

Designer's™ Data Sheet

Overvoltage Transient Suppressor

... designed for applications requiring a diode with reverse avalanche characteristics for use as reverse power transient suppressor.

Developed to suppress transients in the automotive system, this device operates in reverse mode as power zener diode and will protect expensive modules such as ignition, injection and autoblocking systems from overvoltage conditions.

- High Power Capability
- Economical

MAXIMUM RATINGS

| Parameters | Symbol | Value | Unit |
|---|-----------|-------------|------------------|
| DC Blocking Voltage | V_R | 23 | V |
| Peak Repetitive Reverse Surge Current (Time Constant = 10 ms, $T_C = 25^\circ\text{C}$) | I_{RSM} | 62 | A |
| Non Repetitive Peak Surge Current (Halfwave, Single Phase, 50 Hz) | I_{FSM} | 400 | A |
| Storage Temperature | T_{stg} | -40 to +150 | $^\circ\text{C}$ |
| Maximum Operating Junction Temperature | T_J | -40 to +150 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| Parameters | Symbol | Value | Unit |
|-------------------------------------|-----------------|-------|--------------------|
| Thermal Resistance Junction to Case | $R_{\theta JC}$ | 1.0 | $^\circ\text{C/W}$ |

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|---|--------------|-----|-------|------------------------------|
| Instantaneous Forward Voltage ($I_F = 100\text{ A}$) (1) | V_F | — | 1.1 | V |
| Reverse Current ($V_R = 20\text{ V}$) (1) | I_R | — | 5.0 | μA |
| Breakdown Voltage ($I_Z = 100\text{ mA}$) (1) | $V_{(BR)}$ | 24 | 32 | V |
| Breakdown Voltage ($I_Z = 80\text{ A}$, $T_C = 85^\circ\text{C}$, $PW = 80\ \mu\text{s}$) | $V_{(BR)}$ | — | 40 | V |
| Breakdown Voltage Temperature Coefficient | $V_{(BR)TC}$ | — | 0.09 | $\% / ^\circ\text{C}$ |
| Forward Voltage Temperature Coefficient ($I_F = 10\text{ mA}$) | V_{FTC} | — | -2.0* | $\text{mV} / ^\circ\text{C}$ |

MECHANICAL CHARACTERISTICS

| | |
|-----------------------------------|--|
| Finish | All External Surfaces are Corrosion Resistant |
| Polarity | Cathode to Terminal |
| Weight | 1.78 g* |
| Maximum Temperature for Soldering | 260 $^\circ\text{C}$ for 10 s Using Belt Furnace |

1. Pulse Test: Pulse Width < 300 μs , Duty Cycle < 2%.

* Typical

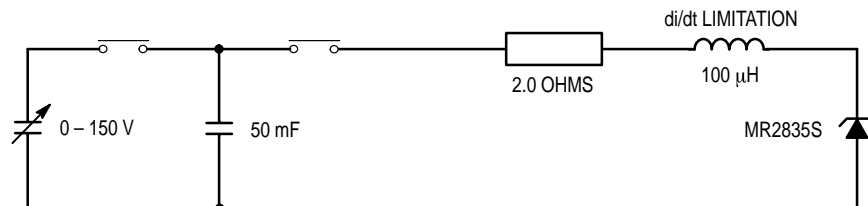
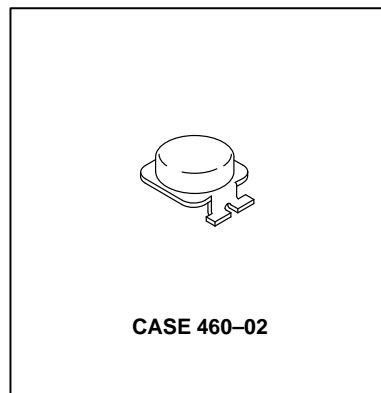
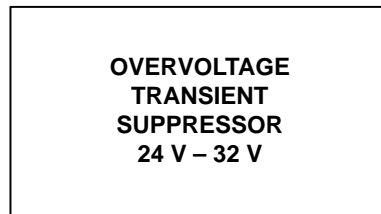


Figure 1. Load Dump Test Circuit

Designer's Data for "Worst Case" Conditions — The Designer's Data Sheet permits the design of most circuits entirely from the information presented. SOA Limit curves — representing boundaries on device characteristics — are given to facilitate "worst case" design.

REV 1



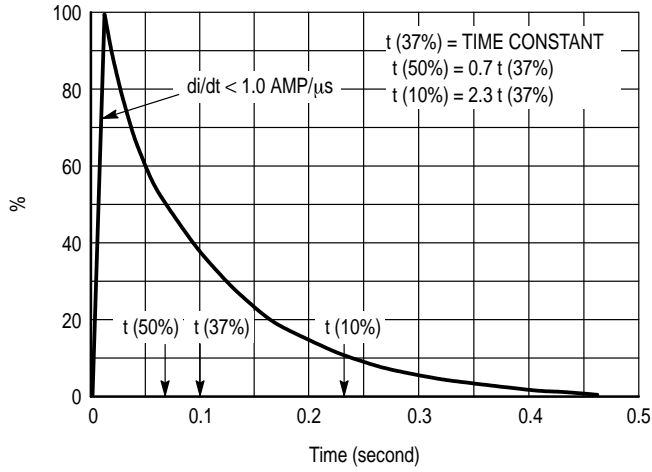


Figure 2. Load Dump Pulse Current

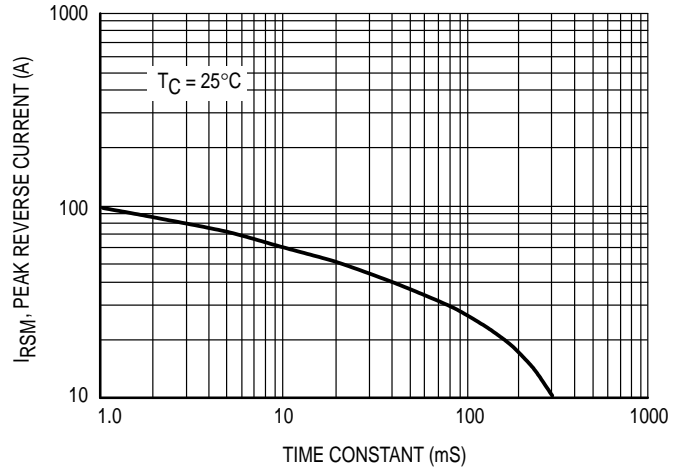


Figure 3. Maximum Peak Reverse Current

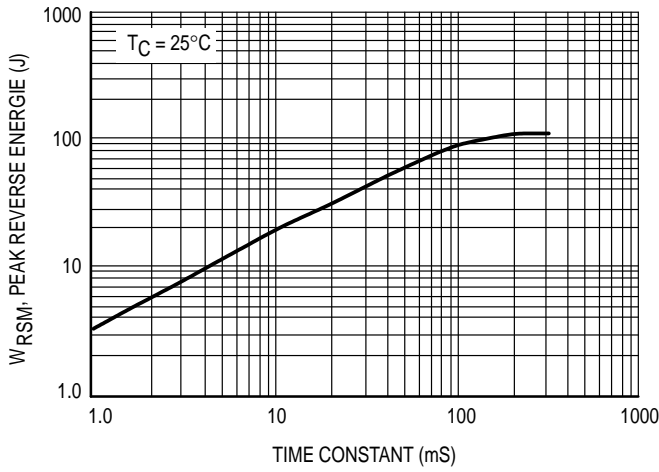


Figure 4. Maximum Reverse Energy

