

SMBJ Series

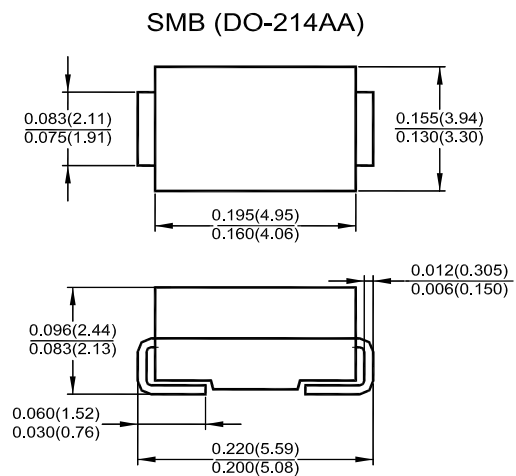
Transient Voltage Suppressors

Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- 600 W peak pulse power capability
- Excellent clamping capability

Mechanical Data

- Case: DO-214AA (SMB) molded plastic
- Terminals: Solder plated
- Polarity: For unidirectional types the color band denotes the cathode (except for bidirectional types)
- Mounting Position: Any



Dimensions in inches and (millimeters)

Description

- Devices for bidirectional applications
- For bidirectional use C or CA suffix for types SMBJ5.0 thru types SMBJ170A (e.g. SMBJ5.0C, SMBJ170CA)
- Electrical characteristics apply in both directions

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless otherwise specified)

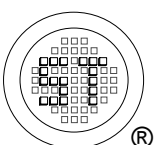
| Parameter | Symbol | Value | Unit |
|--|----------------|----------------|------------------|
| Peak Pulse Power Dissipation ¹⁾ | P_{PPM} | Min. 600 | W |
| Peak Pulse Current ¹⁾ | I_{PPM} | See Next Table | A |
| Steady State Power Dissipation ²⁾ | P_{PK} | 2 | W |
| Peak Forward Surge Current, Unidirectional only ³⁾ | I_{FSM} | 100 | A |
| Maximum Instantaneous Forward Voltage at 50 A, Unidirectional only ⁴⁾ | V_F | 3.5 / 5 | V |
| Operating Junction and Storage Temperature Range | T_j, T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

¹⁾ Pulse with a 10 / 1000 μs waveform.

²⁾ Mounted on a 5 X 5 X 0.013 mm Copper pads to each terminal.

³⁾ Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum. For uni-directional devices only.

⁴⁾ V_F : 3.5 V Max. for types SMBJ5.0~SMBJ90, V_F : 5 V Max. for types SMBJ100~SMBJ170



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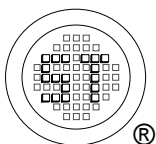


Dated : 13/11/2010 FD Rev:01

SMBJ Series

Electrical Characteristics ($T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified)

