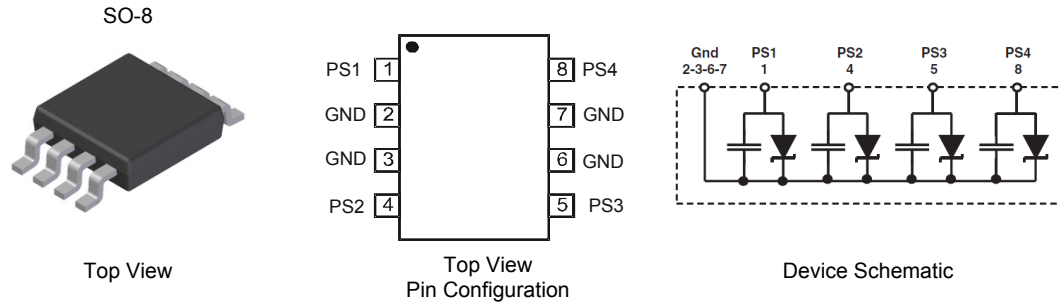


## Features

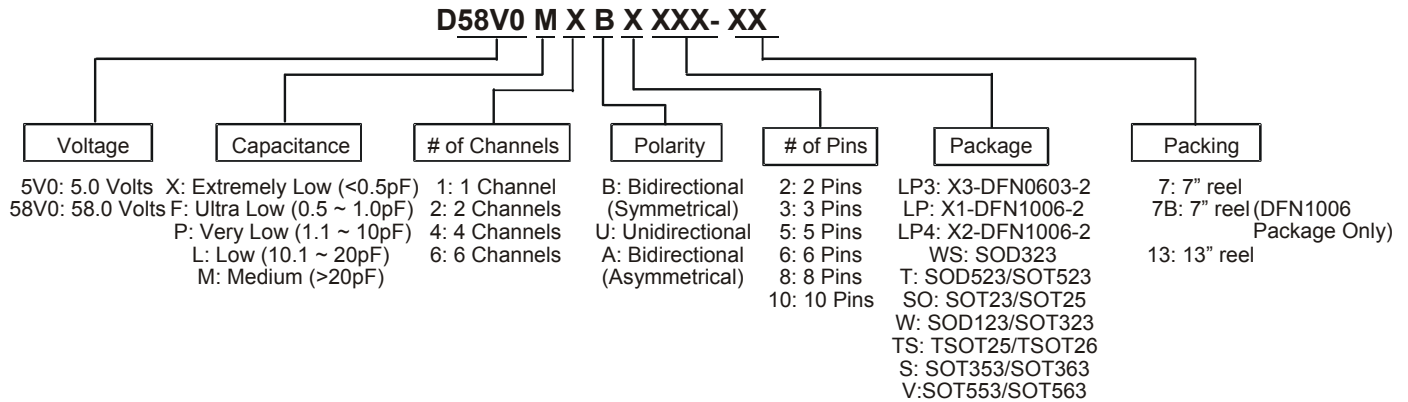
- 2.7kW Peak Pulse Power ( $t_p = 8 \times 20\mu s$ )
- Provides ESD Protection per IEC 61000-4-2 Standard:  
Air  $\pm 30kV$ , Contact  $\pm 30kV$
- 4 Channels of ESD Protection and 4 Decoupling Capacitances
- Typically Used in Power Over Ethernet PSE Equipment against Line Overvoltages
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SO-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 <sup>(3)</sup>
- Weight: 0.08 grams (approximate)



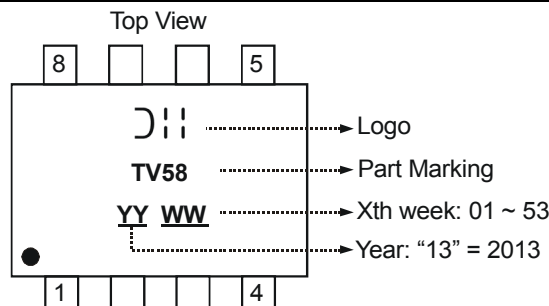
## Ordering Information (Note 4)



| Product        | Compliance | Marking | Reel size(inches) | Tape width(mm) | Quantity per reel |
|----------------|------------|---------|-------------------|----------------|-------------------|
| D58V0M4U8MR-13 | Standard   | TV58    | 13                | 12             | 2500/Tape & Reel  |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.), Per Element

| Characteristic                     | Symbol                   | Value | Unit | Conditions             |
|------------------------------------|--------------------------|-------|------|------------------------|
| Peak Pulse Power Dissipation       | P <sub>PP</sub>          | 2700  | W    | 8/20μs, Per Figure 1   |
| Peak Pulse Current                 | I <sub>PP</sub>          | 24    | A    | 8/20μs, Per Figure 1   |
| ESD Protection – Contact Discharge | V <sub>ESD_Contact</sub> | ±30   | kV   | IEC 61000-4-2 Standard |
| ESD Protection – Air Discharge     | V <sub>ESD_Air</sub>     | ±30   | kV   | IEC 61000-4-2 Standard |

