

Surface Mount Uni/Bi-Directional TVS Diodes

Peak Pulse Power - 600 W
Reverse Stand Off Voltage - 5 to 440 V

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
- Low profile package
- 600W Peak pulse power capability at 10/1000 μ s waveform
- Excellent clamping capability
- Typical IR less than 1 μ A above 10V
- Fast response time: typically less than 1.0ps from 0 Volts to VBR min
- High temperature soldering: 260°C/10s

Mechanical Data

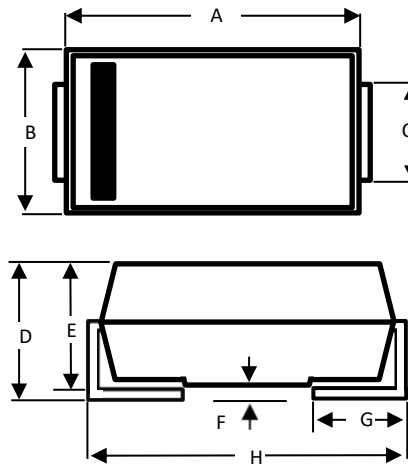
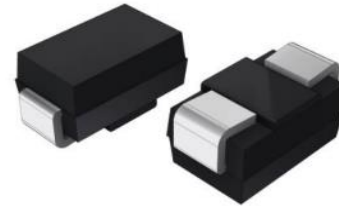
- Case:SMB(DO-214AA)package
- Case material: "green" molding compound
- UL flammability classification rating 94V-0
- Polarity : by cathode band denotes uni-directional device, none cathode band denotes bi-directional device
- Weight: 0.10grams

Note: Products with logo  or  are made by HY Electronic (Cayman) Limited

Applications

TVS devices are ideal for the protection of I/O Interfaces, Vcc bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

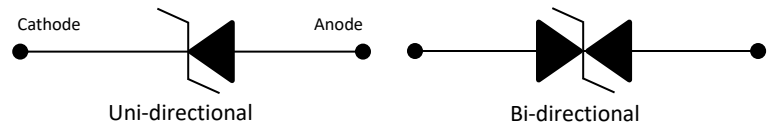
Package Outline Dimensions



| SMB Package | | |
|-------------|------|------|
| Dim | Min | Max |
| A | 4.22 | 4.70 |
| B | 3.40 | 3.94 |
| C | 1.90 | 2.10 |
| D | 1.95 | 2.60 |
| E | 1.95 | 2.34 |
| F | - | 0.23 |
| G | 0.90 | 1.42 |
| H | 5.21 | 5.59 |

All Dimensions in mm

Device Schematic



Ordering Information

- Package :SMB(DO-214AA)
- Reel Size :13 (inches)
- Quantity Per Reel :3Kpcs
- Quantity Per Box :6Kpcs
- Quantity Per Carton :48Kpcs

Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Absolute Ratings

| Parameter | Symbol | Value | Unit |
|--|--------|-------------|------|
| Peak Pulse Power Dissipation at TA=25°C by 10/1000us Waveform (Note 1) | PPP | 600 | W |
| Power Dissipation on Infinite Heat Sink at TL=50°C | PM(AV) | 5 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2) | IFSM | 80 | A |
| Maximum Instantaneous Forward Voltage at 50A (Note 2) | VF | 5 | V |
| Operating Temperature Range | Tj | -55 to +150 | ° C |
| Storage Temperature Range | TSTG | -55 to +150 | ° C |

Note:

1. Non-repetitive current pulse, per Fig.4 and derated above Tj(initial) =25°C per Fig.1
2. For unidirectional units only

Electrical Characteristics (@T_A = 25°C, unless otherwise specified.)

