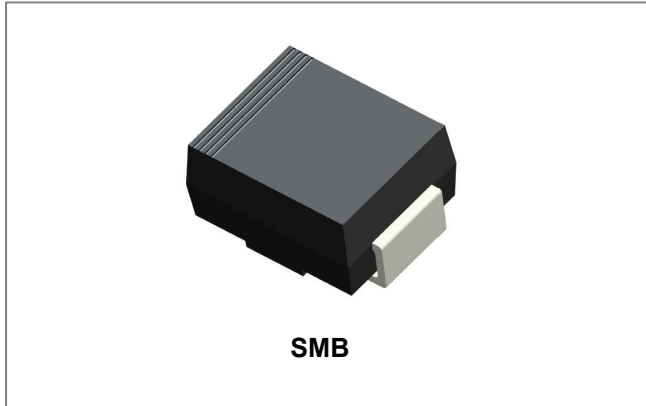


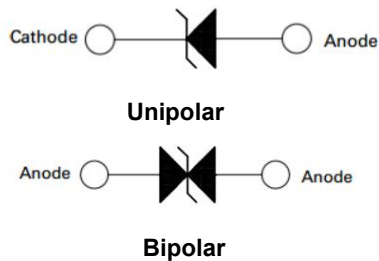
SMBJ SERIES SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



Features

- Glass Passivated Die Construction
- 600W Peak Pulse Power Dissipation
- 5.0V- 200V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability Classification Rating 94V-0
- “-A” is an AEC-Q101 qualified device
- RoHS Compliant
- All SMC Parts are Traceable to the Wafer Lot
- Additional testing can be offered upon request

Circuit Diagram



Mechanical Data

- Case: SMB Low Profile Molded Plastic
- Terminals: Solder Plated , Solderable per MIL-STD 750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Weight:0.093 grams(approx.)

Maximum Ratings and Thermal Characteristics@ $T_A=25^{\circ}\text{C}$ unless otherwise specified

| Parameter | Symbol | Value | Units |
|--|-----------------|------------|----------------------|
| Peak Pulse Power Dissipation at $T_A=25^{\circ}\text{C}$ by 10x1000 μs Waveform (Fig.1)(Note 1), (Note 2) | P_{PPM} | 600 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2),(Note 3) | I_{FSM} | 100 | A |
| Typical Thermal Resistance Junction to Lead | $R_{\theta JL}$ | 20 | $^{\circ}\text{C/W}$ |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 100 | $^{\circ}\text{C/W}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to 150 | $^{\circ}\text{C}$ |

- Notes:**
1. Non-repetitive current pulse , per Fig. 3 and derated above $T_A = 25^{\circ}\text{C}$ per Fig. 2.
 2. Mounted on 5.0mm² (0.013mm thick) land areas.
 3. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4pulses per minute maximum.



SMBJ SERIES

Technical Data
Data Sheet N0193, Rev. D

Automotive Qualified

Electrical Characteristics @T_A=25°C unless otherwise specified

| UNI-POLAR | BI-POLAR | DEVICE MARKING CODE | | REVERSE STAND-OFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE VBR (V) MIN. @IT | BREAKDOWN VOLTAGE VBR (V) MAX. @IT | TEST CURRENT IT(MA) | MAXIMUM CLAMPING VOLTAGE @IPP VC(V) | PEAK PULSE CURRENT IPP(A) | REVERSE LEAKAGE @VRWM IR(uA) |
|-----------|-----------|---------------------|----|------------------------------------|------------------------------------|------------------------------------|---------------------|-------------------------------------|---------------------------|------------------------------|
| | | UNI | BI | | | | | | | |
| SMBJ5.0A | SMBJ5.0CA | KE | AE | 5 | 6.4 | 7 | 10 | 9.2 | 65.3 | 800 |
| SMBJ6.0A | SMBJ6.0CA | KG | AG | 6 | 6.67 | 7.37 | 10 | 10.3 | 58.3 | 800 |
| SMBJ6.5A | SMBJ6.5CA | KK | AK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 53.6 | 500 |
| SMBJ7.0A | SMBJ7.0CA | KM | AM | 7 | 7.78 | 8.6 | 10 | 12 | 50 | 200 |
| SMBJ7.5A | SMBJ7.5CA | KP | AP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 46.6 | 100 |
| SMBJ8.0A | SMBJ8.0CA | KR | AR | 8 | 8.89 | 9.83 | 1 | 13.6 | 44.2 | 50 |
| SMBJ8.5A | SMBJ8.5CA | KT | AT | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 41.7 | 20 |
| SMBJ9.0A | SMBJ9.0CA | KV | AV | 9 | 10 | 11.1 | 1 | 15.4 | 39 | 10 |
| SMBJ10A | SMBJ10CA | KX | AX | 10 | 11.1 | 12.3 | 1 | 17 | 35.3 | 5 |
| SMBJ11A | SMBJ11CA | KZ | AZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 33 | 5 |
| SMBJ12A | SMBJ12CA | LE | BE | 12 | 13.3 | 14.7 | 1 | 19.9 | 30.2 | 5 |
| SMBJ13A | SMBJ13CA | LG | BG | 13 | 14.4 | 15.9 | 1 | 21.5 | 28 | 5 |
| SMBJ14A | SMBJ14CA | LK | BK | 14 | 15.6 | 17.2 | 1 | 23.2 | 25.9 | 5 |
| SMBJ15A | SMBJ15CA | LM | BM | 15 | 16.7 | 18.5 | 1 | 24.4 | 24.6 | 5 |
| SMBJ16A | SMBJ16CA | LP | BP | 16 | 17.8 | 19.7 | 1 | 26 | 23.1 | 5 |
| SMBJ17A | SMBJ17CA | LR | BR | 17 | 18.9 | 20.9 | 1 | 27.6 | 21.8 | 5 |
| SMBJ18A | SMBJ18CA | LT | BT | 18 | 20 | 22.1 | 1 | 29.2 | 20.6 | 5 |
| SMBJ20A | SMBJ20CA | LV | BV | 20 | 22.2 | 24.5 | 1 | 32.4 | 18.6 | 5 |