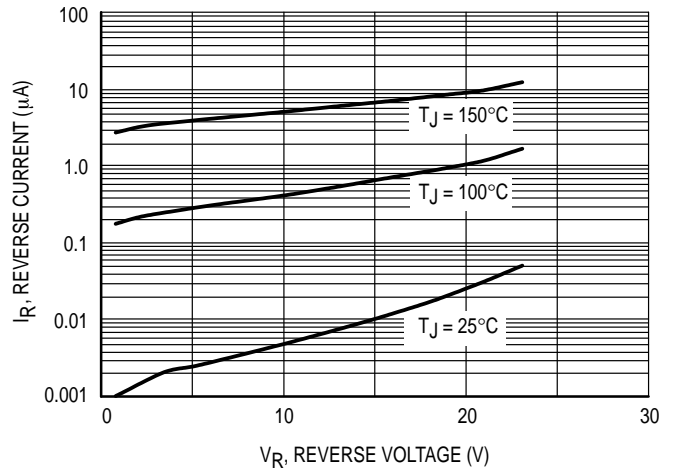


Figure 5. Typical Reverse Current

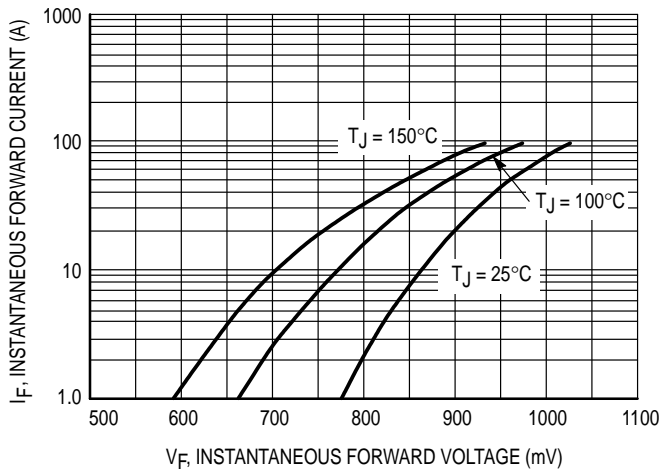


Figure 6. Typical Forward Voltage

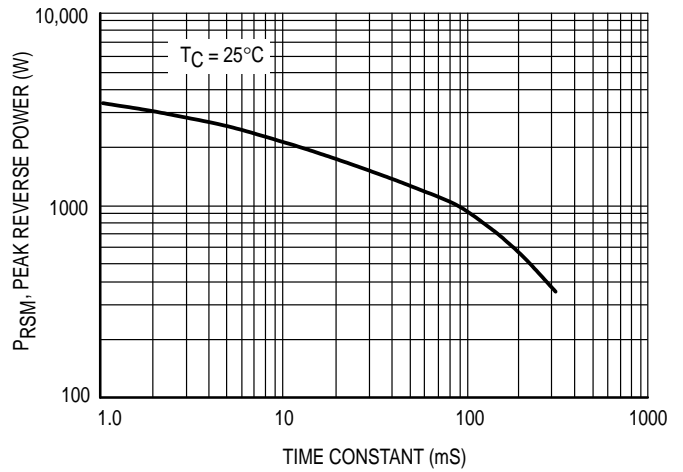