| Uni-directional / Bi-directional Type ³⁾ | Stand-off Voltage V_{WM} (V) | Breakdown Voltage ¹⁾ | | Test Current I_T (mA) | Maximum Clamping Voltage V_C (V) at I_{PPM} | Maximum Peak Pulse Current I_{PPM} (A) | Maximum Reverse Leakage ²⁾ I_D (μA) at V_{WM} |
|---|--------------------------------------|---------------------------------|-------------------------------|-------------------------------|--|---|--|
| | | V_{BR} (V) Min. at I_T | V_{BR} (V) Max. at I_T | | | | |
| SMBJ5.0 / C | 5 | 6.4 | 7.3 | 10 | 9.6 | 65 | 800 |
| SMBJ5.0A / CA | 5 | 6.4 | 7 | 10 | 9.2 | 68 | 800 |
| SMBJ6.0 / C | 6 | 6.67 | 8.15 | 10 | 11.4 | 55 | 800 |
| SMBJ6.0A / CA | 6 | 6.67 | 7.37 | 10 | 10.3 | 61 | 800 |
| SMBJ6.5 / C | 6.5 | 7.22 | 8.82 | 10 | 12.3 | 51 | 500 |
| SMBJ6.5A / CA | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 56 | 500 |
| SMBJ7.0 / C | 7 | 7.78 | 9.51 | 10 | 13.3 | 47 | 200 |
| SMBJ7.0A / CA | 7 | 7.78 | 8.6 | 10 | 12 | 52 | 200 |
| SMBJ7.5 / C | 7.5 | 8.33 | 10.3 | 1 | 14.3 | 44 | 100 |
| SMBJ7.5A / CA | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 48 | 100 |
| SMBJ8.0 / C | 8 | 8.89 | 10.9 | 1 | 15 | 42 | 50 |
| SMBJ8.0A / CA | 8 | 8.89 | 9.83 | 1 | 13.6 | 46 | 50 |
| SMBJ8.5 / C | 8.5 | 9.44 | 11.5 | 1 | 15.9 | 39 | 20 |
| SMBJ8.5A / CA | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 43 | 20 |
| SMBJ9.0 / C | 9 | 10 | 12.2 | 1 | 16.9 | 37 | 10 |
| SMBJ9.0A / CA | 9 | 10 | 11.1 | 1 | 15.4 | 40 | 10 |
| SMBJ10 / C | 10 | 11.1 | 13.6 | 1 | 18.8 | 33 | 5 |
| SMBJ10A / CA | 10 | 11.1 | 12.3 | 1 | 17 | 37 | 5 |
| SMBJ11 / C | 11 | 12.2 | 14.9 | 1 | 20.1 | 31 | 5 |
| SMBJ11A / CA | 11 | 12.2 | 13.5 | 1 | 18.2 | 34 | 5 |
| SMBJ12 / C | 12 | 13.3 | 16.3 | 1 | 22 | 28 | 5 |
| SMBJ12A / CA | 12 | 13.3 | 14.7 | 1 | 19.9 | 31 | 5 |
| SMBJ13 / C | 13 | 14.4 | 17.6 | 1 | 23.8 | 26 | 5 |
| SMBJ13A / CA | 13 | 14.4 | 15.9 | 1 | 21.5 | 29 | 5 |
| SMBJ14 / C | 14 | 15.6 | 19.1 | 1 | 25.8 | 24.4 | 5 |
| SMBJ14A / CA | 14 | 15.6 | 17.2 | 1 | 23.2 | 27 | 5 |
| SMBJ15 / C | 15 | 16.7 | 20.4 | 1 | 26.9 | 23.1 | 5 |
| SMBJ15A / CA | 15 | 16.7 | 18.5 | 1 | 24.4 | 25.1 | 5 |
| SMBJ16 / C | 16 | 17.8 | 21.8 | 1 | 28.8 | 21.8 | 5 |
| SMBJ16A / CA | 16 | 17.8 | 19.7 | 1 | 26 | 24.2 | 5 |
| SMBJ17 / C | 17 | 18.9 | 23.1 | 1 | 30.5 | 20 | 5 |
| SMBJ17A / CA | 17 | 18.9 | 20.9 | 1 | 27.6 | 22.8 | 5 |
| SMBJ18 / C | 18 | 20 | 24.4 | 1 | 32.2 | 19.5 | 5 |
| SMBJ18A / CA | 18 | 20 | 22.1 | 1 | 29.2 | 21.5 | 5 |
| SMBJ20 / C | 20 | 22.2 | 27.1 | 1 | 35.8 | 17.6 | 5 |
| SMBJ20A / CA | 20 | 22.2 | 24.5 | 1 | 32.4 | 19.4 | 5 |
| SMBJ22 / C | 22 | 24.4 | 29.8 | 1 | 39.4 | 15 | 5 |
| SMBJ22A / CA | 22 | 24.4 | 26.9 | 1 | 35.5 | 17.7 | 5 |
| SMBJ24 / C | 24 | 26.7 | 32.6 | 1 | 43 | 14.6 | 5 |
| SMBJ24A / CA | 24 | 26.7 | 29.5 | 1 | 38.9 | 16 | 5 |
| SMBJ26 / C | 26 | 28.9 | 35.3 | 1 | 46.6 | 13.5 | 5 |
| SMBJ26A / CA | 26 | 28.9 | 31.9 | 1 | 42.1 | 14.9 | 5 |
| SMBJ28 / C | 28 | 31.1 | 38 | 1 | 50 | 12.6 | 5 |
| SMBJ28A / CA | 28 | 31.1 | 34.4 | 1 | 45.4 | 13.8 | 5 |
| SMBJ30 / C | 30 | 33.3 | 40.7 | 1 | 53.5 | 11.7 | 5 |
| SMBJ30A / CA | 30 | 33.3 | 36.8 | 1 | 48.4 | 13 | 5 |
| SMBJ33 / C | 33 | 36.7 | 44.9 | 1 | 59 | 10.6 | 5 |
| SMBJ33A / CA | 33 | 36.7 | 40.6 | 1 | 53.3 | 11.8 | 5 |



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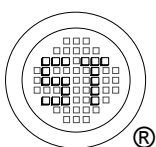
Electrical Characteristics ($T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified)

