


| | |
|---|----------------|
|  | E480232 |
|---|----------------|

Features

- Fully Automotive Qualified to AEC-Q101
- For Surface Mount Applications
- Excellent Clamping Capability
- High Temp Soldering: 260°C / 10 Seconds at Terminals
- 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 RoHS Compliant. See Ordering Information)
- ESD protection of data lines in accordance with IEC 61000-4-2, ±30kV(Air), ±30kV (Contact)

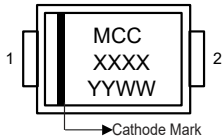
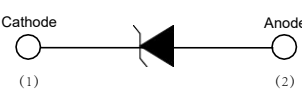


Maximum Ratings

| Parameter | Symbol | Value | Unit |
|--|-----------|----------------|------|
| Peak Pulse Power Surge Current with a 10/1000µs Waveform (Note 3) | I_{PPM} | See Next Table | A |
| Peak Pulse Power Dissipation (Note 3) | P_{PPM} | 600 | W |
| Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$ | P_D | 5.0 | W |
| Peak Forward Surge Current Unidirectional Only (Note 4) | I_{FSM} | 100 | A |

Note:

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. 8.3ms, single half sine wave duty cycle = 4 pulses per Minutes maximum.

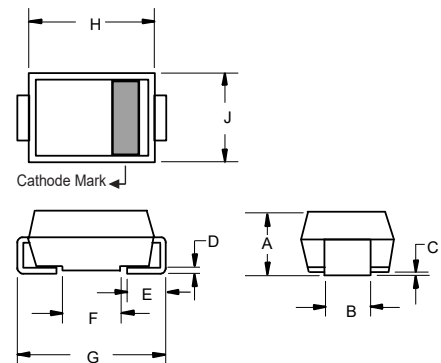
Internal Structure

| Description | Simplified outline | Graphic symbol |
|-----------------|---|---|
| Uni-directional |  |  |
| Bi-directional |  |  |

XXXX = Marking code YYWW = Date Code

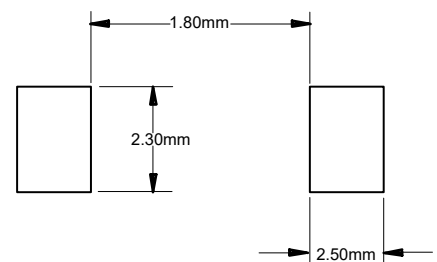
600Watt TVS 6.8 to 220 Volts

SMB (DO-214AA) (LEAD FRAME)



| 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



Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|--|-----------------|-------------|------|
| Operating Junction Temperature Range | T_J | -55 to +175 | °C |
| Storage Temperature Range | T_{STG} | -55 to +175 | °C |
| Typical Thermal Resistance Junction to Lead | $R_{\theta JL}$ | 20 | °C/W |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 100 | °C/W |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | 15 | °C/W |

Note:

5. Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal.

Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC Part Number | | Working Peak Reverse Voltage | Breakdown Voltage V_{BR} @ I_T | | | Maximum Clamping Voltage @ I_{PP} | Maximum Reverse Surge Current | Maximum Reverse Leakage @ V_{RWM} | Device Marking Code | |
|-----------------|----------------|------------------------------|------------------------------------|---------|---------|-------------------------------------|-------------------------------|-------------------------------------|---------------------|-----------|
| (Uni) | (Bi) | | V_{RWM} (V) | Min (V) | Max (V) | | | | I_T (mA) | V_C (V) |
| SMBJP6KE6.8AQ | SMBJP6KE6.8CAQ | 5.8 | 6.46 | 7.14 | 10 | 10.5 | 57.1 | 1000 | 6V8A | 6V8C |
| SMBJP6KE7.5AQ | SMBJP6KE7.5CAQ | 6.4 | 7.13 | 7.88 | 10 | 11.3 | 53.1 | 500 | 7V5A | 7V5C |
| SMBJP6KE8.2AQ | SMBJP6KE8.2CAQ | 7.0 | 7.79 | 8.61 | 10 | 12.1 | 49.6 | 200 | 8V2A | 8V2C |
| SMBJP6KE9.1AQ | SMBJP6KE9.1CAQ | 7.8 | 8.65 | 9.56 | 1 | 13.4 | 44.8 | 50 | 9V1A | 9V1C |
| SMBJP6KE10AQ | SMBJP6KE10CAQ | 8.6 | 9.50 | 10.50 | 1 | 14.5 | 41.4 | 10 | 10A | 10C |
| SMBJP6KE11AQ | SMBJP6KE11CAQ | 9.4 | 10.45 | 11.55 | 1 | 15.6 | 38.5 | 5 | 11A | 11C |
| SMBJP6KE12AQ | SMBJP6KE12CAQ | 10.2 | 11.40 | 12.60 | 1 | 16.7 | 35.9 | 5 | 12A | 12C |
| SMBJP6KE13AQ | SMBJP6KE13CAQ | 11.1 | 12.35 | 13.65 | 1 | 18.2 | 33.0 | 5 | 13A | 13C |
| SMBJP6KE15AQ | SMBJP6KE15CAQ | 12.8 | 14.25 | 15.75 | 1 | 21.2 | 28.3 | 1 | 15A | 15C |
| SMBJP6KE16AQ | SMBJP6KE16CAQ | 13.6 | 15.20 | 16.80 | 1 | 22.5 | 26.7 | 1 | 16A | 16C |
| SMBJP6KE18AQ | SMBJP6KE18CAQ | 15.3 | 17.10 | 18.90 | 1 | 25.2 | 23.8 | 1 | 18A | 18C |
| SMBJP6KE20AQ | SMBJP6KE20CAQ | 17.1 | 19.00 | 21.00 | 1 | 27.7 | 21.7 | 1 | 20A | 20C |
| SMBJP6KE22AQ | SMBJP6KE22CAQ | 18.8 | 20.90 | 23.10 | 1 | 30.6 | 19.6 | 1 | 22A | 22C |
| SMBJP6KE24AQ | SMBJP6KE24CAQ | 20.5 | 22.80 | 25.20 | 1 | 33.2 | 18.1 | 1 | 24A | 24C |
| SMBJP6KE27AQ | SMBJP6KE27CAQ | 23.1 | 25.65 | 28.35 | 1 | 37.5 | 16.0 | 1 | 27A | 27C |
| SMBJP6KE30AQ | SMBJP6KE30CAQ | 25.6 | 28.50 | 31.50 | 1 | 41.4 | 14.5 | 1 | 30A | 30C |
