

# MR2535L

## Overvoltage Transient Suppressors

### Medium Current

Designed for applications requiring a low voltage rectifier with reverse avalanche characteristics for use as reverse power transient suppressors. Developed to suppress transients in the automotive system, these devices operate in the forward mode as standard rectifiers or reverse mode as power avalanche rectifier and will protect electronic equipment from overvoltage conditions.

- Avalanche Voltage 24 to 32 Volts
- High Power Capability
- Economical
- Increased Capacity by Parallel Operation

#### Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 2.5 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Maximum Lead Temperature for Soldering Purposes: 350°C 3/8" from Case for 10 Seconds at 5 lbs. Tension
- Polarity: Indicated by Diode Symbol or Cathode Band
- Marking: MR2535L

#### MAXIMUM RATINGS (T<sub>J</sub> = 25°C unless otherwise noted)

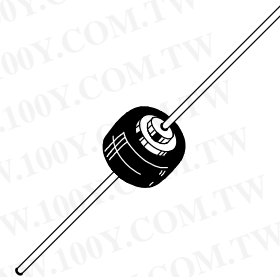
Rating	Symbol	Value	Unit
DC Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	20	Volts
Repetitive Peak Reverse Surge Current (Time Constant = 10 ms, Duty Cycle ≤ 1%, T <sub>C</sub> = 25°C)	I <sub>RSM</sub>	62	Amps
Average Rectified Forward Current (Single Phase, Resistive Load, 60 Hz, T <sub>C</sub> = 125°C) (Figure 4)	I <sub>O</sub>	6.0	Amps
Non-Repetitive Peak Surge Current Surge Supplied at Rated Load Conditions Halfwave, Single Phase	I <sub>FSM</sub>	600	Amps
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +175	°C

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.



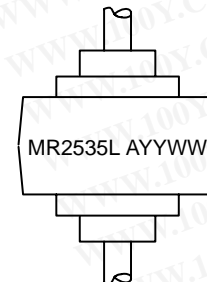
ON Semiconductor®

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AXIAL LEAD BUTTON  
CASE 194  
STYLE 1

#### MARKING DIAGRAM



MR2535L = Device Code  
A = Location Code  
YY = Year  
WW = Work Week

#### ORDERING INFORMATION

Device	Package	Shipping
MR2535L	Axial Lead Button	1000/Box
MR2535LRL	Axial Lead Button	800/Reel

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

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## THERMAL CHARACTERISTICS

Characteristic	Lead Length	Symbol	Max	Unit
Thermal Resistance, Junction-to-Lead @ Both Leads to Heatsink, Equal Length	1/4" 3/8" 1/2"	$R_{\theta JL}$	7.5 10 13	$^{\circ}\text{C}/\text{W}$
Thermal Resistance Junction-to-Case		$R_{\theta JC}$	0.8 (Note 1)	$^{\circ}\text{C}/\text{W}$

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

Characteristic	Symbol	Min	Max	Unit
Instantaneous Forward Voltage (Note 2) ( $I_F = 100$ Amps, $T_C = 25^{\circ}\text{C}$ )	$V_F$	-	1.1	Volts
Reverse Current ( $V_R = 20$ Vdc, $T_C = 25^{\circ}\text{C}$ )	$I_R$	-	200	nAdc
Breakdown Voltage (Note 2) ( $I_R = 100$ mAdc, $T_C = 25^{\circ}\text{C}$ )	$V_{(BR)}$	24	32	Volts
Breakdown Voltage (Note 2) ( $I_R = 90$ Amp, $T_C = 150^{\circ}\text{C}$ , $PW = 80$ $\mu\text{s}$ )	$V_{(BR)}$	-	40	Volts
Breakdown Voltage Temperature Coefficient	$V_{(BR)TC}$	-	0.096 (Note 1)	$\%/^{\circ}\text{C}$
Forward Voltage Temperature Coefficient @ $I_F = 10$ mA	$V_{FTC}$	-	2 (Note 1)	$\text{mV}/^{\circ}\text{C}$

1. Typical.

2. Pulse Test: Pulse Width  $\leq 300$   $\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

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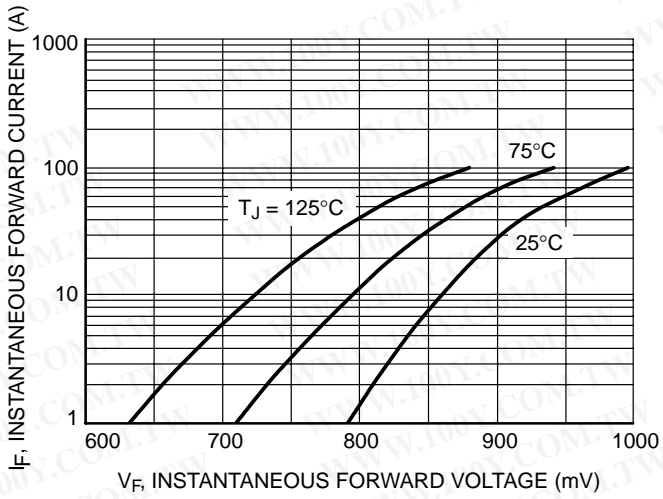


