

### FEATURES

- \* For surface mount application
- \* Built-in strain relief
- \* Excellent clamping capability
- \* Low profile package
- \* Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- \* Typical I<sub>r</sub> less than 1 A above 10V
- \* High temperature soldering guaranteed: 260°C / 10 seconds at terminals

### MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end except Bidirectional
- \* Mounting position: Any
- \* Weight: 0.093 grams

### VOLTAGE RANGE

5.0 to 440 Volts

600 Watts Peak Power

#### DO-214AA(SMB)



Dimensions in inches and (millimeters)

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.  
 Single phase half wave, 60Hz, resistive or inductive load.  
 For capacitive load, derate current by 20%.

| RATINGS  | SYMBOL                            | VALUE       | UNITS |
|--|-----------------------------------|-------------|-------|
| Peak Power Dissipation at T <sub>A</sub> =25°C, T <sub>P</sub> =1ms(NOTE 1)                                  | P <sub>PK</sub>                   | Minimum 600 | Watts |
| Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3) | I <sub>FSM</sub>                  | 100         | Amps  |
| Maximum Instantaneous Forward Voltage at 35.0A for Unidirectional only                                       | V <sub>F</sub>                    | 3.5         | Volts |
| Operating and Storage Temperature Range  | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C    |

#### NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above T<sub>A</sub>=25°C per Fig. 2.
2. Mounted on Copper Pad area of 5.0mm<sup>2</sup>(.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

### DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types SMBJ5.0 thru SMBJ170.
2. Electrical characteristics apply in both directions.

