



Microsemi Corp.
The diode experts

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DESCRIPTION/FEATURES

- ECONOMICAL SERIES
- HIGH SURGE, 150 AMP MAXIMUM
- UNIVERSAL REPLACEMENT FOR MANY GLASS, EPOXY, ENCAPSULATED, AND METALLIC RECTIFIERS
- PEAK REVERSE VOLTAGES THROUGH 1000 VOLTS

VOLTAGE RATINGS

Part Number	V_{RRM} - Working Peak Reverse Voltage (V)	V_R - Max. Direct Reverse Voltage (V)
	$T_J = -65^\circ\text{C}$ to 175°C	
30S1	100	100
30S2	200	200
30S3	300	300
30S4	400	400
30S5	500	500
30S6	600	600
30S8	800	800
30S10	1000	1000

ELECTRICAL SPECIFICATIONS

Parameter	Value	Units	Conditions
$I_{F(AV)}$ Max. average forward current	3.0	A	1 phase operation, 180° conduction, $T_L = 125^\circ\text{C}$, lead length 9.5 mm (0.375 in.)
I_{FSM} Max. peak one-cycle non-repetitive surge current	143	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse
	150		Following any rated load condition and with rated V_{RRM} applied.
	170		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
	178		Half cycle 50 Hz sine wave or 6 ms rectangular pulse
I^2t Max. I^2t for fusing	103	A^2s	$t = 10$ ms With rated V_{RRM} applied following surge, initial $T_J = 175^\circ\text{C}$.
	94		$t = 8.3$ ms
Max. I^2t for individual device fusing	146	$A^2\sqrt{s}$	$t = 10$ ms with $V_{RRM} = 0$ following surge, initial $T_J = 175^\circ\text{C}$.
	133		$t = 8.3$ ms
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for individual device fusing	1450	$A^2\sqrt{s}$	$t = 0.1$ to 10 ms, $V_{RRM} = 0$ following surge.
V_{FM} Max. peak forward voltage	1.0	V	$I_{F(AV)} = 3\text{A}$ (9.4A peak); $T_J = 25^\circ\text{C}$.
$I_{R(AV)}$ Max. average reverse current	0.3	mA	Max. rated $I_{F(AV)}$, V_{RRM} and $T_L = 100^\circ\text{C}$. ($\ell = 9.5$ mm (0.375 in.))

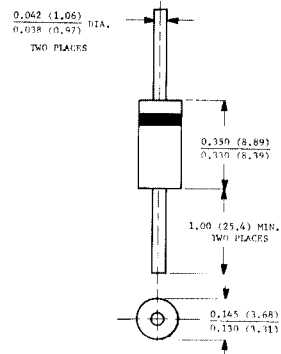
① I^2t for time $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$.

THERMAL-MECHANICAL SPECIFICATIONS

T_J Max. operating junction temperature range	-65 to 175	$^\circ\text{C}$	
T_{stg} Max. storage temperature range	-65 to 175	$^\circ\text{C}$	
R_{thJC} Max. internal thermal resistance, junction-to-lead	16.5	deg. C/W	DC operation, double-side cooled, measured 9.5 mm (0.375 in.) from body.
wt Approximate weight	0.65 (0.023)	g (oz.)	

30S SERIES

3 AMP MEDIUM POWER SILICON RECTIFIER DIODES



Cathode Indicated by Color Band
All Dimensions in Inches (Millimeters).

MECHANICAL CHARACTERISTICS

CASE: Molded plastic use Flame Retardant Epoxy.

TERMINALS: Axial leads, solderable per MIL-STD-202, Method 208.

POLARITY: Color band denotes cathode.

MOUNTING POSITION: Any.

30S Series

RATING AND CHARACTERISTIC CURVES

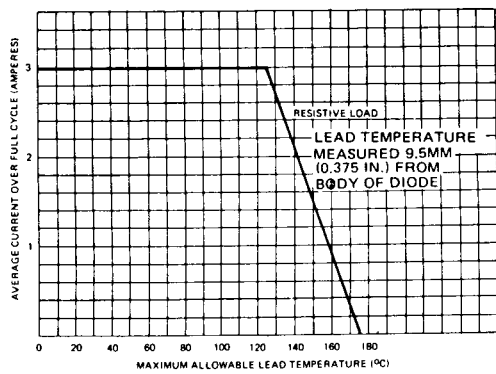


Fig. 1 - Average Forward Current Vs. Lead Temperature at Heat Sinks, $l = 9.5$ mm (3/8 Inch) (Single Phase Operation)

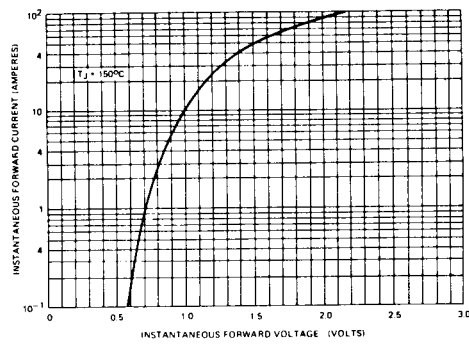


Fig. 2 - Maximum Forward Voltage Vs. Forward Current

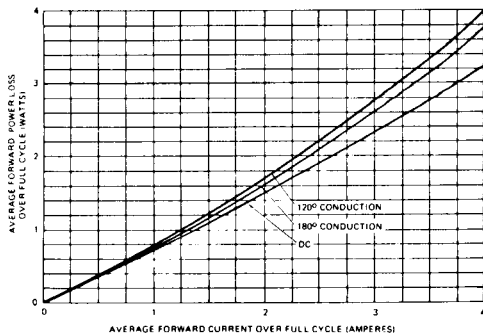


Fig. 3 - Maximum Forward Power Loss Vs. Forward Current (Sinusoidal Current Waveform)

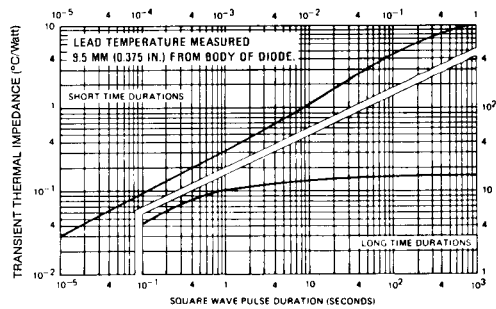


Fig. 4 - Maximum Transient Thermal Impedance, Junction-to-Lead, Vs. Pulse Duration

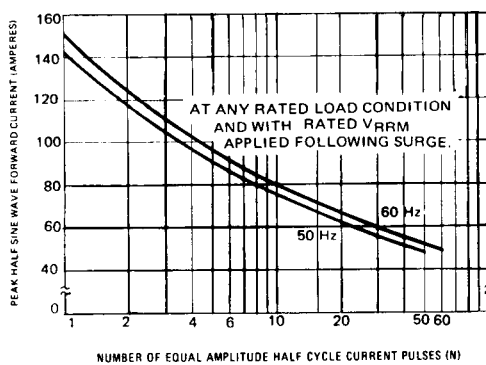


Fig. 5 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses