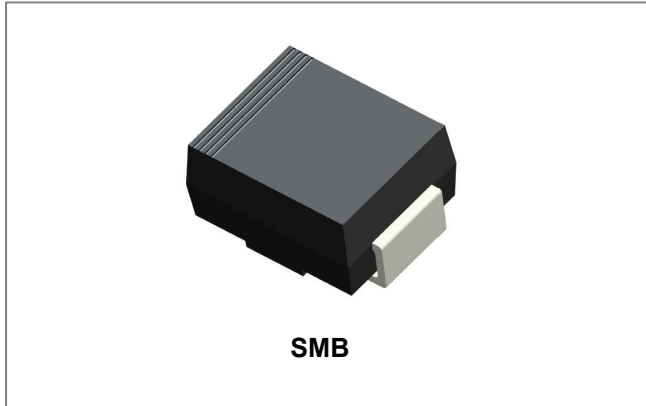


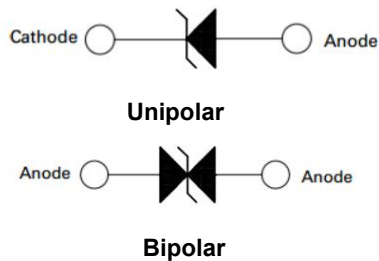
## SMBJ SERIES SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



### 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 $\mu\text{s}$ 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 5.0mm<sup>2</sup> (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<sub>A</sub>=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

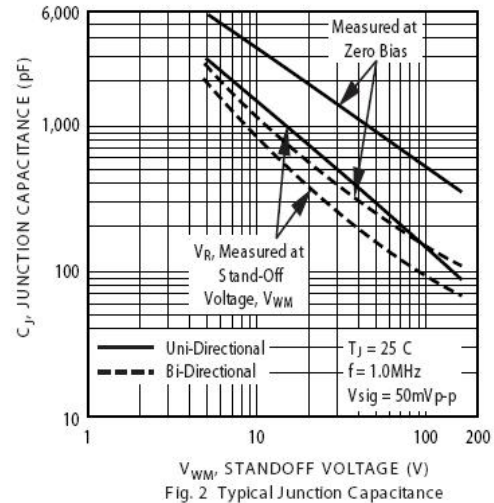


Fig. 2 Typical Junction Capacitance

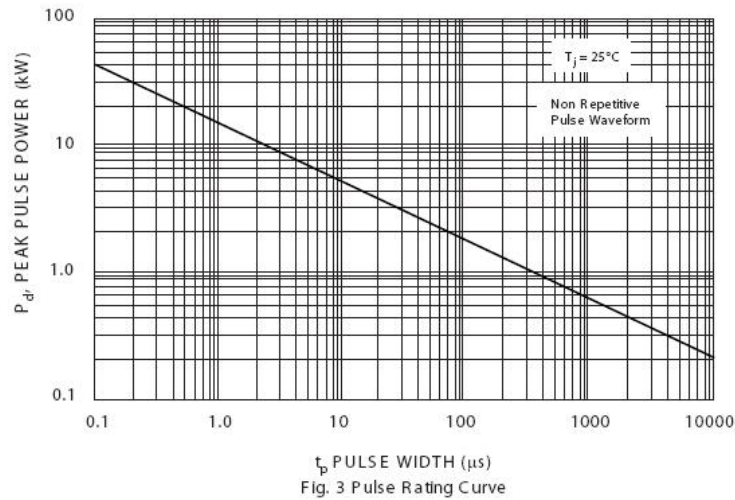


Fig. 3 Pulse Rating Curve

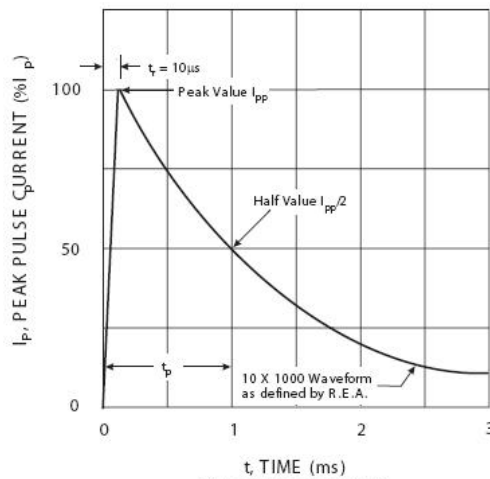
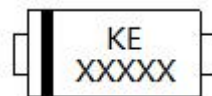


Fig. 4 Pulse Waveform

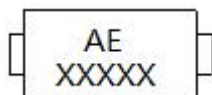
**Ordering Information**

| 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

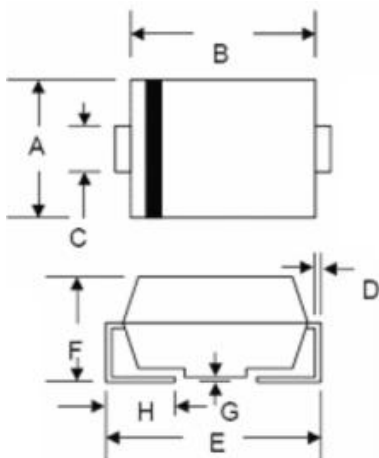


SMBJ5.0CA

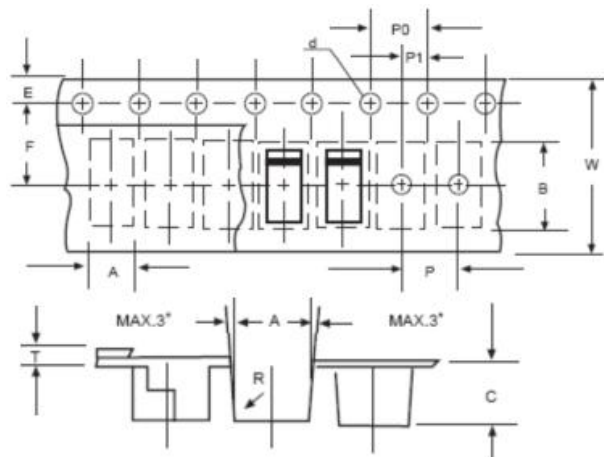
Where XXXXX is YYWWL

 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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