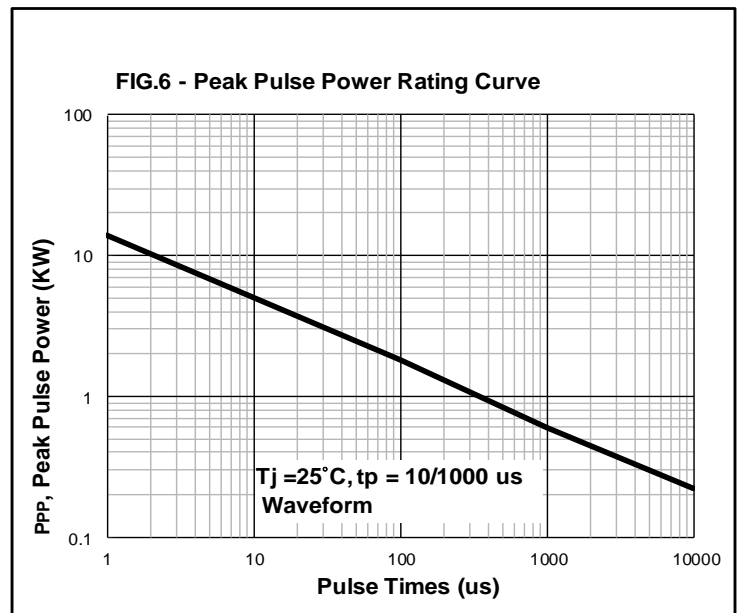
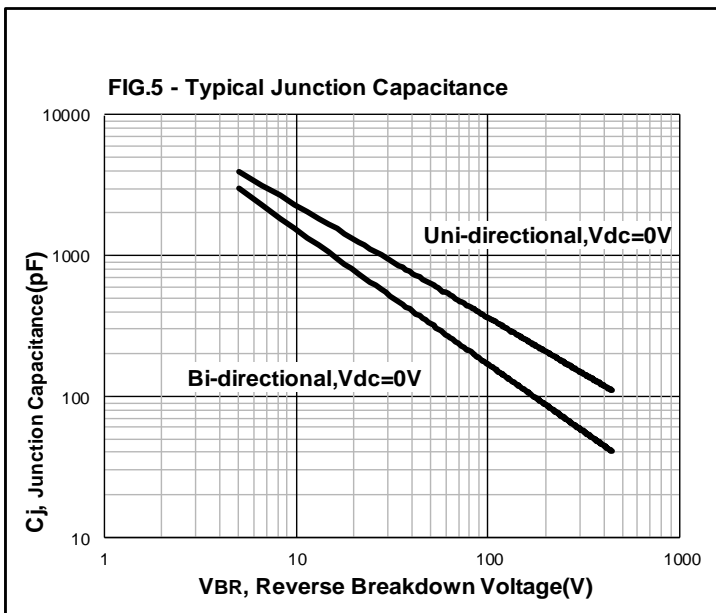
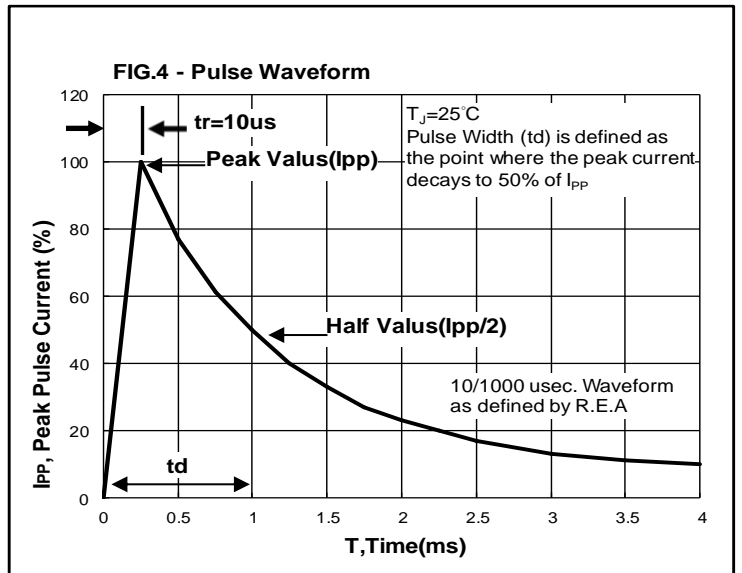
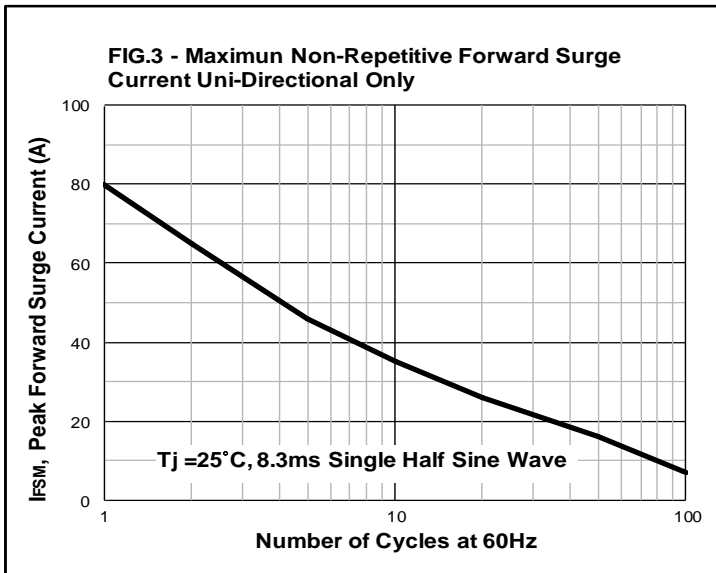
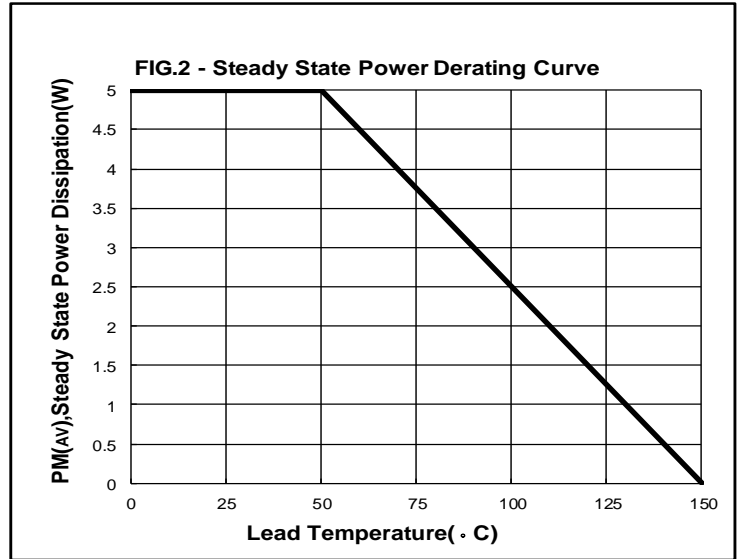
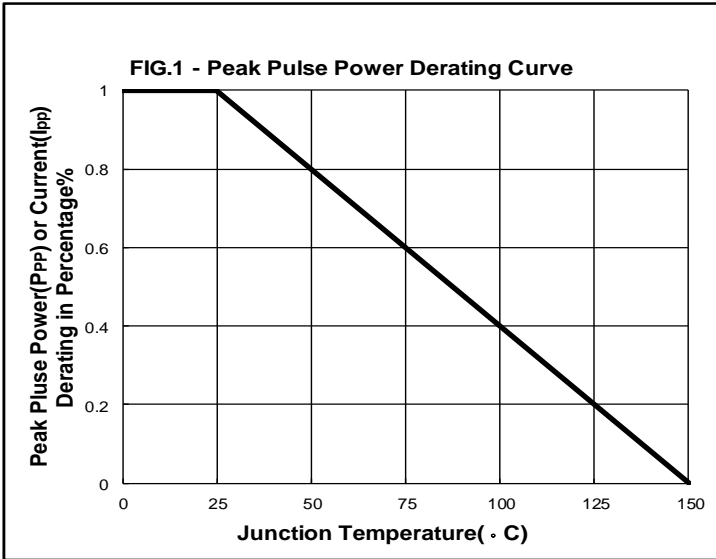
| Part Number | | Marking Code | | Reverse Working Voltage V _{RWM} (V) | Reverse Breakdown Voltage V _B (V) | | | Reverse Leakage (Max) I _R (uA) @V _R | Reverse Clamping Voltage (Max) V _c (V) @I _{PP} | Peak Pulse Current (Max) I _{PP} (A) |
|-------------|-----------|--------------|-----------|---|---|-------|----------------------|---|--|---|
| Uni. | Bi. | Uni. | Bi. | | Min. | Max. | @I _T (mA) | | | |
| SMBJ5.0A | SMBJ5.0CA | SMBJ5.0A | SMBJ5.0CA | 5.0 | 6.40 | 7.00 | 10 | 800 | 9.2 | 65.2 |
| SMBJ6.0A | SMBJ6.0CA | SMBJ6.0A | SMBJ6.0CA | 6.0 | 6.67 | 7.37 | 10 | 800 | 10.3 | 58.3 |
| SMBJ6.5A | SMBJ6.5CA | SMBJ6.5A | SMBJ6.5CA | 6.5 | 7.22 | 7.98 | 10 | 500 | 11.2 | 53.6 |
| SMBJ7.0A | SMBJ7.0CA | SMBJ7.0A | SMBJ7.0CA | 7.0 | 7.78 | 8.60 | 10 | 200 | 12.0 | 50.0 |
| SMBJ7.5A | SMBJ7.5CA | SMBJ7.5A | SMBJ7.5CA | 7.5 | 8.33 | 9.21 | 1 | 100 | 12.9 | 46.5 |
| SMBJ8.0A | SMBJ8.0CA | SMBJ8.0A | SMBJ8.0CA | 8.0 | 8.89 | 9.83 | 1 | 50 | 13.6 | 44.1 |
| SMBJ8.5A | SMBJ8.5CA | SMBJ8.5A | SMBJ8.5CA | 8.5 | 9.44 | 10.40 | 1 | 20 | 14.4 | 41.7 |
| SMBJ9.0A | SMBJ9.0CA | SMBJ9.0A | SMBJ9.0CA | 9.0 | 10.0 | 11.1 | 1 | 10 | 15.4 | 39.0 |
