ALSO AVAILABLE IN SURFACE MOUNT

Microsemi Corp.
The diode experts

SCOTTSDALE, AZ
For more information call:
(602) 941-6300

30S SERIES

3 AMP MEDIUM POWER SILICON RECTIFIER DIODES

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_{RWM} - Working Peak Reverse Voltage (V) T_J = -65°C to 175°C	V_R – Max. Direct Reverse Voltage (V) T_J = -65°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

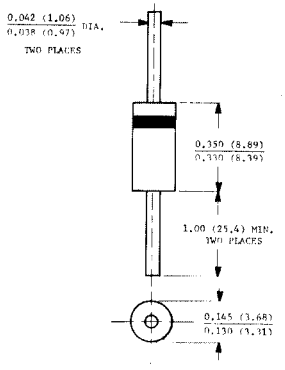
ELECTRICAL SPECIFICATIONS

			Units	Conditions	
$I_{F(AV)}$	Max. average forward current	3.0	A	1 phase operation, 180° conduction. T_L = 125°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	Following any rated load condition and with rated V_{RRM} applied.
		150		Half cycle 60 Hz sine wave or 5 ms rectangular pulse	
		170		Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with V_{RRM} applied following surge = 0.
		178		Half cycle 60 Hz sine wave or 5 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°C.
		94		t = 8.3 ms	
	Max. I^2t for individual device fusing	146		t = 10 ms	with V_{RRM} = 0 following surge, initial T_J = 175°C.
		133		t = 8.3 ms	
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for individual device fusing ①	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	$I_{F(AV)}$ = 3A (9.4A peak); T_J = 25°C.	
$I_{R(AV)}$	Max. average reverse current	0.3	mA	Max. rated $I_{F(AV)}$, V_{RRM} and T_L = 100°C. (ℓ = 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	°C	
T_{stg}	Max. storage temperature range	-65 to 175	°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.)	



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.

RATING AND CHARACTERISTIC CURVES

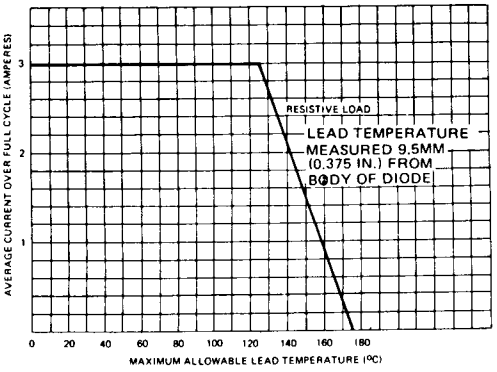


Fig. 1 – Average Forward Current Vs. Lead Temperature at Heat Sinks, ℓ = 9.5 mm (3/8 Inch) (Single Phase Operation)

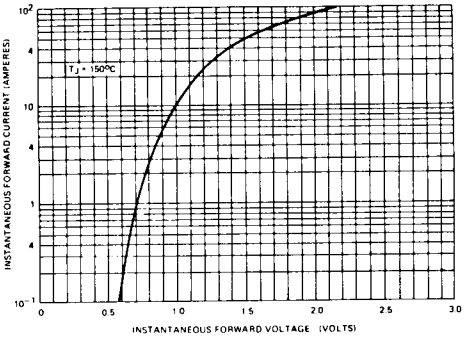


Fig. 2 – Maximum Forward Voltage Vs. Forward Current

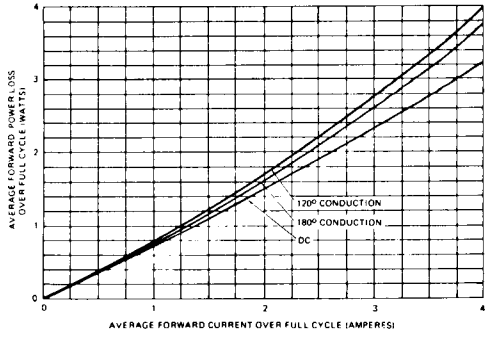


Fig. 3 – Maximum Forward Power Loss Vs. Forward Current (Sinusoidal Current Waveform)

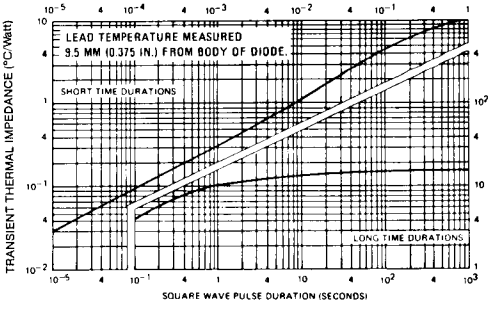


Fig. 4 – Maximum Transient Thermal Impedance, Junction-to-Lead, Vs. Pulse Duration

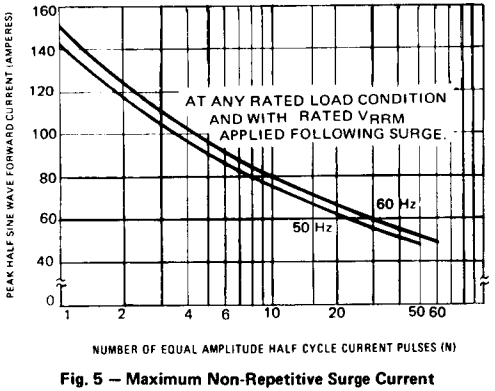


Fig. 5 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses