

MUR870E-MUR8100E

8 AMP ULTRA FAST RECTIFIER

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	MUR				Unit
		870	880	890	8100	
Peak repetitive reverse voltage	V_{RRM}					
Working peak reverse voltage	V_{RWM}	700	800	900	1000	V
DC blocking voltage	V_R					
Average rectified forward current (Rated V_R) ⁽¹⁾	$I_{F(AV)}$	8.0 @ $T_C = 150^\circ\text{C}$				A
Peak repetitive forward current (Rated V_R) square wave, 20 kHz	I_{FM}	16 @ $T_C = 150^\circ\text{C}$				A
Non-repetitive peak surge current (surge applied at rated load conditions, halfwave, single phase, 60Hz)	I_{FSM}	100				A
Operating and storage junction temperature range	T_J, T_{stg}	-65 to +175				$^\circ\text{C}$
Maximum thermal resistance Junction to case	$R_{\theta JC}$	2.0				$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

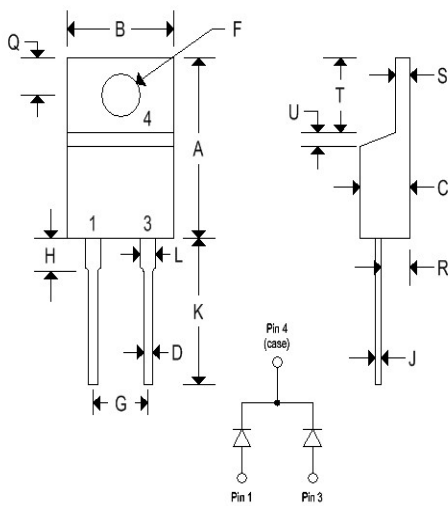
Parameter	Symbol	MUR				Unit
		870	880	890	8100	
Maximum instantaneous forward voltage ⁽¹⁾ ($I_F = 8.0\text{A}$, $T_C = 150^\circ\text{C}$) ($I_F = 8.0\text{A}$, $T_C = 25^\circ\text{C}$)	V_F		1.5 1.8			V
Maximum instantaneous reverse current ⁽¹⁾ (Rated dc voltage, $T_C = 100^\circ\text{C}$) (Rated dc voltage, $T_C = 25^\circ\text{C}$)	I_R		500 25			μA
Maximum reverse recovery time ($I_F = 1.0\text{A}$, $di/dt = 50\text{A}/\mu\text{s}$) ($I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $I_{REC} = 0.25\text{A}$)	t_{rr}		100 75			ns
Controlled avalanche energy	W_{AVAL}		20			mJ

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MECHANICAL CHARACTERISTICS

Case	TO-220AC
Marking	Alpha-numeric
Pin out	See below



	TO-220AC			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.595	0.620	15.110	15.750
B	0.380	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.142	0.147	3.610	3.730
F	0.142	0.147	3.610	3.730
G	0.190	0.210	4.830	5.330
H	0.110	0.130	2.790	3.300
J	0.018	0.025	0.460	0.640
K	0.500	0.562	12.700	14.270
L	0.045	0.050	1.140	1.270
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.480
U	0.030	0.050	0.760	1.270

