

Overvoltage Transient Suppressor

The overvoltage transient suppressor is 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.

Features

- High Power Capability
- Economical
- This is a Pb-Free Device

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

MAXIMUM RATINGS

Rating	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 (Half-wave, Single Phase, 50 Hz)	I_{FSM}	400	A
Storage Temperature Range	T_{stg}	-40 to +150	°C
Operating Junction Temperature Range	T_J	-40 to +150	°C

THERMAL CHARACTERISTICS

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

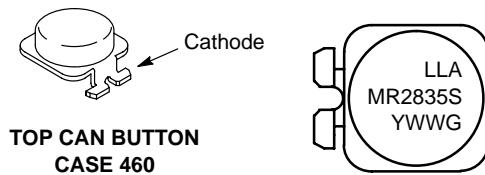
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



ON Semiconductor®

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MARKING DIAGRAM



TOP CAN BUTTON
CASE 460

LLA = Lot Number
MR2835S = Specific Device Code
Y = Year
WW = Work Week
G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping†
MR2835SK	Top Can Button*	500/Tape & Reel
MR2835SKG	Top Can Button*	500/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*This package is inherently Pb-Free.

MR2835SK

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

Characteristic	Symbol	Min	Max	Unit
Instantaneous Forward Voltage ($I_F = 100 \text{ A}$) (Note 1)	V_F	—	1.1	V
Reverse Current ($V_R = 20 \text{ V}$) (Note 1)	I_R	—	5.0	μA
Breakdown Voltage ($I_Z = 100 \text{ mA}$) (Note 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	$^\circ\text{C}/\text{mV}$
Forward Voltage Temperature Coefficient ($I_F = 10 \text{ mA}$)	V_{FTC}	—	-2.0*	$\text{mV}/^\circ\text{C}$