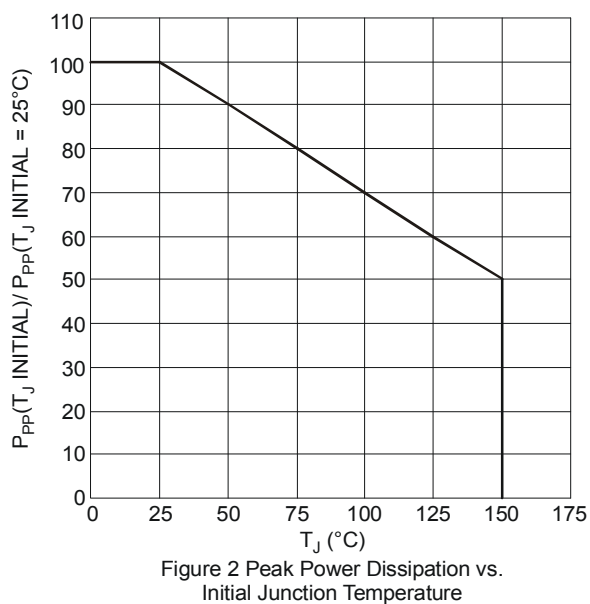
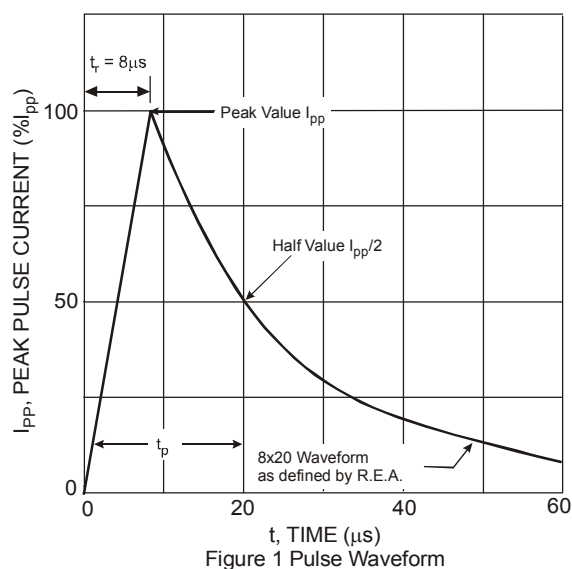
**Thermal Characteristics**

| Characteristic                                   | Symbol                            | Value       | Unit |
|--------------------------------------------------|-----------------------------------|-------------|------|
| Package Power Dissipation (Note 5)               | P <sub>D</sub>                    | 1.0         | W    |
| Thermal Resistance, Junction to Ambient (Note 5) | R <sub>θJA</sub>                  | 125         | °C/W |
| Operating and Storage Temperature Range          | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                   | Symbol           | Min  | Typ | Max  | Unit | Test Conditions                                |
|----------------------------------|------------------|------|-----|------|------|------------------------------------------------|
| Reverse Standoff Voltage         | V <sub>RWM</sub> | —    | —   | 58   | V    | —                                              |
| Channel Leakage Current (Note 6) | I <sub>RM</sub>  | —    | —   | 0.2  | μA   | V <sub>RWM</sub> = 58V                         |
| Breakdown Voltage                | V <sub>BR</sub>  | 64.4 | —   | 71.2 | V    | I <sub>R</sub> = 1mA                           |
| Clamping Voltage                 | V <sub>CL</sub>  | —    | —   | 100  | V    | I <sub>PP</sub> = 24A, t <sub>p</sub> = 8/20μS |
| Channel Input Capacitance        | C <sub>T</sub>   | —    | 55  | —    | pF   | V <sub>R</sub> = 50V, f = 1MHz                 |

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.  
 6. Short duration pulse test used to minimize self-heating effect.