Figure 1. Typical Forward Voltage

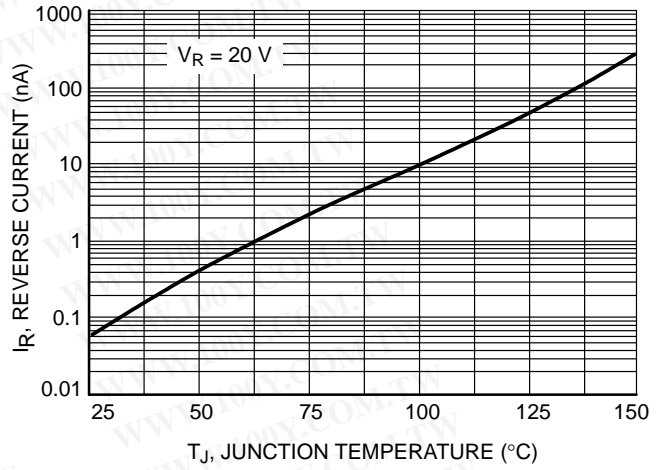


Figure 2. Typical Reverse Current versus Junction Temperature

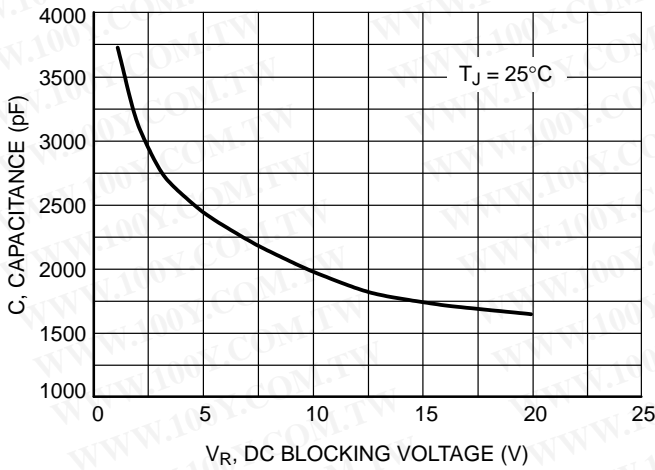


Figure 3. Typical Capacitance

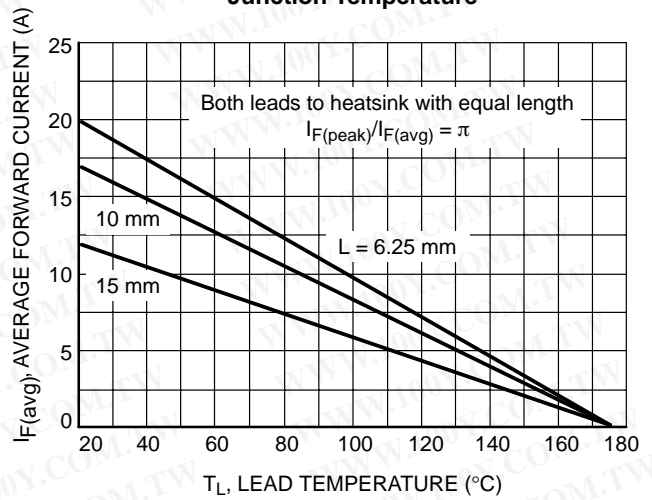


Figure 4. Maximum Current Ratings

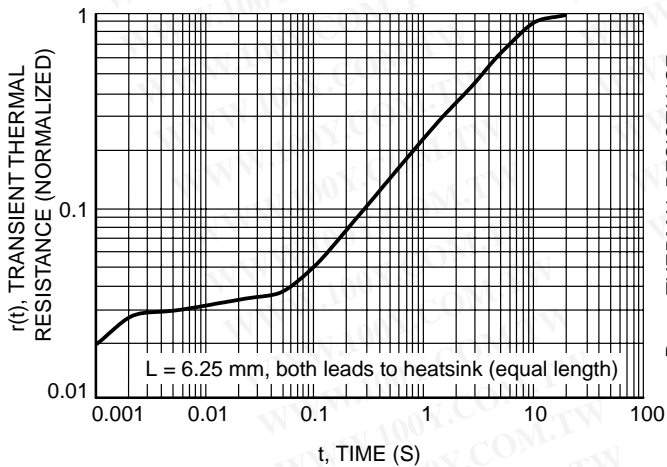


Figure 5. Thermal Response

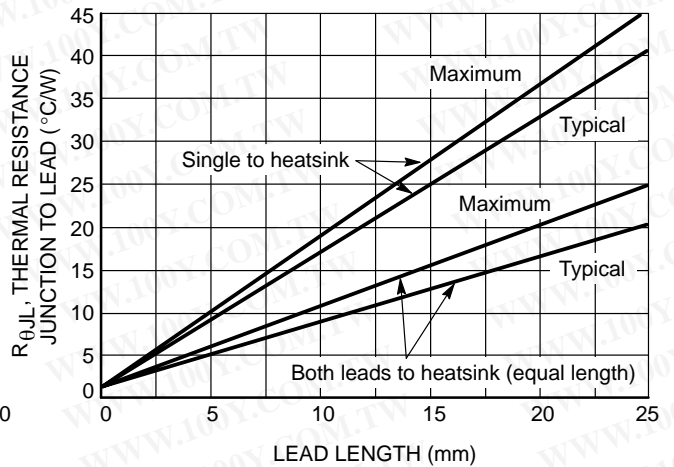


Figure 6. Steady State Thermal Resistance

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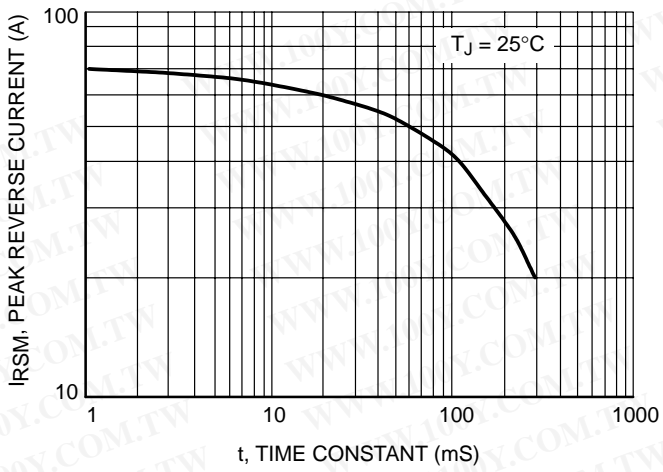


