

### Features

- For Surface Mount Applications in Order to Optimize Board Space
- Fast Response Time: Typical Less Than 1.0ps From 0 volts to  $V_B$  Minimum
- Low Inductance
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 2) ("P" Suffix Designates Compliant. See Ordering Information)
- For Bidirectional Devices Add "C" To The Suffix of The Part Number: i.e.SMBJ220CAL for 5% Tolerance

### Mechanical Data

- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: Color Band Denotes Positive End( Cathode) Except Bi-directional Types

### Maximum Ratings

- Operating Junction Temperature Range:  $-55^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$
- Storage Temperature Range:  $-55^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$
- Thermal Resistance :  $20^{\circ}\text{C}/\text{W}$  Junction to Lead
- Thermal Resistance :  $25^{\circ}\text{C}/\text{W}$  Junction to Case

### Electrical Characteristics @ $25^{\circ}\text{C}$ Unless Otherwise Specified

|  |             |               |          |
|--|-------------|---------------|----------|
| Peak Pulse Power Surge Current on 10/1000 $\mu\text{s}$ Waveform | $I_{PP}$    | See the Table | Note 3   |
| Peak Pulse Power Dissipation                                     | $P_{PP}$    | 600W          | Note 4,5 |
| Steady State Power Dissipation                                   | $P_{M(AV)}$ | 5.0W          | Note 5   |

**NOTES:**

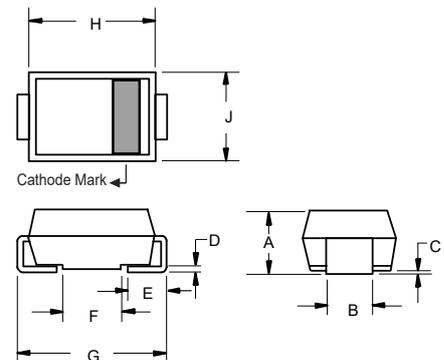
1. Halogen free "Green"products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, See EU Directive Annex 7a.
3. Non-repetitive Current Pulse, Per Fig.3 and Derated Above  $T_A=25^{\circ}\text{C}$  Per Fig.4.
4. Mounted on 5.0mm<sup>2</sup> Copper Pads to Each Terminal.
5. Power Dissipation, on Infinite Heat Sink at  $T_L=75^{\circ}\text{C}$ .

**Pin Configuration:**



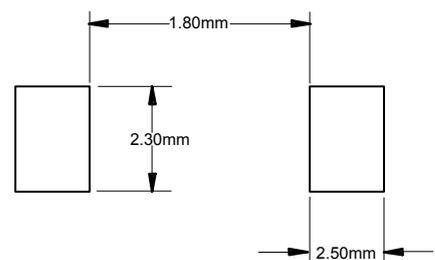
## 600 Watt TVS 220 to 440 Volts

### SMB (DO-214AA)



| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.079  | 0.103 | 2.00 | 2.62 |      |
| B   | 0.075  | 0.087 | 1.91 | 2.21 |      |
| C   | 0.002  | 0.008 | 0.05 | 0.20 |      |
| D   | 0.006  | 0.012 | 0.15 | 0.31 |      |
| E   | 0.030  | 0.060 | 0.76 | 1.52 |      |
| F   | 0.065  | 0.091 | 1.65 | 2.32 |      |
| G   | 0.200  | 0.220 | 5.08 | 5.59 |      |
| H   | 0.160  | 0.191 | 4.06 | 4.85 |      |
| J   | 0.130  | 0.155 | 3.30 | 3.94 |      |

**Suggested Solder Pad Layout**



Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC<br>PART NUMBER |            | REVERSE<br>STAND-OFF<br>VOLTAGE<br>$V_{WM}$ | BREAKDOWN VOLTAGE<br>$V_{(BR)} @ I_T$<br>(VOLTS) |     |            | MAXIMUM<br>CLAMPING<br>VOLTAGE @ $I_{PP}$ | PEAK<br>PULSE<br>CURRENT<br>$I_{PP}$ | MAXIMUM<br>REVERSE<br>LEAKAGE<br>@ $V_{WM}$<br>$I_D$ | MARKING CODE |         |
|--------------------|------------|---|--|-----|------------|---|--------------------------------------|--|--------------|---------|
|                    |            |   | (VOLTS)  | MIN | MAX        |   |                                      |  | $I_T$ (mA)   | (VOLTS) |
| UNI-POLAR          | BI-POLAR   | (VOLTS)                                     | MIN  | MAX | $I_T$ (mA) | (VOLTS)                                   | (AMPS)                               | ( $\mu$ A)   | UNI          | BI      |
| SMBJ220AL          | SMBJ220CAL | 220   | 246  | 272 | 1          | 356                                       | 1.7                                  | 1  | PXL          | EXL     |
| SMBJ250AL          | SMBJ250CAL | 250   | 279  | 309 | 1          | 405                                       | 1.5                                  | 1  | PZL          | EZL     |
| SMBJ300AL          | SMBJ300CAL | 300   | 335  | 371 | 1          | 486                                       | 1.3                                  | 1  | QEL          | FEL     |
| SMBJ350AL          | SMBJ350CAL | 350   | 391  | 432 | 1          | 567                                       | 1.1                                  | 1  | QGL          | FGL     |
| SMBJ400AL          | SMBJ400CAL | 400   | 447  | 494 | 1          | 648                                       | 0.9                                  | 1  | QKL          | FKL     |
| SMBJ440AL          | SMBJ440CAL | 440   | 492  | 543 | 1          | 713                                       | 0.9                                  | 1  | QML          | FML     |

