



E480232

Features

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} | 5000 | W |
| Power Dissipation on infinite heat sink at $T_L = 75^\circ$ | P_D | 6.5 | W |
| Peak Forward Surge Current Unidirectional Only (Note 4) | I_{FSM} | 300 | 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.

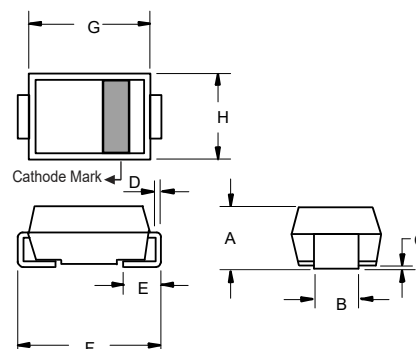
Internal Structure

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

XXXX = Marking code YYWW = Date Code

5000Watt TVS
5.0 to 85
Volts

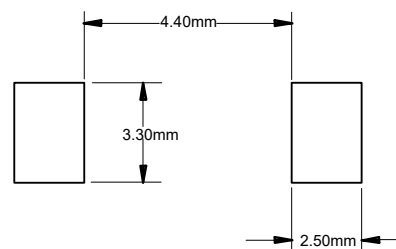
SMC (DO-214AB)
(LEAD FRAME)



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 | MCC Part Number | Reverse Stand-Off Voltage | Breakdown Voltage VBR(V) | | Test Current | Max. Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage Current@V RWM | Marking Code | |
|--------------------|--------------------|---------------------------------|-----------------------------|---------|-----------------|-------------------------------------|--------------------------|--|-----------------|------|
| | | | Min (V) | Max (V) | | | | | Uni | Bi |
| Uni-directional | Bi-directional | $V_{RWM}(V)$ | | | $I_T (mA)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_R(\mu A)$ | | |
| 5.0SMLJ5.0AL | 5.0SMLJ5.0CAL | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 543.6 | 1000 | 5PDE | 5BDE |
| 5.0SMLJ6.0AL | 5.0SMLJ6.0CAL | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 485.5 | 1000 | 5PDG | 5BDG |
| 5.0SMLJ6.5AL | 5.0SMLJ6.5CAL | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 446.5 | 800 | 5PDK | 5BDK |
| 5.0SMLJ7.0AL | 5.0SMLJ7.0CAL | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 416.8 | 800 | 5PDP | 5BDB |
| 5.0SMLJ7.5AL | 5.0SMLJ7.5CAL | 7.5 | 8.33 | 9.21 | 5 | 12.9 | 387.7 | 800 | 5PDR | 5BDR |
| 5.0SMLJ8.0AL | 5.0SMLJ8.0CAL | 8.0 | 8.89 | 9.83 | 5 | 13.6 | 367.7 | 800 | 5PDT | 5BDT |
| 5.0SMLJ8.5AL | 5.0SMLJ8.5CAL | 8.5 | 9.44 | 10.40 | 5 | 14.4 | 347.3 | 800 | 5PDV | 5BDV |
| 5.0SMLJ9.0AL | 5.0SMLJ9.0CAL | 9.0 | 10.00 | 11.10 | 5 | 15.4 | 324.8 | 800 | 5PDX | 5BDX |
| 5.0SMLJ10AL | 5.0SMLJ10CAL | 10.0 | 11. | 12.30 | 1 | 17.0 | 294.1 | 5 | 5SAE | 5DAE |
| 5.0SMLJ11AL | 5.0SMLJ11CAL | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 275.0 | 2 | 5SAF | 5DAF |
| 5.0SMLJ12AL | 5.0SMLJ12CAL | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 252.0 | 2 | 5SAG | 5DAG |
| 5.0SMLJ13AL | 5.0SMLJ13CAL | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 233.0 | 2 | 5SAK | 5DAK |
| 5.0SMLJ14AL | 5.0SMLJ14CAL | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 216.0 | 2 | 5SAM | 5DAM |
| 5.0SMLJ15AL | 5.0SMLJ15CAL | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 205.0 | 2 | 5SAP | 5DAP |
| 5.0SMLJ16AL | 5.0SMLJ16CAL | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 193.0 | 2 | 5SAR | 5DAR |
| 5.0SMLJ17AL | 5.0SMLJ17CAL | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 181.0 | 2 | 5SAT | 5DAT |
| 5.0SMLJ18AL | 5.0SMLJ18CAL | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 172.0 | 2 | 5SAV | 5DAV |
| 5.0SMLJ19AL | 5.0SMLJ19CAL | 19.0 | 21.10 | 23.30 | 1 | 30.8 | 162.4 | 2 | 5SAX | 5DAX |
| 5.0SMLJ20AL | 5.0SMLJ20CAL | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 155.0 | 2 | 5SAZ | 5DAZ |
| 5.0SMLJ22AL | 5.0SMLJ22CAL | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 141.0 | 2 | 5SBE | 5DBE |
| 5.0SMLJ24AL | 5.0SMLJ24CAL | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 129.0 | 2 | 5SBF | 5DBF |
| 5.0SMLJ26AL | 5.0SMLJ26CAL | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 119.0 | 2 | 5SBG | 5DBG |
| 5.0SMLJ28AL | 5.0SMLJ28CAL | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 110.0 | 2 | 5SBK | 5DBK |
| 5.0SMLJ30AL | 5.0SMLJ30CAL | 30.0 | 33.30 | 36.80 | 1 | 48.4 | 103.0 | 2 | 5SBM | 5DBM |
| 5.0SMLJ33AL | 5.0SMLJ33CAL | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 93.9 | 2 | 5SBP | 5DBP |
| 5.0SMLJ36AL | 5.0SMLJ36CAL | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 86.1 | 2 | 5SBR | 5DBR |
| 5.0SMLJ40AL | 5.0SMLJ40CAL | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 77.6 | 2 | 5SBT | 5DBT |
| 5.0SMLJ43AL | 5.0SMLJ43CAL | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 72.1 | 2 | 5SBV | 5DBV |
| 5.0SMLJ45AL | 5.0SMLJ45CAL | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 68.8 | 2 | 5SBX | 5DBX |
| 5.0SMLJ48AL | 5.0SMLJ48CAL | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 64.7 | 2 | 5SBZ | 5DBZ |
| 5.0SMLJ51AL | 5.0SMLJ51CAL | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 60.7 | 2 | 5SCE | 5DCE |
| 5.0SMLJ54AL | 5.0SMLJ54CAL | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 57.5 | 2 | 5SCF | 5DCF |
| 5.0SMLJ58AL | 5.0SMLJ58CAL | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 53.5 | 2 | 5SCG | 5DCG |
| 5.0SMLJ60AL | 5.0SMLJ60CAL | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 51.7 | 2 | 5PGK | 5BGK |
| 5.0SMLJ64AL | 5.0SMLJ64CAL | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 48.5 | 2 | 5PGM | 5BGM |
| 5.0SMLJ70AL | 5.0SMLJ70CAL | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 44.2 | 2 | 5PGP | 5BGP |
| 5.0SMLJ75AL | 5.0SMLJ75CAL | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 41.3 | 2 | 5PGR | 5BGR |
| 5.0SMLJ78AL | 5.0SMLJ78CAL | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 39.7 | 2 | 5PGT | 5BGT |
| 5.0SMLJ80AL | 5.0SMLJ80CAL | 80.0 | 88.90 | 97.60 | 1 | 129.6 | 38.6 | 2 | 5PGU | 5BGU |
| 5.0SMLJ85AL | 5.0SMLJ85CAL | 85.0 | 94.40 | 104.00 | 1 | 137.0 | 36.5 | 2 | 5PGV | 5BGV |

Note:

4. Add suffix 'C' after part number to specify Bi-directional devices

5. For Bi-Directional devices having V_R of 10 volts , the I_R limit is double

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

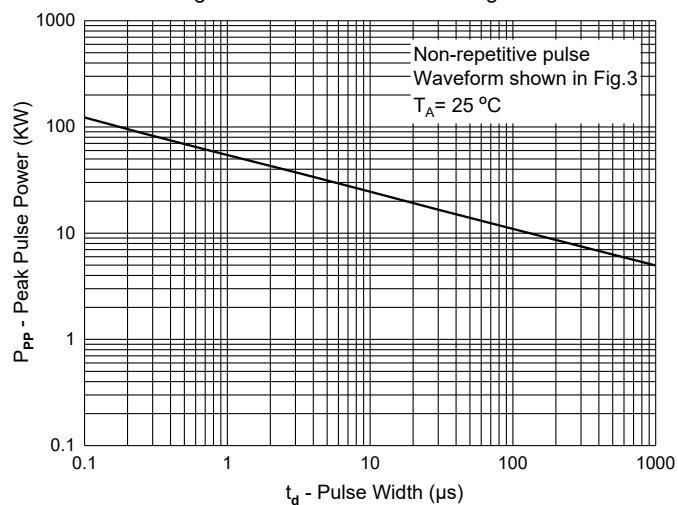


Fig. 2 - Typical Junction Capacitance

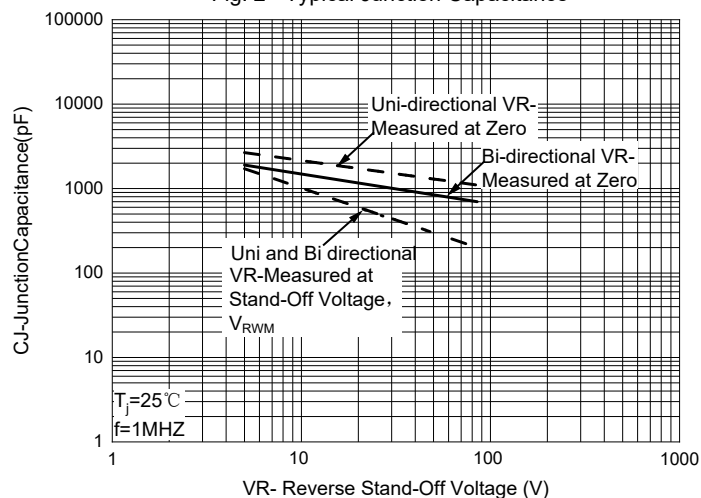


Fig. 3 - Pulse Waveform

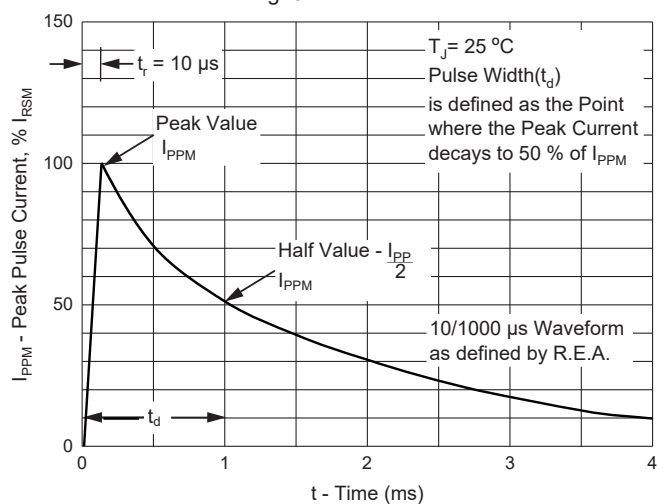
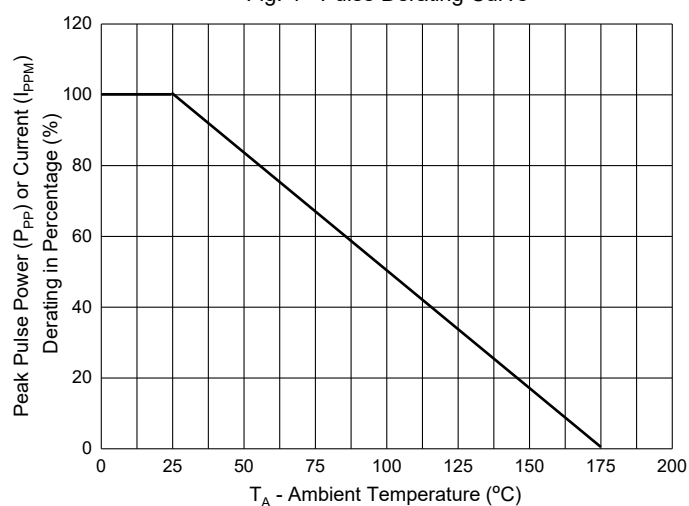


Fig. 4 - Pulse Derating Curve



Ordering Information

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

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