

MR2520L

Overvoltage Transient Suppressor

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.

- 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: MR2520L

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

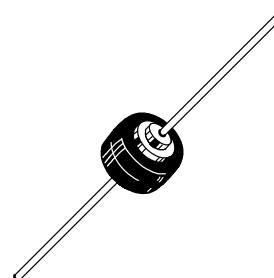
Rating	Symbol	Value	Unit
DC Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	23	Volts
Repetitive Peak Reverse Surge Current (Time Constant = 10 ms, Duty Cycle $\leq 1\%$, $T_C = 25^\circ\text{C}$)	I_{RSM}	58	Amps
Peak Reverse Power (Time Constant = 10 ms, Duty Cycle $\leq 1\%$, $T_C = 25^\circ\text{C}$)	P_{RSM}	2500	Watts
Average Rectified Forward Current (Single Phase, Resistive Load, 60 Hz, $T_C = 125^\circ\text{C}$) (See Figure 4)	I_O	6.0	Amps
Non-Repetitive Peak Surge Current Surge Supplied at Rated Load Conditions Halfwave, Single Phase	I_{FSM}	400	Amps
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +175	$^\circ\text{C}$



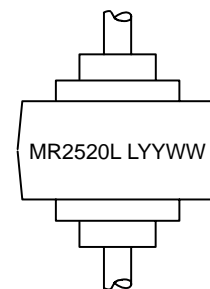
ON Semiconductor®

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OVERVOLTAGE TRANSIENT SUPPRESSOR 24 - 32 VOLTS



**AXIAL LEAD BUTTON
CASE 194
STYLE 1**



MR2520L = Device Code
L = Location Code
YY = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
MR2520L	Axial Lead Button	1000/Box
MR2520LRL	Axial Lead Button	800/Reel

MR2520L

THERMAL CHARACTERISTICS

Characteristic	Lead Length	Symbol	Max	Unit
Thermal Resistance, Junction to Lead, Both Leads to Heat Sink with Equal Length	6.25 mm 10 mm 15 mm	$R_{\theta JL}$	7.5 10 15	$^{\circ}\text{C}/\text{W}$
Thermal Resistance Junction to Case	-	$R_{\theta JC}$	1.0	$^{\circ}\text{C}/\text{W}$

**Typical

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

Characteristic	Symbol	Min	Max	Unit
Instantaneous Forward Voltage (Note 1) ($I_F = 100$ Amps, $T_C = 25^{\circ}\text{C}$)	V_F	-	1.25	Volts
Instantaneous Forward Voltage (Note 1) ($I_F = 6.0$ Amps, $T_C = 25^{\circ}\text{C}$)	V_F	-	0.90	Volts
Reverse Current ($V_R = 20$ Vdc, $T_C = 25^{\circ}\text{C}$)	I_R	-	10	nAdc
Reverse Current ($V_R = 20$ Vdc, $T_C = 25^{\circ}\text{C}$)	I_R	-	300	nAdc
Breakdown Voltage (Note 1) ($I_R = 100$ mAdc, $T_C = 25^{\circ}\text{C}$)	$V_{(BR)}$	24	32	Volts
Breakdown Voltage (Note 1) ($I_R = 90$ Amp, $T_C = 150^{\circ}\text{C}$, $PW = 80 \mu\text{s}$)	$V_{(BR)}$	-	40	Volts
Dynamic Resistance ($I_R = 100$ mA, $T_J = 25^{\circ}\text{C}$, $f = 1.0$ kHz)	R_Z	-	5.0	Ω
Dynamic Resistance ($I_R = 40$ mA, $T_J = 25^{\circ}\text{C}$)	R_Z	-	0.15	Ω
Breakdown Voltage Temperature Coefficient	$V_{(BR)TC}$	-	0.09*	$\%/^{\circ}\text{C}$
Forward Voltage Temperature Coefficient @ $I_F = 10$ mA	V_{FTC}	-	-2*	$\text{mV}/^{\circ}\text{C}$

