

V. Transient Voltage Suppressor

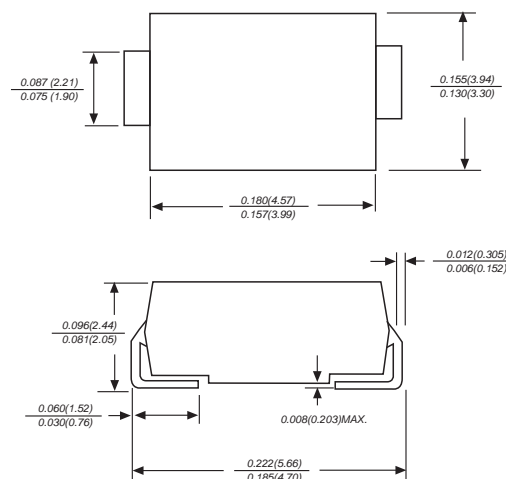
1500W Surface Mount TVS (Reverse Stand-off Voltage: 5.0~220 Volts) SMB15J Series (Package: SMB (DO-214AA))

FEATURES

- Glass passivated chip
- 1500W peak pulse power capability with a 10/1000µs waveform, repetitive rate (duty cycle): 0.01%
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with RoHS standard

MECHANICAL DATA

- Case : Molded plastic
- Lead : Solderable per MIL-STD-750, Method 2026
- Epoxy : UL 94V-0 rate flame retardant
- Polarity : Color band denotes cathode end except Bipolar
- Mounting position : Any



Case: SMB
Dimensions in inches and (millimetres)

Devices for Bi-Directional Applications

For bi-directional devices use suffix "CA" for types SMB15J5.0CA thru SMB15J180CA (e.g. SMB15J28CA)
Electrical characteristics apply in both directions.

Maximum Ratings, Thermal & Electrical Characteristics

(Ratings at 25 ambient temperature unless otherwise specified)

| Ratings | Symbol | Value | Units |
|--|-----------------------------------|----------------|-------|
| Peak power dissipation with a 10/1000µs waveform ⁽¹⁾ | P _{PPM} | 1500 | Watts |
| Peak pulse current with a 10/1000µs waveform ⁽¹⁾ | I _{PPM} | See next table | Amps |
| Power dissipation on infinite heatsink at T _L = 75 | P _D | 5.0 | Watts |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only ⁽²⁾ | I _{FSM} | 100 | Amps |
| Maximum instantaneous forward voltage at 50A for unidirectional only ⁽³⁾ | V _F | 3.5/6.5 | Volts |
| Operating junction and storage temperature range | T _j , T _{stg} | -55 to +150 | |

Note:

1. Non-repetitive current pulse per Fig.5 and derated above Ta = 25 per Fig.1
2. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3. V_F<3.5V for devices of V(BR)<200V and V_F<6.5V for devices of V(BR)>201V

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1500W Surface Mount TVS (Reverse Stand-off Voltage: 5.0~220 Volts)

SMB15J Series

(Package: SMB (DO-214AA))

| Device Type | Device Marking Code | | | Reverse Stand-off Voltage | Breakdown Voltage $V_{(BR)}$ @ I_T | | Test Current | Max. Clamping Voltage @ I_{PPM} | Max. Peak Pulse Current | Max. Reverse Leakage @ V_{RWM} |
|---------------|---------------------|----------|-----|---------------------------|--------------------------------------|---------|--------------|-----------------------------------|-------------------------|----------------------------------|
| | Option 1 | Option 2 | | | Min (V) | Max (V) | | | | |
| | Full Part Number | UNI- | BI- | V_{RWM} (V) | | | I_T (mA) | V_C Max.(V) | I_{PPM} (A) | I_R (μ A) |
| SMB15J5.0(C)A | Full PN | GDE | BDE | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 163.0 | 800 |
| SMB15J6.0(C)A | Full PN | GDG | BDG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 145.7 | 800 |
| SMB15J6.5(C)A | Full PN | GDK | BDK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 134.0 | 500 |
| SMB15J7.0(C)A | Full PN | GDM | BDM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 125.0 | 200 |
| SMB15J7.5(C)A | Full PN | GDP | BDP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 116.3 | 100 |
| SMB15J8.0(C)A | Full PN | GDR | BDR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 110.3 | 50 |
| SMB15J8.5(C)A | Full PN | GDT | BDT | 8.5 | 9.44 | 10.40 | 1 | 14.4 | 104.2 | 20 |
| SMB15J9.0(C)A | Full PN | GDV | BDV | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 97.4 | 10 |
| SMB15J10(C)A | Full PN | GDX | BDX | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 88.3 | 5 |
| SMB15J11(C)A | Full PN | GDZ | BDZ | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 82.5 | 1 |
| SMB15J12(C)A | Full PN | GEE | BEE | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 75.4 | 1 |
| SMB15J13(C)A | Full PN | GEG | BEG | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 69.8 | 1 |
| SMB15J14(C)A | Full PN | GEK | BEK | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 64.7 | 1 |
| SMB15J15(C)A | Full PN | GEM | BEM | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 61.5 | 1 |
| SMB15J16(C)A | Full PN | GEP | BEP | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 57.7 | 1 |
| SMB15J17(C)A | Full PN | GER | BER | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 54.4 | 1 |
| SMB15J18(C)A | Full PN | GET | BET | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 51.4 | 1 |
| SMB15J20(C)A | Full PN | GEV | BEV | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 46.3 | 1 |
| SMB15J22(C)A | Full PN | GEX | BEX | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 42.3 | 1 |
| SMB15J24(C)A | Full PN | GEZ | BEZ | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 38.6 | 1 |
| SMB15J26(C)A | Full PN | GFE | BFE | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 35.7 | 1 |
| SMB15J28(C)A | Full PN | GFG | BFG | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 33.1 | 1 |
| SMB15J30(C)A | Full PN | GFK | BFK | 30.0 | 33.50 | 36.80 | 1 | 48.4 | 31.0 | 1 |
| SMB15J33(C)A | Full PN | GFM | BFM | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 28.2 | 1 |
| SMB15J36(C)A | Full PN | GFP | BFP | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 25.9 | 1 |
| SMB15J40(C)A | Full PN | GFR | BFR | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 23.3 | 1 |
| SMB15J43(C)A | Full PN | GFT | BFT | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 21.7 | 1 |
| SMB15J45(C)A | Full PN | GFV | BFV | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 20.6 | 1 |
| SMB15J48(C)A | Full PN | GFX | BFX | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 19.4 | 1 |
| SMB15J51(C)A | Full PN | GFZ | BFZ | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 18.2 | 1 |
| SMB15J54(C)A | Full PN | GGE | BGE | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 17.3 | 1 |
| SMB15J58(C)A | Full PN | GGG | BGG | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 16.1 | 1 |
| SMB15J60(C)A | Full PN | GGK | BGK | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 15.5 | 1 |
| SMB15J64(C)A | Full PN | GGM | BGM | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 14.6 | 1 |
| SMB15J70(C)A | Full PN | GGP | BGP | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 13.3 | 1 |
| SMB15J75(C)A | Full PN | GGR | BGR | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 12.4 | 1 |
| SMB15J78(C)A | Full PN | GGT | BGT | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 11.9 | 1 |
| SMB15J85(C)A | Full PN | GGV | BGV | 85.0 | 94.40 | 104.0 | 1 | 137.0 | 11.0 | 1 |
| SMB15J90(C)A | Full PN | GGX | BGX | 90.0 | 100.0 | 111.0 | 1 | 146.0 | 10.3 | 1 |
| SMB15J100(C)A | Full PN | GGZ | BGZ | 100.0 | 111.0 | 123.0 | 1 | 162.0 | 9.3 | 1 |
| SMB15J110(C)A | Full PN | GHE | BHE | 110.0 | 122.0 | 135.0 | 1 | 177.0 | 8.5 | 1 |
| SMB15J120(C)A | Full PN | GHG | BHG | 120.0 | 133.0 | 147.0 | 1 | 193.0 | 7.8 | 1 |
| SMB15J130(C)A | Full PN | GHK | BHK | 130.0 | 144.0 | 159.0 | 1 | 209.0 | 7.2 | 1 |
| SMB15J150(C)A | Full PN | GHM | BHM | 150.0 | 167.0 | 185.0 | 1 | 243.0 | 6.2 | 1 |
| SMB15J160(C)A | Full PN | GHP | BHP | 160.0 | 178.0 | 197.0 | 1 | 259.0 | 5.8 | 1 |
| SMB15J170(C)A | Full PN | GHR | BHR | 170.0 | 189.0 | 209.0 | 1 | 275.0 | 5.5 | 1 |
| SMB15J180(C)A | Full PN | GHT | BHT | 180.0 | 201.0 | 222.0 | 1 | 292.0 | 5.1 | 1 |
| SMB15J190A | Full PN | GHU | | 190.0 | 209.0 | 243.0 | 1 | 308.0 | 4.8 | 1 |
| SMB15J200A | Full PN | GHV | | 200.0 | 224.0 | 247.0 | 1 | 324.0 | 4.6 | 1 |
| SMB15J210A | Full PN | GHW | | 210.0 | 231.0 | 268.0 | 1 | 340.0 | 4.4 | 1 |
| SMB15J220A | Full PN | GHX | | 220.0 | 246.0 | 272.0 | 1 | 356.0 | 4.2 | 1 |

<http://patron-components.com/>

Ratings and Characteristic Curves of SMB15J Series

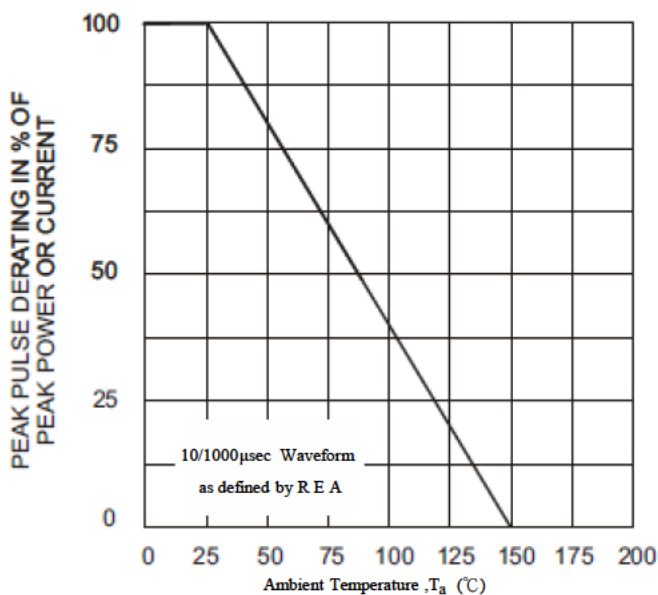


Fig. 1 - Pulse Derating Curve

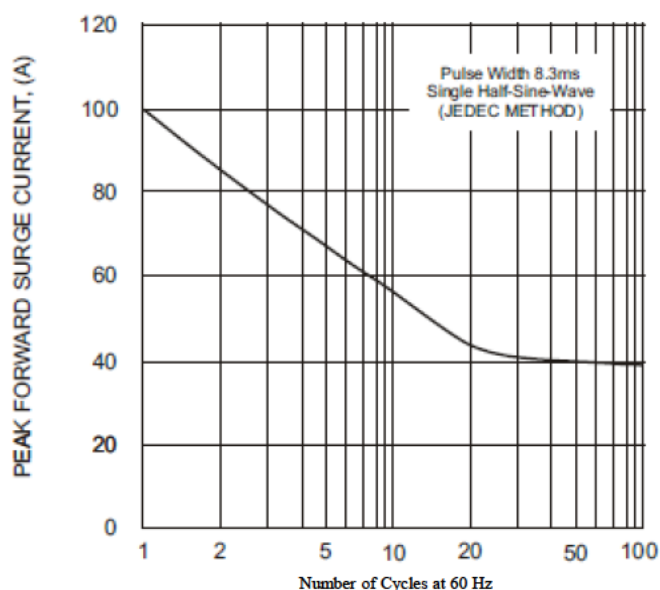


Fig. 2 - Maximum Non-Repetitive Surge Current

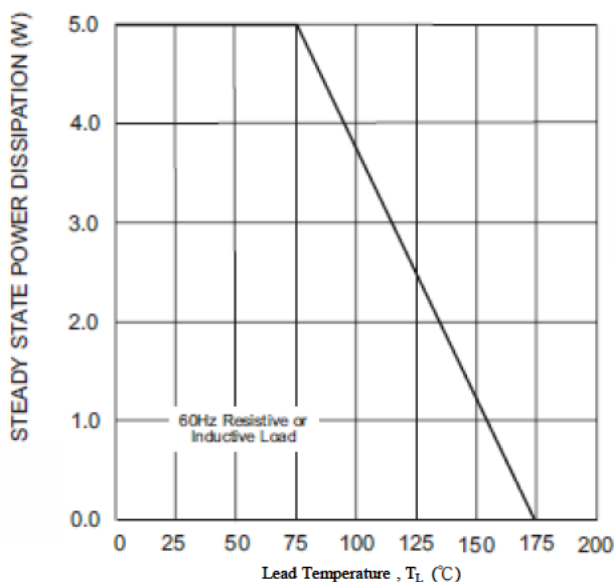