| SMBJ10A | SMBJ10CA | SMBJ10A | SMBJ10CA | 10 | 11.1 | 12.3 | 1 | 5 | 17.0 | 35.3 |
| SMBJ11A | SMBJ11CA | SMBJ11A | SMBJ11CA | 11 | 12.2 | 13.5 | 1 | 1 | 18.2 | 33.0 |
| SMBJ12A | SMBJ12CA | SMBJ12A | SMBJ12CA | 12 | 13.3 | 14.7 | 1 | 1 | 19.9 | 30.2 |
| SMBJ13A | SMBJ13CA | SMBJ13A | SMBJ13CA | 13 | 14.4 | 15.9 | 1 | 1 | 21.5 | 27.9 |
| SMBJ14A | SMBJ14CA | SMBJ14A | SMBJ14CA | 14 | 15.6 | 17.2 | 1 | 1 | 23.2 | 25.9 |
| SMBJ15A | SMBJ15CA | SMBJ15A | SMBJ15CA | 15 | 16.7 | 18.5 | 1 | 1 | 24.4 | 24.6 |
| SMBJ16A | SMBJ16CA | SMBJ16A | SMBJ16CA | 16 | 17.8 | 19.7 | 1 | 1 | 26.0 | 23.1 |
| SMBJ17A | SMBJ17CA | SMBJ17A | SMBJ17CA | 17 | 18.9 | 20.9 | 1 | 1 | 27.6 | 21.8 |
| SMBJ18A | SMBJ18CA | SMBJ18A | SMBJ18CA | 18 | 20.0 | 22.1 | 1 | 1 | 29.2 | 20.6 |
| SMBJ20A | SMBJ20CA | SMBJ20A | SMBJ20CA | 20 | 22.2 | 24.5 | 1 | 1 | 32.4 | 18.6 |
| SMBJ22A | SMBJ22CA | SMBJ22A | SMBJ22CA | 22 | 24.4 | 26.9 | 1 | 1 | 35.5 | 16.9 |
| SMBJ24A | SMBJ24CA | SMBJ24A | SMBJ24CA | 24 | 26.7 | 29.5 | 1 | 1 | 38.9 | 15.4 |
| SMBJ26A | SMBJ26CA | SMBJ26A | SMBJ26CA | 26 | 28.9 | 31.9 | 1 | 1 | 42.1 | 14.3 |
| SMBJ28A | SMBJ28CA | SMBJ28A | SMBJ28CA | 28 | 31.1 | 34.4 | 1 | 1 | 45.4 | 13.2 |
| SMBJ30A | SMBJ30CA | SMBJ30A | SMBJ30CA | 30 | 33.3 | 36.8 | 1 | 1 | 48.4 | 12.4 |
| SMBJ33A | SMBJ33CA | SMBJ33A | SMBJ33CA | 33 | 36.7 | 40.6 | 1 | 1 | 53.3 | 11.3 |
| SMBJ36A | SMBJ36CA | SMBJ36A | SMBJ36CA | 36 | 40.0 | 44.2 | 1 | 1 | 58.1 | 10.4 |
| SMBJ40A | SMBJ40CA | SMBJ40A | SMBJ40CA | 40 | 44.4 | 49.1 | 1 | 1 | 64.5 | 9.3 |
| SMBJ43A | SMBJ43CA | SMBJ43A | SMBJ43CA | 43 | 47.8 | 52.8 | 1 | 1 | 69.4 | 8.7 |
| SMBJ45A | SMBJ45CA | SMBJ45A | SMBJ45CA | 45 | 50.0 | 55.3 | 1 | 1 | 72.7 | 8.3 |
| SMBJ48A | SMBJ48CA | SMBJ48A | SMBJ48CA | 48 | 53.3 | 58.9 | 1 | 1 | 77.4 | 7.8 |
| SMBJ51A | SMBJ51CA | SMBJ51A | SMBJ51CA | 51 | 56.7 | 62.7 | 1 | 1 | 82.4 | 7.3 |
| SMBJ54A | SMBJ54CA | SMBJ54A | SMBJ54CA | 54 | 60.0 | 66.3 | 1 | 1 | 87.1 | 6.9 |
| SMBJ58A | SMBJ58CA | SMBJ58A | SMBJ58CA | 58 | 64.4 | 71.2 | 1 | 1 | 93.6 | 6.4 |
| SMBJ60A | SMBJ60CA | SMBJ60A | SMBJ60CA | 60 | 66.7 | 73.7 | 1 | 1 | 96.8 | 6.2 |
| SMBJ64A | SMBJ64CA | SMBJ64A | SMBJ64CA | 64 | 71.1 | 78.6 | 1 | 1 | 103 | 5.8 |
| SMBJ70A | SMBJ70CA | SMBJ70A | SMBJ70CA | 70 | 77.8 | 86.0 | 1 | 1 | 113 | 5.3 |
| SMBJ75A | SMBJ75CA | SMBJ75A | SMBJ75CA | 75 | 83.3 | 92.1 | 1 | 1 | 121 | 5.0 |
| SMBJ78A | SMBJ78CA | SMBJ78A | SMBJ78CA | 78 | 86.7 | 95.8 | 1 | 1 | 126 | 4.8 |
| SMBJ85A | SMBJ85CA | SMBJ85A | SMBJ85CA | 85 | 94.4 | 104.0 | 1 | 1 | 137 | 4.4 |
| SMBJ90A | SMBJ90CA | SMBJ90A | SMBJ90CA | 90 | 100 | 111 | 1 | 1 | 146 | 4.1 |
| SMBJ100A | SMBJ100CA | SMBJ100A | SMBJ100CA | 100 | 111 | 123 | 1 | 1 | 162 | 3.7 |
| SMBJ110A | SMBJ110CA | SMBJ110A | SMBJ110CA | 110 | 122 | 135 | 1 | 1 | 177 | 3.4 |
| SMBJ120A | SMBJ120CA | SMBJ120A | SMBJ120CA | 120 | 133 | 147 | 1 | 1 | 193 | 3.1 |
