20  |
| SMBJ9.0A          | SMBJ9.0CA        | 9.0                                 | 10.00                               | 11.10 | 1                       | 15.4  | 39.0                                | 10  |
| SMBJ10A           | SMBJ10CA         | 10.0                                | 11.10                               | 12.30 | 1                       | 17.0  | 35.3                                | 5   |
| SMBJ11A           | SMBJ11CA         | 11.0                                | 12.20                               | 13.50 | 1                       | 18.2  | 33.0                                | 1   |
| SMBJ12A           | SMBJ12CA         | 12.0                                | 13.30                               | 14.70 | 1                       | 19.9  | 30.2                                | 1   |
| SMBJ13A           | SMBJ13CA         | 13.0                                | 14.40                               | 15.90 | 1                       | 21.5  | 28.0                                | 1   |
| SMBJ14A           | SMBJ14CA         | 14.0                                | 15.60                               | 17.20 | 1                       | 23.2  | 25.9                                | 1   |
| SMBJ15A           | SMBJ15CA         | 15.0                                | 16.70                               | 18.50 | 1                       | 24.4  | 24.6                                | 1   |
| SMBJ16A           | SMBJ16CA         | 16.0                                | 17.80                               | 19.70 | 1                       | 26.0  | 23.1                                | 1   |
| SMBJ17A           | SMBJ17CA         | 17.0                                | 18.90                               | 20.90 | 1                       | 27.6  | 21.8                                | 1   |
| SMBJ18A           | SMBJ18CA         | 18.0                                | 20.00                               | 22.10 | 1                       | 29.2  | 20.6                                | 1   |
| SMBJ20A           | SMBJ20CA         | 20.0                                | 22.20                               | 24.50 | 1                       | 32.4  | 18.6                                | 1   |
| SMBJ22A           | SMBJ22CA         | 22.0                                | 24.40                               | 26.90 | 1                       | 35.5  | 16.9                                | 1   |
| SMBJ24A           | SMBJ24CA         | 24.0                                | 26.70                               | 29.50 | 1                       | 38.9  | 15.5                                | 1   |
| SMBJ26A           | SMBJ26CA         | 26.0                                | 28.90                               | 31.90 | 1                       | 42.1  | 14.3                                | 1   |
| SMBJ28A           | SMBJ28CA         | 28.0                                | 31.10                               | 34.40 | 1                       | 45.4  | 13.3                                | 1   |
| SMBJ30A           | SMBJ30CA         | 30.0                                | 33.30                               | 36.80 | 1                       | 48.4  | 12.4                                | 1   |
| SMBJ33A           | SMBJ33CA         | 33.0                                | 36.70                               | 40.60 | 1                       | 53.3  | 11.3                                | 1   |
| SMBJ36A           | SMBJ36CA         | 36.0                                | 40.00                               | 44.20 | 1                       | 48.1  | 10.4                                | 1   |
| SMBJ40A           | SMBJ40CA         | 40.0                                | 44.40                               | 49.10 | 1                       | 64.5  | 9.3                                 | 1   |
| SMBJ43A           | SMBJ43CA         | 43.0                                | 47.80                               | 52.80 | 1                       | 69.40                                       | 8.7                                 | 1   |
| SMBJ45A           | SMBJ45CA         | 45.0                                | 50.00                               | 55.30 | 1                       | 72.7  | 8.3                                 | 1   |

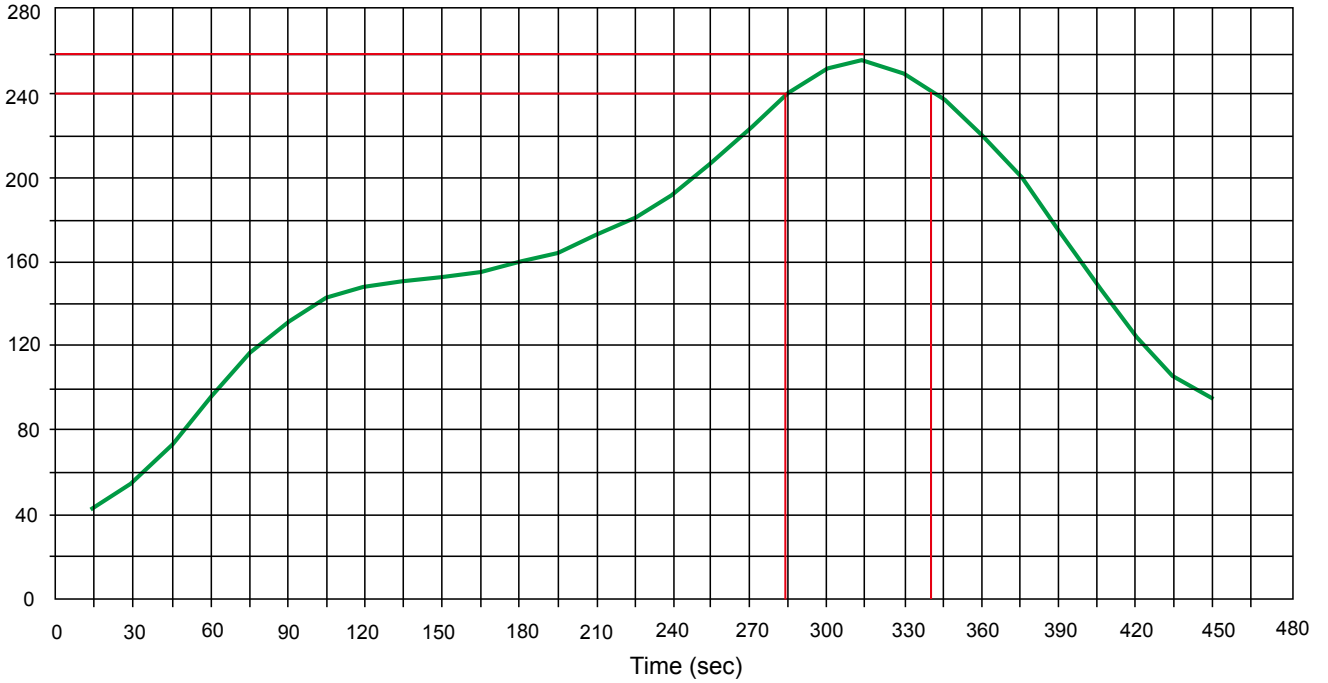
| Part Number (Uni) | Part Number (Bi) | Reverse Stand off Voltage $V_R$ (V) | Breakdown Voltage $V_{BR}@ I_T$ (V) |        | Test Current $I_T$ (mA) | Maximum Clamping Voltage $V_C @ I_{PP}$ (V) | Maximum Peak Pulse Current $I_{PP}$ | Maximum Reverse Leakage $I_R @ V_R$ ( $\mu A$ ) |
|-------------------|------------------|-------------------------------------|-------------------------------------|--------|-------------------------|---|-------------------------------------|---|
|                   |                  |                                     | MIN                                 | MAX    |                         |   |                                     |   |
| SMBJ48A           | SMBJ48CA         | 48.0                                | 53.30                               | 58.90  | 1                       | 77.4  | 7.8                                 | 1   |
| SMBJ51A           | SMBJ51CA         | 51.0                                | 56.70                               | 62.70  | 1                       | 82.4  | 7.3                                 | 1   |
| SMBJ54A           | SMBJ54CA         | 54.0                                | 60.00                               | 66.30  | 1                       | 87.1  | 6.9                                 | 1   |
| SMBJ58A           | SMBJ58CA         | 58.0                                | 64.40                               | 71.20  | 1                       | 93.6  | 6.5                                 | 1   |
| SMBJ60A           | SMBJ60CA         | 60.0                                | 66.70                               | 73.70  | 1                       | 96.8  | 6.2                                 | 1   |
| SMBJ64A           | SMBJ64CA         | 64.0                                | 71.10                               | 78.60  | 1                       | 103.0                                       | 5.9                                 | 1   |
| SMBJ70A           | SMBJ70CA         | 70.0                                | 77.80                               | 86.00  | 1                       | 113.0                                       | 5.3                                 | 1   |
| SMBJ75A           | SMBJ75CA         | 75.0                                | 83.30                               | 92.10  | 1                       | 121.0                                       | 5.0                                 | 1   |
| SMBJ78A           | SMBJ78CA         | 78.0                                | 86.70                               | 95.80  | 1                       | 126.0                                       | 4.8                                 | 1   |
| SMBJ85A           | SMBJ85CA         | 85.0                                | 94.40                               | 104.00 | 1                       | 137.0                                       | 4.4                                 | 1   |
| SMBJ90A           | SMBJ90CA         | 90.0                                | 100.00                              | 111.00 | 1                       | 146.0                                       | 4.1                                 | 1   |
| SMBJ100A          | SMBJ100CA        | 100.0                               | 111.00                              | 123.00 | 1                       | 162.0                                       | 3.7                                 | 1   |
| SMBJ110A          | SMBJ110CA        | 110.0                               | 122.00                              | 135.00 | 1                       | 177.0                                       | 3.4                                 | 1   |
| SMBJ120A          | SMBJ120CA        | 120.0                               | 133.00                              | 147.00 | 1                       | 193.0                                       | 3.1                                 | 1   |
| SMBJ130A          | SMBJ130CA        | 130.0                               | 144.00                              | 159.00 | 1                       | 209.0                                       | 2.9                                 | 1   |
| SMBJ150A          | SMBJ150CA        | 150.0                               | 167.00                              | 185.00 | 1                       | 243.0                                       | 2.5                                 | 1   |
| SMBJ160A          | SMBJ160CA        | 160.0                               | 178.00                              | 197.00 | 1                       | 259.0                                       | 2.3                                 | 1   |
| SMBJ170A          | SMBJ170CA        | 170.0                               | 189.00                              | 209.00 | 1                       | 275.0                                       | 2.2                                 | 1   |
| SMBJ180A          | SMBJ180CA        | 180.0                               | 201.00                              | 222.00 | 1                       | 292.0                                       | 2.1                                 | 1   |
| SMBJ200A          | SMBJ200CA        | 200.0                               | 224.00                              | 247.00 | 1                       | 324.0                                       | 1.9                                 | 1   |
| SMBJ220A          | SMBJ220A         | 220.0                               | 246.00                              | 272.00 | 1                       | 356.0                                       | 1.7                                 | 1   |
| SMBJ250A          | SMBJ250CA        | 250.0                               | 279.00                              | 309.00 | 1                       | 405.0                                       | 1.5                                 | 1   |
| SMBJ300A          | SMBJ300CA        | 300.0                               | 335.00                              | 371.00 | 1                       | 486.0                                       | 1.3                                 | 1   |
| SMBJ350A          | SMBJ350CA        | 350.0                               | 391.00                              | 432.00 | 1                       | 567.0                                       | 1.1                                 | 1   |
| SMBJ400A          | SMBJ400CA        | 400.0                               | 447.00                              | 494.00 | 1                       | 648.0                                       | 0.9                                 | 1   |
| SMBJ440A          | SMBJ440CA        | 440.0                               | 492.00                              | 543.00 | 1                       | 713.0                                       | 0.9                                 | 1   |

For bidirectional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.

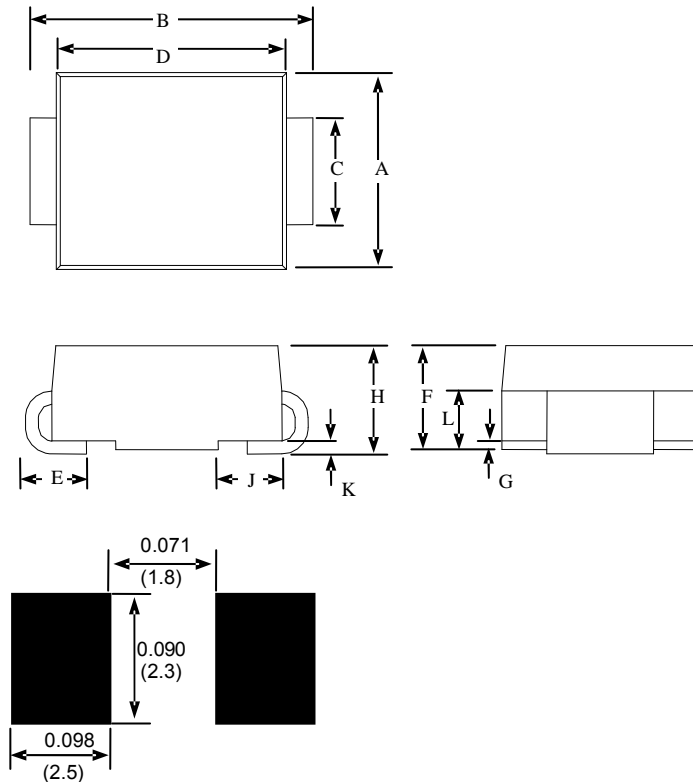
For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Product dimension(SMB)




DIMENSIONS ARE : INCHES  
(Millimeters)

| Dimension | Inches |       | Millimeters |      |
|-----------|--------|-------|-------------|------|
|           | MIN    | MAX   | MIN         | MAX  |
| A         | 0.134  | 0.155 | 3.40        | 3.94 |
| B         | 0.205  | 0.220 | 5.21        | 5.59 |
| C         | 0.075  | 0.083 | 1.90        | 2.11 |
| D         | 0.166  | 0.185 | 4.22        | 4.70 |
| E         | 0.036  | 0.056 | 0.91        | 1.42 |
| F         | 0.073  | 0.087 | 1.85        | 2.10 |
| G         | 0.002  | 0.008 | 0.05        | 0.20 |
| H         | 0.077  | 0.094 | 1.95        | 2.40 |
| J         | 0.043  | 0.053 | 1.09        | 1.35 |
| K         | 0.008  | 0.014 | 0.20        | 0.35 |
| L         | 0.039  | 0.049 | 0.99        | 1.24 |

### Ordering information

| Device      | Package       | Shipping          |
|-------------|---------------|-------------------|
| SMBJ Series | SMB (Pb-Free) | 500 / Tape & Reel |


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