

MDE Semiconductor, Inc.

78-150 Calle Tampico, Unit 210, La Quinta, CA. U.S.A. 92253 Tel: 760-564-8656 • Fax: 760-564-2414
1-800-831-4881 Email: sales@mdesemiconductor.com Web: www.mdesemiconductor.com

SMDMAX40 Series

Surface Mount Transient Voltage Suppressor

40000 Watt Peak Pulse Power

Stand-off Voltage 58 to 86 Volts

FEATURES

- Compact design having the MAX Power TVS in surface mounted package
- MAX-Avalanche™ technology for superior clamping
- Ideal for automatic pick and place assembly and reflow process to reduce the manufacturing cost and increase the soldering quality compared to axial lead package
- Bi-directional
- Sharp breakdown voltage
- Halogen free and RoHS Compliant
- Low clamping and slope resistance
- Plastic package has underwriters laboratory flammability classification V-0
- Operating Junction and Storage Temperature -40°C~125°C
- Meets MSL level 1, per J-STD-020, maximum peak of 260°C



Physical Specifications:

- Case: Epoxy encapsulated
- Terminal: Tin Plated lead, solderable per MIL-STD-202 Method 208
- Weight: 4.34g

Applications

- Aerospace and Defense
- RTCA/DO-160 Airborne Equipment
- Shipboard MIL-STD 1399 Section 300 B Requirements
- Railway Signal Controls
- Cell Tower Base Stations

Maximum Ratings

- 10kA surge capability at 8 x 20µsec waveform

Electrical Characteristics

| Part Numbers | Standoff Voltage (V _{SO}) | Max. Reverse Leakage (I _R) @V _{SO} | Reverse Breakdown Voltage (V _{BR}) @ I _T | | | Test Current I _T | Max. Clamping Voltage V _{CL} @ Peak Pulse Current (I _{PP}) | | | Max. Temp Coefficient of V _{BR} | Max. Capacitance 0 Bias 10kHz |
|---------------|-------------------------------------|---|---|-----------|------|-----------------------------|---|----------------------------------|-----------------------------------|--|-------------------------------|
| | (V) | (µA) | Min Volts | Max Volts | (mA) | V _{CL} Volts | I _{PP} 8/20µS min (A) | I _{PP} 10/350µS min (A) | I _{PP} 10/1000µS min (A) | (%/°C) | (nF) |
| SMDMAX40-58CA | 58 | 10 | 64 | 70 | 10 | 110 | 10,000 | 1,400 | 427 | 0.1 | 8.5 |
| SMDMAX40-66CA | 66 | 10 | 72 | 80 | 10 | 120 | 10,000 | 950 | 371 | 0.1 | 7.5 |
| SMDMAX40-76CA | 76 | 10 | 85 | 95 | 10 | 140 | 10,000 | 950 | 320 | 0.1 | 6.5 |
| SMDMAX40-80CA | 80 | 10 | 89 | 100 | 10 | 150 | 10,000 | 900 | 304 | 0.1 | 6.5 |
| SMDMAX40-86CA | 86 | 10 | 95 | 105 | 10 | 157 | 10,000 | 900 | 383 | 0.1 | 6.5 |

Note: Using 8/20µS wave shaped defined in IEC 61000-4-5.

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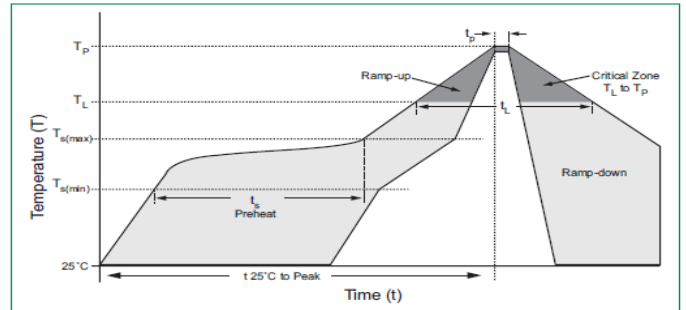
Surface Mount Transient Voltage Suppressor