| Uni-directional / Bi-directional Type ³⁾ | Stand-off Voltage V_{WM} (V) | Breakdown Voltage ¹⁾ | | Test Current I_T (mA) | Maximum Clamping Voltage V_C (V) at I_{PPM} | Maximum Peak Pulse Current I_{PPM} (A) | Maximum Reverse Leakage ²⁾ I_D (μA) at V_{WM} |
|---|--------------------------------------|---------------------------------|-------------------------------|-------------------------------|--|---|--|
| | | V_{BR} (V) Min. at I_T | V_{BR} (V) Max. at I_T | | | | |
| SMBJ36 / C | 36 | 40 | 48.9 | 1 | 64.3 | 9.8 | 5 |
| SMBJ36A / CA | 36 | 40 | 44.2 | 1 | 58.1 | 10.8 | 5 |
| SMBJ40 / C | 40 | 44.4 | 54.3 | 1 | 71.4 | 8.8 | 5 |
| SMBJ40A / CA | 40 | 44.4 | 49.1 | 1 | 64.5 | 9.7 | 5 |
| SMBJ43 / C | 43 | 47.8 | 58.4 | 1 | 76.7 | 8.2 | 5 |
| SMBJ43A / CA | 43 | 47.8 | 52.8 | 1 | 69.4 | 9 | 5 |
| SMBJ45 / C | 45 | 50 | 61.1 | 1 | 80.3 | 7.8 | 5 |
| SMBJ45A / CA | 45 | 50 | 55.3 | 1 | 72.7 | 8.6 | 5 |
| SMBJ48 / C | 48 | 53.3 | 65.1 | 1 | 85.5 | 7.3 | 5 |
| SMBJ48A / CA | 48 | 53.3 | 58.9 | 1 | 77.4 | 8.1 | 5 |
| SMBJ51 / C | 51 | 56.7 | 69.3 | 1 | 91.1 | 6.9 | 5 |
| SMBJ51A / CA | 51 | 56.7 | 62.7 | 1 | 82.4 | 7.6 | 5 |
| SMBJ54 / C | 54 | 60 | 73.3 | 1 | 96.3 | 6.5 | 5 |
| SMBJ54A / CA | 54 | 60 | 66.3 | 1 | 87.1 | 7.2 | 5 |
| SMBJ58 / C | 58 | 64.4 | 78.7 | 1 | 103 | 6.1 | 5 |
| SMBJ58A / CA | 58 | 64.4 | 71.2 | 1 | 93.6 | 6.7 | 5 |
| SMBJ60 / C | 60 | 66.7 | 81.5 | 1 | 107 | 5.8 | 5 |
| SMBJ60A / CA | 60 | 66.7 | 73.7 | 1 | 96.8 | 6.5 | 5 |
| SMBJ64 / C | 64 | 71.1 | 86.9 | 1 | 114 | 5.5 | 5 |
| SMBJ64A / CA | 64 | 71.1 | 78.6 | 1 | 103 | 6.1 | 5 |
| SMBJ70 / C | 70 | 77.8 | 95.1 | 1 | 125 | 5 | 5 |
| SMBJ70A / CA | 70 | 77.8 | 86 | 1 | 113 | 5.5 | 5 |
| SMBJ75 / C | 75 | 83.3 | 102 | 1 | 134 | 4.7 | 5 |
| SMBJ75A / CA | 75 | 83.3 | 92.1 | 1 | 121 | 5.2 | 5 |
| SMBJ78 / C | 78 | 86.7 | 106 | 1 | 139 | 4.5 | 5 |
| SMBJ78A / CA | 78 | 86.7 | 95.8 | 1 | 126 | 5 | 5 |
| SMBJ85 / C | 85 | 94.4 | 115 | 1 | 151 | 4.1 | 5 |
| SMBJ85A / CA | 85 | 94.4 | 104 | 1 | 137 | 4.6 | 5 |
| SMBJ90 / C | 90 | 100 | 122 | 1 | 160 | 3.9 | 5 |
| SMBJ90A / CA | 90 | 100 | 111 | 1 | 146 | 4.3 | 5 |
| SMBJ100 / C | 100 | 111 | 136 | 1 | 179 | 3.5 | 5 |
| SMBJ100A / CA | 100 | 111 | 123 | 1 | 162 | 3.8 | 5 |
| SMBJ110 / C | 110 | 122 | 149 | 1 | 196 | 3.2 | 5 |
| SMBJ110A / CA | 110 | 122 | 135 | 1 | 177 | 3.5 | 5 |
| SMBJ120 / C | 120 | 133 | 163 | 1 | 214 | 2.9 | 5 |
| SMBJ120A / CA | 120 | 133 | 147 | 1 | 193 | 3.2 | 5 |
| SMBJ130 / C | 130 | 144 | 176 | 1 | 231 | 2.7 | 5 |
| SMBJ130A / CA | 130 | 144 | 159 | 1 | 209 | 3 | 5 |
| SMBJ150 / C | 150 | 167 | 204 | 1 | 268 | 2.3 | 5 |
| SMBJ150A / CA | 150 | 167 | 185 | 1 | 243 | 2.5 | 5 |
| SMBJ160 / C | 160 | 178 | 218 | 1 | 287 | 2.2 | 5 |
| SMBJ160A / CA | 160 | 178 | 197 | 1 | 259 | 2.4 | 5 |
| SMBJ170 / C | 170 | 189 | 231 | 1 | 304 | 2 | 5 |
| SMBJ170A / CA | 170 | 189 | 209 | 1 | 275 | 2.2 | 5 |

¹⁾ V_{BR} measured after I_T applied for 300 μs square wave pulse or equivalent.

²⁾ For bidirectional types having V_{RWM} of 10 V and less, the I_D limit is doubled.

³⁾ For bidirectional use C or CA suffix types, the electrical characteristics apply in both directions.



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