



**Microsemi Corp.**  
The diode experts

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## 30S SERIES

### 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 $175^\circ\text{C}$	$T_J = -65^\circ\text{C}$ to $175^\circ\text{C}$
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

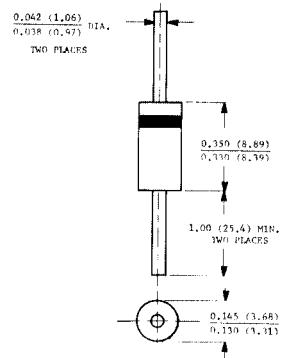
Parameter	Value	Units	Conditions
$I_{F(AV)}$ Max. average forward current	3.0	A	1 phase operation, $180^\circ$ conduction, $T_L = 125^\circ\text{C}$ , lead length 9.5 mm (0.375 in.)
$I_{FSM}$ Max. peak one-cycle non-repetitive surge current	143	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following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

### 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

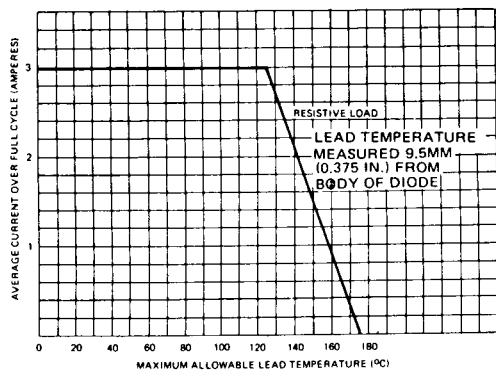


Fig. 1 - Average Forward Current Vs. Lead Temperature at Heat Sinks,  $l = 9.5 \text{ mm}$  (3/8 Inch) (Single Phase Operation)

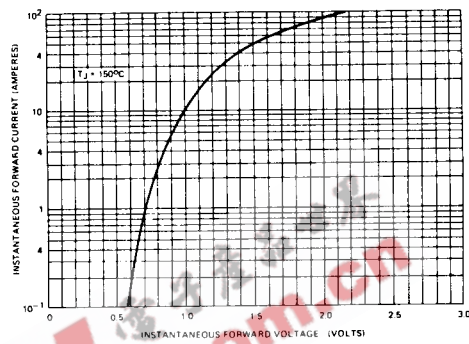


Fig. 2 - Maximum Forward Voltage Vs. Forward Current

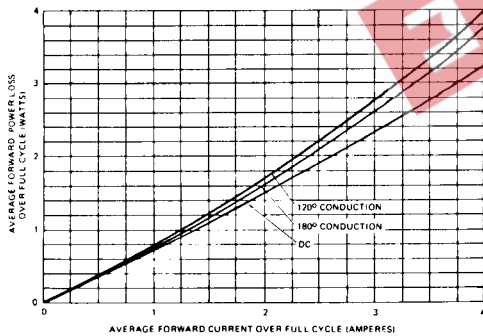


Fig. 3 - Maximum Forward Power Loss Vs. Forward Current (Sinusoidal Current Waveform)

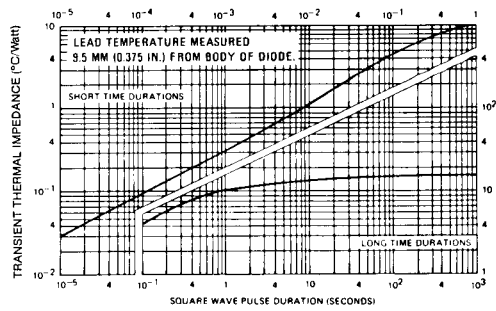


Fig. 4 - Maximum Transient Thermal Impedance, Junction-to-Lead, Vs. Pulse Duration

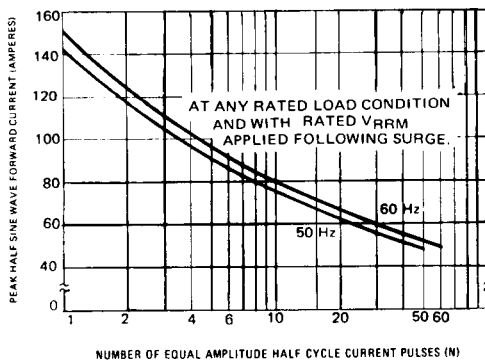


Fig. 5 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses