

RECTIFIERS

High Efficiency, ESP, 2.5 Amp to 20 Amp

1N5802-1N5806

1N5807-1N5811

1N5812-1N5816

FEATURES

- Exceptional Efficiency
- Low Forward Voltage
- Extremely Fast Reverse Recovery Time
- Extremely Fast Forward Recovery Time
- High Surge
- Small Size
- Rugged, High Current Termination
- Radiation Tolerant

DESCRIPTION

This series of High Efficiency Power Rectifiers allows circuit designers to design high current, high frequency supplies to 500 kHz with very low diode losses. The high forward surge capability makes these devices useful in protective circuits.

ABSOLUTE MAXIMUM RATINGS

Peak Inverse Voltage	2.5 Amp Series	6 Amp Series	20 Amp Series
50V	1N5802	1N5807	1N5812
75V	1N5803	1N5808	1N5813
100V	1N5804	1N5809	1N5814
125V	1N5805	1N5810	1N5815
150V	1N5806	1N5811	1N5816

Maximum Average D.C. Output Current

@ $T_L = 75^\circ\text{C}$, $L = \frac{3}{4}"$

@ $T_C = 100^\circ\text{C}$

2.5 AMP
SERIES
2.5A

6 AMP
SERIES
6.0A

20 AMP
SERIES
20.0A

Non-Repetitive Sinusoidal

Surge Current (8.3ms)

35A

125A

250A

Operating and Storage Temperature Range

-65°C to $+175^\circ\text{C}$

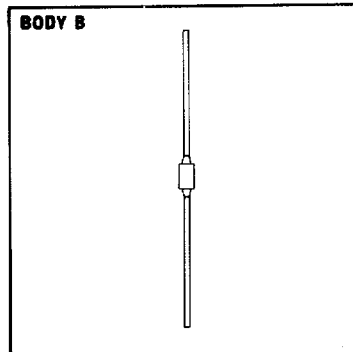
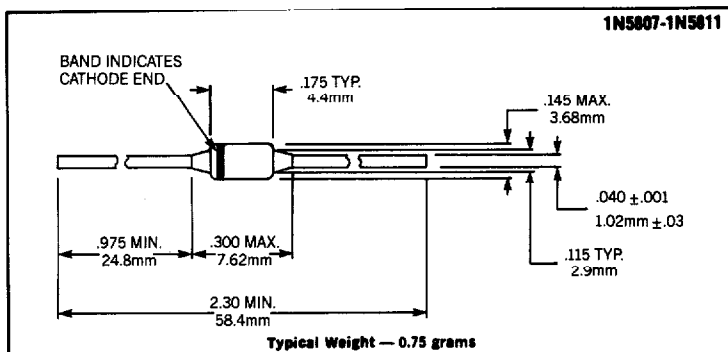
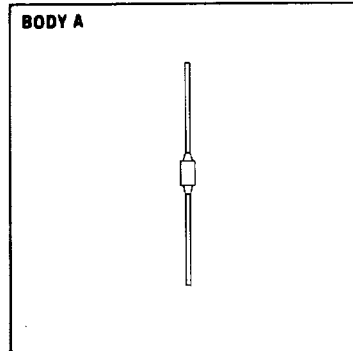
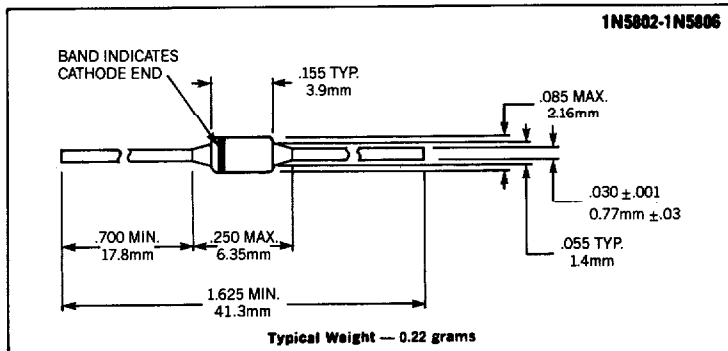
Thermal Resistance 2.5A and 6A Series

