

# MR2835S

## 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

### Mechanical Characteristics

- Finish: All External Surfaces are Corrosion Resistant
- Polarity: Cathode to Terminal
- Weight: 1.78 Grams (Approximately)
- Maximum Temperature for Soldering Purposes:  
260°C for 10 s using a Belt Furnace
- Marking: MR2835S

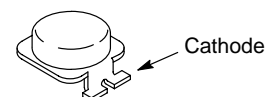
### MAXIMUM RATINGS

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



ON Semiconductor™

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TOP CAN  
CASE 460

### MARKING DIAGRAM



## = Lot Number  
MR2835S = Specific Device Code  
YY = Year  
WW = Work Week

### ORDERING INFORMATION

Device	Package	Shipping
MR2835S	Top Can	500/Tape & Reel

# MR2835S

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.0	$^{\circ}C/W$

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

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

1. Pulse Test: Pulse Width < 300  $\mu s$ , Duty Cycle < 2%.

\*Typical

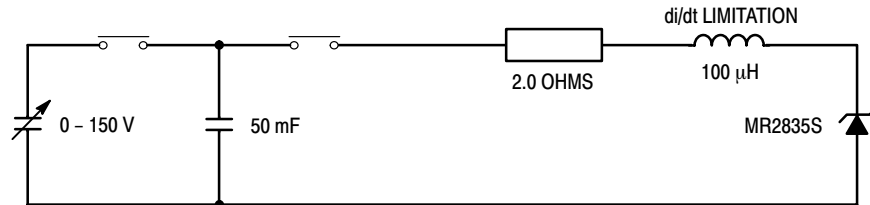


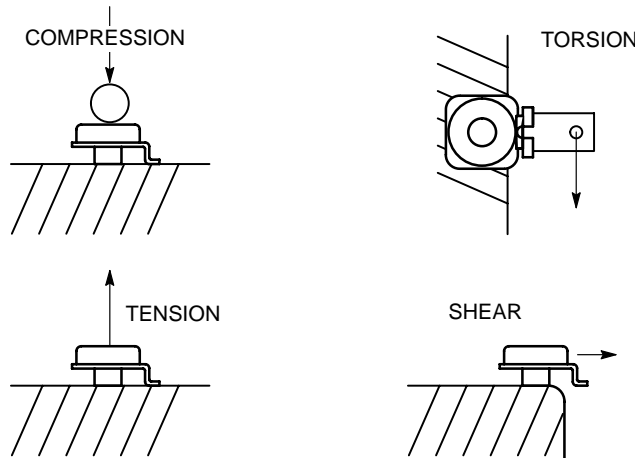
Figure 1. Load Dump Test Circuit

## MOUNTING AND HANDLING

The mechanical stress limits for the Top Can diode are as follows:

Compression:	33.7 lbs	150 newtons
Tension:	33.7 lbs	150 newtons
Torsion:	6.3 inch lbs	0.7 newton meters
Shear:	56.2 lbs	250 newtons

