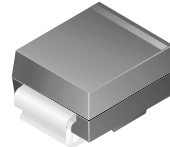




Transient Voltage Suppressors SMBJ5V0(C)A - SMBJ170(C)A

Features

- Glass passivated junction.
- 600W Peak Pulse Power capability on 10/1000 μ s waveform.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time; typically less than 1.0 ps from 0 volts to BV for unidirectional and 5.0 ns for bidirectional.
- Typical I_R less than 1.0 μ A above 10V.
- UL certificate # E326243 and E210467.



SMB/DO-214AA
COLOR BAND DENOTES CATHODE ON UNIDIRECTIONAL DEVICES ONLY. NO COLOR BAND ON BIDIRECTIONAL DEVICES.

DEVICES FOR BIPOLAR APPLICATIONS

- Bidirectional types use CA suffix.
- Electrical Characteristics apply in both directions.

600 Watt Transient Voltage Suppressors

Absolute Maximum Ratings* $T_A = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------|--|-------------|------------------|
| P_{PPM} | Peak Pulse Power Dissipation on 10/1000 μ s waveform | 600 | W |
| I_{PPM} | Peak Pulse Current on 10/1000 μ s waveform | see table | A |
| I_{FSM} | Non-repetitive Peak Forward Surge Current superimposed on rated load (JEDEC method) (Note 1) | 100 | A |
| T_{stg} | Storage Temperature Range | -55 to +150 | $^\circ\text{C}$ |
| T_J | Operating Junction Temperature | -55 to +150 | $^\circ\text{C}$ |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Note 1: Measured on 8.3 ms single half-sine wave or equivalent square wave; Duty cycle = 4 pulses per minute maximum.

SMBJ5V0(C)A - SMBJ170(C)A

Transient Voltage Suppressors

(continued)

SMBJ5V0(C)A - SMBJ170(C)A

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

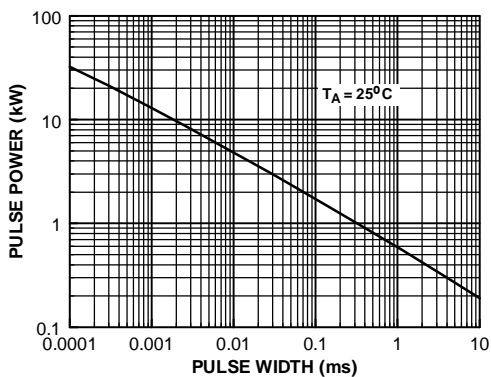
| Uni-directional Bi-directional (C) Device | Part Marking* | Reverse Stand-off Voltage V_{RWM} (V) | Breakdown Voltage V_{BR} (V) | | Test Current I_T (mA) | Clamping Voltage @ I_{PPM} V_C (V) | Peak Pulse Current I_{PPM} (A) | Reverse Leakage @ V_{RWM} I_R (uA)** |
|---|------------------|--|--------------------------------------|-------|-------------------------------|---|---|---|
| | | | min | max | | | | |
| SMBJ5V0(C)A | KE | 5.0 | 6.40 | 7.0 | 10 | 9.2 | 65.2 | 800 |
| SMBJ6V0(C)A | KG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 58.3 | 800 |
| SMBJ6V5(C)A | KK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 53.6 | 500 |
| SMBJ7V0(C)A | KM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 50.0 | 200 |
| SMBJ7V5(C)A | KP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 46.5 | 100 |
| SMBJ8V0(C)A | KR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 44.1 | 50 |
| SMBJ8V5(C)A | KT | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 41.7 | 20 |
| SMBJ9V0(C)A | KV | 9.0 | 10.0 | 11.1 | 1 | 15.4 | 39.0 | 10 |
| SMBJ10(C)A | KX | 10 | 11.1 | 12.8 | 1 | 17.0 | 35.3 | 5 |
| SMBJ11(C)A | KZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 33.0 | 5 |
| SMBJ12(C)A | LE | 12 | 13.3 | 14.7 | 1 | 19.9 | 30.2 | 5 |
| SMBJ13(C)A | LG | 13 | 14.4 | 15.9 | 1 | 21.5 | 27.9 | 5 |
| SMBJ14(C)A | LK | 14 | 15.6 | 17.2 | 1 | 23.2 | 25.9 | 5 |
| SMBJ15(C)A | LM | 15 | 16.7 | 18.5 | 1 | 24.4 | 24.6 | 5 |
| SMBJ16(C)A | LP | 16 | 17.8 | 19.7 | 1 | 26.0 | 23.1 | 5 |
| SMBJ17(C)A | LR | 17 | 18.9 | 20.9 | 1 | 27.6 | 21.7 | 5 |
| SMBJ18(C)A | LT | 18 | 20.0 | 22.1 | 1 | 29.2 | 20.5 | 5 |
| SMBJ20(C)A | LV | 20 | 22.2 | 24.5 | 1 | 32.4 | 18.5 | 5 |
| SMBJ22(C)A | LX | 22 | 24.4 | 26.9 | 1 | 35.5 | 16.9 | 5 |
| SMBJ24(C)A | LZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 15.4 | 5 |
| SMBJ26(C)A | ME | 26 | 28.9 | 31.9 | 1 | 42.1 | 14.3 | 5 |
| SMBJ28(C)A | MG | 28 | 31.1 | 34.4 | 1 | 45.4 | 13.2 | 5 |
| SMBJ30(C)A | MK | 30 | 33.3 | 36.8 | 1 | 48.4 | 12.4 | 5 |
| SMBJ33(C)A | MM | 33 | 36.7 | 40.6 | 1 | 53.3 | 11.3 | 5 |
| SMBJ36(C)A | MP | 36 | 40.0 | 44.2 | 1 | 58.1 | 10.3 | 5 |
| SMBJ40(C)A | MR | 40 | 44.4 | 49.1 | 1 | 64.5 | 9.3 | 5 |
| SMBJ43(C)A | MT | 43 | 47.8 | 52.8 | 1 | 69.4 | 8.6 | 5 |
| SMBJ45(C)A | MV | 45 | 50.0 | 55.3 | 1 | 72.7 | 8.3 | 5 |
| SMBJ48(C)A | MX | 48 | 53.3 | 58.9 | 1 | 77.4 | 7.8 | 5 |
| SMBJ51(C)A | MZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 7.3 | 5 |
| SMBJ54(C)A | NE | 54 | 60.0 | 66.3 | 1 | 87.1 | 6.9 | 5 |
| SMBJ58(C)A | NG | 58 | 64.4 | 71.2 | 1 | 93.6 | 6.4 | 5 |
| SMBJ60(C)A | NK | 60 | 66.7 | 73.7 | 1 | 96.8 | 6.2 | 5 |
| SMBJ64(C)A | NM | 64 | 71.1 | 78.6 | 1 | 103.0 | 5.8 | 5 |
| SMBJ70(C)A | NP | 70 | 77.8 | 86.0 | 1 | 113.0 | 5.3 | 5 |
| SMBJ75(C)A | NR | 75 | 83.3 | 92.1 | 1 | 121.0 | 5.0 | 5 |
| SMBJ78(C)A | NT | 78 | 86.7 | 95.8 | 1 | 126.0 | 4.8 | 5 |
| SMBJ85(C)A | NV | 85 | 94.4 | 104.0 | 1 | 137.0 | 4.4 | 5 |
| SMBJ90(C)A | NX | 90 | 100.0 | 111.0 | 1 | 146.0 | 4.1 | 5 |
| SMBJ100(C)A | NZ | 100 | 111.0 | 123.0 | 1 | 162.0 | 3.7 | 5 |
| SMBJ110(C)A | PE | 110 | 122.0 | 135.0 | 1 | 177.0 | 3.4 | 5 |
| SMBJ120(C)A | PG | 120 | 133.0 | 147.0 | 1 | 193.0 | 3.1 | 5 |
| SMBJ130(C)A | PK | 130 | 144.0 | 159.0 | 1 | 209.0 | 2.9 | 5 |
| SMBJ150(C)A | PM | 150 | 167.0 | 185.0 | 1 | 243.0 | 2.5 | 5 |
| SMBJ160(C)A | PP | 160 | 178.0 | 197.0 | 1 | 259.0 | 2.3 | 5 |
| SMBJ170(C)A | PR | 170 | 189.0 | 209.0 | 1 | 275.0 | 2.2 | 5 |