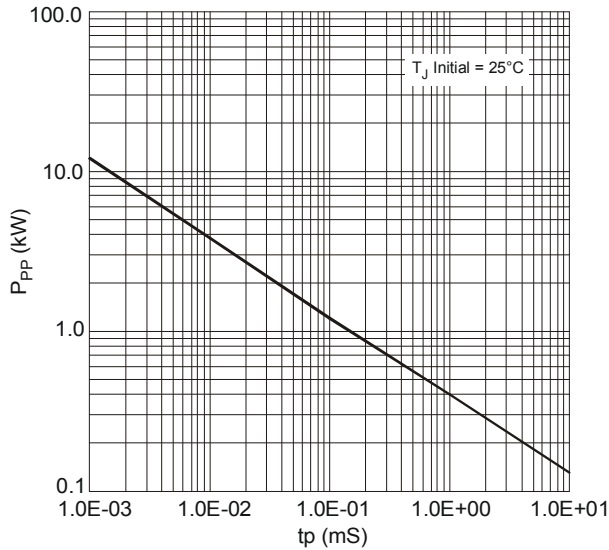


Figure 3 Peak Pulse Power vs. Exponential Pulse Duration  
( $T_J$  Initial = 25°C)

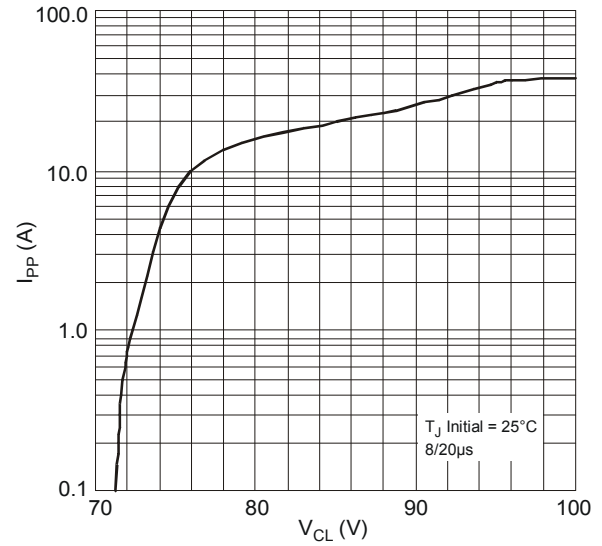


Figure 4 Clamping Voltage vs. Peak Pulse Current  
(Exponential Waveform, Maximum Values)

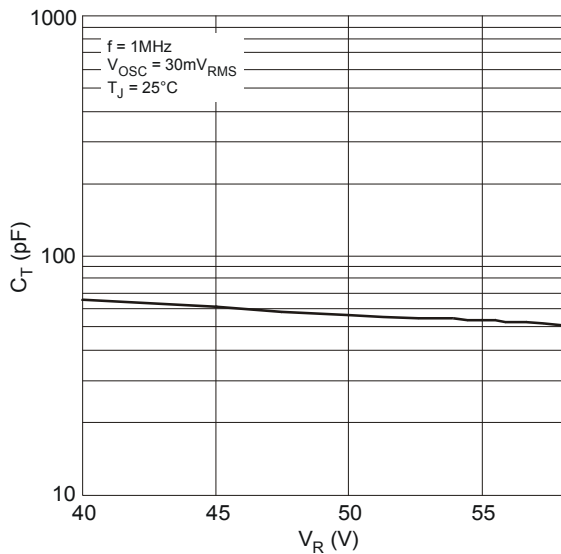


Figure 5 Capacitance vs. Voltage (typical values)

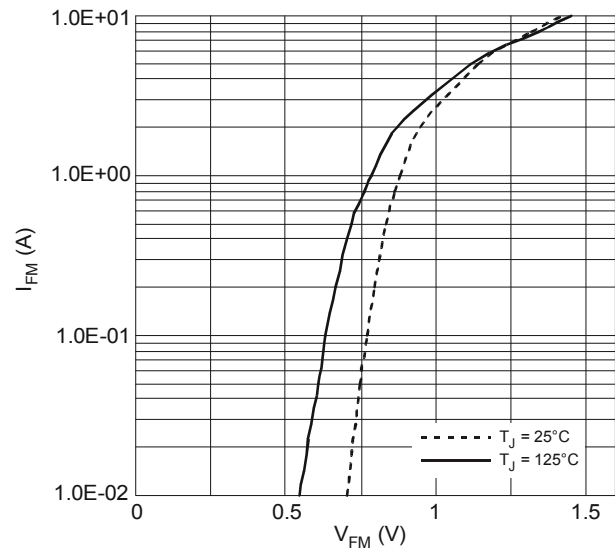


Figure 6 Peak Forward Voltage Drop vs.  
Peak Forward Current (typical values)

