


| | |
|---|----------------|
|  | 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)

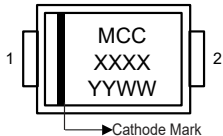
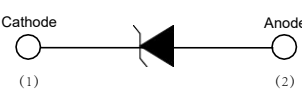


Maximum Ratings

| 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} | 1500 | W |
| Power Dissipation on Infinite Heat Sink at $T_L = 75^\circ\text{C}$ | P_D | 6.5 | W |
| Peak Forward Surge Current Unidirectional Only (Note 4) | I_{FSM} | 200 | 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.

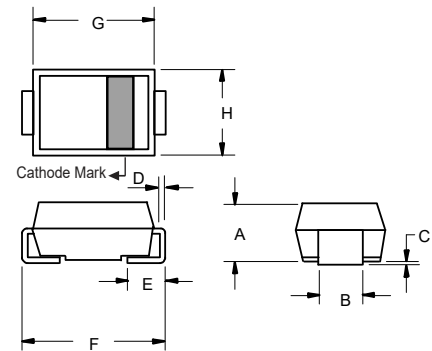
Internal Structure

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

XXXX = Marking code YYWW = Date Code

1500Watt TVS
5.0 to 190
Volts

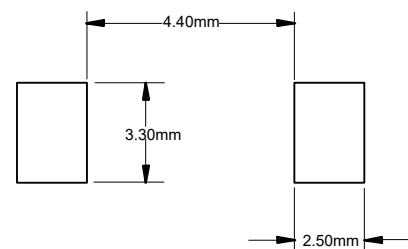
SMC (DO-214AB)
(LEAD FRAME)



DIMENSIONS

| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.079 | 0.103 | 2.00 | 2.62 | |
| B | 0.108 | 0.128 | 2.75 | 3.25 | |
| C | 0.002 | 0.008 | 0.051 | 0.203 | |
| D | 0.006 | 0.012 | 0.152 | 0.305 | |
| E | 0.030 | 0.060 | 0.76 | 1.52 | |
| F | 0.305 | 0.320 | 7.75 | 8.13 | |
| G | 0.260 | 0.280 | 6.60 | 7.11 | |
| H | 0.220 | 0.245 | 5.59 | 6.22 | |

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 | $R_{\theta JL}$ | 15 | °C/W |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 75 | °C/W |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | 13 | °C/W |

Note:

5.Mounted on 0.31 x 0.31" (8.0 x 8.0 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) | $V_C(V)$ |
| SMCJ5.0AQ | SMCJ5.0CAQ | 5.0 | 6.40 | 7.07 | 10 | 9.2 | 163.0 | 1000 | GDE | BDE |
| SMCJ6.0AQ | SMCJ6.0CAQ | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 145.6 | 1000 | GDG | BDG |
| SMCJ6.5AQ | SMCJ6.5CAQ | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 133.9 | 500 | GDK | BDK |
| SMCJ7.0AQ | SMCJ7.0CAQ | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 125.0 | 200 | GDM | BDM |
| SMCJ7.5AQ | SMCJ7.5CAQ | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 116.3 | 100 | GDP | BDP |
| SMCJ8.0AQ | SMCJ8.0CAQ | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 110.3 | 50 | GDR | BDR |
| SMCJ8.5AQ | SMCJ8.5CAQ | 8.5 | 9.44 | 10.40 | 1 | 14.4 | 104.2 | 20 | GDT | BDT |
| SMCJ9.0AQ | SMCJ9.0CAQ | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 97.4 | 10 | GDV | BDV |
| SMCJ10AQ | SMCJ10CAQ | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 88.2 | 5 | GDX | BDX |
| SMCJ11AQ | SMCJ11CAQ | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 82.4 | 5 | GDZ | BDZ |
| SMCJ12AQ | SMCJ12CAQ | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 75.4 | 5 | GEE | BEE |
| SMCJ13AQ | SMCJ13CAQ | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 69.8 | 1 | GEG | BEG |
| SMCJ14AQ | SMCJ14CAQ | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 64.7 | 1 | GEK | BEK |
| SMCJ15AQ | SMCJ15CAQ | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 61.5 | 1 | GEM | BEM |
| SMCJ16AQ | SMCJ16CAQ | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 57.7 | 1 | GEP | BEP |
| SMCJ17AQ | SMCJ17CAQ | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 54.4 | 1 | GER | BER |
| SMCJ18AQ | SMCJ18CAQ | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 51.4 | 1 | GET | BET |
| SMCJ19AQ | SMCJ19CAQ | 19.0 | 21.10 | 23.30 | 1 | 30.8 | 48.7 | 1 | GEU | BEU |
| SMCJ20AQ | SMCJ20CAQ | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 46.3 | 1 | GEV | BEV |
| SMCJ22AQ | SMCJ22CAQ | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 42.3 | 1 | GEX | BEX |
| SMCJ24AQ | SMCJ24CAQ | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 38.6 | 1 | GEZ | BEZ |
| SMCJ26AQ | SMCJ26CAQ | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 35.6 | 1 | GFE | BFE |
| SMCJ28AQ | SMCJ28CAQ | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 33.0 | 1 | GFG | BFG |
| SMCJ30AQ | SMCJ30CAQ | 30.0 | 33.30 | 36.80 | 1 | 48.4 | 31.0 | 1 | GFK | BFK |
| SMCJ33AQ | SMCJ33CAQ | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 28.1 | 1 | GFM | BFM |
| SMCJ36AQ | SMCJ36CAQ | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 25.8 | 1 | GFP | BFP |
| SMCJ40AQ | SMCJ40CAQ | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 23.3 | 1 | GFR | BFR |
| SMCJ43AQ | SMCJ43CAQ | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 21.6 | 1 | GFT | BFT |
| SMCJ45AQ | SMCJ45CAQ | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 20.6 | 1 | GFV | BFV |
| SMCJ48AQ | SMCJ48CAQ | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 19.4 | 1 | GFX | BFX |
| SMCJ51AQ | SMCJ51CAQ | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 18.2 | 1 | GFZ | BFZ |
| SMCJ54AQ | SMCJ54CAQ | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 17.2 | 1 | GGE | BGE |
| SMCJ58AQ | SMCJ58CAQ | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 16.0 | 1 | GGG | BGG |
| SMCJ60AQ | SMCJ60CAQ | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 15.5 | 1 | GGK | BGK |
| SMCJ64AQ | SMCJ64CAQ | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 14.6 | 1 | GGM | BGM |
| SMCJ70AQ | SMCJ70CAQ | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 13.3 | 1 | GGP | BGP |
| SMCJ75AQ | SMCJ75CAQ | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 12.4 | 1 | GGR | BGR |
| SMCJ78AQ | SMCJ78CAQ | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 11.9 | 1 | GGT | BGT |
| SMCJ80AQ | SMCJ80CAQ | 80.0 | 88.80 | 97.60 | 1 | 129.6 | 11.6 | 1 | GGU | BGU |
| SMCJ85AQ | SMCJ85CAQ | 85.0 | 94.40 | 104.00 | 1 | 137.0 | 10.9 | 1 | GGV | BGV |
| SMCJ90AQ | SMCJ90CAQ | 90.0 | 100.00 | 111.00 | 1 | 146.0 | 10.3 | 1 | GGX | BGX |
| SMCJ100AQ | SMCJ100CAQ | 100.0 | 111.00 | 123.00 | 1 | 162.0 | 9.3 | 1 | GGZ | BGZ |
| SMCJ110AQ | SMCJ110CAQ | 110.0 | 122.00 | 135.00 | 1 | 177.0 | 8.5 | 1 | GHE | BHE |
| SMCJ120AQ | SMCJ120CAQ | 120.0 | 133.00 | 147.00 | 1 | 193.0 | 7.8 | 1 | GHG | BHG |
| SMCJ130AQ | SMCJ130CAQ | 130.0 | 144.00 | 159.00 | 1 | 209.0 | 7.2 | 1 | GHK | BHK |
| SMCJ140AQ | SMCJ140CAQ | 140.0 | 155.00 | 171.00 | 1 | 226.8 | 6.6 | 1 | GHL | BHL |
| SMCJ150AQ | SMCJ150CAQ | 150.0 | 167.00 | 185.00 | 1 | 243.0 | 6.2 | 1 | GHM | BHM |
| SMCJ160AQ | SMCJ160CAQ | 160.0 | 178.00 | 197.00 | 1 | 259.0 | 5.8 | 1 | GHP | BHP |
| SMCJ170AQ | SMCJ170CAQ | 170.0 | 189.00 | 209.00 | 1 | 275.0 | 5.5 | 1 | GHR | BHR |
| SMCJ180AQ | SMCJ180CAQ | 180.0 | 200.00 | 220.00 | 1 | 291.6 | 5.1 | 1 | GHT | BHT |
| SMCJ190AQ | SMCJ190CAQ | 190.0 | 211.00 | 232.00 | 1 | 307.8 | 4.9 | 1 | GHX | BHX |