| SMBJ130A | SMBJ130CA | SMBJ130A | SMBJ130CA | 130 | 144 | 159 | 1 | 1 | 209 | 2.9 |
| SMBJ150A | SMBJ150CA | SMBJ150A | SMBJ150CA | 150 | 167 | 185 | 1 | 1 | 243 | 2.5 |
| SMBJ160A | SMBJ160CA | SMBJ160A | SMBJ160CA | 160 | 178 | 197 | 1 | 1 | 259 | 2.3 |
| SMBJ170A | SMBJ170CA | SMBJ170A | SMBJ170CA | 170 | 189 | 209 | 1 | 1 | 275 | 2.2 |
| SMBJ180A | SMBJ180CA | SMBJ180A | SMBJ180CA | 180 | 201 | 222 | 1 | 1 | 292 | 2.1 |
| SMBJ200A | SMBJ200CA | SMBJ200A | SMBJ200CA | 200 | 224 | 247 | 1 | 1 | 324 | 1.9 |
| SMBJ210A | SMBJ210CA | SMBJ210A | SMBJ210CA | 210 | 233 | 258 | 1 | 1 | 337 | 1.8 |
| SMBJ220A | SMBJ220CA | SMBJ220A | SMBJ220CA | 220 | 246 | 272 | 1 | 1 | 356 | 1.7 |
| SMBJ250A | SMBJ250CA | SMBJ250A | SMBJ250CA | 250 | 279 | 309 | 1 | 1 | 405 | 1.5 |
| SMBJ300A | SMBJ300CA | SMBJ300A | SMBJ300CA | 300 | 335 | 371 | 1 | 1 | 486 | 1.3 |
| SMBJ350A | SMBJ350CA | SMBJ350A | SMBJ350CA | 350 | 391 | 432 | 1 | 1 | 567 | 1.1 |
| SMBJ400A | SMBJ400CA | SMBJ400A | SMBJ400CA | 400 | 447 | 494 | 1 | 1 | 648 | 0.9 |
| SMBJ440A | SMBJ440CA | SMBJ440A | SMBJ440CA | 440 | 492 | 543 | 1 | 1 | 713 | 0.8 |

Note:

1. Suffix "A" denotes 5% tolerance device.
2. Add suffix "CA" after part number to specify bi-directional devices.
3. The IR limit is double for bi-directional devices.



Rating and Characteristic Curves





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