See Lead Temperature Derating Curve

20A Series

3.0°C/W

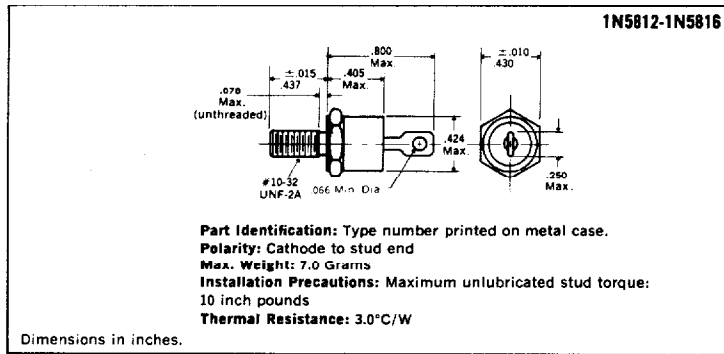
MECHANICAL SPECIFICATIONS



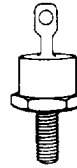
THESE DEVICES ALSO AVAILABLE IN SURFACE MOUNT PACKAGE. SEE SECTION 10

Microsemi Corp.
Watertown
The diode experts

MECHANICAL SPECIFICATIONS



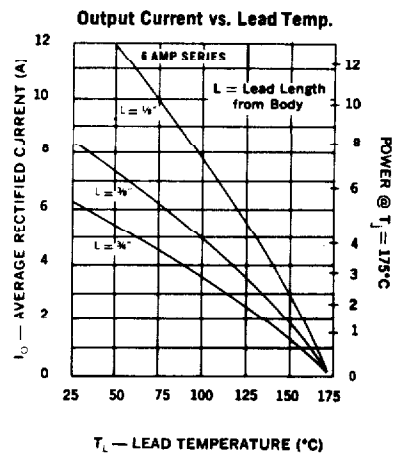
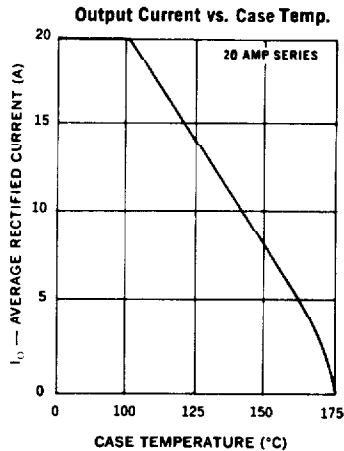
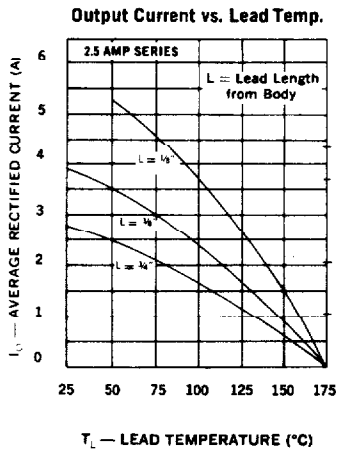
DO-4



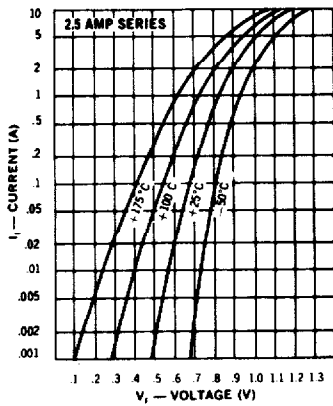
ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

Type	PIV	Maximum Forward Voltage Drop*	Leakage Current @ PIV		Maximum Reverse Recovery Time t_{rr} t_{rf} t_{rec}	Typical Forward Recovery Time @ 1A Recover to 1V	Typical Forward Recovery Voltage @ 1A $t_r = 8ns$	Typical Junction Capacitance @ -10V
			25°C	100°C				
1N5802 1N5803 1N5804 1N5805 1N5806	50V 75V 100V 125V 150V	.875 @ 1A	1μA	50μA	25ns, 0.5A-0.5A-0.05A	15ns	1.5V	15pf
1N5807 1N5808 1N5809 1N5810 1N5811	50V 75V 100V 125V 150V	.875 @ 4A	5μA	150μA	30ns, 1.0-1.0-0.1A	15ns	1.5V	45pf
1N5812 1N5813 1N5814 1N5815 1N5816	50V 75V 100V 125V 150V	.900 @ 10A	10μA	750μA	35ns, 1.0-1.0-0.1A	15ns	1.5V	200pf

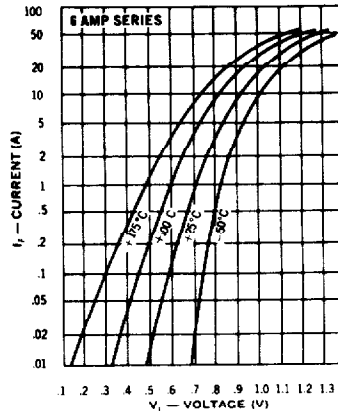
*Pulse width = 250ms



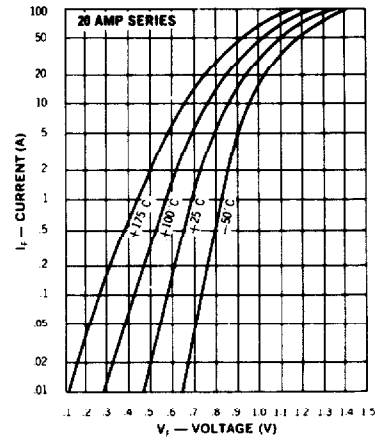
Typical Forward Current vs. Forward Voltage