## RATING AND CHARACTERISTIC CURVES (SMBJ SERIES)

FIG.1-PEAK PULSE POWER DERATING CURVE



FIG.2-PULSE DERATING CURVE



FIG.3-PULSE WAVE FORM



FIG.4-TYPICAL JUNCTION CAPACITANCE



FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



# 600 Watt Surface Mount TVS

| PART NUMBER<br>ADD C FOR BI-<br>DIRECTIONAL | REVERSE<br>STAND-OFF<br>VOLTAGE<br>VRWM (V) | BREAKDOWN<br>VOLTAGE<br>VBR (V)<br>MIN. @IT | BREAKDOWN<br>VOLTAGE<br>VBR (V)<br>MAX. @IT | TEST<br>CURRENT<br>IT<br>(mA) | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>@Ipp Vc (V) | PEAK<br>PULSE<br>CURRENT<br>Ipp (A) | REVERSE<br>LEAKAGE<br>@ VRWM<br>IR( A) | MARKING<br>CODE |    |
|---|---|---|---|-------------------------------|---|-------------------------------------|--|-----------------|----|
|   |   |   |   |                               |   |                                     |  | UNI             | BI |
| SMBJ5.0(C)A                                 | 5.0   | 6.40  | 7.25  | 10                            | 9.2   | 65.2                                | 800                                    | KE              | KE |
| SMBJ6.0(C)A                                 | 6.0   | 6.67  | 7.67  | 10                            | 10.3  | 58.3                                | 800                                    | KG              | KG |
| SMBJ6.5(C)A                                 | 6.5   | 7.22  | 8.30  | 10                            | 11.2  | 53.6                                | 500                                    | KK              | AK |
| SMBJ7.0(C)A                                 | 7.0   | 7.78  | 8.95  | 10                            | 12.0  | 50.0                                | 200                                    | KM              | KM |
| SMBJ7.5(C)A                                 | 7.5   | 8.33  | 9.58  | 1                             | 12.9  | 46.5                                | 100                                    | KP              | AP |
| SMBJ8.0(C)A                                 | 8.0   | 8.89  | 10.23                                       | 1                             | 13.6  | 44.1                                | 50                                     | KR              | AR |
| SMBJ8.5(C)A                                 | 8.5   | 9.44  | 10.82                                       | 1                             | 14.4  | 41.7                                | 10                                     | KT              | AT |
| SMBJ9.0(C)A                                 | 9.0   | 10.0  | 11.50                                       | 1                             | 15.4  | 39.0                                | 5                                      | KV              | AV |
| SMBJ10(C)A                                  | 10  | 11.1  | 12.80                                       | 1                             | 17.0  | 35.3                                | 5                                      | KX              | AX |
| SMBJ11(C)A                                  | 11  | 12.2  | 14.00                                       | 1                             | 18.2  | 33.0                                | 5                                      | KZ              | KZ |
| SMBJ12(C)A                                  | 12  | 13.3  | 15.30                                       | 1                             | 19.9  | 30.2                                | 5                                      | LE              | BE |
| SMBJ13(C)A                                  | 13  | 14.4  | 16.50                                       | 1                             | 21.5  | 27.9                                | 5                                      | LG              | LG |
| SMBJ14(C)A                                  | 14  | 15.6  | 17.90                                       | 1                             | 23.2  | 25.8                                | 5                                      | LK              | BK |
| SMBJ15(C)A                                  | 15  | 16.7  | 19.20                                       | 1                             | 24.4  | 24.0                                | 5                                      | LM              | BM |
| SMBJ16(C)A                                  | 16  | 17.8  | 20.50                                       | 1                             | 26.0  | 23.1                                | 5                                      | LP              | LM |
| SMBJ17(C)A                                  | 17  | 18.9  | 21.70                                       | 1                             | 27.6  | 21.7                                | 5                                      | LR              | LR |
| SMBJ18(C)A                                  | 18  | 20.0  | 23.30                                       | 1                             | 29.2  | 20.5                                | 5                                      | LT              | BT |
| SMBJ20(C)A                                  | 20  | 22.2  | 25.50                                       | 1                             | 32.4  | 18.5                                | 5                                      | LV              | LV |
| SMBJ22(C)A                                  | 22  | 24.4  | 28.00                                       | 1                             | 35.5  | 16.9                                | 5                                      | LX              | BX |
| SMBJ24(C)A                                  | 24  | 26.7  | 30.70                                       | 1                             | 38.9  | 15.4                                | 5                                      | LZ              | BZ |
| SMBJ26(C)A                                  | 26  | 28.9  | 33.20                                       | 1                             | 42.1  | 14.2                                | 5                                      | ME              | CE |
| SMBJ28(C)A                                  | 28  | 31.1  | 35.80                                       | 1                             | 45.4  | 13.2                                | 5                                      | MG              | MG |
| SMBJ30(C)A                                  | 30  | 33.3  | 38.30                                       | 1                             | 48.4  | 12.4                                | 5                                      | MK              | CK |
| SMBJ33(C)A                                  | 33  | 36.7  | 42.20                                       | 1                             | 53.3  | 11.3                                | 5                                      | MM              | CM |
| SMBJ36(C)A                                  | 36  | 40.0  | 46.00                                       | 1                             | 58.1  | 10.3                                | 5                                      | MP              | CP |
| SMBJ40(C)A                                  | 40  | 44.4  | 51.10                                       | 1                             | 64.5  | 9.3                                 | 5                                      | MR              | CR |
| SMBJ43(C)A                                  | 43  | 47.8  | 54.90                                       | 1                             | 69.4  | 8.6                                 | 5                                      | MT              | CT |
| SMBJ45(C)A                                  | 45  | 50.0  | 57.50                                       | 1                             | 72.7  | 8.3                                 | 5                                      | MV              | MV |
| SMBJ48(C)A                                  | 48  | 53.3  | 61.30                                       | 1                             | 77.4  | 7.7                                 | 5                                      | MX              | MX |
| SMBJ51(C)A                                  | 51  | 56.7  | 65.20                                       | 1                             | 82.4  | 7.3                                 | 5                                      | MZ              | MZ |
| SMBJ54(C)A                                  | 54  | 60.0  | 69.00                                       | 1                             | 87.1  | 6.9                                 | 5                                      | NE              | NE |
| SMBJ58(C)A                                  | 58  | 64.4  | 74.10                                       | 1                             | 93.6  | 6.4                                 | 5                                      | NG              | NG |

