

T-03-17

**MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA**

**MUR805 MUR850
MUR810 MUR860
MUR815 MUR870
MUR820 MUR880
MUR830 MUR890
MUR840 MUR8100**



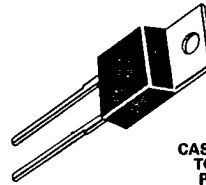
SWITCHMODE POWER RECTIFIERS

... 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, 50 and 75 Nanosecond Recovery Time
- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy meets UL94, V₀ @ 1/8"
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Reverse Voltage to 1000 Volts

**ULTRAFAST
RECTIFIERS**

**8 AMPERES
50-1000 VOLTS**



CASE 221B-01
TO-220AC
PLASTIC

3

MAXIMUM RATINGS

Rating	Symbol	MUR											Unit	
		805	810	815	820	830	840	850	860	870	880	890		8100
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	700	800	900	1000	Volts
Average Rectified Forward Current Total Device, (Rated V _R), T _C = 150°C	I _{F(AV)}	8.0											Amps	
Peak Repetitive Forward Current (Rated V _R , Square Wave, 20 kHz), T _C = 150°C	I _{FM}	16											Amps	
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I _{FSM}	100											Amps	
Operating Junction Temperature and Storage Temperature	T _J , T _{stg}	- 65 to + 175											°C	

THERMAL CHARACTERISTICS

Maximum Thermal Resistance, Junction to Case	R _{θJC}	3.0	2.0	°C/W
---	------------------	-----	-----	------

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1) (I _F = 8.0 Amp, T _C = 150°C) (I _F = 8.0 Amp, T _C = 25°C)	V _F	0.895 0.975	1.00 1.30	1.20 1.50	1.5 1.8	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, T _C = 150°C) (Rated dc Voltage, T _C = 25°C)	i _R	250 5.0	500 10	500 10	500 25	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	60 50	100 75		ns

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%

MUR805 Series

MUR805, 810 AND 815

FIGURE 1 — TYPICAL FORWARD VOLTAGE

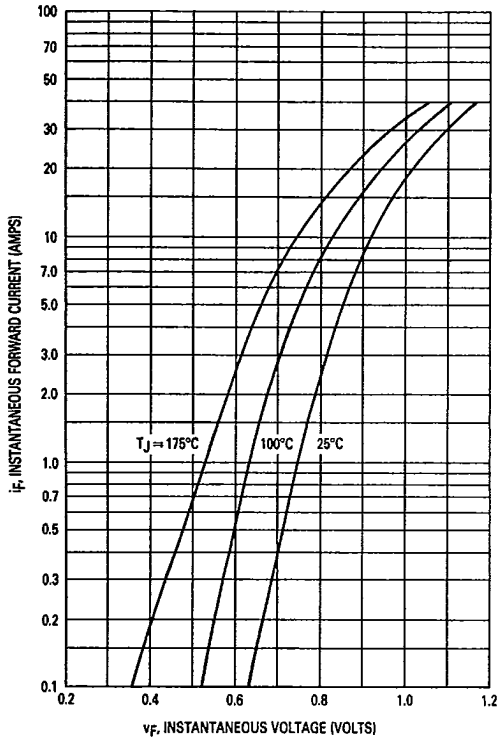


FIGURE 2 — TYPICAL REVERSE CURRENT*

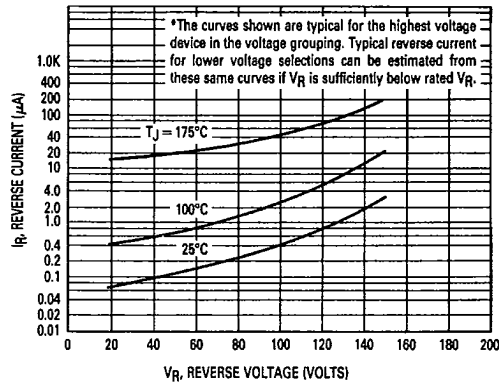


FIGURE 3 — CURRENT DERATING, CASE

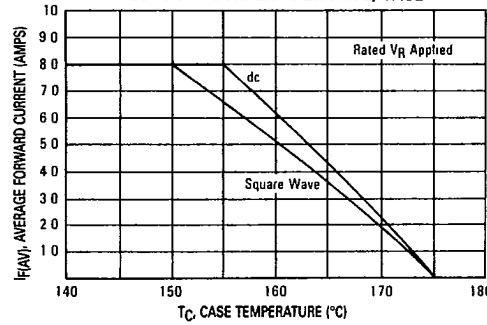


FIGURE 4 — CURRENT DERATING, AMBIENT

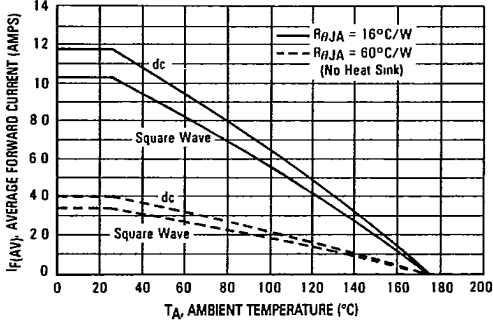
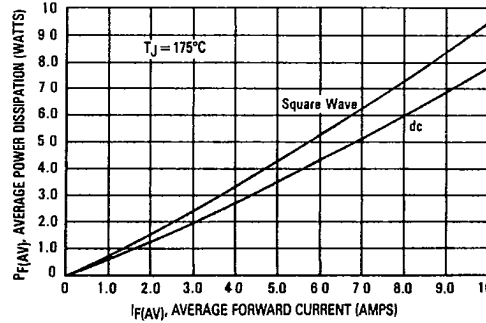


FIGURE 5 — POWER DISSIPATION



MUR805 Series

MUR820, 830 AND 840

FIGURE 6 — TYPICAL FORWARD VOLTAGE

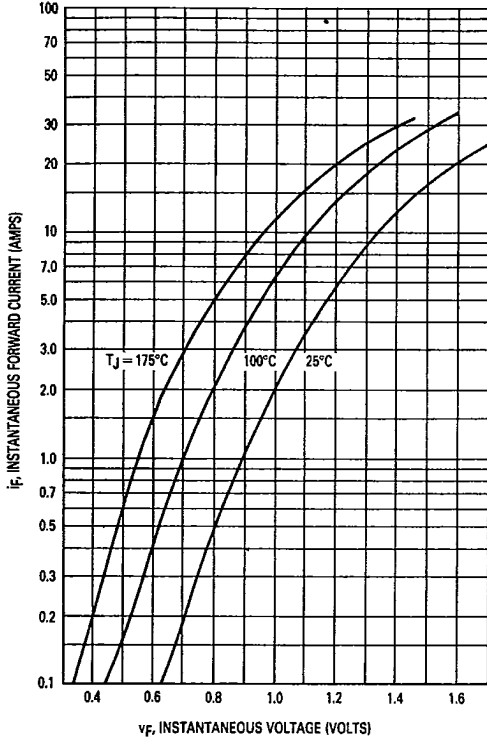
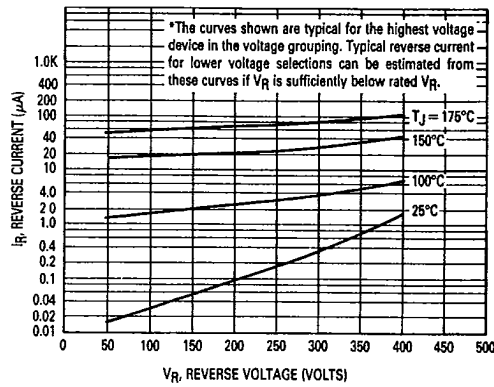


FIGURE 7 — TYPICAL REVERSE CURRENT*



3

FIGURE 8 — CURRENT DERATING, CASE

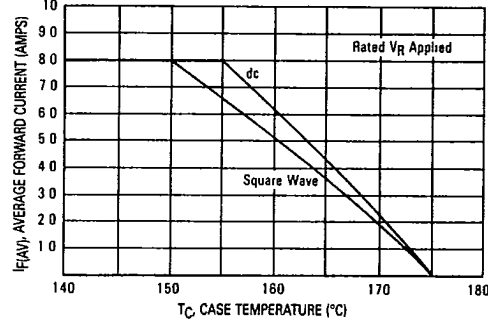


FIGURE 9 — CURRENT DERATING, AMBIENT

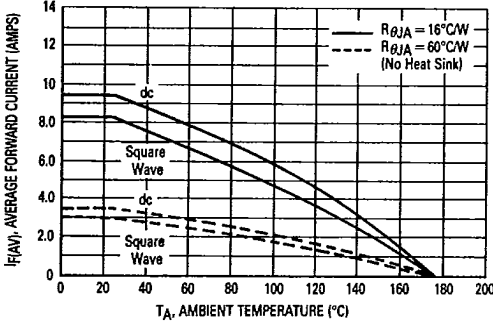
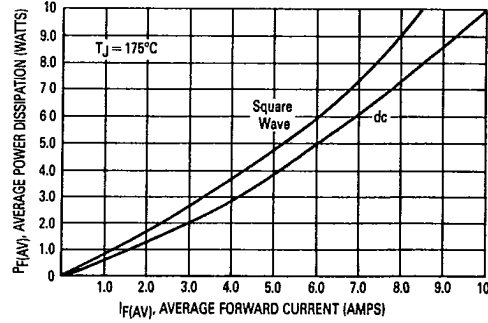