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

**Typical

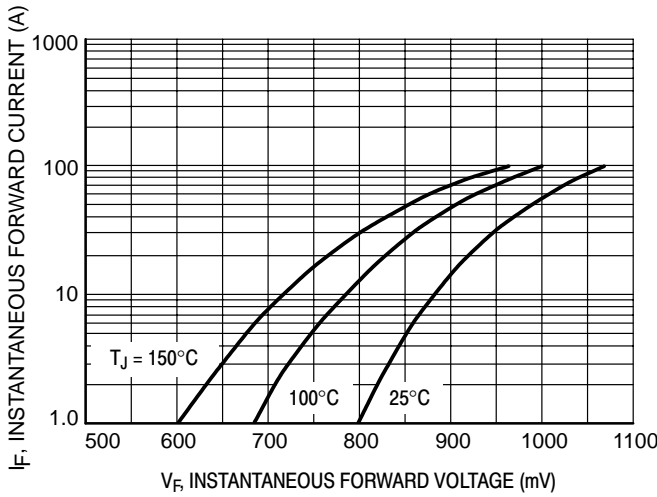


Figure 1. Forward Voltage

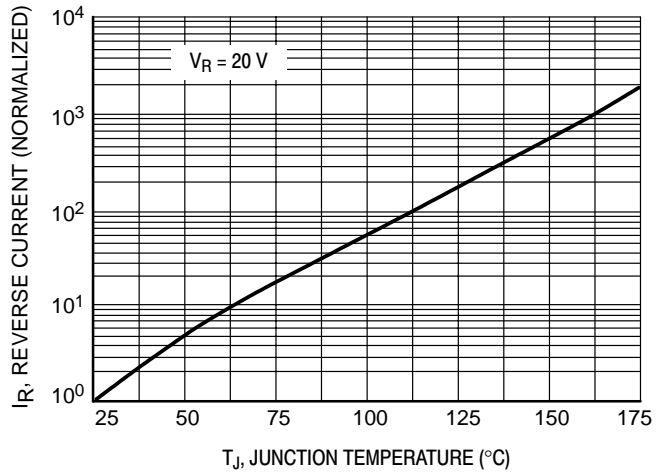


Figure 2. Normalized Reverse Current

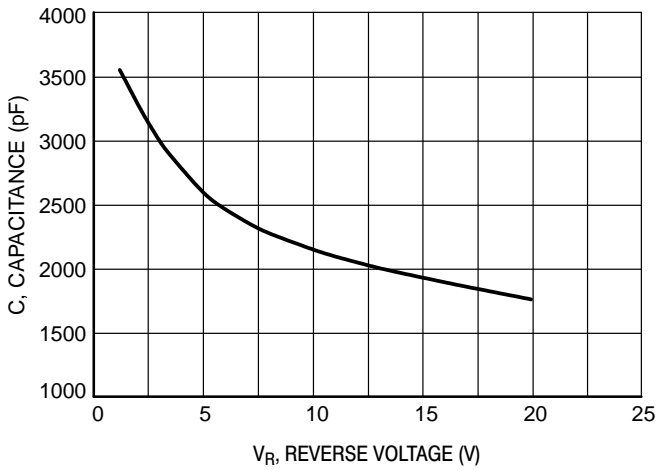


Figure 3. Typical Capacitance

