ALSO AVAILABLE IN SURFACE MOUNT

Microsemi Corp.
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SCOTTSDALE, AZ
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60S SERIES

6 AMP AXIAL-LEAD SILICON RECTIFIER DIODES

DESCRIPTION/FEATURES

- ECONOMICAL 6 AMP I_O MOLDED DEVICE OFFERS CAPABILITY OF STUD-MOUNTED RECTIFIERS
- 400 AMPS SURGE PROVIDES HIGH IN-RUSH CURRENT CAPABILITY
- WIDE VOLTAGE RANGE AVAILABLE: 50 TO 1000 VOLTS V_{RRM}

Major Ratings and Characteristics

	60S	
$I_{F(AV)}$	6	A
@ Max. T_L	95	°C
I_{FSM}		
@ 50 Hz	382	A
@ 60 Hz	400	
I^2t		
@ 50 Hz	712	A^2s
@ 60 Hz	650	
T_J	-40 to 175	°C
V_{RRM} Range	50-1000	V

VOLTAGE RATINGS

Part Number	Working V_{RWM} (V) T_J = -40°C to 200°C	V_R – Max. Direct Reverse Voltage (V) T_J = -40°C to 200°C
60S05	50	50
60S1	100	100
60S2	200	200
60S4	400	400
60S5	500	500
60S6	600	600
60S8	800	800
60S10	1000	1000

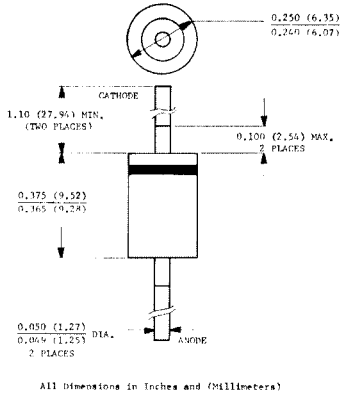
ELECTRICAL SPECIFICATIONS

		60S	Units	Conditions
$I_{F(AV)}$	Max. average forward current	6	A	1-phase operation, 180° conduction, T_L = 95°C, ℓ = 9.5 mm (0.375 in.)
I_{FSM}	Max. peak one-cycle non-repetitive surge current	382	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse; Following any rated load condition and with rated V_{RRM} applied.
		400		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
		454		Half cycle 50 Hz sine wave or 6 ms rectangular pulse; Following any rated load condition and with V_{RRM} applied following surge = 0.
		475		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
I^2t	Max. I^2t for fusing	712	A^2s	t = 10 ms; With rated V_{RRM} applied following surge, initial T_J = 175°C
		650		t = 8.3 ms
	Max. I^2t for individual device fusing	1006		t = 10 ms; With V_{RRM} = 0 following surge, initial T_J = 175°C
		919		t = 8.3 ms
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for individual device fusing (1)	10,330	$A^2\sqrt{s}$	t = 0.1 to 10 ms, V_{RRM} = 0 following surge.
V_{FM}	Max. peak forward voltage	1.00	V	$I_{F(AV)}$ = 6A (18.8A peak), T_J = 25°C
$I_{R(AV)}$	Max. average reverse current			
	50 - 100V	2.0	mA	Max. rated $I_{F(AV)}$ and V_{RRM}, T_C = 95°C, length of leads to the temperature measurement points (heat sinks) = 9.5 mm (0.375 in.)
	200V	1		
	400-500V	0.8		
	600-1000V	0.5		

THERMAL-MECHANICAL SPECIFICATIONS

T_J	Max. operating junction temperature range	-40 to 175	°C	
T_{stg}	Max. storage temperature range	-40 to 175	°C	
R_{thJC}	Max. internal thermal resistance, junction-to-leads	–	deg C/W	DC operation, double side cooled, measured 9.5 mm (0.375 in.) from body.
ℓ	Length of leads (ℓ) (1/8") 3.2 mm	11.0		± 10%
	Length of leads (ℓ) (3/8") 9.5 mm	14.7		
	Length of leads (ℓ) (3/4") 19 mm	20.0		
wt	Approximate weight	1.5 (0.053)	g (oz)	

Note (1): I^2t for time $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$



All Dimensions in Inches and (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.

