



MOTOROLA

SEMICONDUCTORS

P.O. BOX 20912 • PHOENIX, ARIZONA 85036

MUR105	MUR130
MUR110	MUR140
MUR115	MUR150
MUR120	MUR160



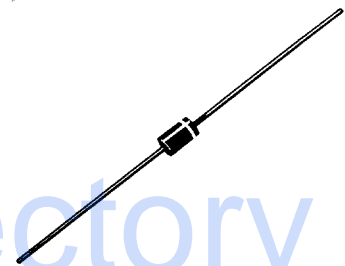
SWITCHMODE POWER RECTIFIERS

... designed for use in switching power supplies, inverters and as free wheeling diodes, these state-of-the-art devices have the following features:

- Ultrafast 25 and 50 Nanosecond Recovery Times
- 175°C Operating Junction Temperature
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction

ULTRAFAST RECTIFIERS

1.0 AMPERE
50-600 VOLTS



CASE 59-04
PLASTIC PACKAGE

Datasheet Directory

MAXIMUM RATINGS

Rating	Symbol	MUR					Unit			
		105	110	115	120	130		140	150	160
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	150	200	300	400	500	600	Volts
Average Rectified Forward Current (Square Wave) (Mounting Method #3 Per Note 1)	$I_{F(AV)}$	1.0 @ $T_A = 130^\circ\text{C}$			1.0 @ $T_A = 120^\circ\text{C}$				Amps	
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	35								Amps
Operating Junction Temperature and Storage Temperature	T_J, T_{stg}	-65 to +175								°C

THERMAL CHARACTERISTICS

Maximum Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	See Note 1	°C/W
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ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1) ($i_F = 1.0$ Amp, $T_J = 150^\circ\text{C}$) ($i_F = 1.0$ Amp, $T_J = 25^\circ\text{C}$)	V_F	0.710 0.875	1.05 1.25	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, $T_J = 150^\circ\text{C}$) (Rated dc Voltage, $T_J = 25^\circ\text{C}$)	i_R	50 2.0	150 5.0	μA
Maximum Reverse Recovery Time ($I_F = 1.0$ Amp, $di/dt = 50$ Amp/ μs) ($I_F = 0.5$ Amp, $i_R = 1.0$ Amp, $I_{REC} = 0.25$ Amp)	t_{rr}	35 25	75 50	ns
Forward Recovery Time ($I_F = 1.0$ A, $di/dt = 100$ A/ μs , Recovery to 1.0 V)	t_{fr}	25	50	ns

(1)Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$
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MUR105, 110 AND 115