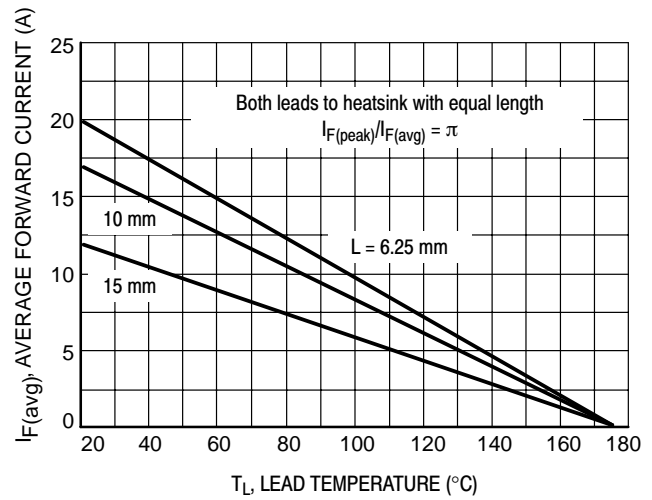


Figure 4. Maximum Current Ratings

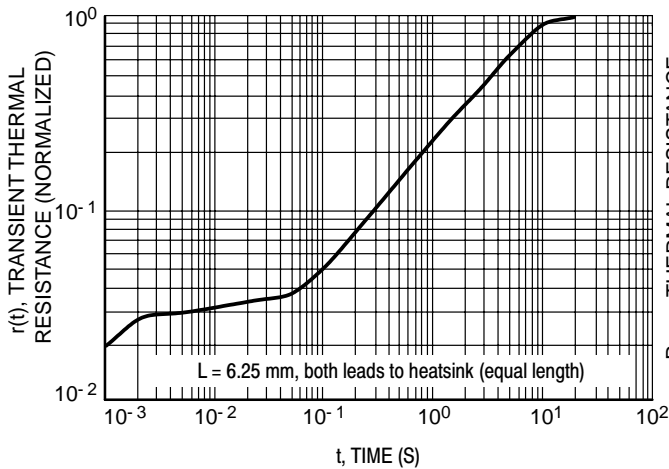


Figure 5. Thermal Response

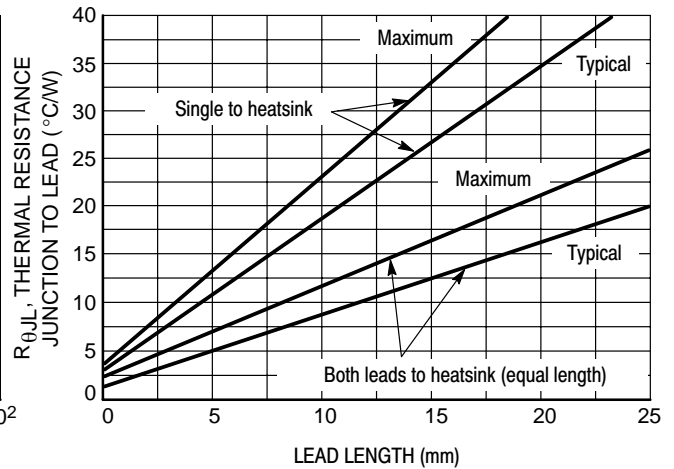


Figure 6. Steady State Thermal Resistance

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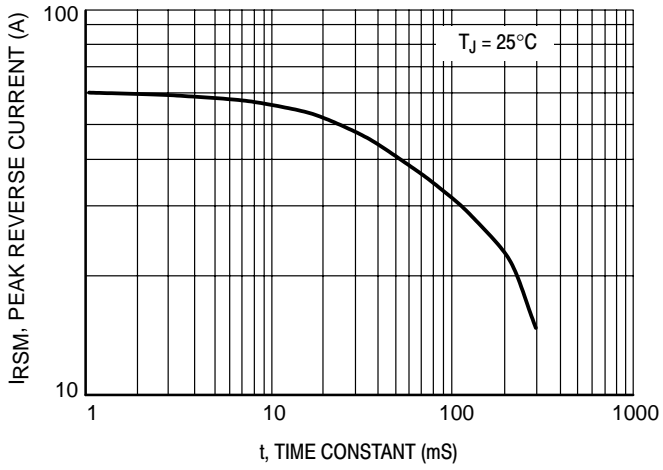