Fig. 3 - Steady State Power Derating Curve

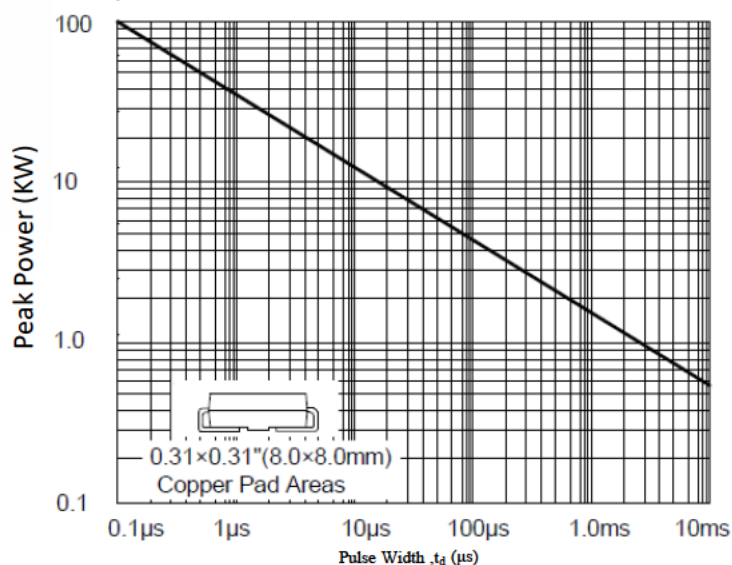


Fig. 4 - Peak Pulse Power Rating Curve

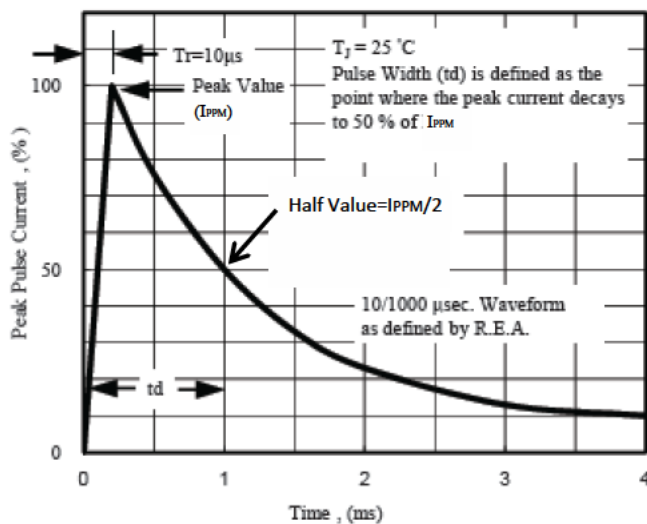


Fig. 5 - Pulse Waveform

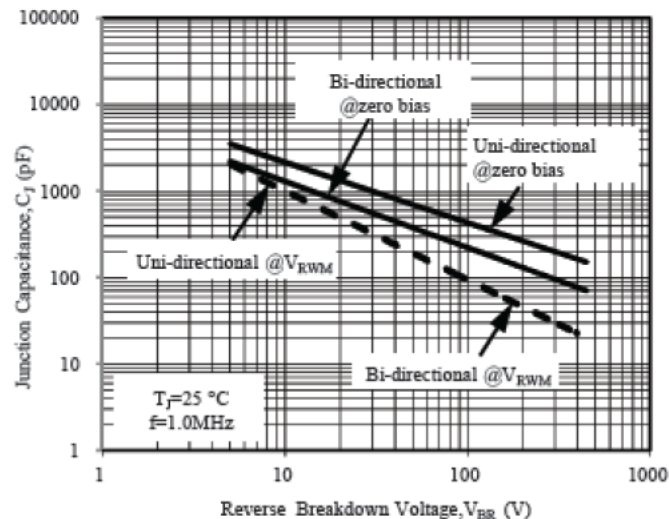


Fig. 6 - Typical Junction Capacitance