| SMBJP6KE33AQ | SMBJP6KE33CAQ | 28.2 | 31.35 | 34.65 | 1 | 45.7 | 13.1 | 1 | 33A | 33C |
| SMBJP6KE36AQ | SMBJP6KE36CAQ | 30.8 | 34.20 | 37.80 | 1 | 49.9 | 12.0 | 1 | 36A | 36C |
| SMBJP6KE39AQ | SMBJP6KE39CAQ | 33.3 | 37.05 | 40.95 | 1 | 53.9 | 11.1 | 1 | 39A | 39C |
| SMBJP6KE43AQ | SMBJP6KE43CAQ | 36.8 | 40.85 | 45.15 | 1 | 59.3 | 10.1 | 1 | 43A | 43C |
| SMBJP6KE47AQ | SMBJP6KE47CAQ | 40.2 | 44.65 | 49.35 | 1 | 64.8 | 9.3 | 1 | 47A | 47C |
| SMBJP6KE51AQ | SMBJP6KE51CAQ | 43.6 | 48.45 | 53.55 | 1 | 70.1 | 8.6 | 1 | 51A | 51C |
| SMBJP6KE56AQ | SMBJP6KE56CAQ | 47.8 | 53.20 | 58.80 | 1 | 77.0 | 7.8 | 1 | 56A | 56C |
| SMBJP6KE62AQ | SMBJP6KE62CAQ | 53.0 | 58.90 | 65.10 | 1 | 85.0 | 7.1 | 1 | 62A | 62C |
| SMBJP6KE68AQ | SMBJP6KE68CAQ | 58.1 | 64.60 | 71.40 | 1 | 92.0 | 6.5 | 1 | 68A | 68C |
| SMBJP6KE75AQ | SMBJP6KE75CAQ | 64.1 | 71.25 | 78.75 | 1 | 103.0 | 5.8 | 1 | 75A | 75C |
| SMBJP6KE82AQ | SMBJP6KE82CAQ | 70.1 | 77.90 | 86.10 | 1 | 113.0 | 5.3 | 1 | 82A | 82C |
| SMBJP6KE91AQ | SMBJP6KE91CAQ | 77.8 | 86.45 | 95.35 | 1 | 125.0 | 4.8 | 1 | 91A | 91C |
| SMBJP6KE100AQ | SMBJP6KE100CAQ | 85.5 | 95.00 | 105.00 | 1 | 137.0 | 4.4 | 1 | 100A | 100C |
| SMBJP6KE110AQ | SMBJP6KE110CAQ | 94.0 | 104.50 | 115.50 | 1 | 152.0 | 4.0 | 1 | 110A | 110C |
| SMBJP6KE120AQ | SMBJP6KE120CAQ | 102.0 | 114.00 | 126.00 | 1 | 165.0 | 3.6 | 1 | 120A | 120C |
| SMBJP6KE130AQ | SMBJP6KE130CAQ | 111.0 | 123.50 | 136.50 | 1 | 179.0 | 3.4 | 1 | 130A | 130C |
| SMBJP6KE150AQ | SMBJP6KE150CAQ | 128.0 | 142.50 | 157.50 | 1 | 207.0 | 2.9 | 1 | 150A | 150C |
| SMBJP6KE160AQ | SMBJP6KE160CAQ | 136.0 | 152.00 | 168.00 | 1 | 219.0 | 2.7 | 1 | 160A | 160C |
| SMBJP6KE170AQ | SMBJP6KE170CAQ | 145.0 | 161.50 | 178.50 | 1 | 234.0 | 2.6 | 1 | 170A | 170C |
| SMBJP6KE180AQ | SMBJP6KE180CAQ | 154.0 | 171.00 | 189.00 | 1 | 246.0 | 2.4 | 1 | 180A | 180C |
| SMBJP6KE200AQ | SMBJP6KE200CAQ | 171.0 | 190.00 | 210.00 | 1 | 274.0 | 2.2 | 1 | 200A | 200C |
| SMBJP6KE220AQ | SMBJP6KE220CAQ | 185.0 | 209.00 | 231.00 | 1 | 328.0 | 1.8 | 1 | 220A | 220C |