# 600 Watt Surface Mount TVS

| PART NUMBER<br>ADD C FOR BI-DIRECTIONAL | REVERSE STAND-OFF VOLTAGE<br>VRWM (V) | BREAKDOWN VOLTAGE VBR (V)<br>MIN. @IT | BREAKDOWN VOLTAGE VBR (V)<br>MAX. @IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ VRWM IR( A) | MARKING CODE |    |
|---|---------------------------------------|---------------------------------------|---------------------------------------|----------------------|--------------------------------------|----------------------------|-------------------------------|--------------|----|
|   |                                       |                                       |                                       |                      |                                      |                            |                               | UNI          | BI |
| See Note 1                              |                                       |                                       |                                       |                      |                                      |                            |                               |              |    |
| SMBJ60(C)A                              | 60                                    | 66.7                                  | 76.7                                  | 1                    | 96.8                                 | 6.2                        | 5                             | NK           | NK |
| SMBJ64(C)A                              | 64                                    | 71.1                                  | 81.8                                  | 1                    | 103                                  | 5.8                        | 5                             | NM           | NM |
| SMBJ70(C)A                              | 70                                    | 77.8                                  | 89.5                                  | 1                    | 113                                  | 5.3                        | 5                             | NP           | NP |
| SMBJ75(C)A                              | 75                                    | 83.3                                  | 95.8                                  | 1                    | 121                                  | 4.9                        | 5                             | NR           | NR |
| SMBJ78(C)A                              | 78                                    | 86.7                                  | 99.7                                  | 1                    | 126                                  | 4.7                        | 5                             | NT           | NT |
| SMBJ85(C)A                              | 85                                    | 94.4                                  | 108.2                                 | 1                    | 137                                  | 4.4                        | 5                             | NV           | NV |
| SMBJ90(C)A                              | 90                                    | 100                                   | 115.5                                 | 1                    | 146                                  | 4.1                        | 5                             | NX           | NX |
| SMBJ100(C)A                             | 100                                   | 111                                   | 128.0                                 | 1                    | 162                                  | 3.7                        | 5                             | NZ           | NZ |
| SMBJ110(C)A                             | 110                                   | 122                                   | 140.5                                 | 1                    | 177                                  | 3.4                        | 5                             | PE           | PE |
| SMBJ120(C)A                             | 120                                   | 133                                   | 153.0                                 | 1                    | 193                                  | 3.1                        | 5                             | PG           | PG |
| SMBJ130(C)A                             | 130                                   | 144                                   | 165.5                                 | 1                    | 209                                  | 2.9                        | 5                             | PK           | PK |
| SMBJ150(C)A                             | 150                                   | 167                                   | 192.5                                 | 1                    | 243                                  | 2.5                        | 5                             | PM           | PM |
| SMBJ160(C)A                             | 160                                   | 178                                   | 205.0                                 | 1                    | 259                                  | 2.3                        | 5                             | PP           | PP |
| SMBJ170(C)A                             | 170                                   | 189                                   | 217.5                                 | 1                    | 275                                  | 2.2                        | 5                             | PR           | PR |
| SMBJ188(C)A                             | 188                                   | 209                                   | 231.0                                 | 1                    | 308                                  | 2.0                        | 5                             | PS           | PS |
| SMBJ200(C)A                             | 200                                   | 224                                   | 247                                   | 1                    | 324                                  | 1.9                        | 5                             | PV           | EV |
| SMBJ220(C)A                             | 220                                   | 246                                   | 272                                   | 1                    | 356                                  | 1.7                        | 5                             | PX           | EX |
| SMBJ250(C)A                             | 250                                   | 279                                   | 309                                   | 1                    | 405                                  | 1.5                        | 5                             | PZ           | EZ |
| SMBJ300(C)A                             | 300                                   | 335                                   | 371                                   | 1                    | 486                                  | 1.3                        | 5                             | PE           | FE |
| SMBJ350(C)A                             | 350                                   | 391                                   | 432                                   | 1                    | 567                                  | 1.1                        | 5                             | PG           | FG |
| SMBJ400(C)A                             | 400                                   | 447                                   | 494                                   | 1                    | 648                                  | 0.9                        | 5                             | PK           | FK |
| SMBJ440(C)A                             | 440                                   | 492                                   | 543                                   | 1                    | 713                                  | 0.9                        | 5                             | PM           | FM |

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