60S Series
RATING AND CHARACTERISTIC CURVES

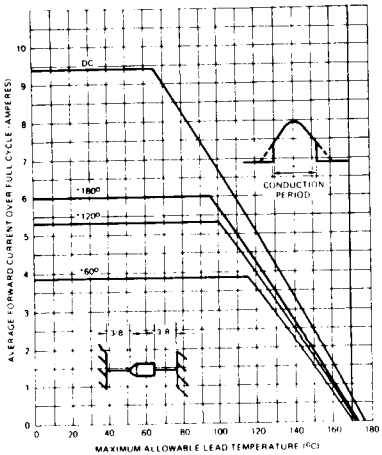


Fig. 1 – Average Forward Current Vs. Lead Temperature at Heat Sinks (ℓ = 3/8 inch)

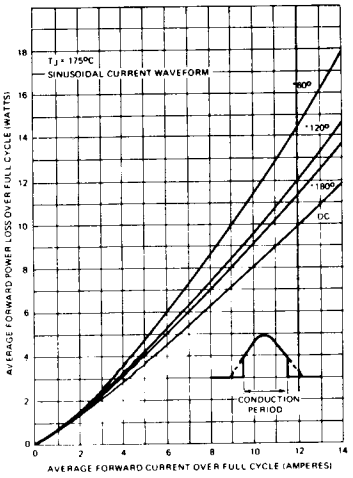


Fig. 2 – Maximum Average Forward Power Loss Vs. Low-Level Average Forward Current

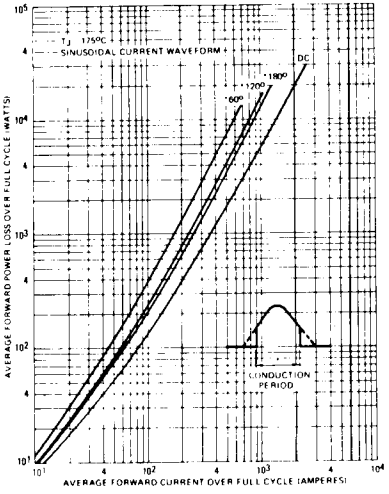


Fig. 3 – Maximum Average Forward Power Loss Vs. High-Level Forward Current

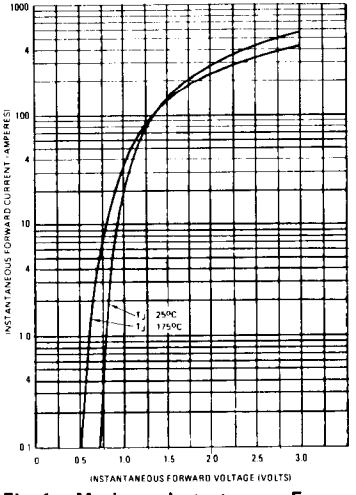


Fig. 4 – Maximum Instantaneous Forward Voltage Vs. Instantaneous Forward Current

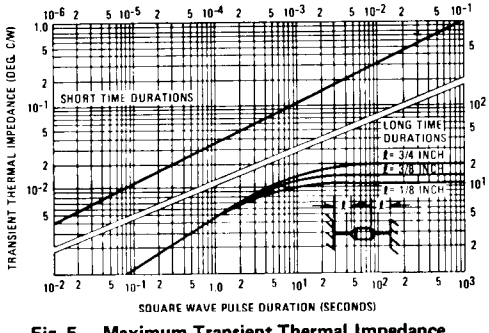


Fig. 5 – Maximum Transient Thermal Impedance, Vs. Square Wave Pulse Duration

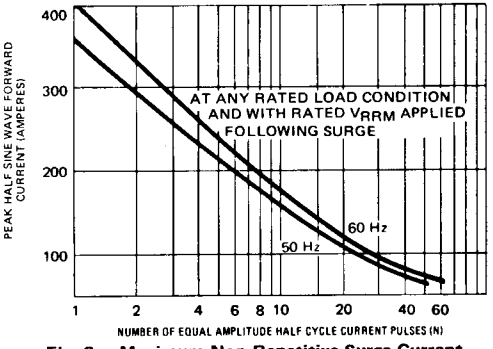


Fig. 6 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses

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