



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} | 400 | W |
| Power Dissipation on Infinite Heatsink at $T_A = 25^\circ\text{C}$ | P_D | 1.25 | W |
| Peak Forward Surge Current Unidirectional Only (Note 4) | I_{FSM} | 40 | 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.

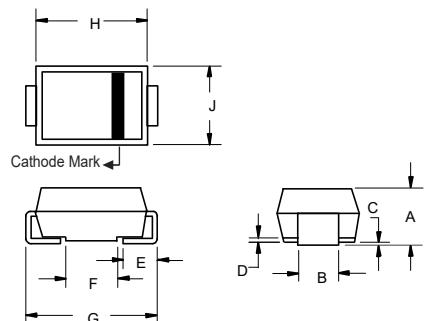
Internal Structure

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

XXXX = Marking code YYWW = Date Code

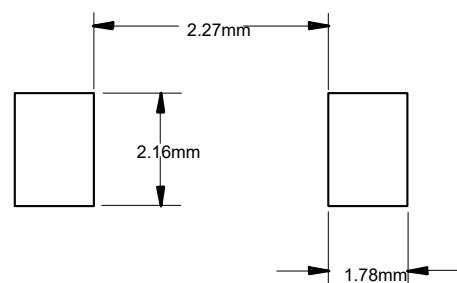
**400 Watt TVS
250 to 440
Volts**

SMA (DO-214AC) LEAD FRAME



| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|-------|-------|------|
| | INCHES | MIN | MAX | MM | |
| A | 0.075 | 0.096 | 1.90 | 2.44 | |
| B | 0.050 | 0.064 | 1.27 | 1.63 | |
| C | 0.002 | 0.008 | 0.051 | 0.203 | |
| D | --- | 0.020 | --- | 0.51 | |
| E | 0.030 | 0.060 | 0.76 | 1.52 | |
| F | 0.065 | 0.091 | 1.65 | 2.32 | |
| G | 0.189 | 0.220 | 4.80 | 5.59 | |
| H | 0.157 | 0.187 | 4.00 | 4.75 | |
| J | 0.090 | 0.115 | 2.25 | 2.92 | |

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 | $R_{\theta JL}$ | 30 | °C/W |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 120 | °C/W |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | 50 | °C/W |

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} | Marking Code | |
|-----------------|------------|------------------------------|------------------------------------|---------|------------|-------------------------------------|-------------------------------|-------------------------------------|--------------|----|
| (Uni) | (Bi) | V_{RWM} (V) | Min (V) | Max (V) | I_T (mA) | V_C (V) | I_{PP} (A) | I_R (μA) | Uni | Bi |
| SMAJ250AQ | SMAJ250CAQ | 250.0 | 279.00 | 309.00 | 1 | 405.0 | 1.0 | 1 | SZ | VZ |
| SMAJ300AQ | SMAJ300CAQ | 300.0 | 335.00 | 371.00 | 1 | 486.0 | 0.8 | 1 | TE | UE |
| SMAJ350AQ | SMAJ350CAQ | 350.0 | 391.00 | 432.00 | 1 | 567.0 | 0.7 | 1 | TG | UG |
| SMAJ400AQ | SMAJ400CAQ | 400.0 | 447.00 | 494.00 | 1 | 648.0 | 0.6 | 1 | TK | UK |
| SMAJ440AQ | SMAJ440CAQ | 440.0 | 492.00 | 543.00 | 1 | 713.0 | 0.6 | 1 | TM | UM |