## MECHANICAL STRESS



# MR2835S

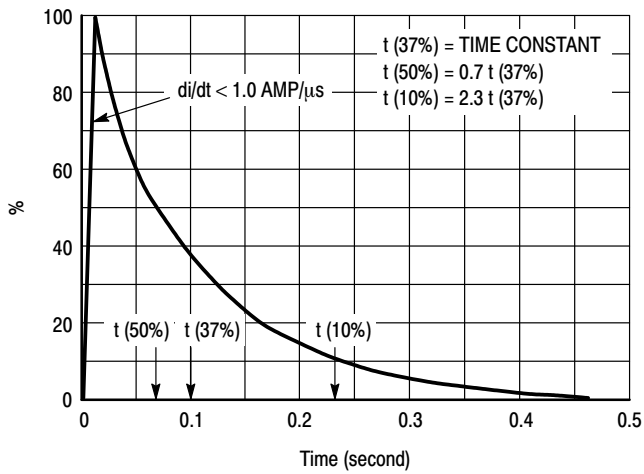


Figure 2. Load Dump Pulse Current

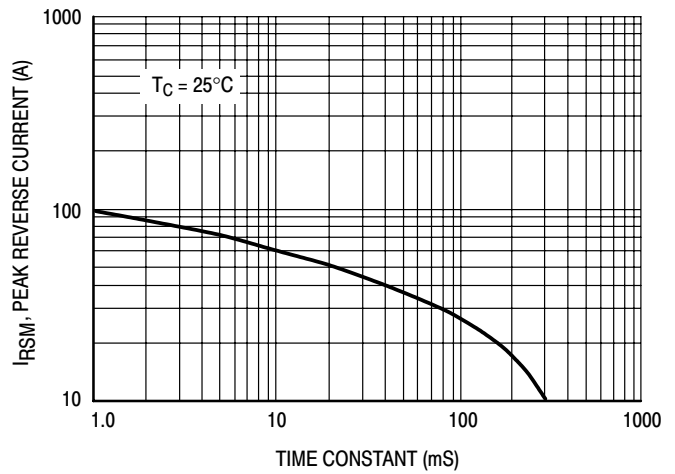


Figure 3. Maximum Peak Reverse Current

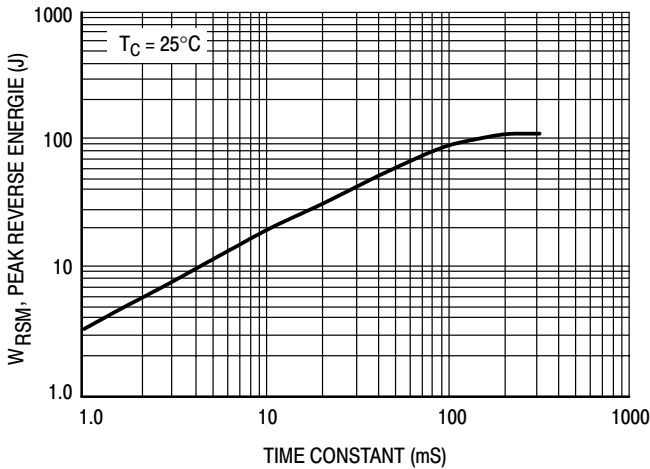


Figure 4. Maximum Reverse Energie

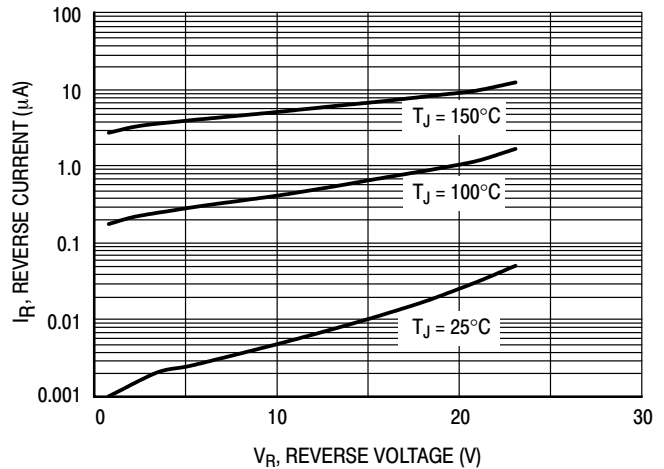


Figure 5. Typical Reverse Current

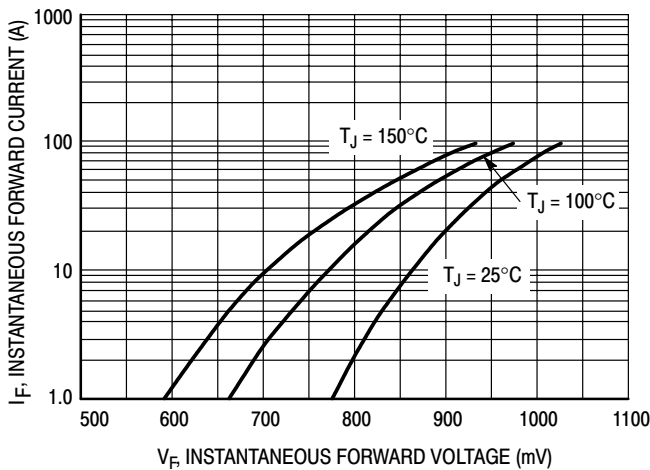


Figure 6. Typical Forward Voltage

