

# MR2835SK

## 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	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

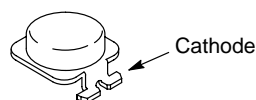
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



ON Semiconductor®

<http://onsemi.com>

### MARKING DIAGRAM



TOP CAN BUTTON  
CASE 460



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

### ORDERING INFORMATION

Device	Package	Shipping†
MR2835SK	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.

# 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	Volts
Reverse Current ( $V_R = 20\text{ V}$ ) (Note 1)	$I_R$	-	5.0	$\mu\text{A}$
Breakdown Voltage ( $I_Z = 100\text{ mA}$ ) (Note 1)	$V_{(BR)}$	24	32	Volts
Breakdown Voltage ( $I_Z = 80\text{ A}$ , $T_C = 85^\circ\text{C}$ , $PW = 80\ \mu\text{s}$ )	$V_{(BR)}$	-	40	Volts
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*	$\text{mV}/^\circ\text{C}$

1. Pulse Test: Pulse Width < 300  $\mu\text{s}$ , Duty Cycle < 2%.  
\*Typical

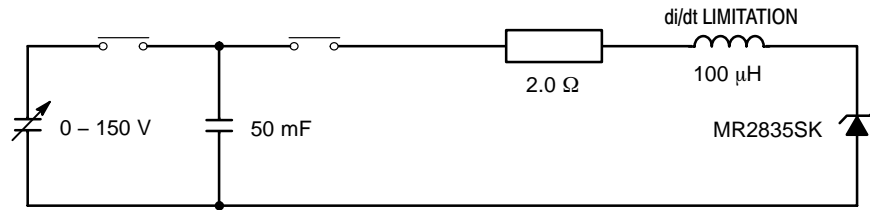


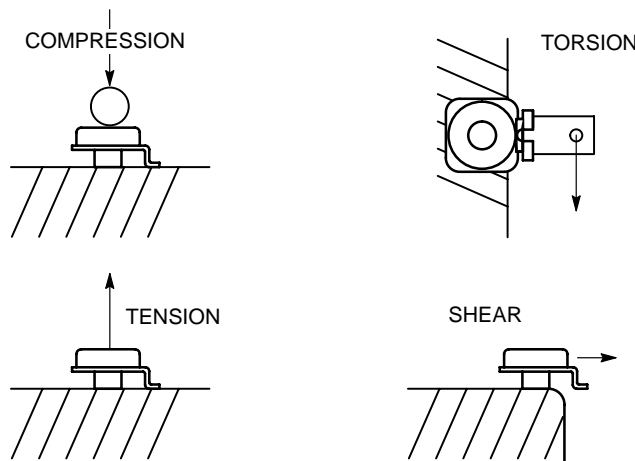
Figure 1. Load Dump Test Circuit

## 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



# MR2835SK

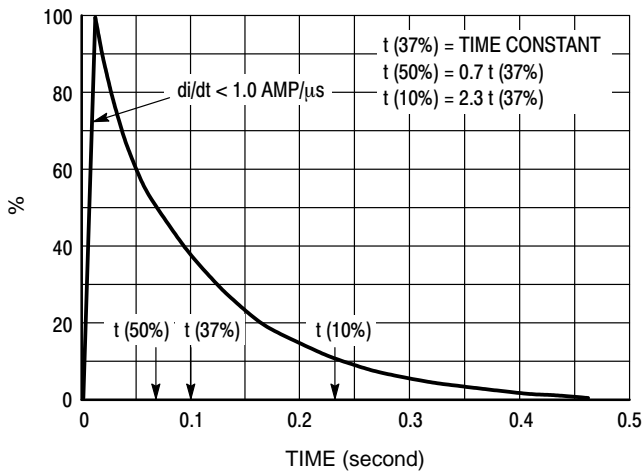


Figure 2. Load Dump Pulse Current

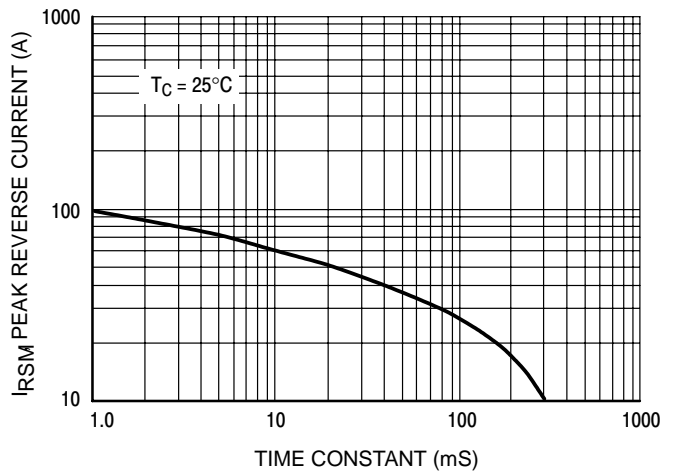


Figure 3. Maximum Peak Reverse Current

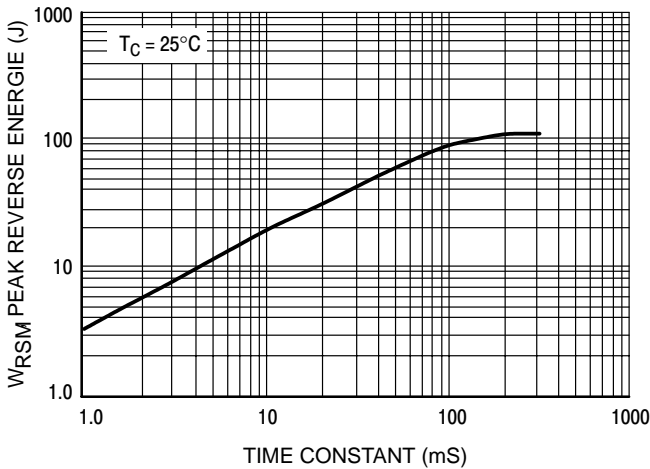


Figure 4. Maximum Reverse Energy

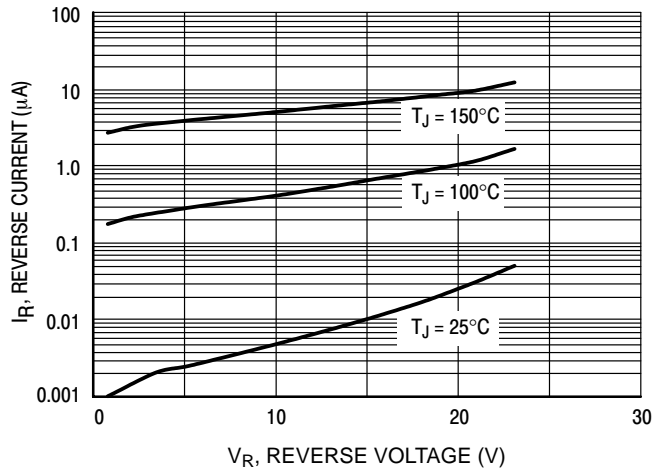


Figure 5. Typical Reverse Current

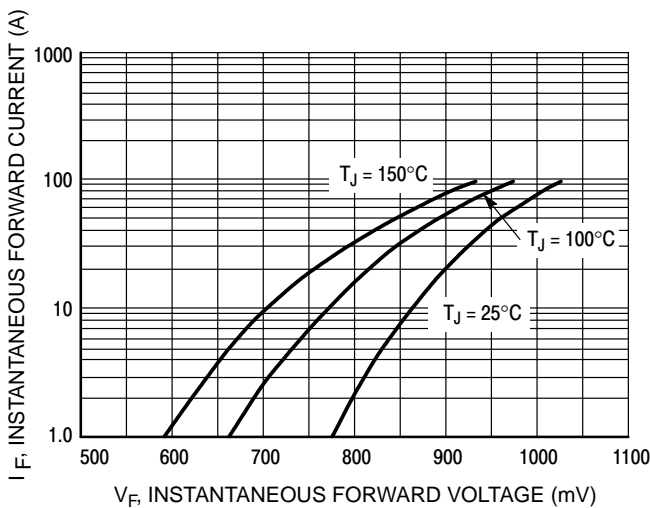