* Color band denotes cathode on unidirectional devices only. No color band on bidirectional devices.

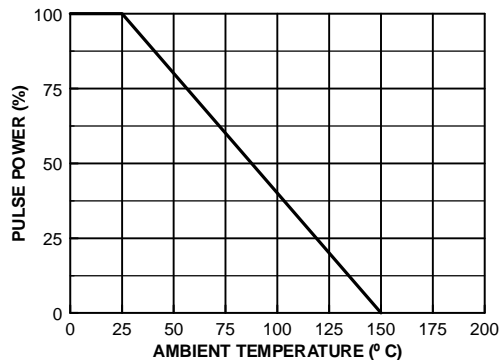
** For bidirectional parts with $V_{RWM} < 10V$, the I_R max limit is doubled.

Typical Characteristics

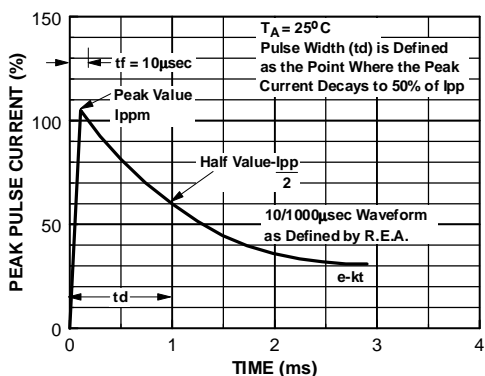
Peak Pulse Power Rating Curve



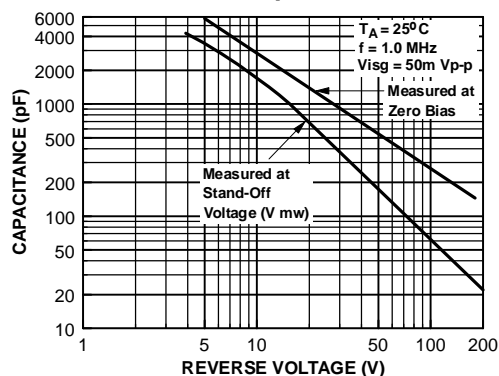
Pulse Derating Curve



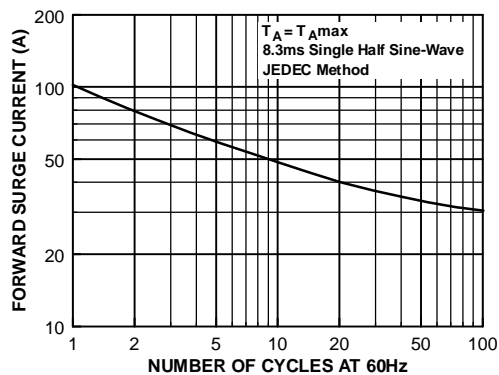
Pulse Waveform



Junction Capacitance



Non-Repetitive Surge Current



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