Figure 7. Maximum Peak Reverse Current

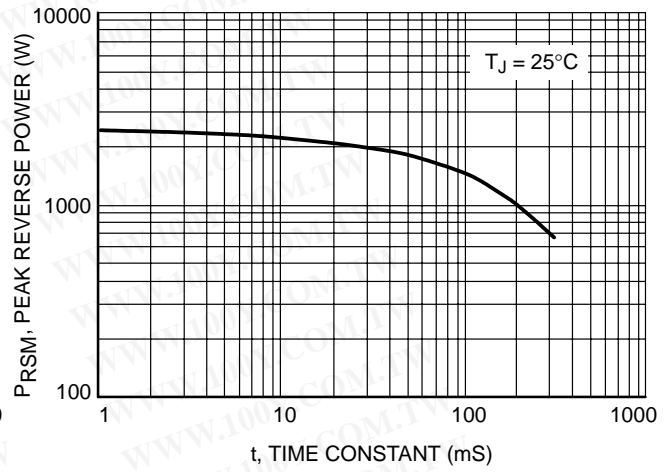


Figure 8. Maximum Peak Reverse Power

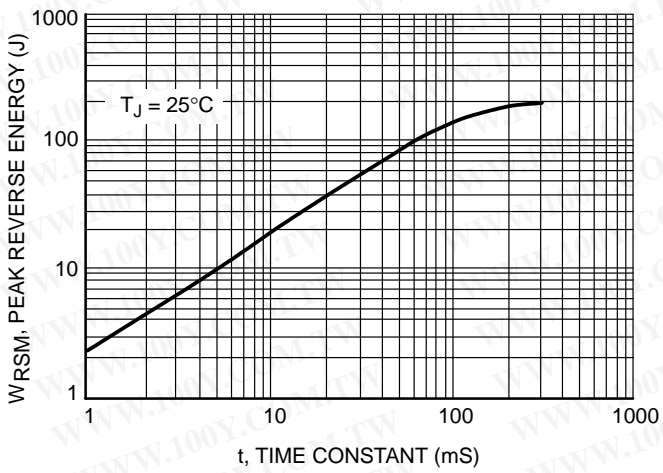


Figure 9. Maximum Reverse Energy

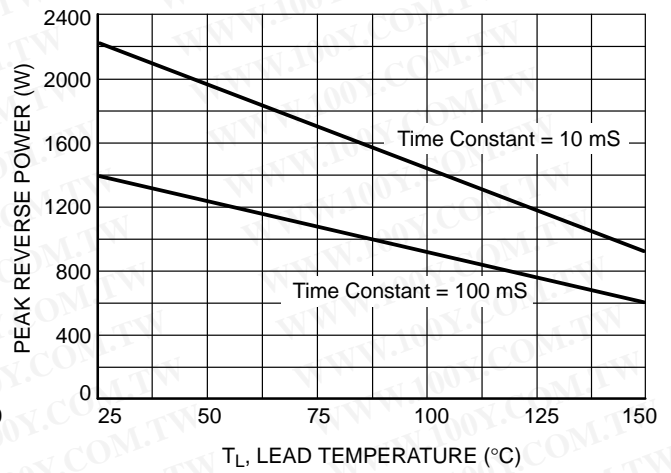


Figure 10. Reverse Power Derating

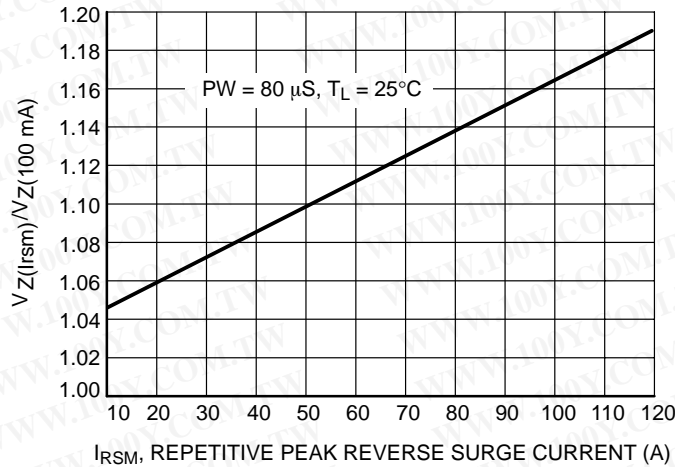


Figure 11. Typical Clamping Factor

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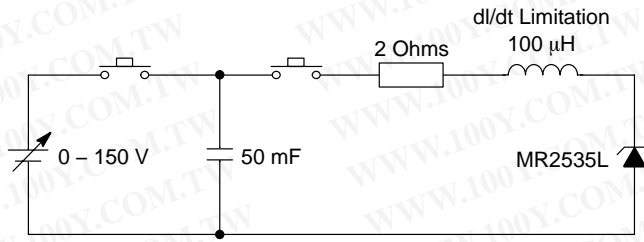


Figure 12. Load Dump Test Circuit

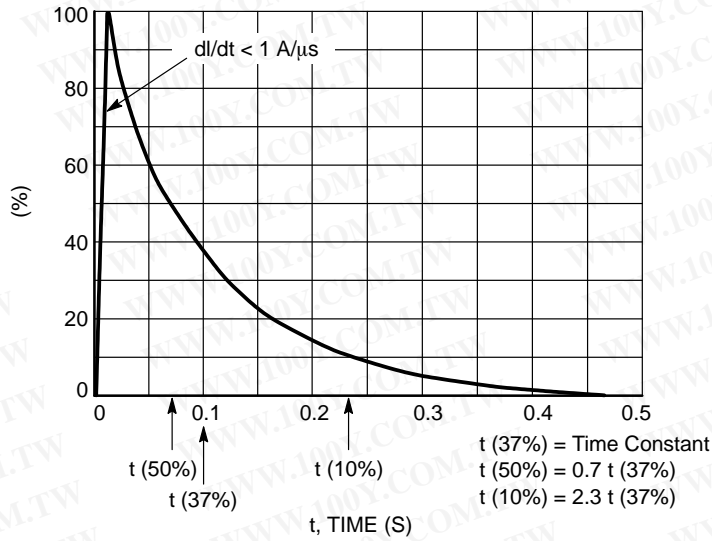


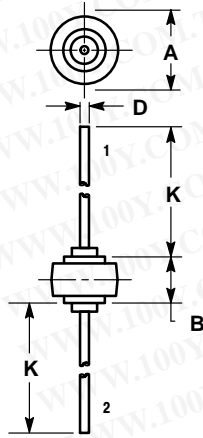
Figure 13. Load Dump Pulse Current

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## PACKAGE DIMENSIONS

### AXIAL LEAD BUTTON CASE 194-04 ISSUE H



NOTES:

1. CATHODE SYMBOL ON PACKAGE.
2. 194-01 OBSOLETE, 194-04 NEW STANDARD.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.43	8.69	0.332	0.342
B	5.94	6.25	0.234	0.246
D	1.27	1.35	0.050	0.053
K	25.15	25.65	0.990	1.010

STYLE 1:  
PIN 1. CATHODE  
2. ANODE

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