Figure 7. Maximum Peak Reverse Current

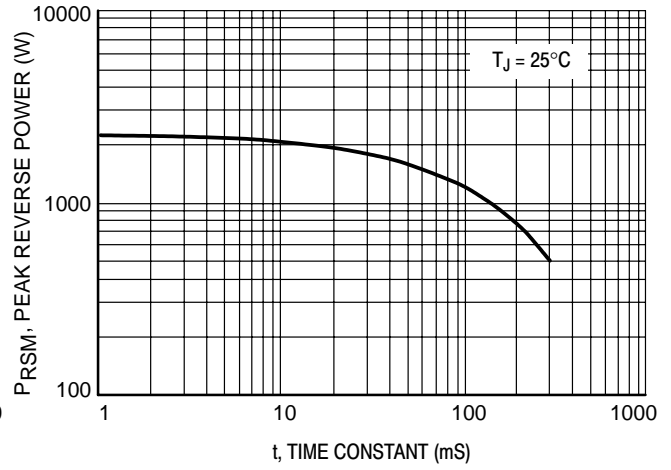


Figure 8. Maximum Peak Reverse Power

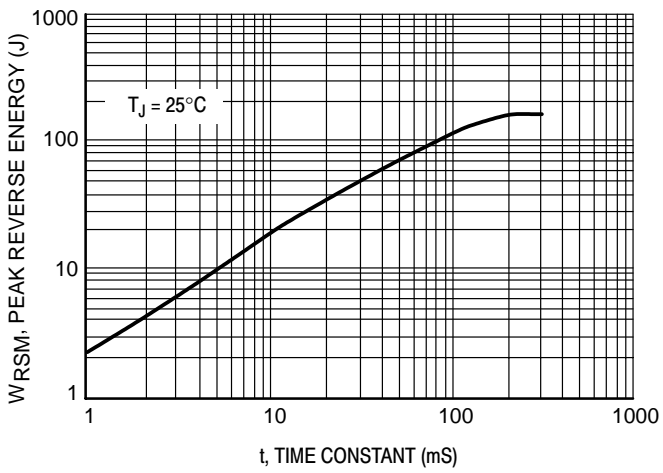


Figure 9. Maximum Reverse Energy

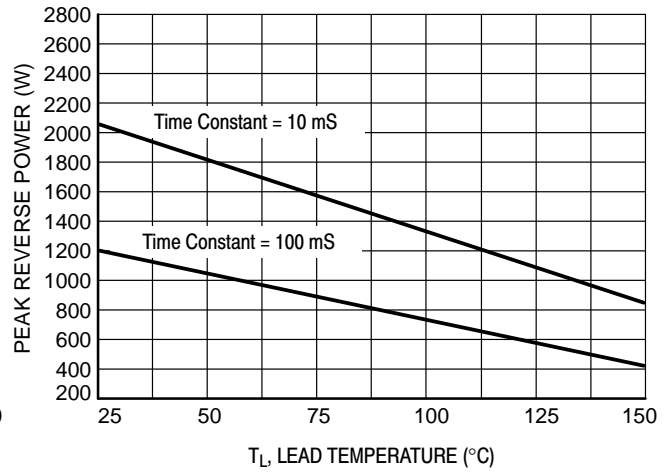


Figure 10. Reverse Power Derating

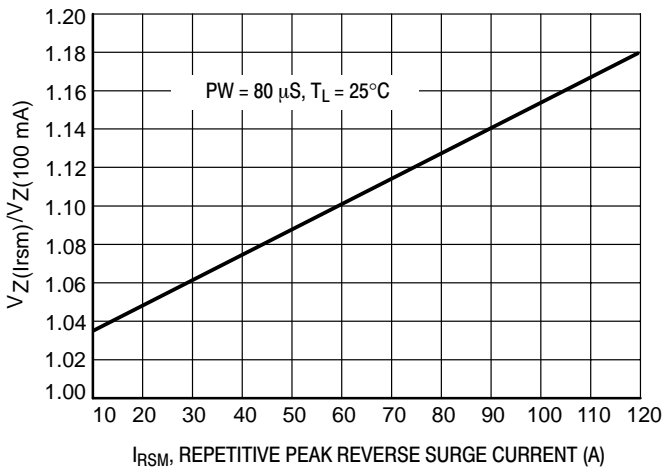


Figure 11. Typical Clamping Factor

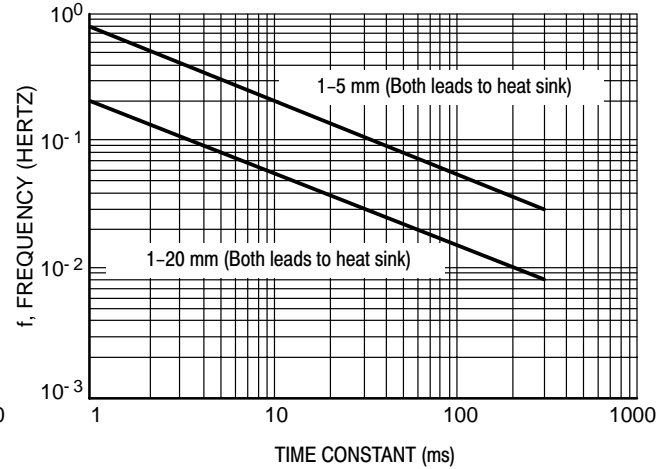


Figure 12. Maximum Load Dump Frequency

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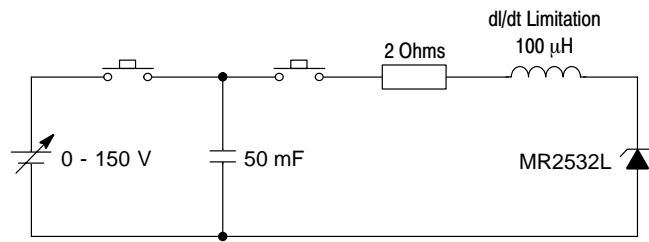