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

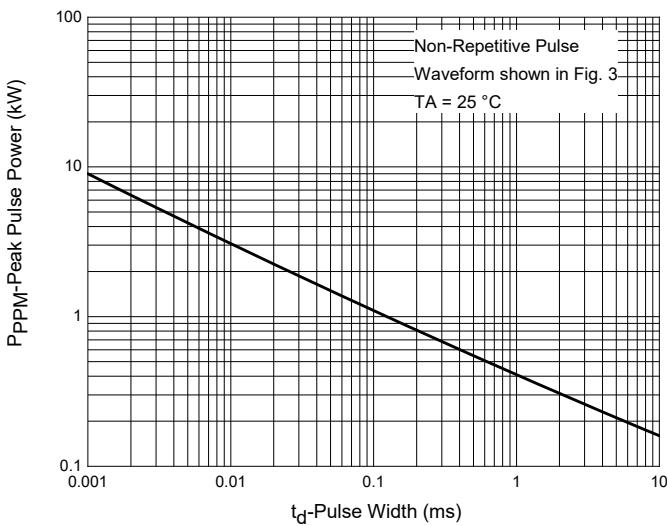


Fig. 2 - Typical Junction Capacitance

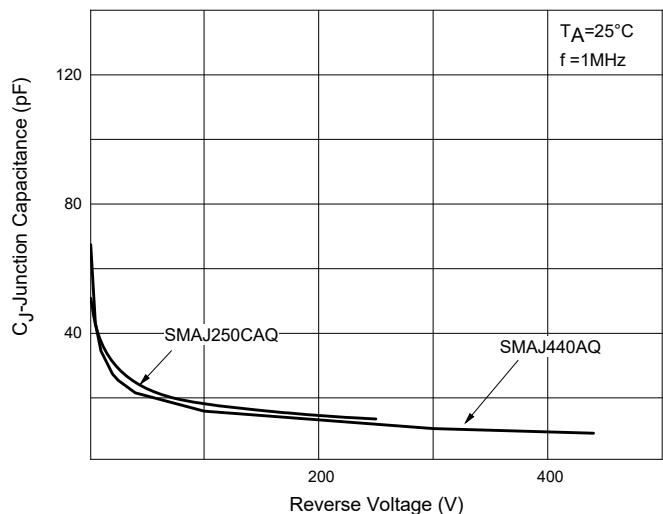


Fig. 3 - Pulse Waveform

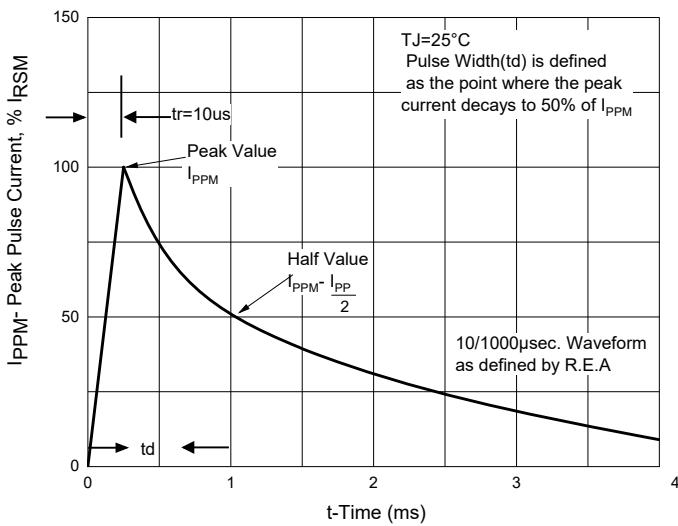


Fig. 4 - Pulse Derating Curve

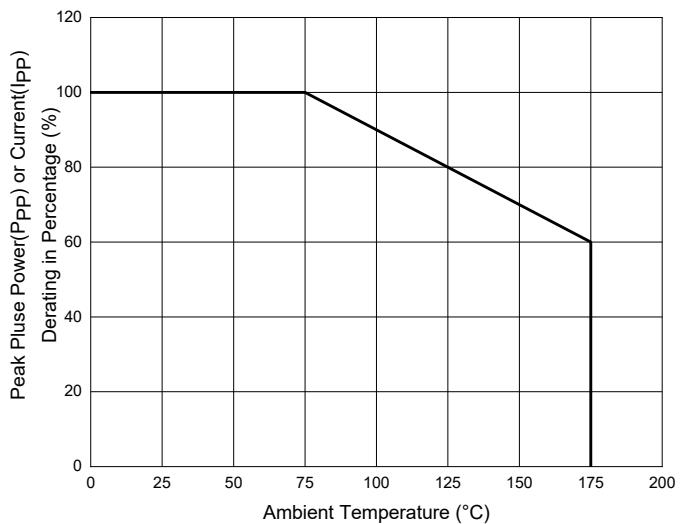


Fig. 5 - Peak Forward Voltage Drop vs Peak Forward Current

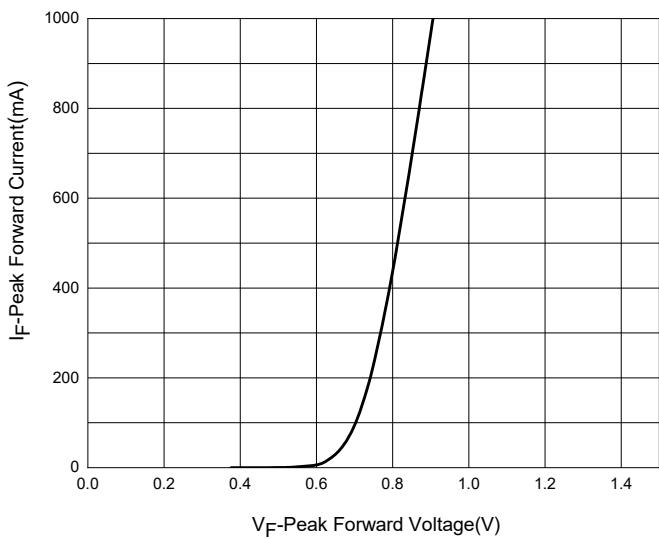
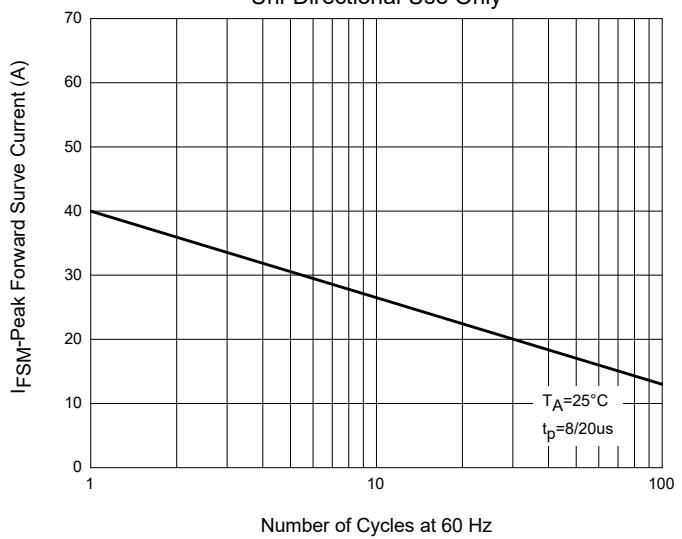


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:5Kpcs/Reel |

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