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

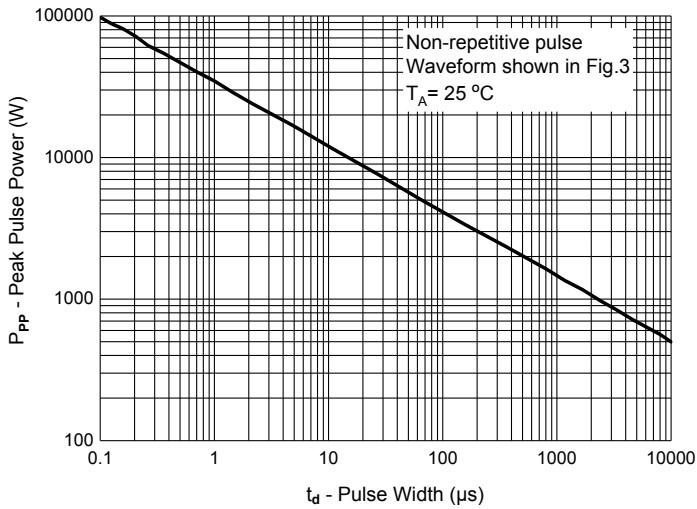


Fig. 2 - Typical Junction Capacitance

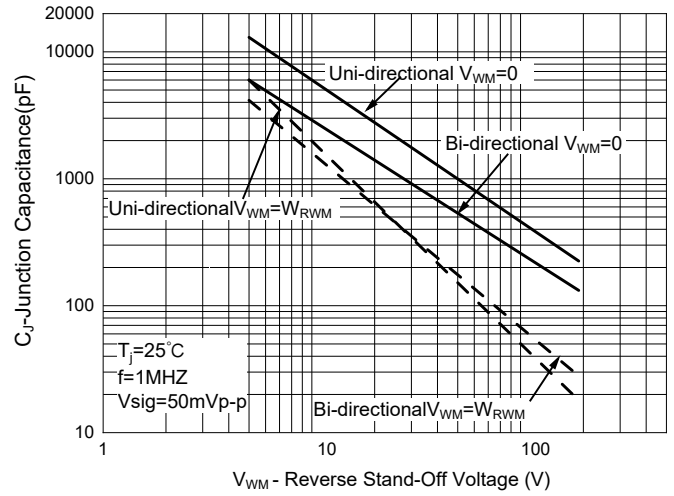


Fig. 3 - Pulse Waveform

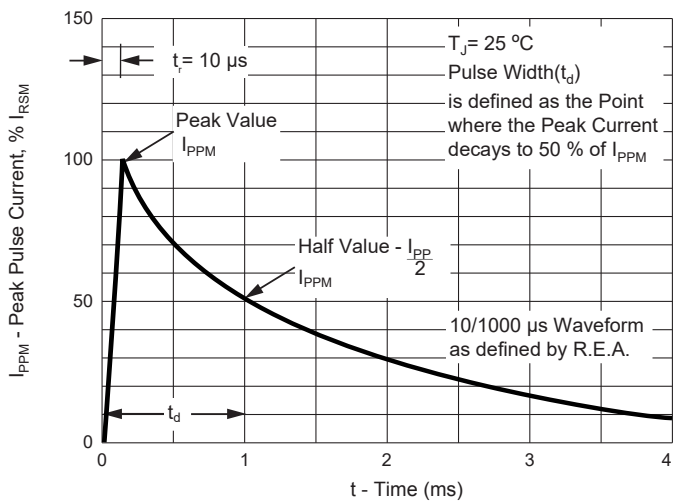
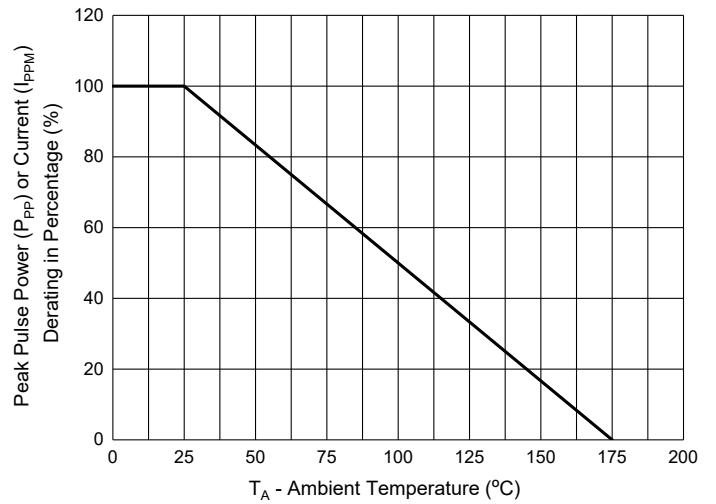


Fig. 4 - Pulse Derating Curve



Ordering Information

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

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