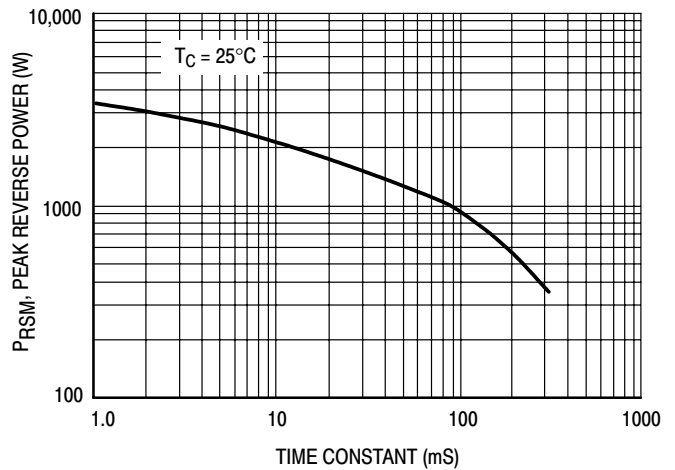


Figure 7. Maximum Peak Reverse Power

# MR2835S

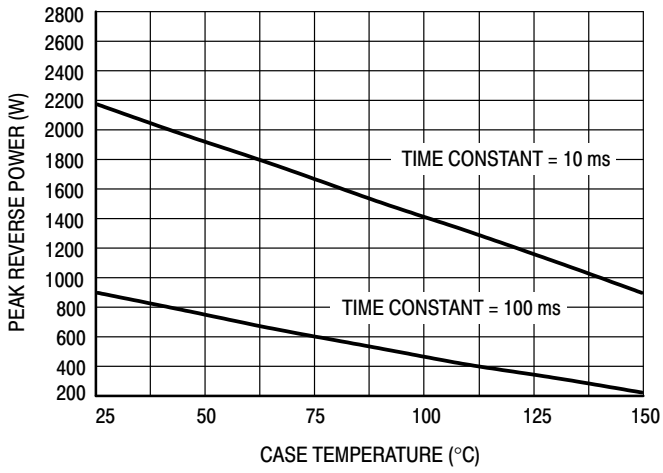


Figure 8. Reverse Power Derating

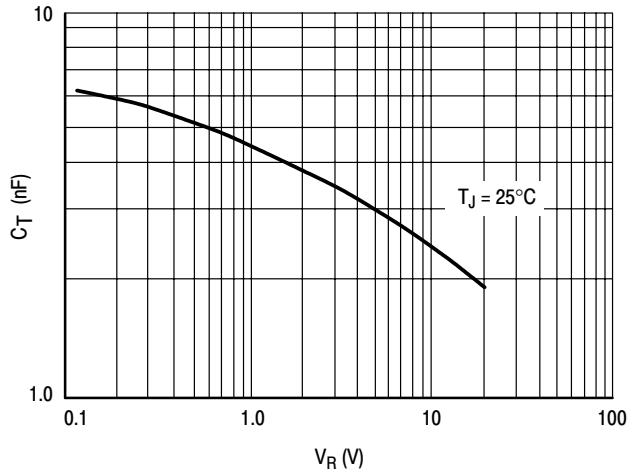


Figure 9. Typical Reverse Capacitance

## Reel of 500 Units

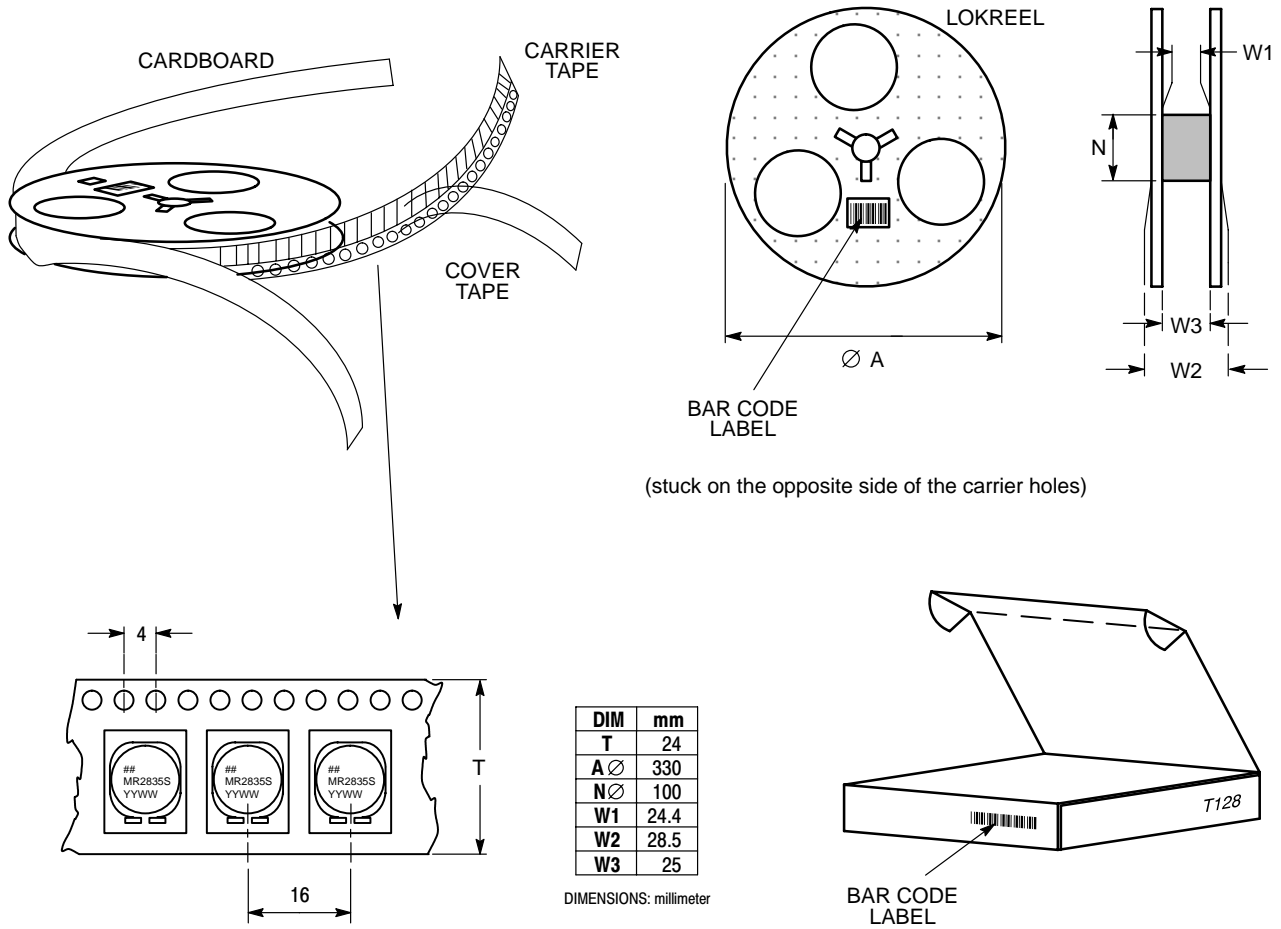
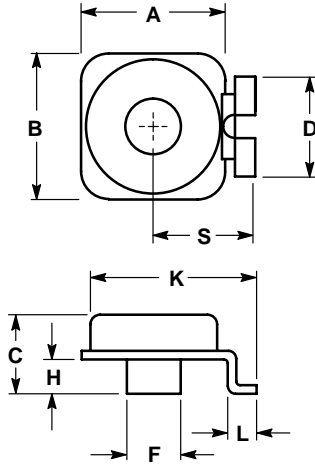


Figure 10. Reel Packing of MR2835S – Top Can

# MR2835S

## PACKAGE DIMENSIONS

TOP CAN  
CASE 460-02  
ISSUE A



NOTES:

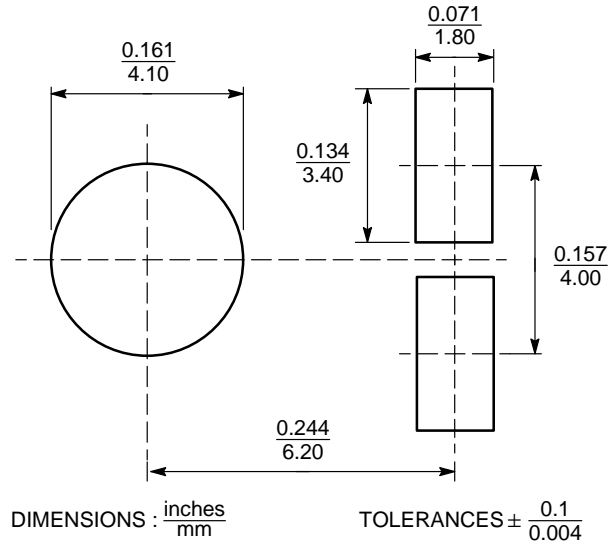
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS		INCHES	
	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


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## FOOTPRINT

Minimum circuit board footprint  
for Topcan Diode in Case 460-02



**Notes**

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