# *Designer's™ Data Sheet*
# Overvoltage Transient Suppressor

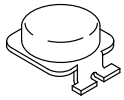
**MR2835S**

. . . 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

**OVERVOLTAGE TRANSIENT SUPPRESSOR 24 V – 32 V**



**CASE 460–02**

### 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°C) | $I_{RSM}$ | 62 | A |
| Non Repetitive Peak Surge Current (Halfwave, Single Phase, 50 Hz) | $I_{FSM}$ | 400 | A |
| Storage Temperature | Tstg | –40 to +150 | °C |
| Maximum Operating Junction Temperature | $T_J$ | –40 to +150 | °C |

### THERMAL CHARACTERISTICS

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

### ELECTRICAL CHARACTERISTICS ($T_C$ = 25°C unless otherwise noted)

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

### MECHANICAL CHARACTERISTICS

| | |
|---|---|
| Finish | All External Surfaces are Corrosion Resistant |
| Polarity | Cathode to Terminal |
| Weight | 1.78 g* |
| Maximum Temperature for Soldering | 260°C for 10 s Using Belt Furnace |

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

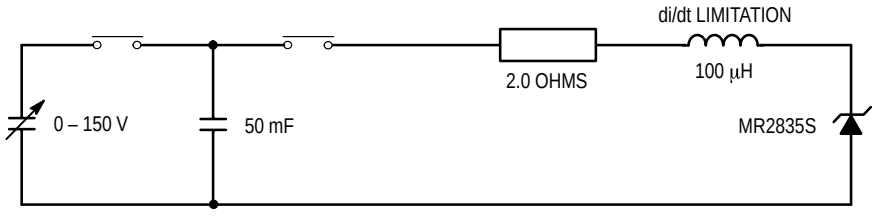



**Figure 1. Load Dump Test Circuit**

**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

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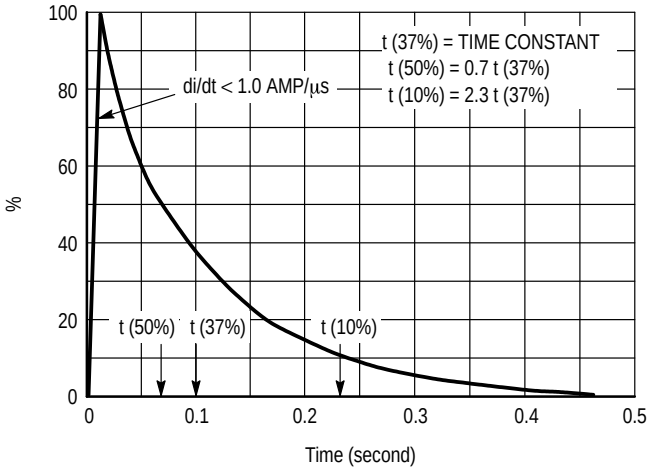