FIGURE 1 — TYPICAL FORWARD VOLTAGE

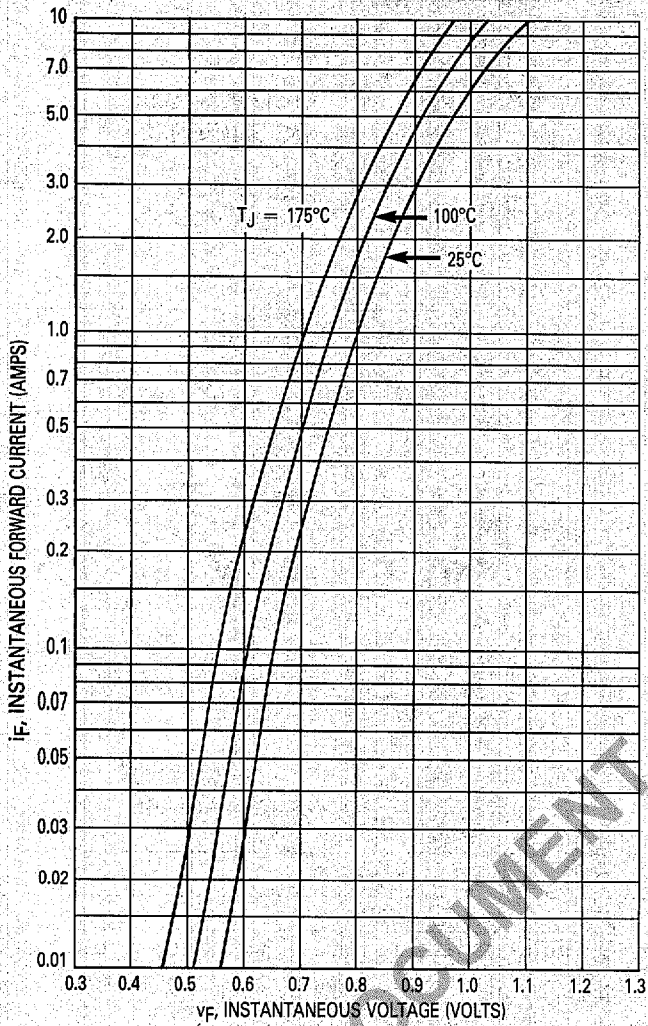


FIGURE 2 — TYPICAL REVERSE CURRENT*

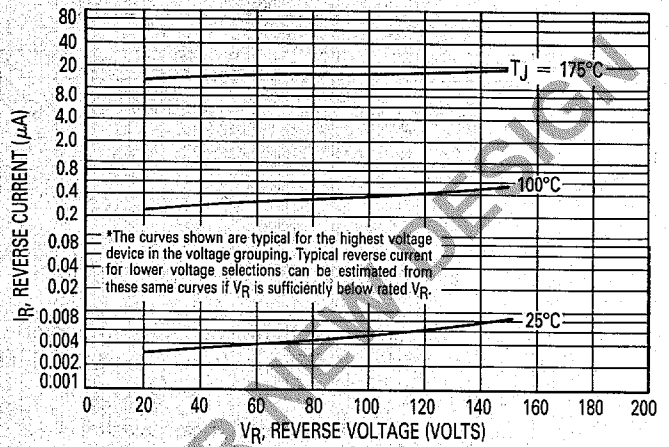


FIGURE 3 — CURRENT DERATING (MOUNTING METHOD #3 PER NOTE 1)

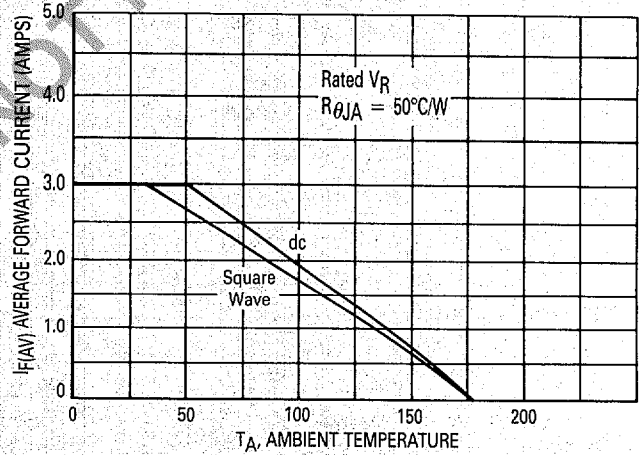


FIGURE 4 — POWER DISSIPATION

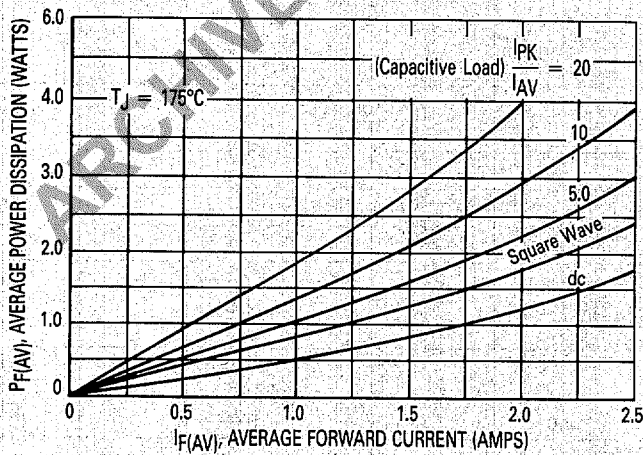
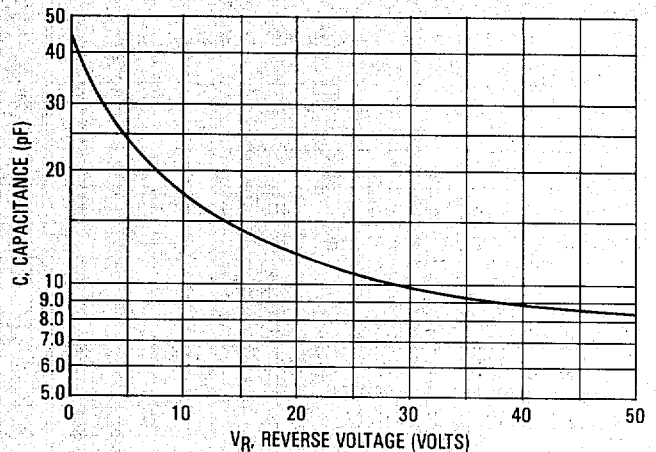


FIGURE 5 — TYPICAL CAPACITANCE



MUR120, 130, 140, 150, 160

FIGURE 6 — TYPICAL FORWARD VOLTAGE

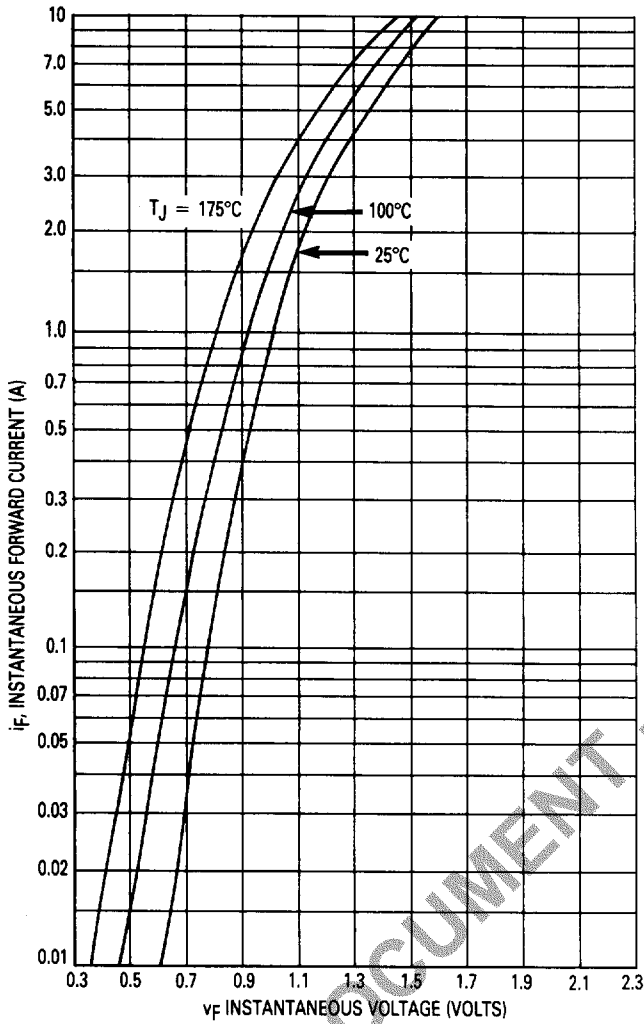


FIGURE 7 — TYPICAL REVERSE CURRENT*

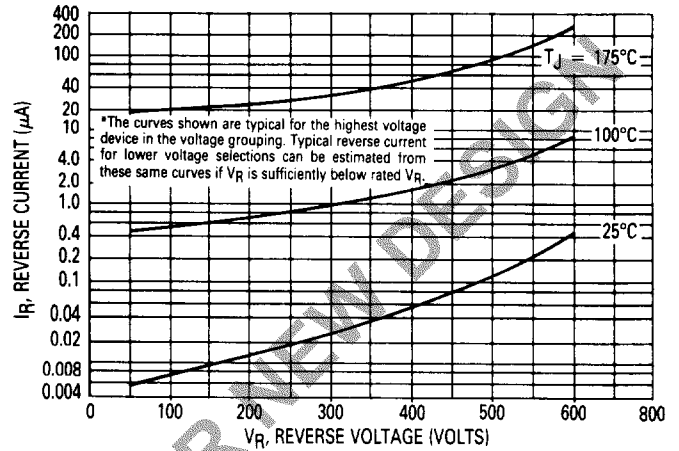


FIGURE 8 — CURRENT DERATING (MOUNTING METHOD #3 PER NOTE 1)