Figure 7. Maximum Peak Reverse Power

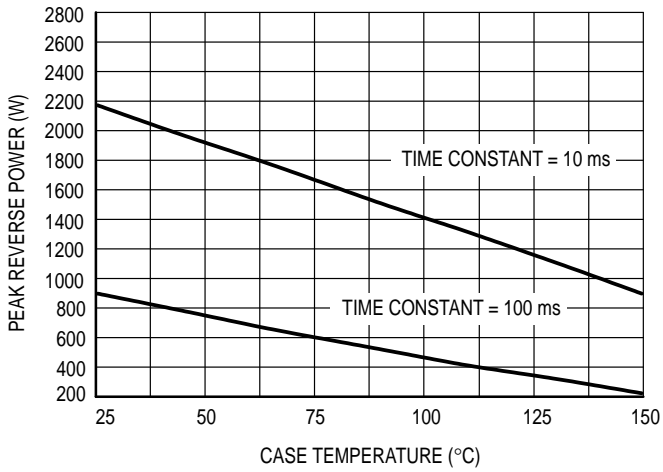


Figure 8. Reverse Power Derating

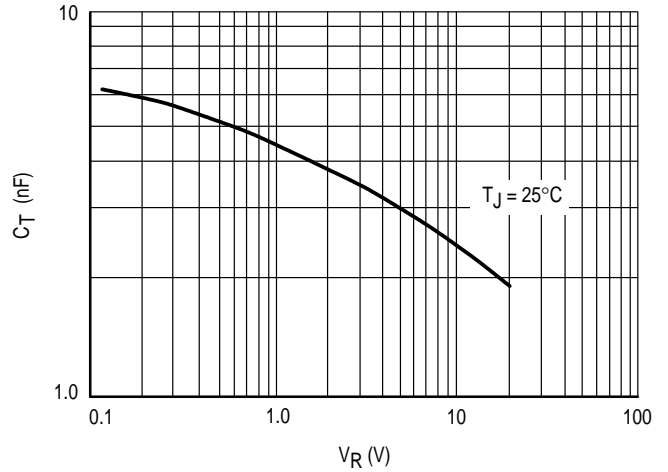


Figure 9. Typical Reverse Capacitance

Reel of 500 Units

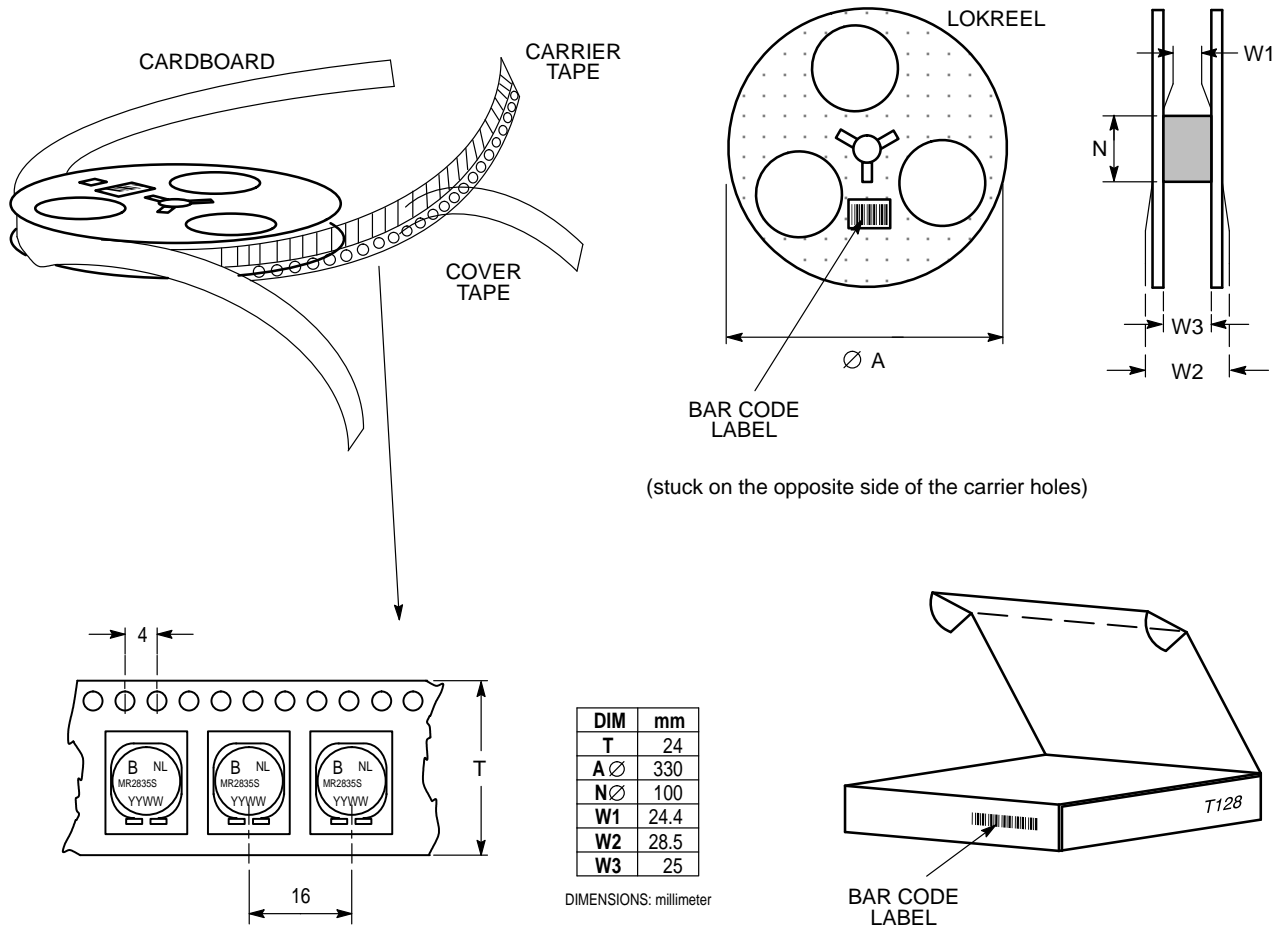
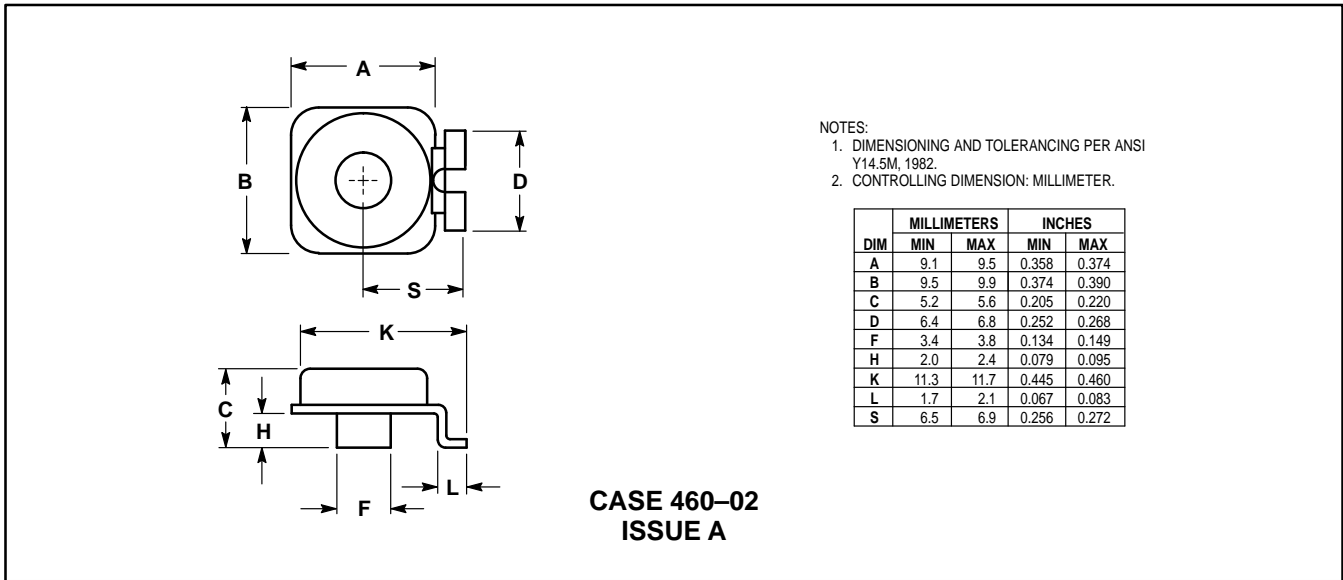
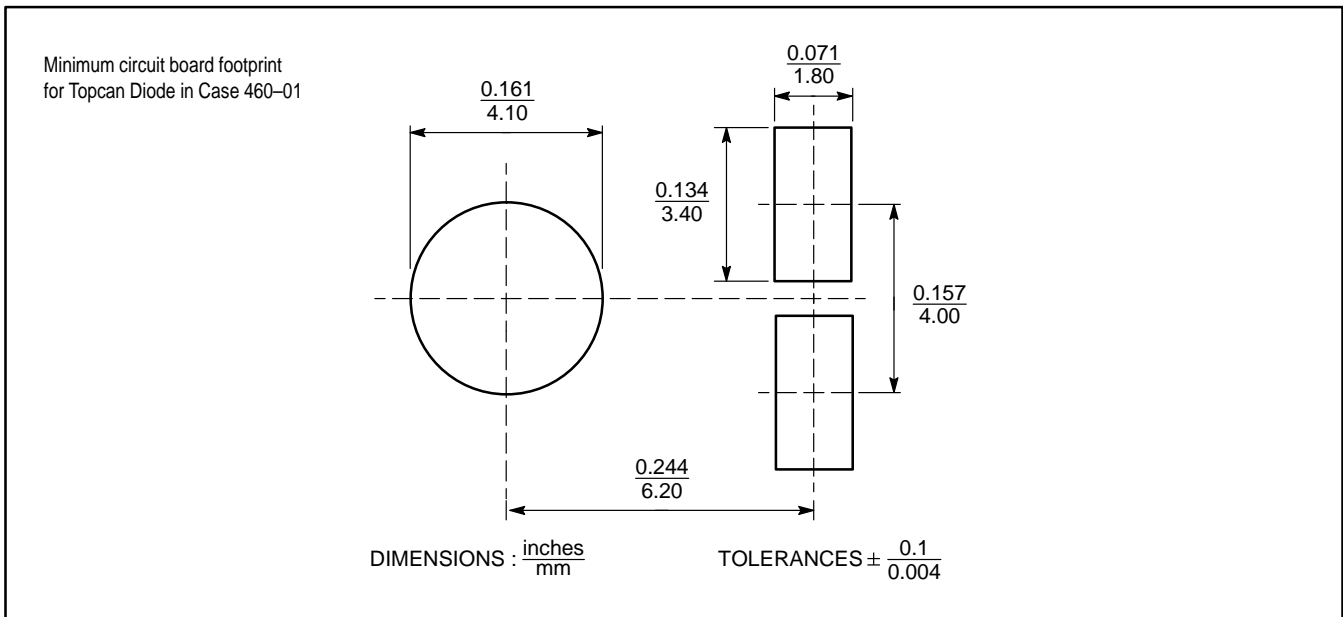


Figure 10. Reel Packing of MR2835S — Top Can

PACKAGE DIMENSIONS



FOOTPRINT



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