| SMBJ22A | SMBJ22CA | LX | BX | 22 | 24.4 | 26.9 | 1 | 35.5 | 16.9 | 5 |
| SMBJ24A | SMBJ24CA | LZ | BZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 15.5 | 5 |
| SMBJ26A | SMBJ26CA | ME | CE | 26 | 28.9 | 31.9 | 1 | 42.1 | 14.3 | 5 |
| SMBJ28A | SMBJ28CA | MG | CG | 28 | 31.1 | 34.4 | 1 | 45.4 | 13.3 | 5 |
| SMBJ30A | SMBJ30CA | MK | CK | 30 | 33.3 | 36.8 | 1 | 48.4 | 12.4 | 5 |
| SMBJ33A | SMBJ33CA | MM | CM | 33 | 36.7 | 40.6 | 1 | 53.3 | 11.3 | 5 |
| SMBJ36A | SMBJ36CA | MP | CP | 36 | 40 | 44.2 | 1 | 58.1 | 10.4 | 5 |
| SMBJ40A | SMBJ40CA | MR | CR | 40 | 44.4 | 49.1 | 1 | 64.5 | 9.3 | 5 |
| SMBJ43A | SMBJ43CA | MT | CT | 43 | 47.8 | 52.8 | 1 | 69.4 | 8.7 | 5 |
| SMBJ45A | SMBJ45CA | MV | CV | 45 | 50 | 55.3 | 1 | 72.7 | 8.3 | 5 |
| SMBJ48A | SMBJ48CA | MX | CX | 48 | 53.3 | 58.9 | 1 | 77.4 | 7.8 | 5 |
| SMBJ51A | SMBJ51CA | MZ | CZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 7.3 | 5 |
| SMBJ54A | SMBJ54CA | NE | DE | 54 | 60 | 66.3 | 1 | 87.1 | 6.9 | 5 |
| SMBJ58A | SMBJ58CA | NG | DG | 58 | 64.4 | 71.2 | 1 | 93.6 | 6.5 | 5 |
| SMBJ60A | SMBJ60CA | NK | DK | 60 | 66.7 | 73.7 | 1 | 96.8 | 6.2 | 5 |
| SMBJ64A | SMBJ64CA | NM | DM | 64 | 71.1 | 78.6 | 1 | 103 | 5.9 | 5 |
| SMBJ70A | SMBJ70CA | NP | DP | 70 | 77.8 | 86 | 1 | 113 | 5.3 | 5 |
| SMBJ75A | SMBJ75CA | NR | DR | 75 | 83.3 | 92.1 | 1 | 121 | 5 | 5 |
| SMBJ78A | SMBJ78CA | NT | DT | 78 | 86.7 | 95.8 | 1 | 126 | 4.8 | 5 |
| SMBJ85A | SMBJ85CA | NV | DV | 85 | 94.4 | 104 | 1 | 137 | 4.4 | 5 |
| SMBJ90A | SMBJ90CA | NX | DX | 90 | 100 | 111 | 1 | 146 | 4.1 | 5 |
| SMBJ100A | SMBJ100CA | NZ | DZ | 100 | 111 | 123 | 1 | 162 | 3.7 | 5 |
| SMBJ110A | SMBJ110CA | PE | EE | 110 | 122 | 135 | 1 | 177 | 3.4 | 5 |
| SMBJ120A | SMBJ120CA | PG | EG | 120 | 133 | 147 | 1 | 193 | 3.1 | 5 |
| SMBJ130A | SMBJ130CA | PK | EK | 130 | 144 | 159 | 1 | 209 | 2.9 | 5 |
| SMBJ150A | SMBJ150CA | PM | EM | 150 | 167 | 185 | 1 | 243 | 2.5 | 5 |
| SMBJ160A | SMBJ160CA | PP | EP | 160 | 178 | 197 | 1 | 259 | 2.3 | 5 |
| SMBJ170A | SMBJ170CA | PR | ER | 170 | 189 | 209 | 1 | 275 | 2.2 | 5 |
| SMBJ180A | SMBJ180CA | PT | ET | 180 | 201 | 222 | 1 | 292 | 2.1 | 1 |
| SMBJ200A | SMBJ200CA | PV | EV | 200 | 224 | 247 | 1 | 324 | 1.9 | 1 |

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Ratings and Characteristics Curves



Fig. 1 Pulse Derating Curve

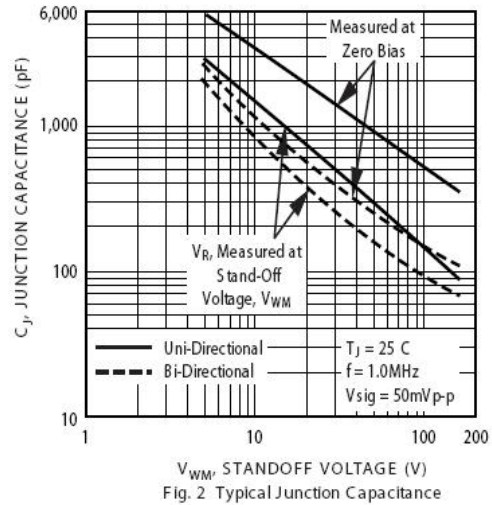


Fig. 2 Typical Junction Capacitance

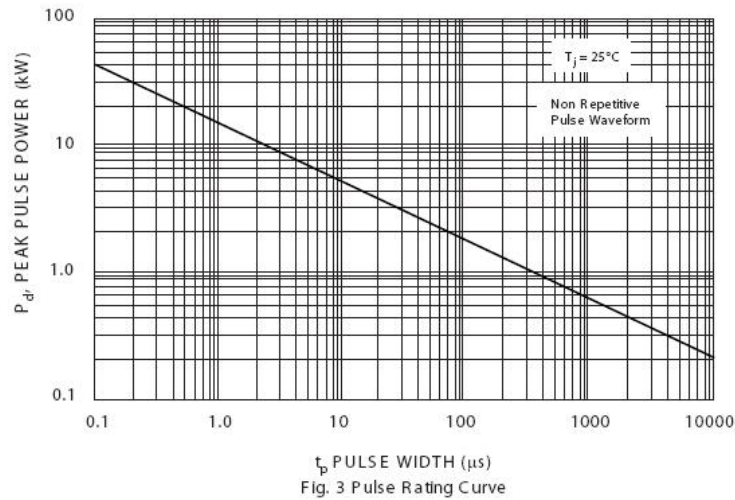


Fig. 3 Pulse Rating Curve

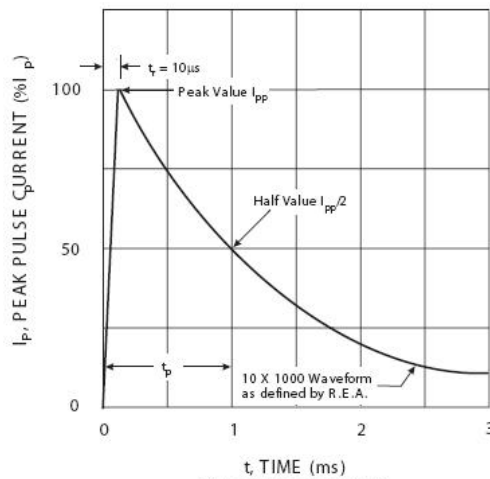
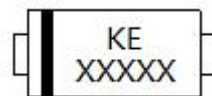


Fig. 4 Pulse Waveform

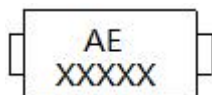
Ordering Information

| Device | Package | Shipping |
|----------------|---------------|----------------|
| SMBJ SERIES | SMB (Pb-Free) | 3000pcs / reel |
| SMBJ SERIES TR | SMB (Pb-Free) | 3000pcs / reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

Marking Diagram


SMBJ5.0A

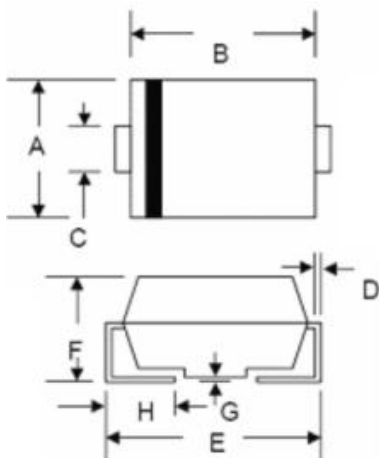


SMBJ5.0CA

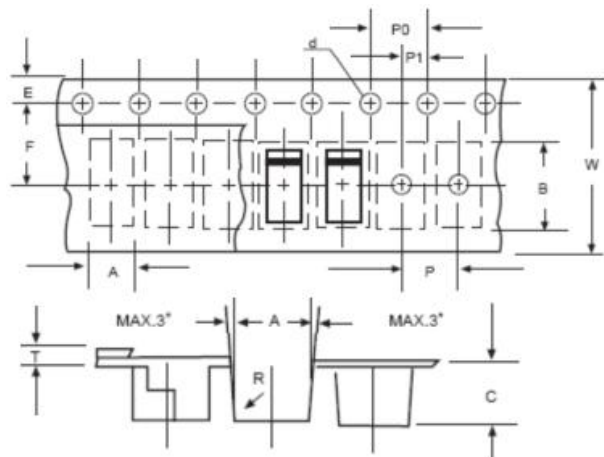
Where XXXXX is YYWWL

 KE/AE = Marking code
 YY = Year
 WW = Week
 L = Lot Number

Cautions: Molding resin
 Epoxy resin UL:94V-0

Mechanical Dimensions SMB


| Dim. | SMB/DO-214AA | | | |
|------|----------------|-------|-----------|-------|
| | Min. | Max. | Min. | Max. |
| A | 3.30 | 3.94 | 0.130 | 0.155 |
| B | 4.06 | 4.70 | 0.160 | 0.185 |
| C | 1.80 | 2.20 | 0.071 | 0.087 |
| D | 0.152 | 0.305 | 0.006 | 0.012 |
| E | 4.80 | 5.59 | 0.189 | 0.220 |
| F | 2.10 | 2.60 | 0.083 | 0.102 |
| G | 0.051 | 0.203 | 0.002 | 0.008 |
| H | 0.76 | 1.52 | 0.030 | 0.060 |
| | In Millimeters | | In inches | |

Carrier Tape Specification SMB


| SYMBOL | Millimeters | |
|--------|-------------|-------|
| | Min. | Max. |
| A | 3.99 | 4.19 |
| B | 5.72 | 5.92 |
| C | 3.23 | 3.43 |
| d | 1.40 | 1.60 |
| E | 1.40 | 1.60 |
| F | 5.60 | 5.70 |
| P | 7.90 | 8.10 |
| P0 | 3.90 | 4.10 |
| P1 | 1.90 | 2.10 |
| T | - | 0.60 |
| W | 11.80 | 12.20 |



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