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ON Semiconductor
MR2520L

For any questions, you can email us directly:
sales@integrated-circuit.com

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.

Features

- High Power Capability
- Economical
- Increased Capacity by Parallel Operation
- Pb−Free Packages are Available*

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

MAXIMUM RATINGS (T_J = 25°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	V
Repetitive Peak Reverse Surge Current (Time Constant = 10 ms, Duty Cycle ≤ 1%, T_C = 25°C)	I_{RSM}	58	A
Peak Reverse Power (Time Constant = 10 ms, Duty Cycle ≤ 1%, T_C = 25°C)	P_{RSM}	2500	W
Average Rectified Forward Current , (Single Phase, Resistive Load, 60 Hz, T_C = 125°C) (See Figure 4)	I_O	6.0	A
Non−Repetitive Peak Surge Current, Surge Supplied at Rated Load Conditions Halfwave, Single Phase	I_{FSM}	400	A
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +175	°C

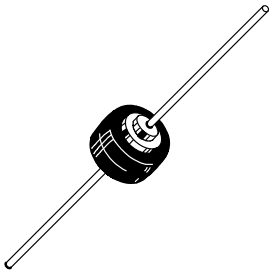
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

ON Semiconductor®

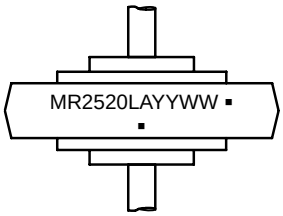
http://onsemi.com

OVERVOLTAGE TRANSIENT SUPPRESSOR 24 − 32 VOLTS



MICRODE AXIAL
CASE 194
STYLE 1

MARKING DIAGRAM



A = Assembly Location
YY = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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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	°C/W
Thermal Resistance Junction−to−Case	−	$R_{\theta JC}$	1.0	°C/W

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

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

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
*Typical

ORDERING INFORMATION

Device	Package	Shipping†
MR2520L	Microde Axial	1000 / Box
MR2520LG	Microde Axial (Pb−Free)	
MR2520LRL	Microde Axial	800 / Tape & Reel
MR2520LRLG	Microde Axial (Pb−Free)	

†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.

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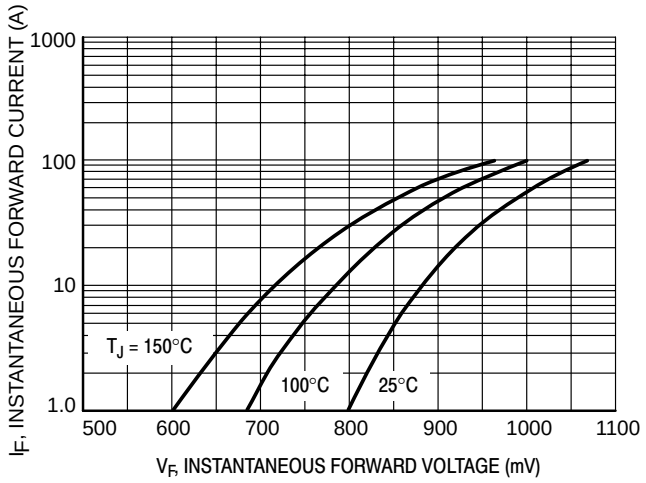