**Curve Characteristics**

Fig. 1 - Peak Pulse Power Rating Curve

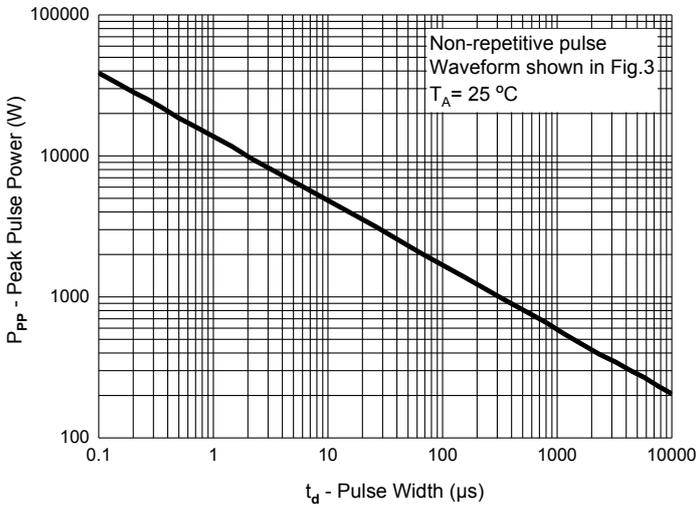


Fig. 2 - Typical Junction Capacitance

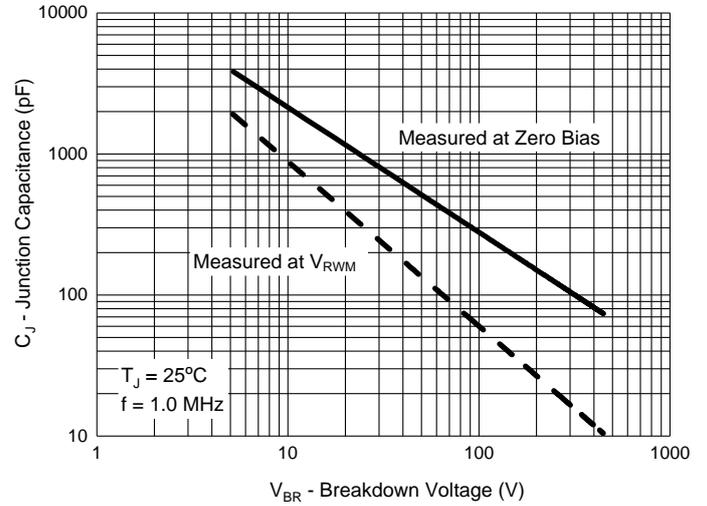


Fig. 3 - Pulse Waveform

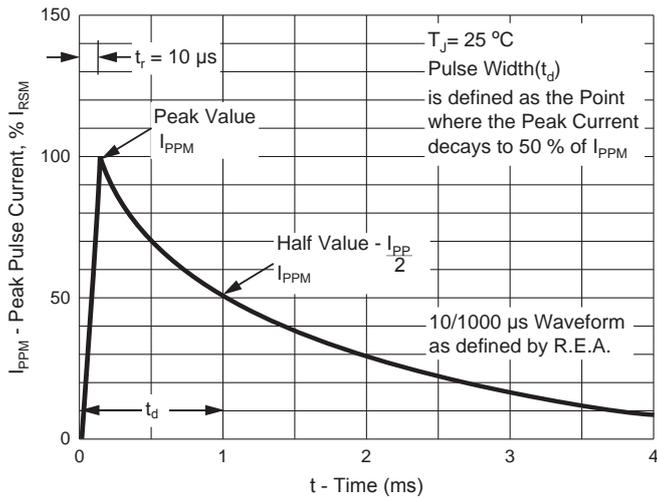
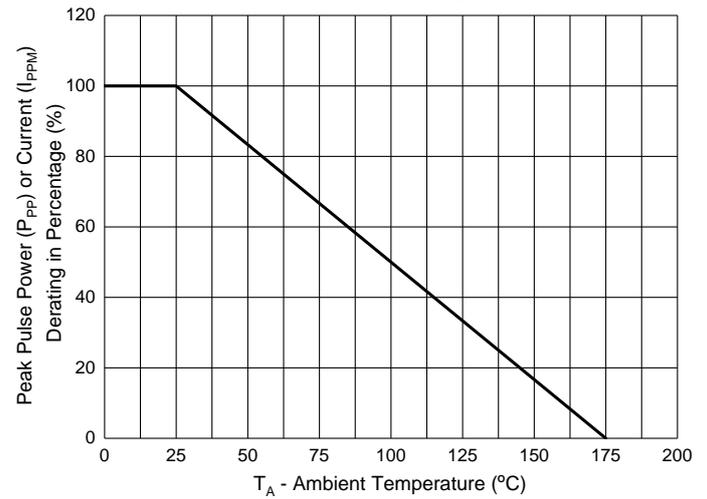


Fig. 4 - Pulse Derating Curve



## Ordering Information

| Device         | Packing              |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |

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