Figure 13. Load Dump Test Circuit

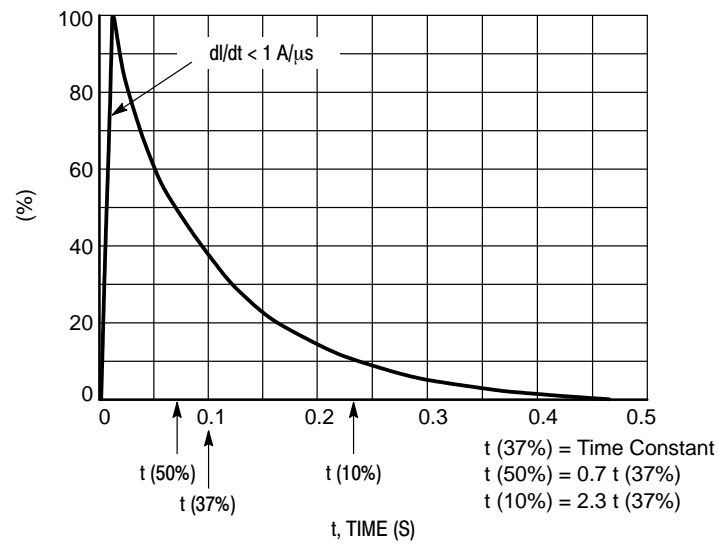


Figure 14. Load Dump Pulse Current

Notes

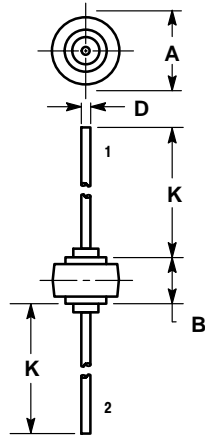
MR2520L

PACKAGE DIMENSIONS

AXIAL LEAD BUTTON

CASE 194-04

ISSUE F



NOTES:


1. CATHODE SYMBOL ON PACKAGE.

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
E	25.15	25.65	0.990	1.010

STYLE 1:

PIN 1. CATHODE

PIN 2. ANODE

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