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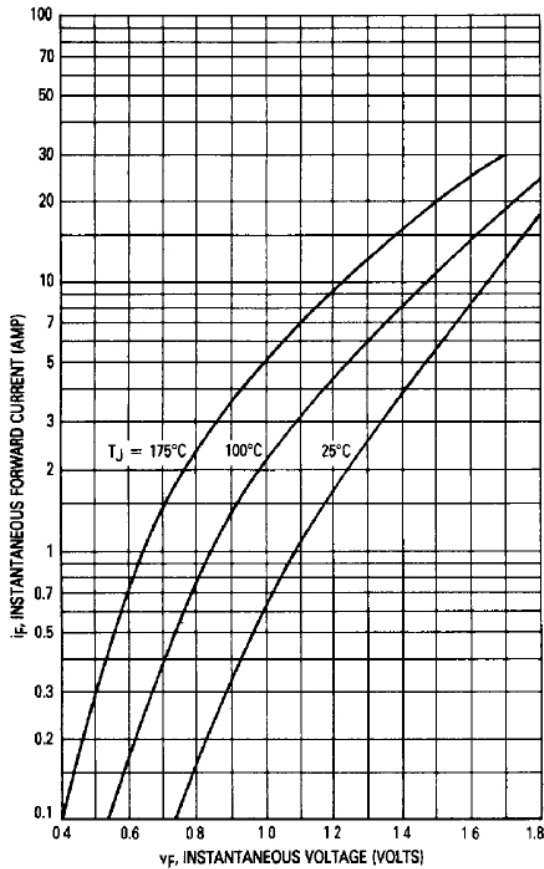