Figure 6. Typical Forward Voltage

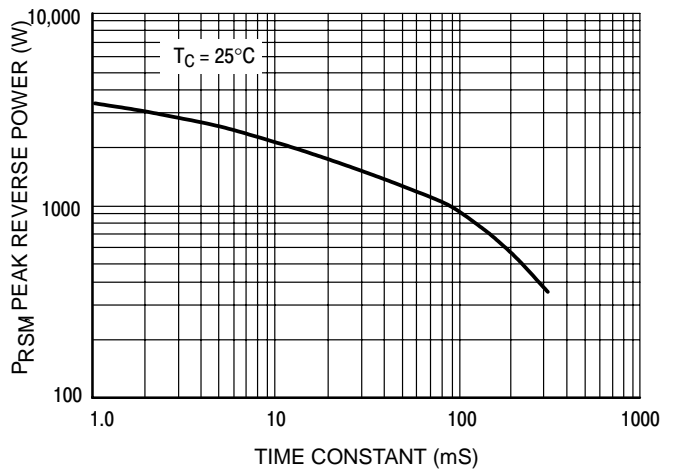


Figure 7. Maximum Peak Reverse Power

# MR2835SK

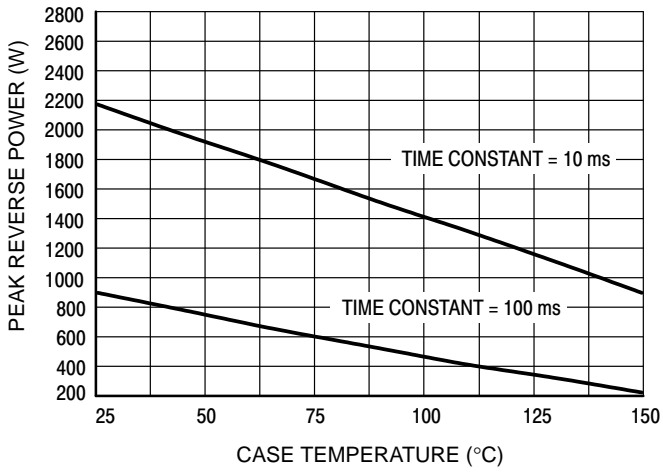


Figure 8. Reverse Power Derating

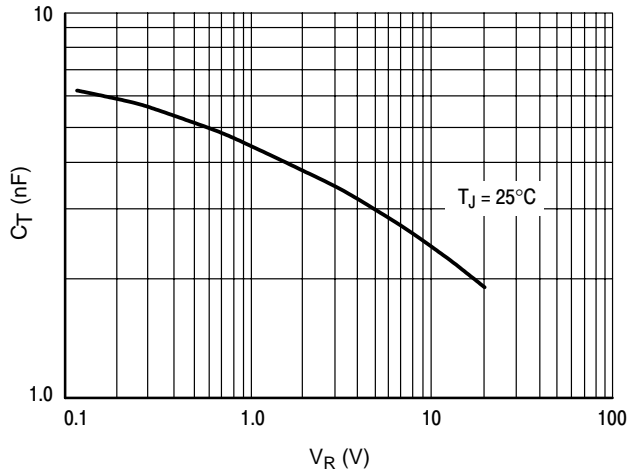


Figure 9. Typical Reverse Capacitance

## Reel of 500 Units

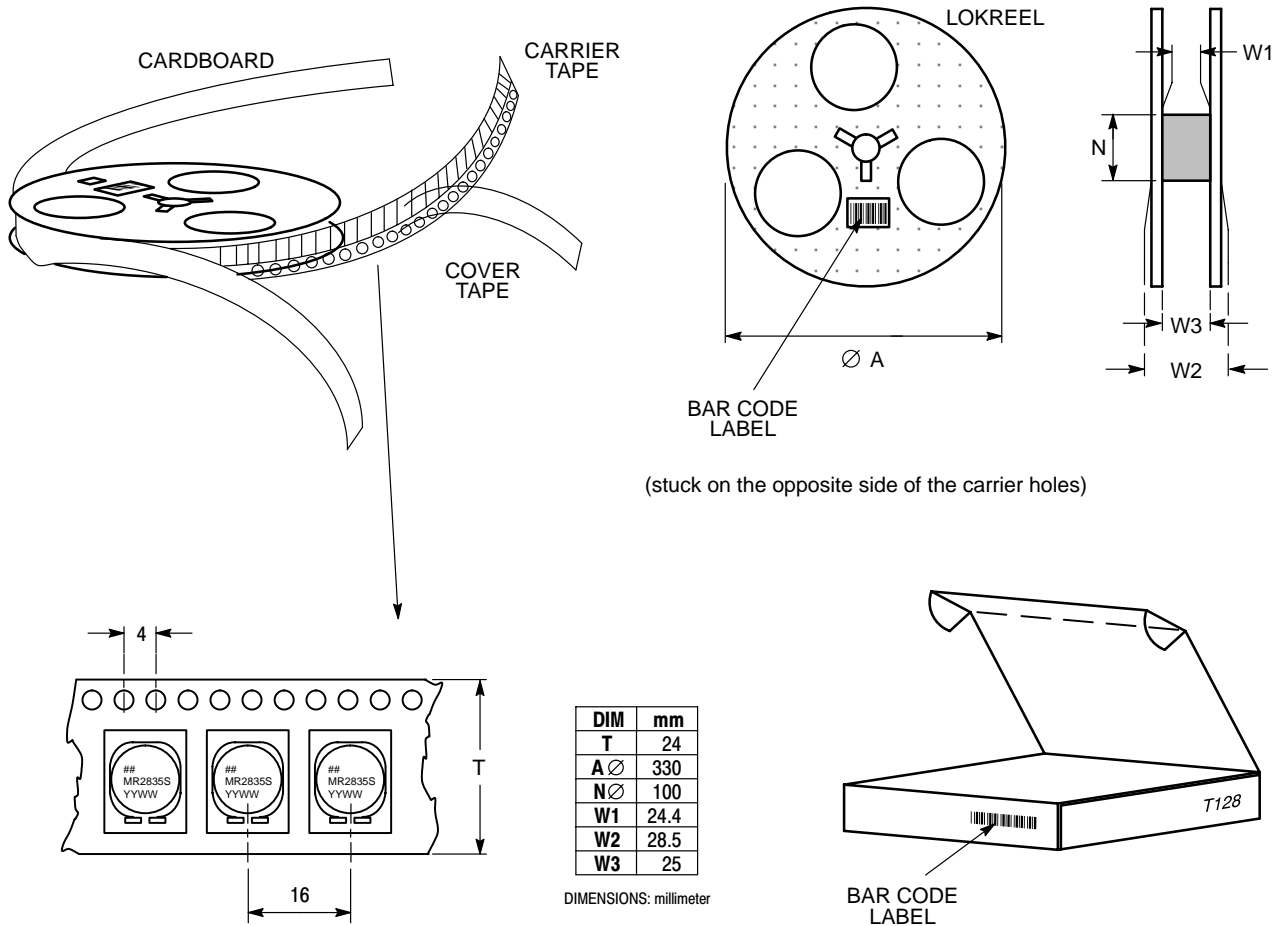
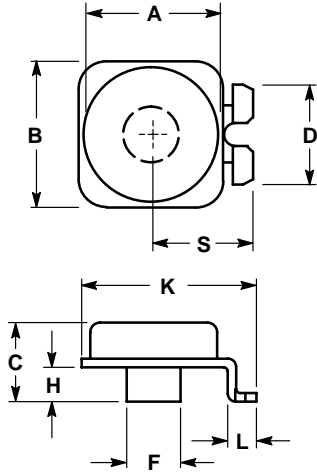


Figure 10. Reel Packing of MR2835SK – Top Can

# MR2835SK

## PACKAGE DIMENSIONS

### TOP CAN BUTTON CASE 460-02 ISSUE B

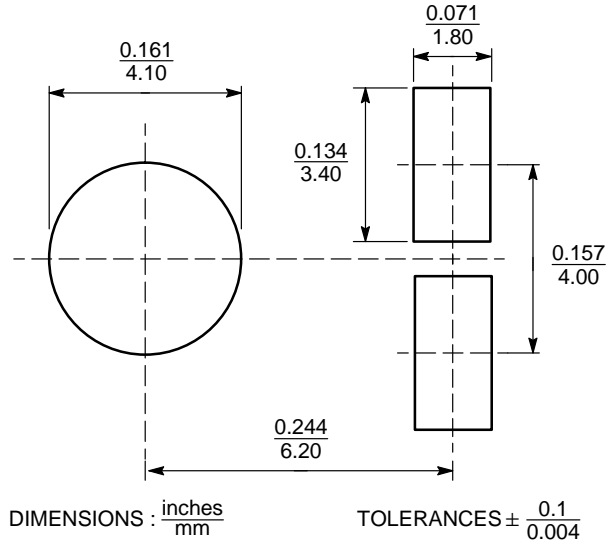


- NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: MILLIMETER.

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

## FOOTPRINT

Minimum circuit board footprint  
for Top Can Diode in Case 460-02



# MR2835SK

**ON Semiconductor** and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor  
P.O. Box 61312, Phoenix, Arizona 85082-1312 USA  
**Phone:** 480-829-7710 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 480-829-7709 or 800-344-3867 Toll Free USA/Canada  
**Email:** [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**N. American Technical Support:** 800-282-9855 Toll Free  
USA/Canada

**Japan:** ON Semiconductor, Japan Customer Focus Center  
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051  
**Phone:** 81-3-5773-3850

**ON Semiconductor Website:** <http://onsemi.com>

**Order Literature:** <http://www.onsemi.com/litorder>

For additional information, please contact your  
local Sales Representative.

**MR2835SK/D**