**Figure 2. Load Dump Pulse Current**

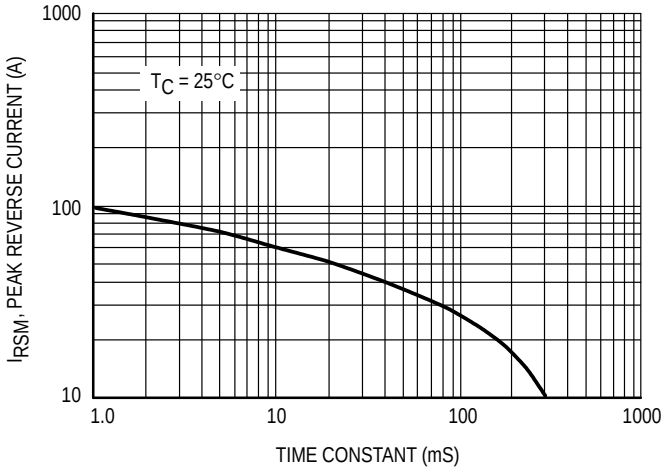



**Figure 3. Maximum Peak Reverse Current**

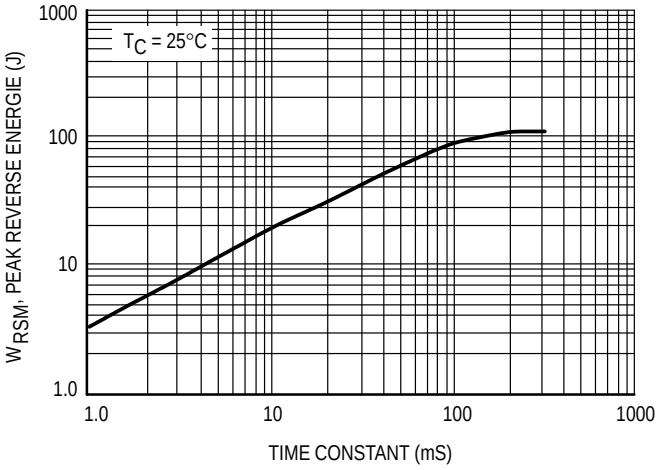



**Figure 4. Maximum Reverse Energie**

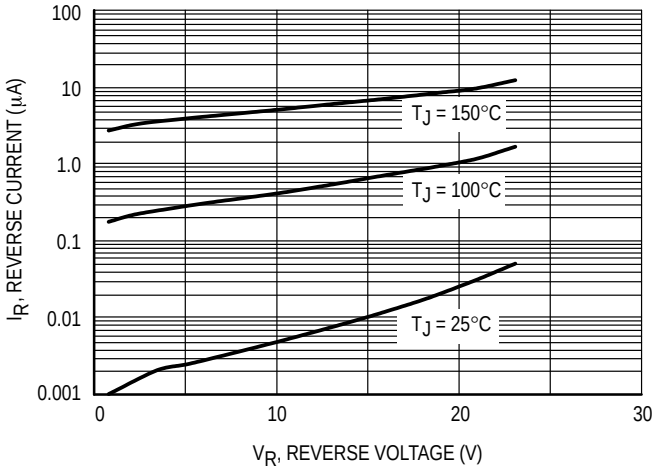



**Figure 5. Typical Reverse Current**

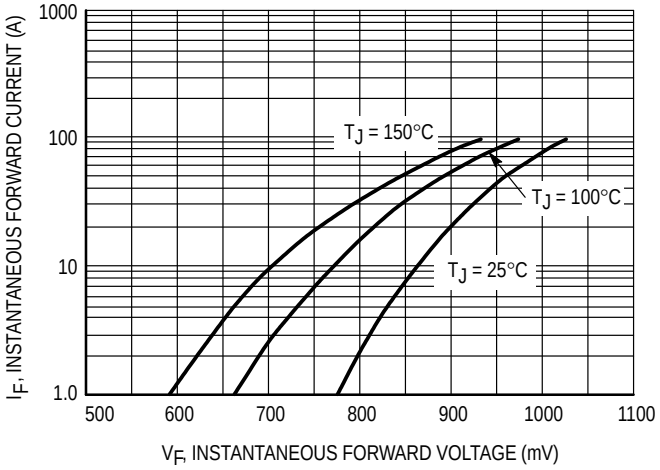