Figure 1. Typical Forward Voltage

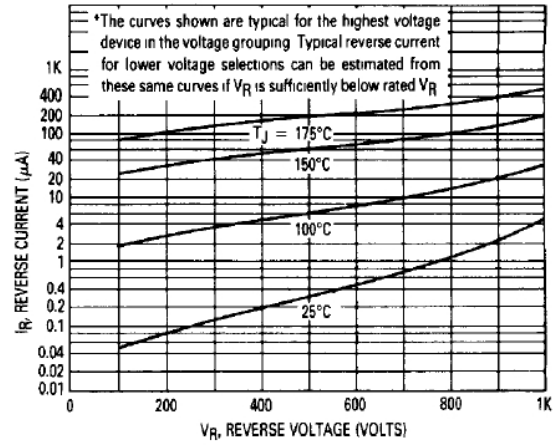


Figure 2. Typical Reverse Current*

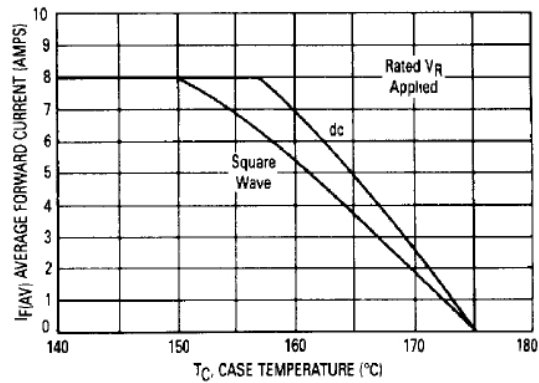


Figure 3. Current Derating, Case

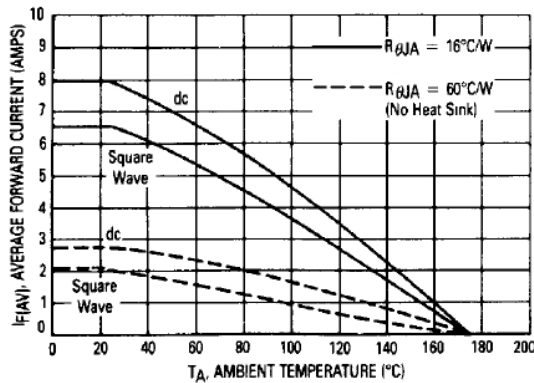


Figure 4. Current Derating, Ambient

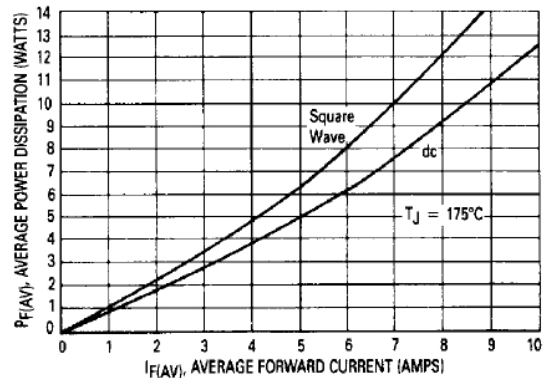


Figure 5. Power Dissipation

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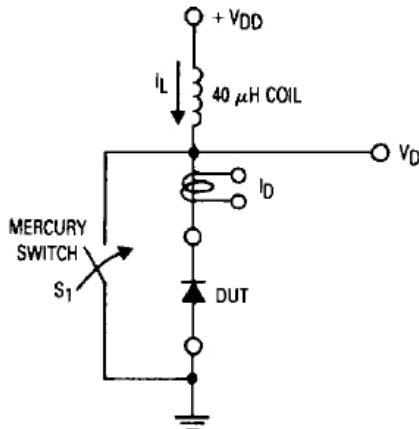


Figure 6. Test Circuit

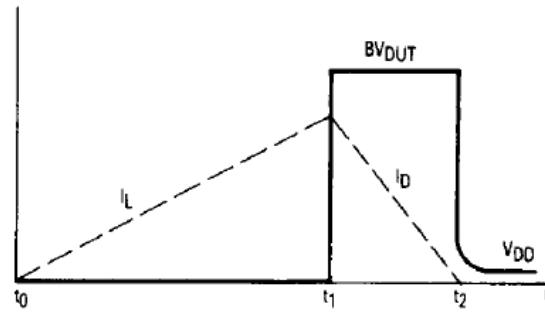


Figure 7. Current-Voltage Waveforms

EQUATION (1):

$$W_{AVAL} = \frac{1}{2} L I_L^2 \left(\frac{BV_{DUT}}{BV_{DUT} - V_{DD}} \right)$$

EQUATION (2):

$$W_{AVAL} = \frac{1}{2} L I_L^2$$

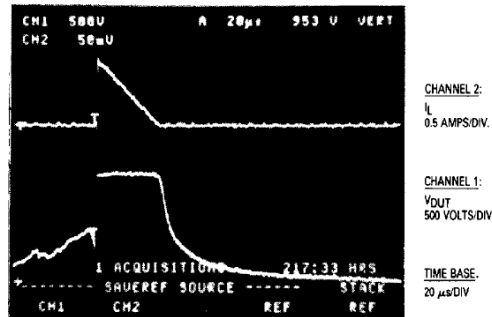


Figure 8. Current-Voltage Waveforms

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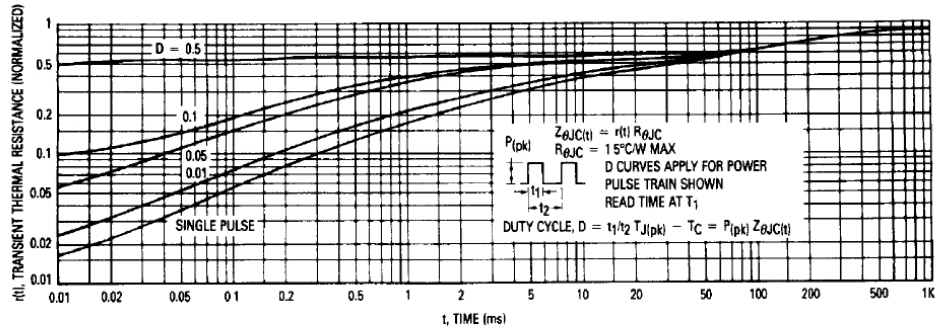


Figure 9. Thermal Response

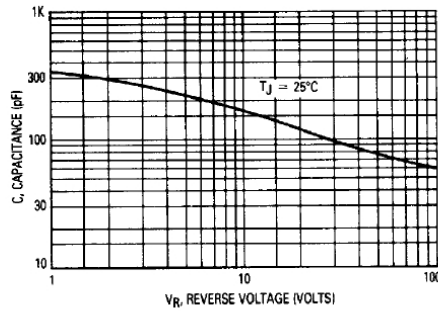


Figure 10. Typical Capacitance