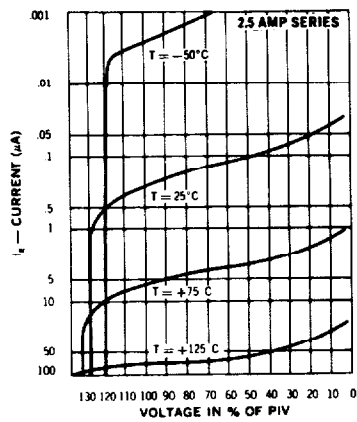
Typical Forward Current vs. Forward Voltage



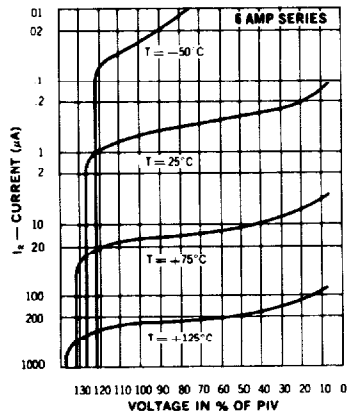
Typical Forward Current vs. Forward Voltage



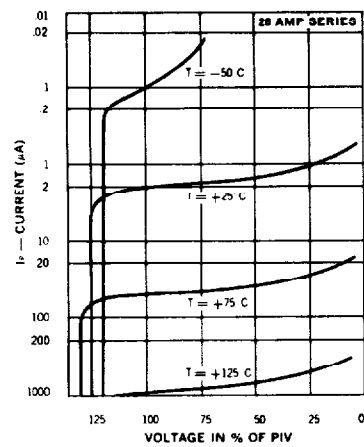
Typical Reverse Current vs. Voltage



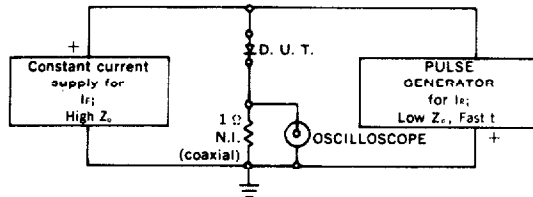
Typical Reverse Current vs. Voltage



Typical Reverse Current vs. Voltage



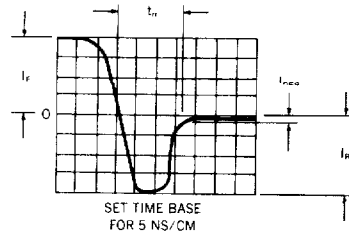
Reverse-Recovery Time Circuit



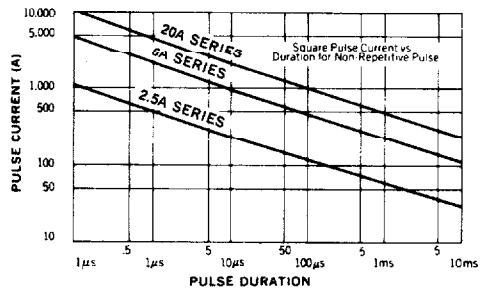
NOTES:

1. Oscilloscope: Rise time ≤ 3 ns; input impedance = 50 Ω .
2. Pulse Generator: Rise time ≤ 8 ns; source impedance 10 Ω .

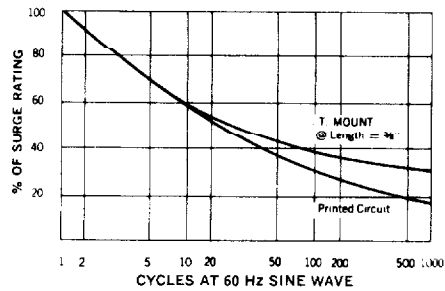
Characteristic Waveform



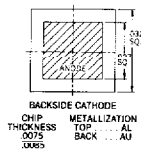
Forward Pulse Current vs. Duration



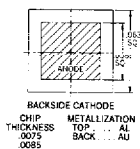
Multiple Surge Current vs. Duration



1N5804, 1N5806



1N5809, 1N5811



1N5814, 1N5816