**Figure 6. Typical Forward Voltage**

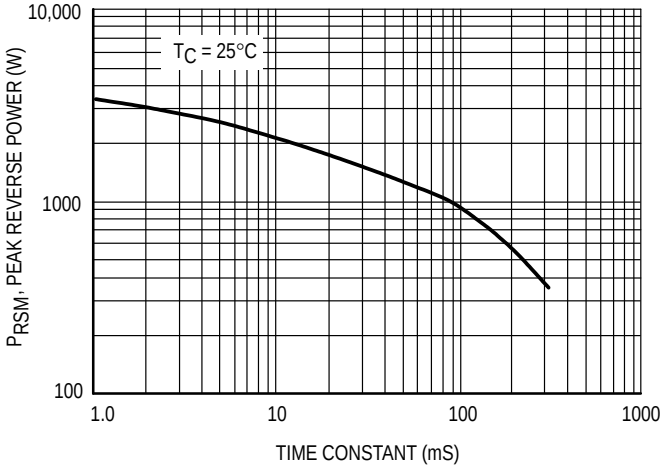



**Figure 7. Maximum Peak Reverse Power**

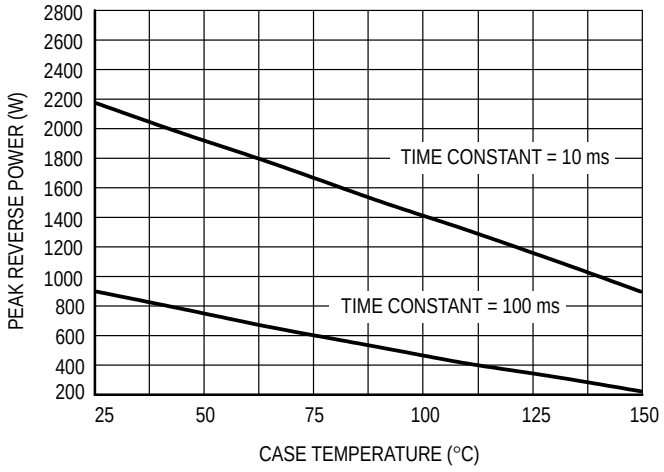



**Figure 8. Reverse Power Derating**

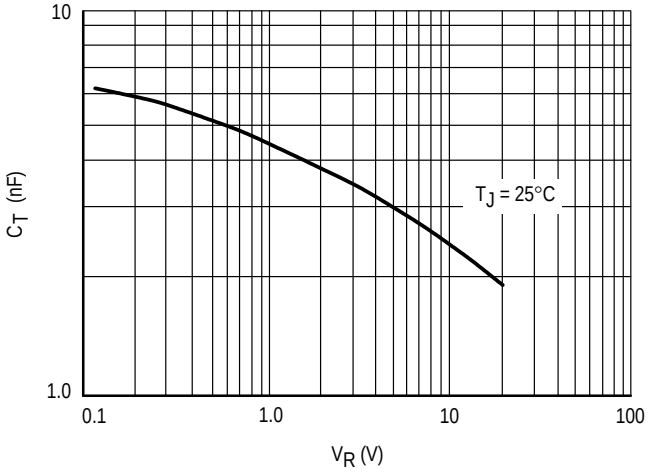
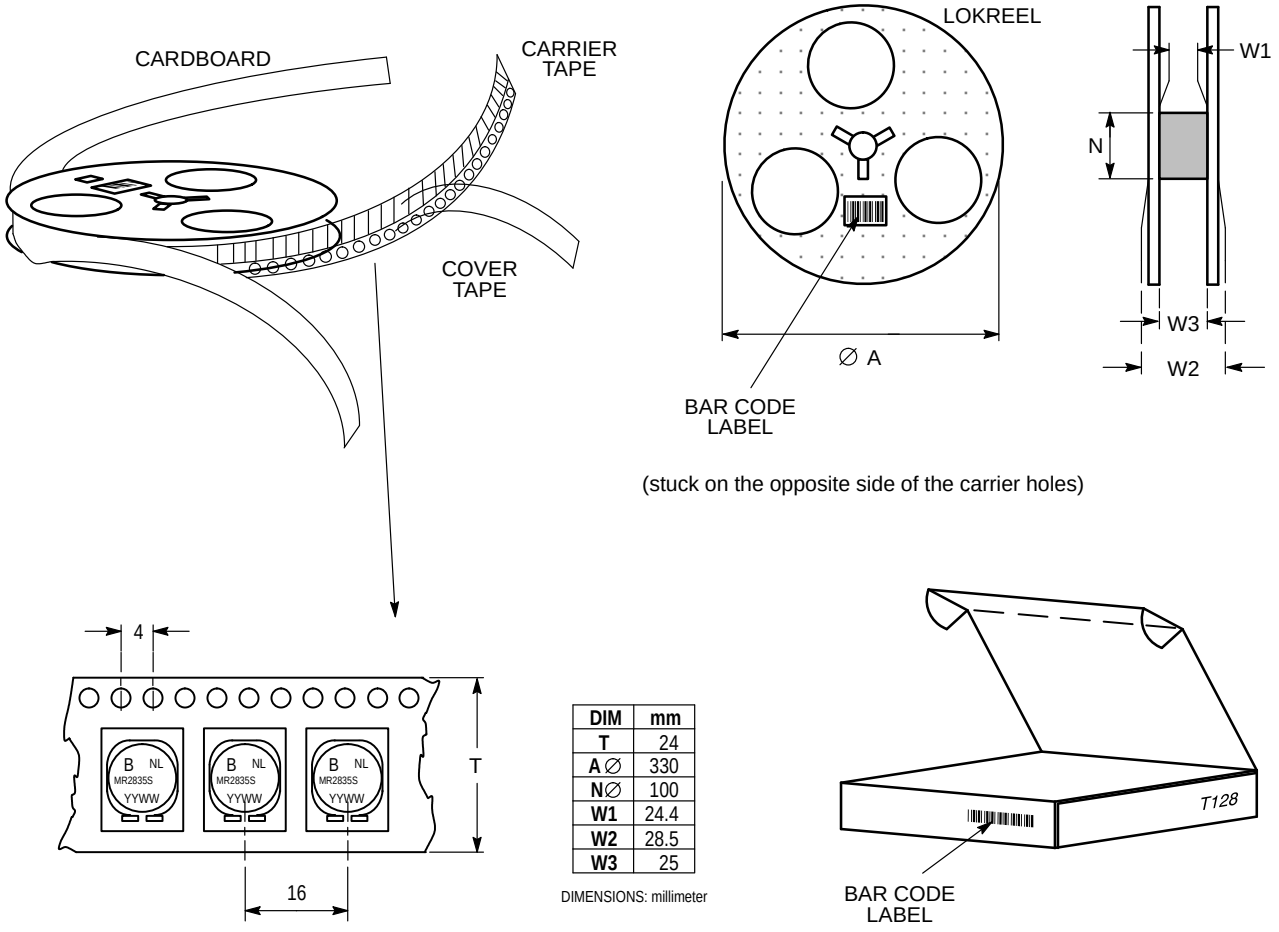



**Figure 9. Typical Reverse Capacitance**

**Reel of 500 Units**

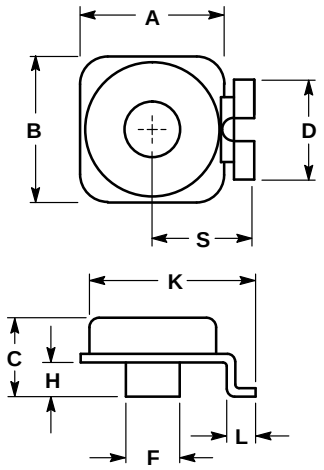



| DIM | mm |
|---|---|
| T | 24 |
| A ∅ | 330 |
| N ∅ | 100 |
| W1 | 24.4 |
| W2 | 28.5 |
| W3 | 25 |

DIMENSIONS: millimeter

**Figure 10. Reel Packing of MR2835S — Top Can**

## PACKAGE DIMENSIONS



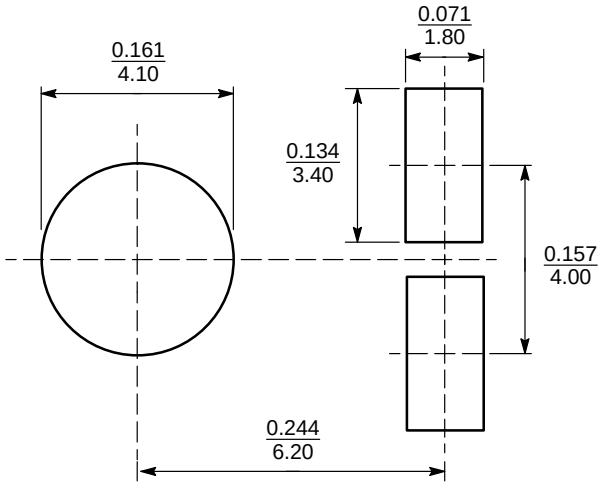

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

| | MILLIMETERS | | INCHES | |
|---|---|---|---|---|
| DIM | MIN | MAX | MIN | MAX |
| A | 9.1 | 9.5 | 0.358 | 0.374 |
| B | 9.5 | 9.9 | 0.374 | 0.390 |
| C | 5.2 | 5.6 | 0.205 | 0.220 |
| D | 6.4 | 6.8 | 0.252 | 0.268 |
| F | 3.4 | 3.8 | 0.134 | 0.149 |
| H | 2.0 | 2.4 | 0.079 | 0.095 |
| K | 11.3 | 11.7 | 0.445 | 0.460 |
| L | 1.7 | 2.1 | 0.067 | 0.083 |
| S | 6.5 | 6.9 | 0.256 | 0.272 |

**CASE 460–02**
**ISSUE A**

## FOOTPRINT

Minimum circuit board footprint
for Topcan Diode in Case 460–01




DIMENSIONS : $\frac{\text{inches}}{\text{mm}}$ TOLERANCES $\pm \frac{0.1}{0.004}$

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