40000 Watt Peak Pulse Power

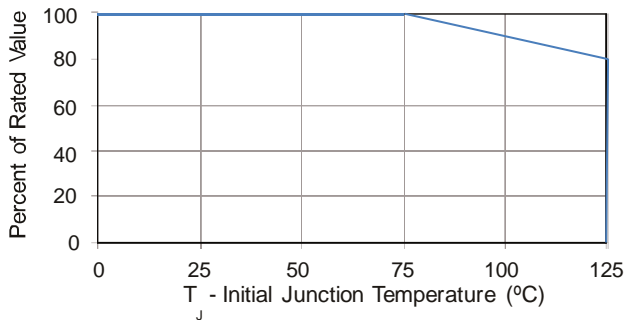
Stand-off Voltage 58 to 86 Volts

Solder Parameters

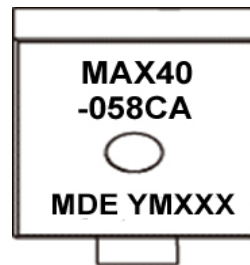
| Reflow Condition | | Lead-free assembly |
|--|------------------------------------|-------------------------|
| Pre Heat | - Temperature Min ($T_{s(min)}$) | 150°C |
| | - Temperature Max ($T_{s(max)}$) | 200°C |
| | - Time (min to max) (t_s) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp (T_A) to peak) | | 3°C/second max |
| $T_{s(max)}$ to T_A - Ramp-up Rate | | 3°C/second max |
| Reflow | - Temperature (T_A) (Liquidus) | 217°C |
| | - Time (min to max) (t_s) | 60 – 150 seconds |
| Peak Temperature (T_p) | | 260 ^{+0/-5} °C |
| Time within 5°C of actual peak Temperature (t_p) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T_p) | | 8 minutes Max. |
| Do not exceed | | 260°C |



Peak Power Derating



Part Marking



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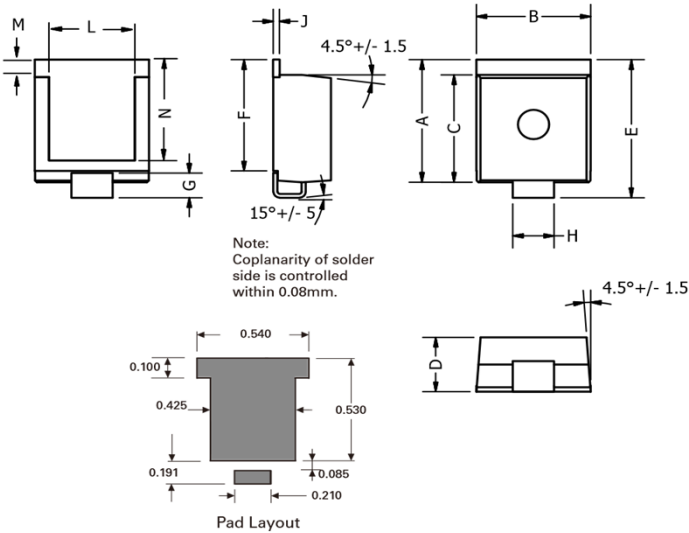
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Dimensions-SMTO-218



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | Min | Max | Min | Max |
| A | 0.621 | 0.655 | 15.78 | 16.63 |
| B | 0.529 | 0.594 | 13.43 | 15.09 |
| C | 0.544 | 0.561 | 13.83 | 14.24 |
| D | 0.273 | 0.285 | 6.94 | 7.24 |
| E | 0.702 | 0.737 | 17.82 | 18.72 |
| F | 0.567 | 0.587 | 14.4 | 14.9 |
| G | 0.087 | 0.126 | 2.2 | 3.2 |
| H | 0.193 | 0.222 | 4.89 | 5.65 |
| J | 0.028 | 0.033 | 0.72 | 0.85 |
| L | 0.4 | 0.44 | 10.17 | 11.17 |
| M | 0.073 | 0.112 | 1.85 | 2.85 |
| N | 0.51 | 0.533 | 12.95 | 13.55 |

Packaging

| Part Number | Packing Mode | Base |
|------------------|----------------------------|--------------|
| SMDMAX40-xxCA | Tape & Reel – 32mm/13"tape | 400 |
| SMDMAX40-xxCA-TP | Tube Pack | 100(25/Tube) |

Tape and Reel Specification