Figure 1. Forward Voltage

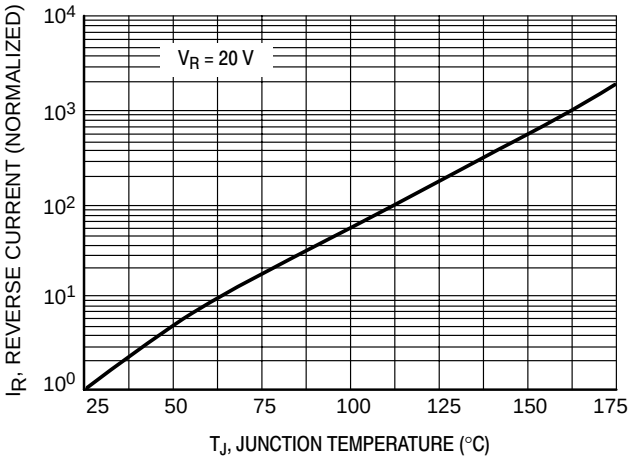

Figure 2. Normalized Reverse Current

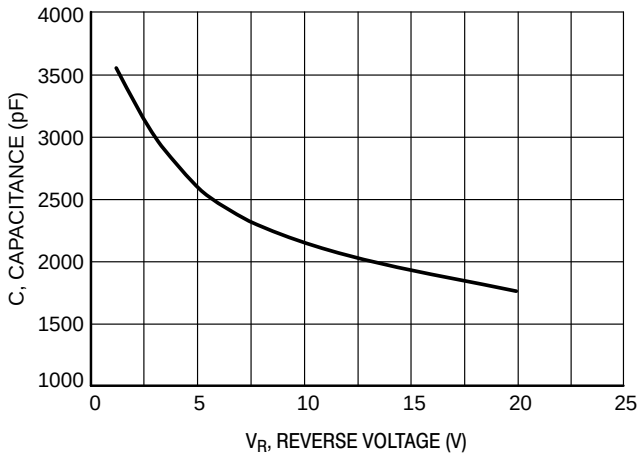

Figure 3. Typical Capacitance

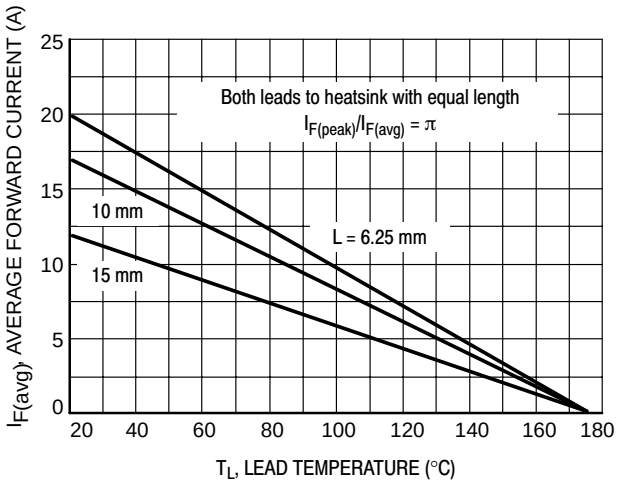

Figure 4. Maximum Current Ratings

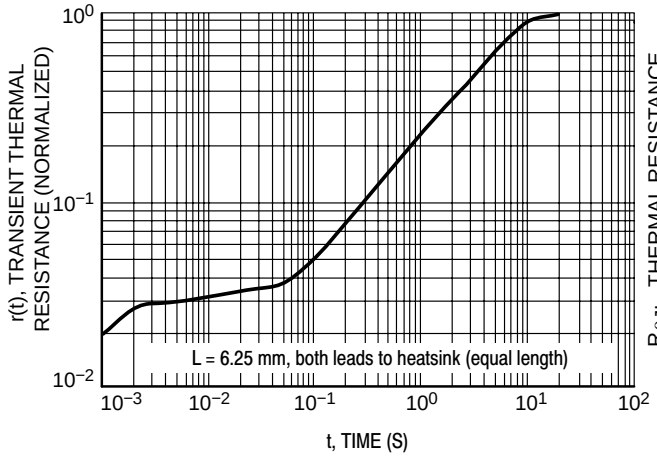

Figure 5. Thermal Response

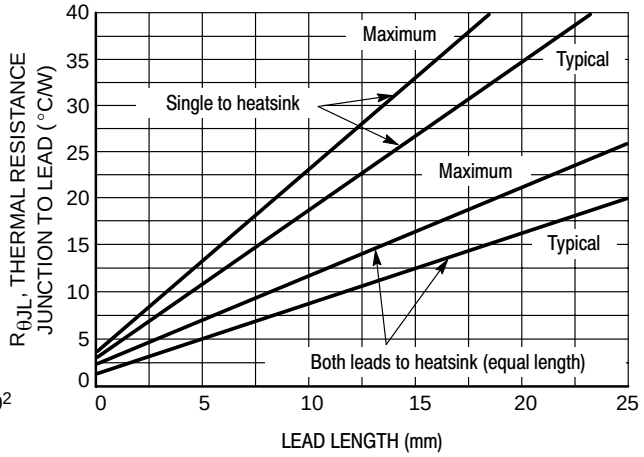

Figure 6. Steady State Thermal Resistance

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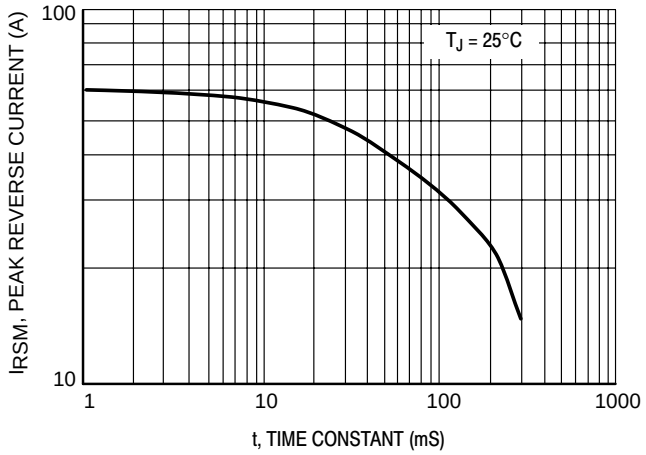