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

*Typical

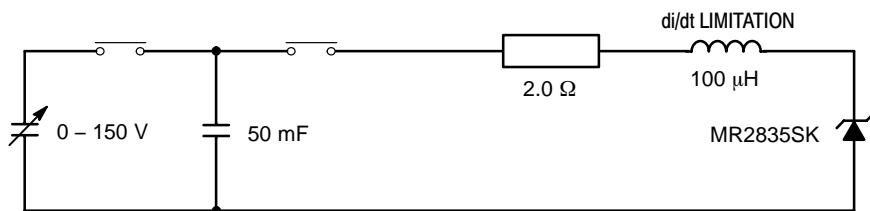


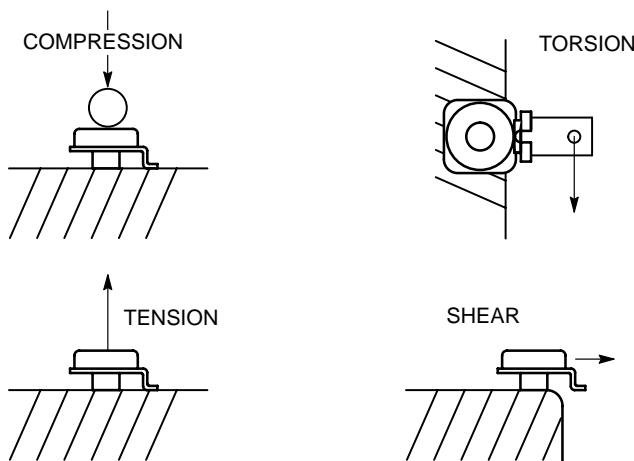
Figure 1. Load Dump Test Circuit

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



MR2835SK

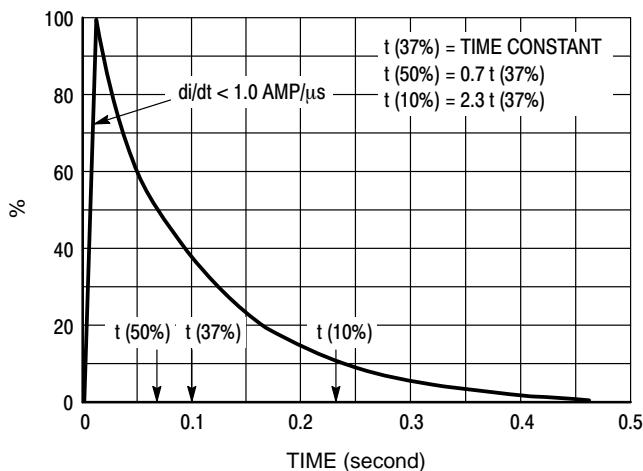


Figure 2. Load Dump Pulse Current

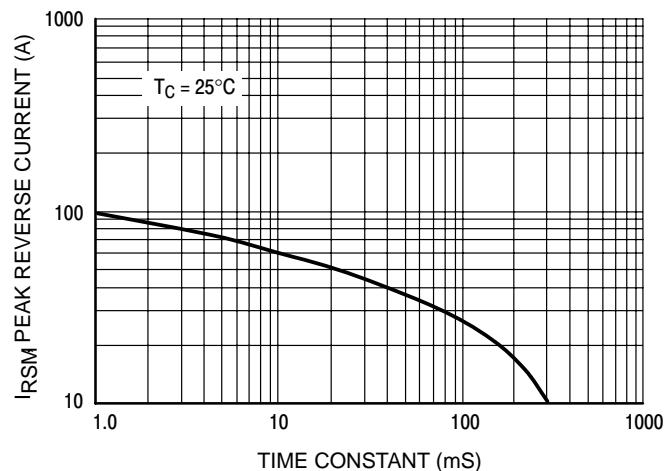


Figure 3. Maximum Peak Reverse Current

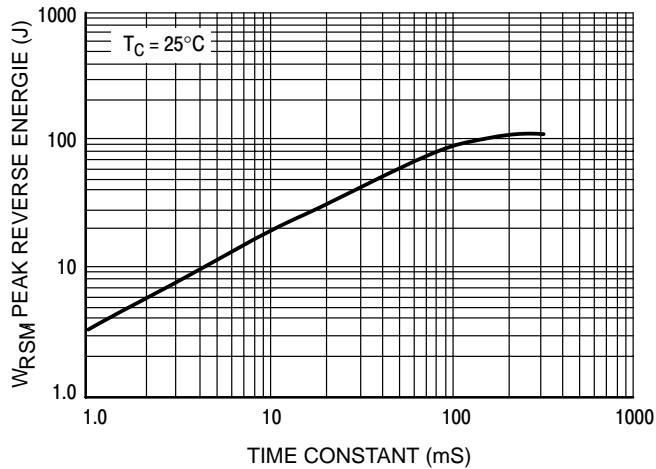


Figure 4. Maximum Reverse Energy

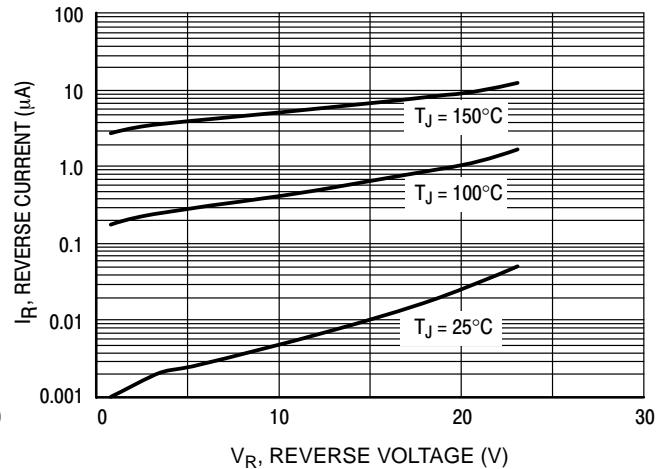


Figure 5. Typical Reverse Current

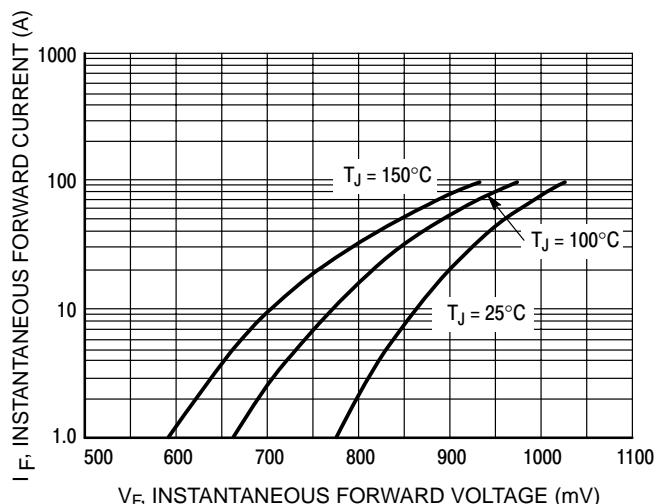


Figure 6. Typical Forward Voltage

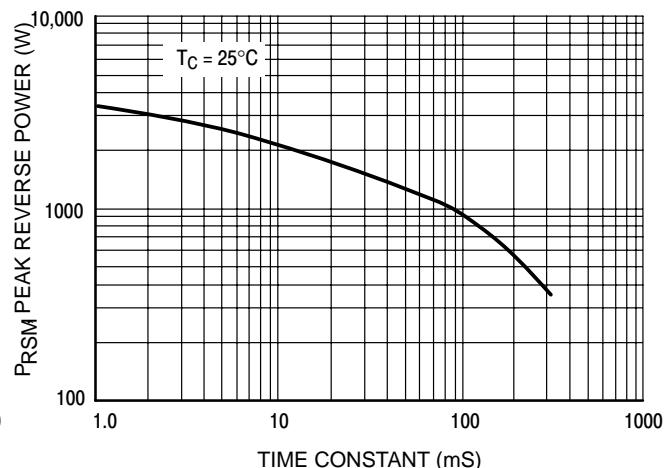


Figure 7. Maximum Peak Reverse Power

MR2835SK

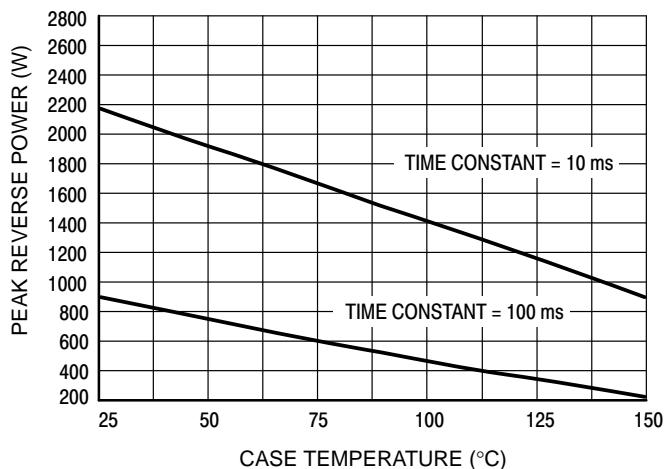


Figure 8. Reverse Power Derating

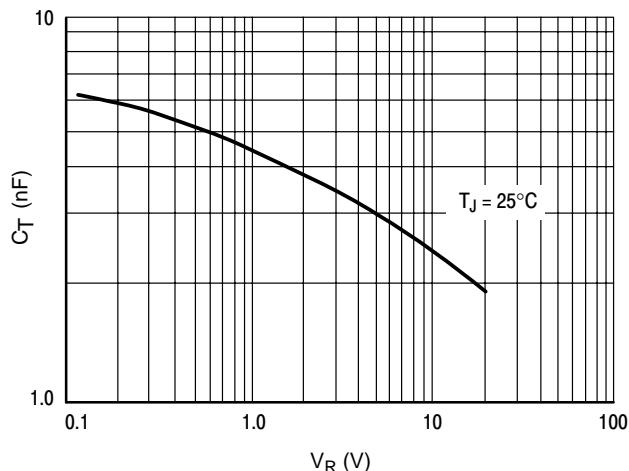


Figure 9. Typical Reverse Capacitance

Reel of 500 Units