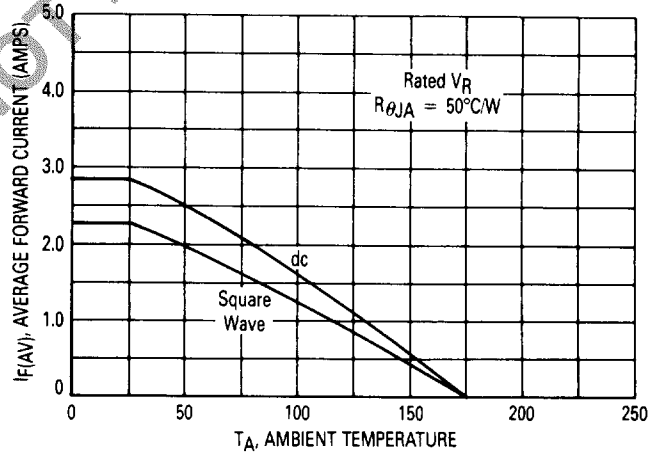


FIGURE 9 — POWER DISSIPATION

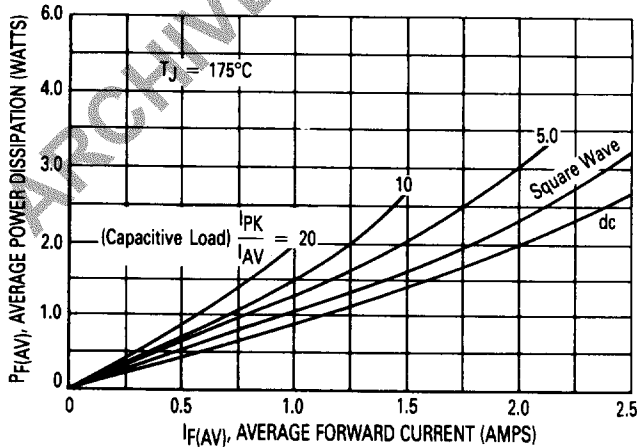
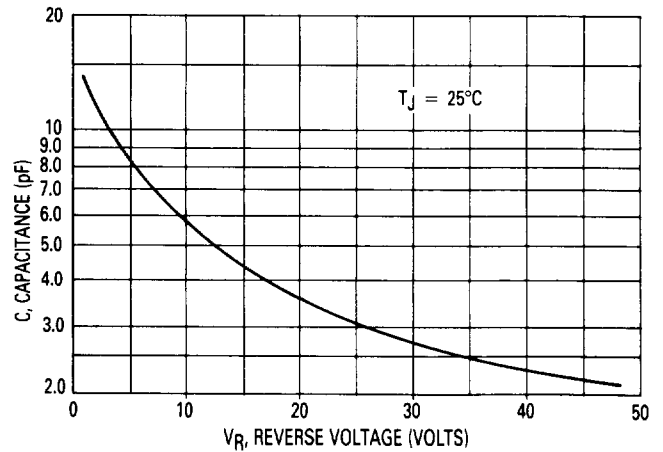


FIGURE 10 — TYPICAL CAPACITANCE



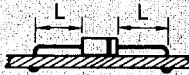
NOTE 1

Data shown for thermal resistance junction-to-ambient ($R_{\theta JA}$) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

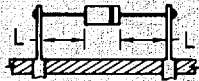
TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

MOUNTING METHOD	1/8	1/4	1/2	$R_{\theta JA}$
1	52	65	72	°C/W
2	67	80	87	°C/W
3	50			°C/W

MOUNTING METHOD 1

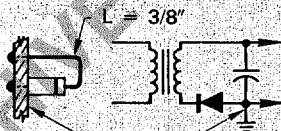


MOUNTING METHOD 2



Vector Pin Mounting

MOUNTING METHOD 3

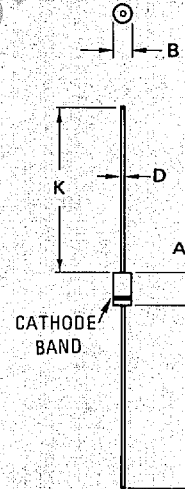


Board Ground Plane
P.C. Board with
1-1/2" x 1-1/2" Copper Surface

MECHANICAL CHARACTERISTICS

Case: Transfer Moulded Plastic
Finish: External Leads are Plated, Leads are readily Solderable
Polarity: Indicated by Cathode Band
Weight: 1.1 Grams (Approximately)
Maximum Lead Temperature for Soldering Purposes: 240°C, 1/8" from case for 10 seconds at 5.0 lbs. tension.

OUTLINE DIMENSIONS



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.97	6.60	0.235	0.260
B	2.79	3.05	0.110	0.120
D	0.76	0.86	0.030	0.034
K	27.94	—	1.100	—

CASE 59-04

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