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

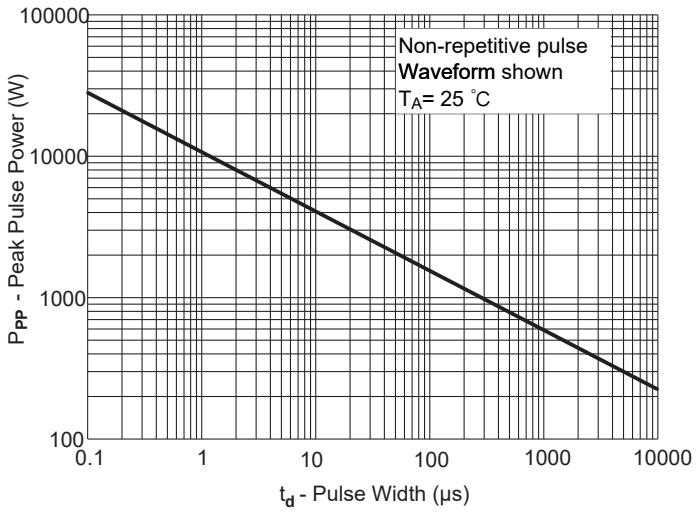


Fig. 2 - Typical Junction Capacitance

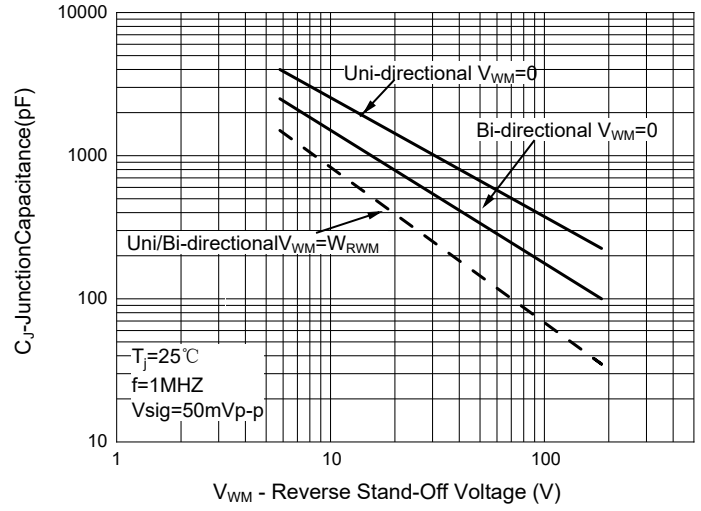


Fig. 3 - Pulse Waveform

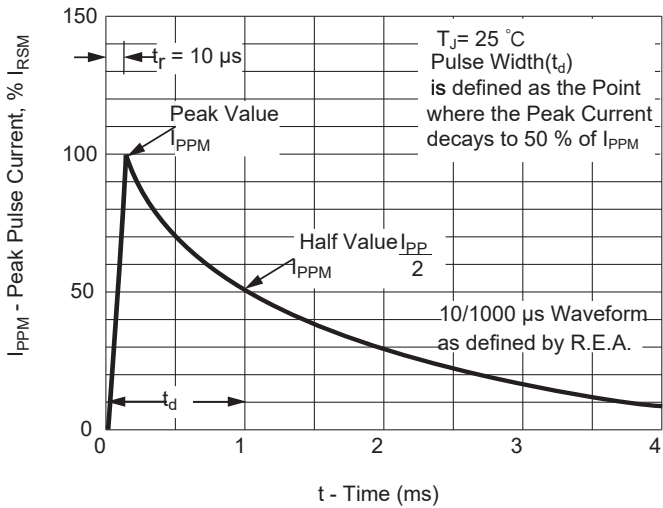
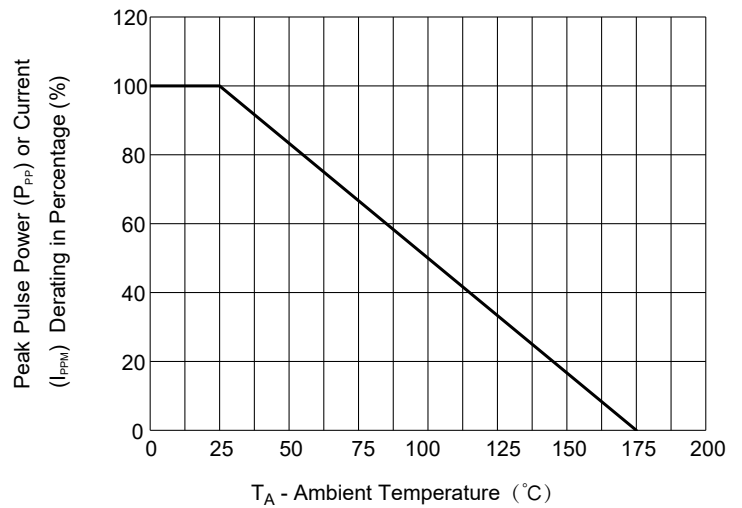


Fig. 4 - Pulse Derating Curve



Ordering Information

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

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