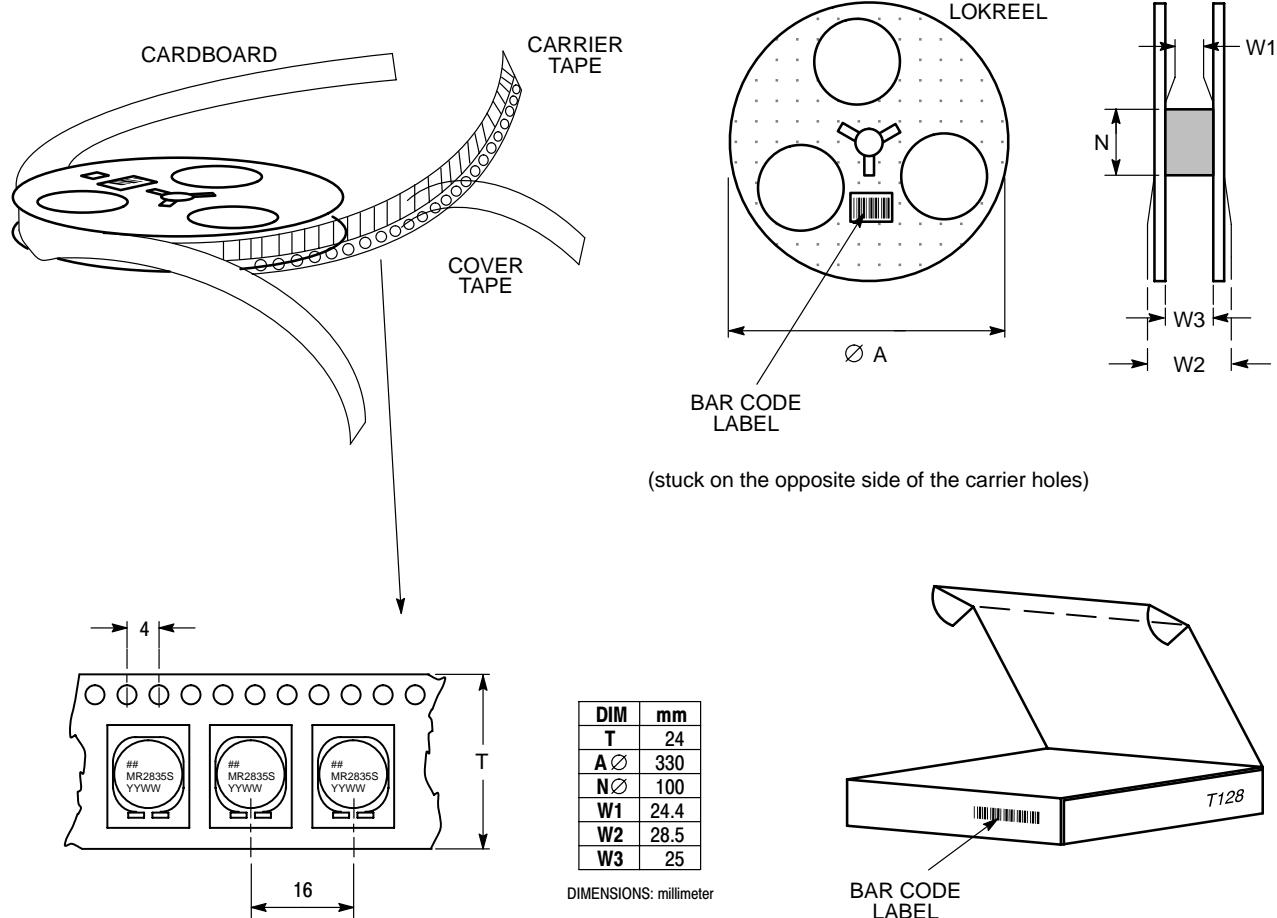


Figure 10. Reel Packing of MR2835SK – Top Can

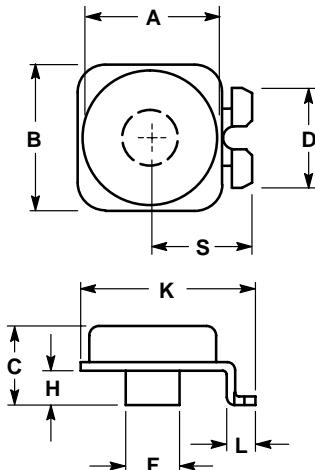
MR2835SK

PACKAGE DIMENSIONS

TOP CAN BUTTON

CASE 460-02

ISSUE B

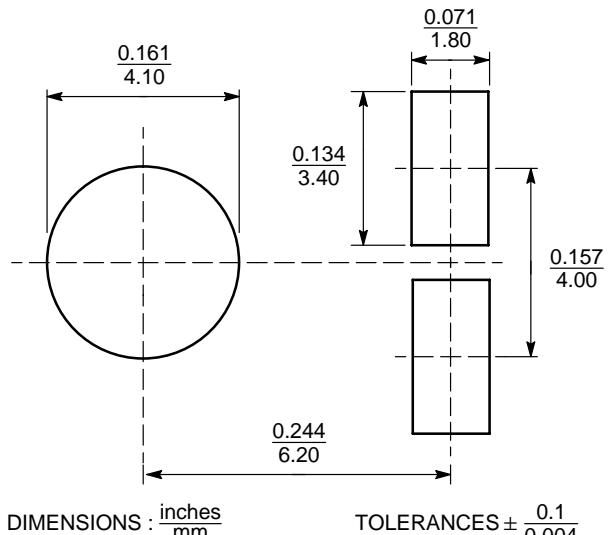


NOTES:

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	11.4	11.8	0.449	0.465
L	1.8	2.2	0.071	0.087
S	6.5	6.9	0.256	0.272

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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