Figure 7. Maximum Peak Reverse Current

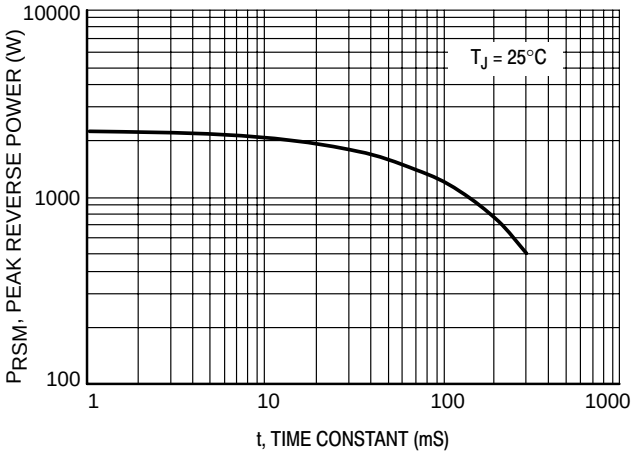

Figure 8. Maximum Peak Reverse Power

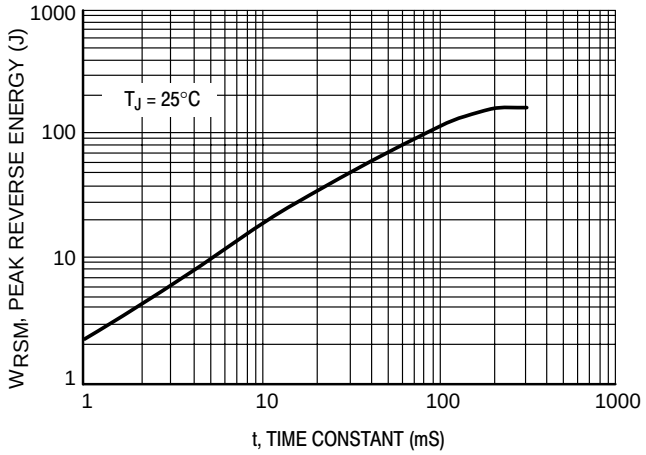

Figure 9. Maximum Reverse Energy

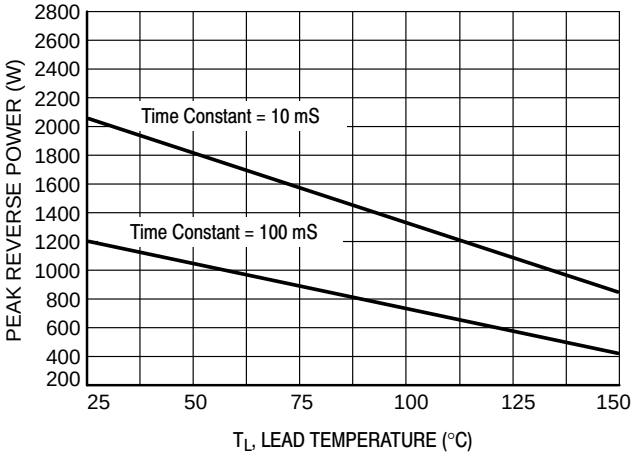

Figure 10. Reverse Power Derating

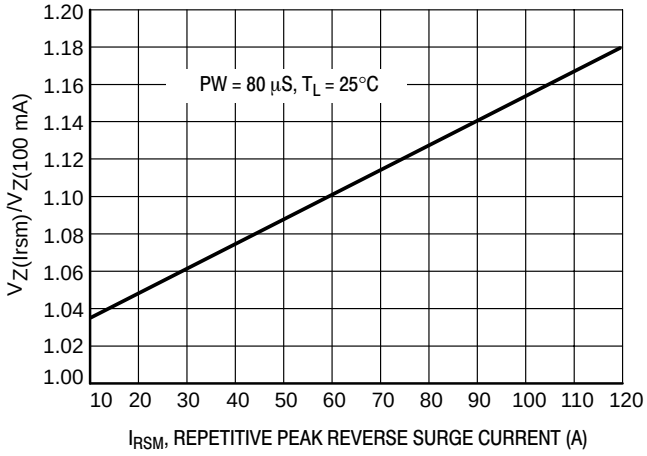

Figure 11. Typical Clamping Factor

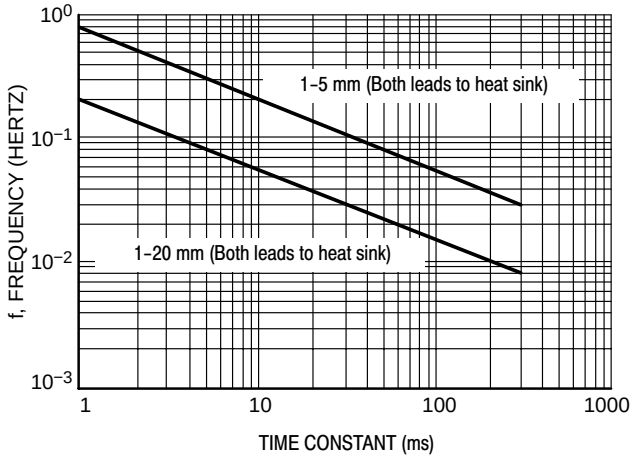

Figure 12. Maximum Load Dump Frequency

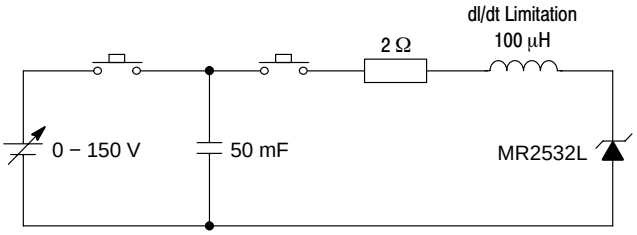

Figure 13. Load Dump Test Circuit

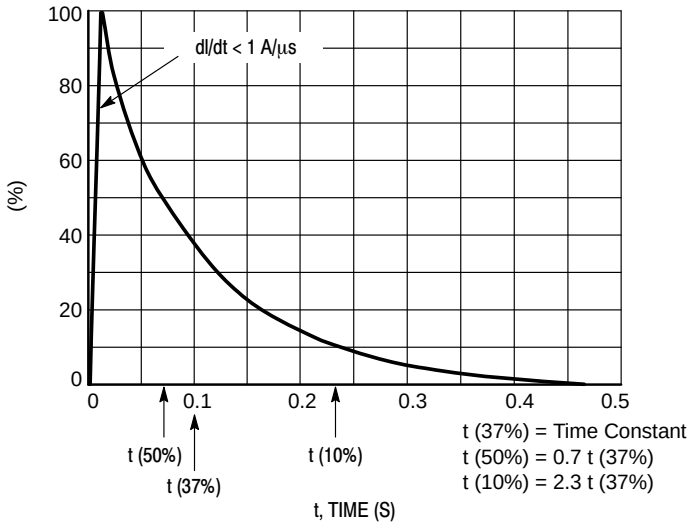

Figure 14. Load Dump Pulse Current

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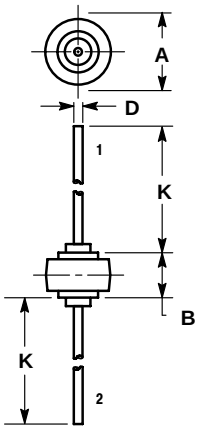
PACKAGE DIMENSIONS

MICRODE AXIAL
CASE 194−04
ISSUE H



NOTES:
1. CATHODE SYMBOL ON PACKAGE.
2. 194−01 OBSOLETE, 194−04 NEW STANDARD.

	MILLIMETERS		INCHES	
DIM	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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
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Japan Customer Focus Center
Phone: 81−3−5773−3850

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