



**TSMBJ1005C  
 thru  
 TSMBJ1027C**

**Features**

- Bidirectional Transient Voltage Protection
- Surge Capabilities up to 100 Amps @ 10/1000ms or 300 Amps @ 8/20µs (note 2, 5)
- Initial Breakdown Voltages from 60 to 335 Volts
- Positive Resistance Breakover Voltages from 100 to 440 Volts
- Clamping speeds of Nanoseconds
- Oxide-Glass Passivated Junctions
- High Off-State Impedance (low leakage) and Low On-State Voltage (crowbar action)
- Encapsulating material meets UL94VO Requirements
- UL497B Recognized/ UL File No. E152273
- ISO9001 Certified

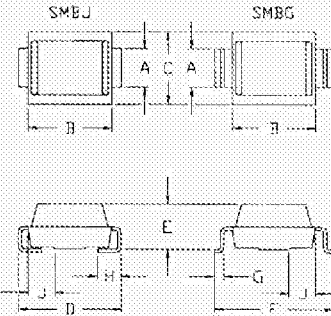
**Bi-Directional  
 100 Amp  
 50-270 Volts  
 Thyristor Surge  
 Protective Device  
 (TSPD)**

**Maximum Ratings**

- Operating Temperature: -40°C to + 150°C (note 5)
- Storage Temperature: -65°C to + 150°C
- Repetitive Off-State Voltage (both directions): See Electrical Characteristics for V<sub>DRM</sub>
- Non-Repetitive Peak Impulse Current (I<sub>PP</sub>): 100 A @ 10/1000µs or 300 A @ 8/20µs (note 5)
- Non-Repetitive Peak On-State Current (I<sub>SM</sub>) @ 8.3ms (one-half cycle); 50 Amps

**MECHANICAL  
 CHARACTERISTICS**

CASE STYLE: SMBJ (DO-214AA)  
 and SMBG (DO-215AA)



|   | INCHES<br>MIN/MAX | MILLIMETERS<br>MIN/MAX |
|---|-------------------|------------------------|
| A | 0.77/0.83         | 1.96/2.10              |
| B | .160/.180         | 4.06/4.57              |
| C | .130/.155         | 3.30/3.94              |
| D | .285/.226         | 5.21/5.39              |
| E | .075/.095         | 1.91/2.41              |
| F | .235/.255         | 5.97/6.48              |
| G | .015/.030         | 0.38/0.76              |
| H | .030/.060         | 0.76/1.52              |
| J | .038/.058         | 0.97/1.47              |

**ADDITIONAL PACKAGE STYLES:**  
 For other package styles contact Microsemi  
 Scottsdale's TSPD Group for detail package  
 dimensions.  
**LEAD FINISH:** Solder Dip or Lead Tin Plate  
**POLARITY:** Bi-directional

**Electrical Characteristics @ 25°C Unless otherwise specified**

| Part Number<br>(see note 6) | Rated Peak<br>Pulse<br>Current<br>100 Amps<br>@ 10/1000ms | Rated<br>Repetitive<br>Off-State<br>Voltage<br>(see note 3)<br>V <sub>DRM</sub> | Off-State<br>Leakage<br>Current<br>@ V <sub>DRM</sub><br>I <sub>ORM</sub> | Breakdown<br>Voltage<br>@ I <sub>BR</sub> = 1mA<br>(see note 4)<br>V <sub>BR</sub> | Breakover<br>Voltage<br>(see note 1)<br>V <sub>(BO)</sub> | On-State<br>Voltage<br>@ I <sub>T</sub> = 1A<br>(pulsed)<br>V <sub>T</sub> | Holding Current      |                      | Capacitance<br>(1 MHz)      |                               |
|-----------------------------|---|---|---|--|---|--|----------------------|----------------------|-----------------------------|-------------------------------|
|                             |   |   |   |  |   |  | I <sub>H</sub><br>mA | I <sub>h</sub><br>mA | C <sub>o</sub><br>@0v<br>pF | C <sub>o</sub><br>@ 50V<br>pF |
|                             |   | MAX.  | MAX.  | MIN.   | MAX.  | MAX.   | MIN.                 | MAX.                 | MAX.                        | MAX.                          |
| TSMBJ1005C                  | 50  | 50  | 5   | 60   | 100   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1006C                  | 60  | 60  | 5   | 70   | 110   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1007C                  | 70  | 70  | 5   | 85   | 145   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1009C                  | 90  | 90  | 5   | 115  | 185   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1010C                  | 100   | 100   | 5   | 125  | 200   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1011C                  | 110   | 110   | 5   | 135  | 210   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1012C                  | 120   | 120   | 5   | 150  | 215   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1014C                  | 140   | 140   | 5   | 175  | 250   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1016C                  | 160   | 160   | 5   | 190  | 265   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1018C                  | 180   | 180   | 5   | 220  | 300   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1022C                  | 220   | 220   | 5   | 275  | 350   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1024C                  | 240   | 240   | 5   | 300  | 400   | 3.5  | 150                  | 750                  | 200                         | 100                           |
| TSMBJ1027C                  | 270   | 270   | 5   | 335  | 440   | 3.5  | 150                  | 750                  | 200                         | 100                           |

Consult factory for additional voltage and holding current tolerance options.

**NOTES:**

1. For rise times less than 1 kV/ms. For very fast times up to 1kV/ms, V<sub>(BO)</sub> will be 110% of V<sub>(BO)</sub> Max.. The Max. I<sub>(BO)</sub> is 750mA.
2. Critical rate of rise of On-State current is 100A/ms Max.
3. Maximum rate of rise of Off-State voltage V<sub>DRM</sub> that will not trigger device is 5kV/ms (T<sub>J</sub> = 70°C).
4. Breakdown voltage V<sub>BR</sub> has a positive temperature coefficient of + 0.1%/°C
5. Above 70°C, derate linearly to zero @ 150°C lead temperature.
6. For different packages or die options replace part number prefix as follows:  
 "TSMBJ" for surface mount DO-214AA with J-bend (as shown)  
 "TSMBG" for surface mount DO-215AA with Gull Wing  
 "TSH" for DO-13 hermetic axial lead metal package  
 "TSF" for T-18 axial lead plastic  
 "TSEP" for Case 1 axial, 0.040" diameter leads  
 "TSES" for Case 2 axial, 0.030" diameter leads  
 "TCD" for cellular die package  
 "TCH" for chip equivalent in hybrid applications

Contact Microsemi Scottsdale's TSPD Group for detail package dimensions.