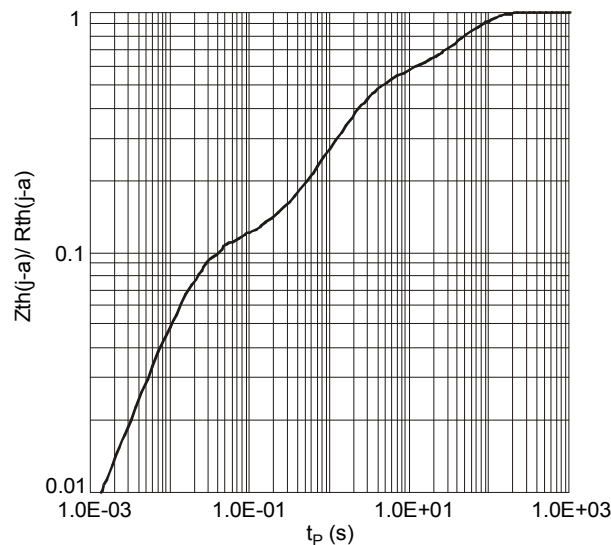


Figure 7 Relative Variation of Thermal Impedance  
Junction Ambient vs. Pulse Duration

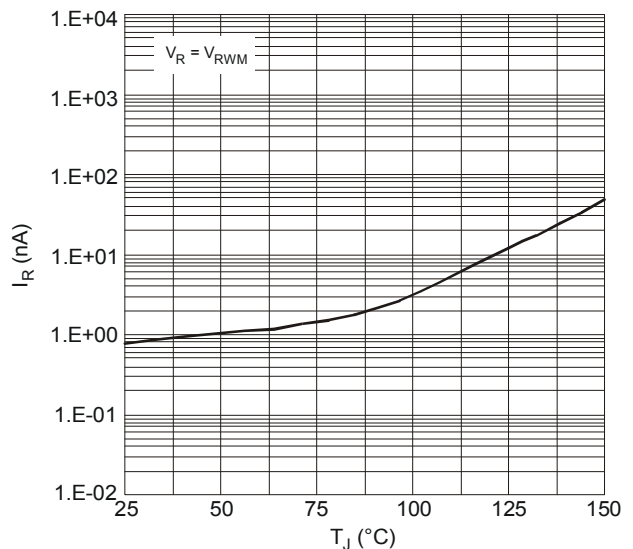
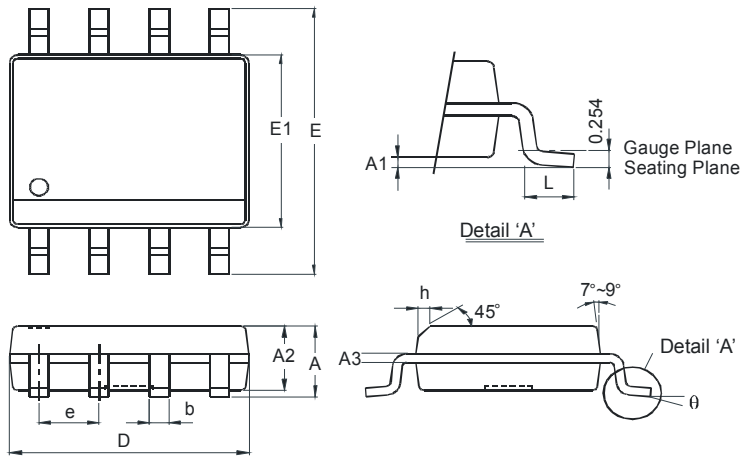


Figure 8 Leakage Current vs. Junction Temperature  
(typical values)

## Package Outline Dimensions

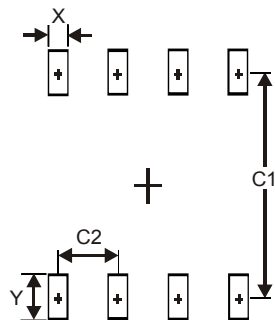
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



| SO-8                 |          |      |
|----------------------|----------|------|
| Dim                  | Min      | Max  |
| A                    | -        | 1.75 |
| A1                   | 0.10     | 0.20 |
| A2                   | 1.30     | 1.50 |
| A3                   | 0.15     | 0.25 |
| b                    | 0.3      | 0.5  |
| D                    | 4.85     | 4.95 |
| E                    | 5.90     | 6.10 |
| E1                   | 3.85     | 3.95 |
| e                    | 1.27 Typ |      |
| h                    | -        | 0.35 |
| L                    | 0.62     | 0.82 |
| $\theta$             | 0°       | 8°   |
| All Dimensions in mm |          |      |

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| X          | 0.60          |
| Y          | 1.55          |
| C1         | 5.4           |
| C2         | 1.27          |

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