FIGURE 10 — POWER DISSIPATION



MUR805 Series

MUR850 AND 860

FIGURE 11 — TYPICAL FORWARD VOLTAGE

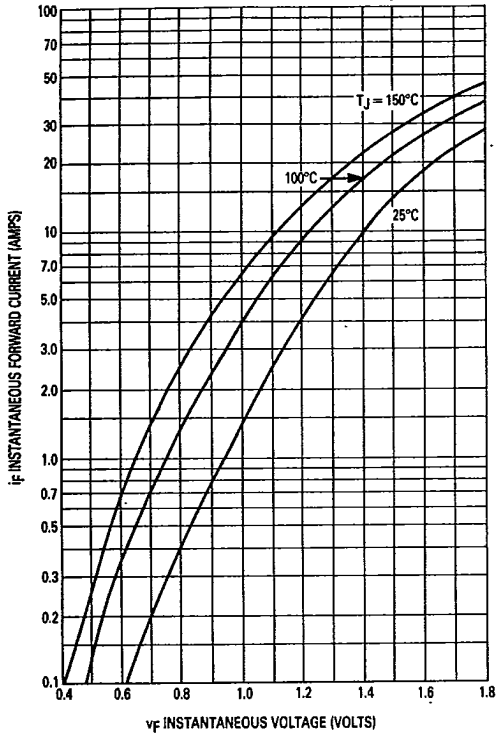


FIGURE 12 — TYPICAL REVERSE CURRENT*

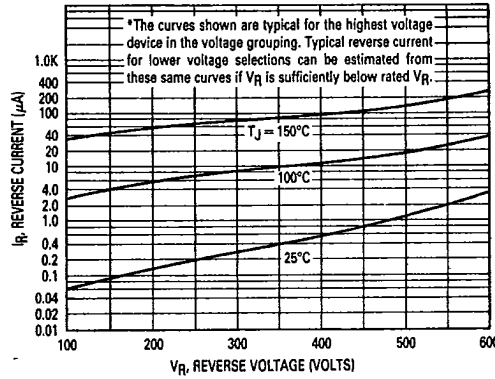


FIGURE 13 — CURRENT DERATING, CASE

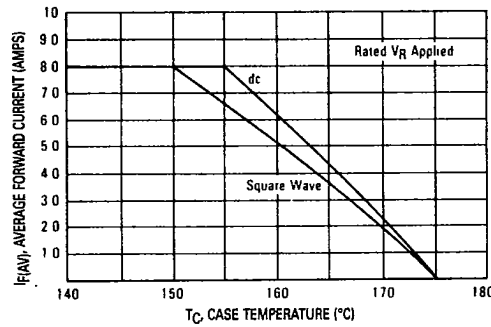


FIGURE 14 — CURRENT DERATING, AMBIENT

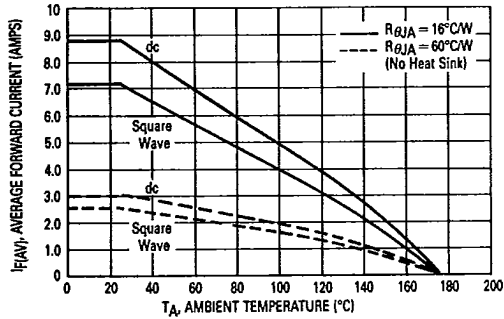
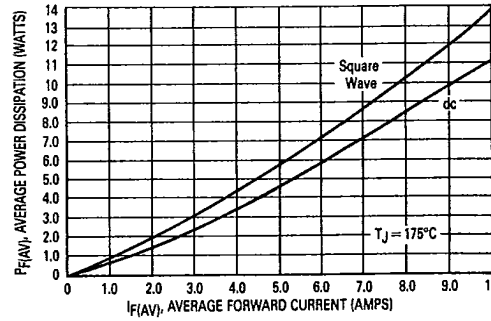


FIGURE 15 — POWER DISSIPATION



MUR805 Series

MUR870, 880, 890 AND 8100

FIGURE 16 — TYPICAL FORWARD VOLTAGE

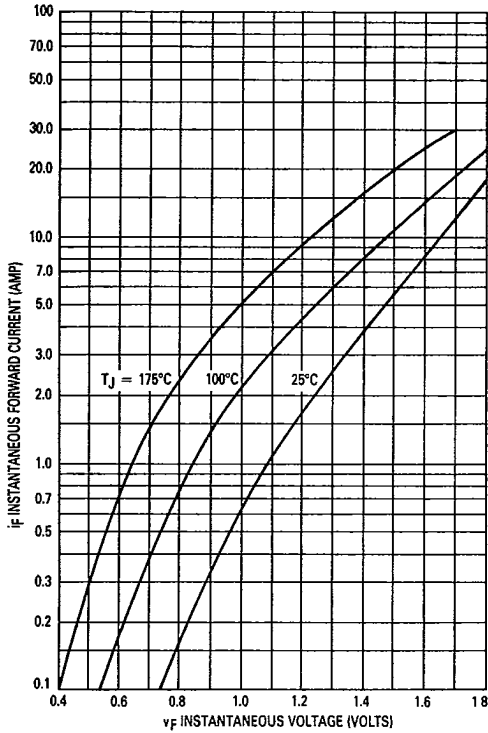
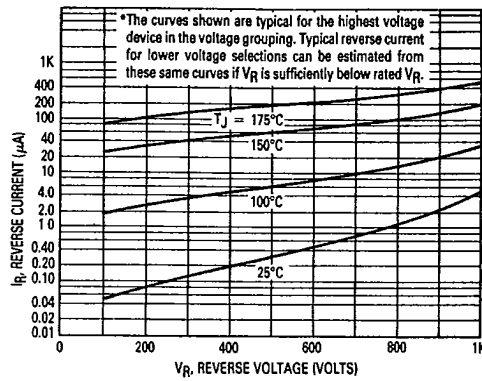


FIGURE 17 — TYPICAL REVERSE CURRENT*



3

FIGURE 18 — CURRENT DERATING, CASE

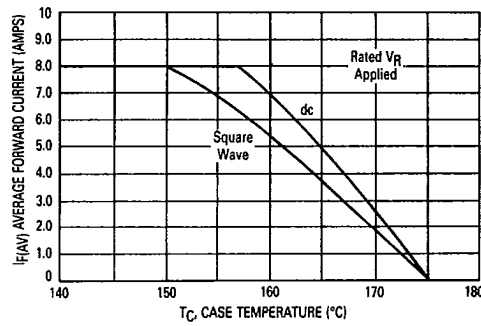


FIGURE 19 — CURRENT DERATING, AMBIENT

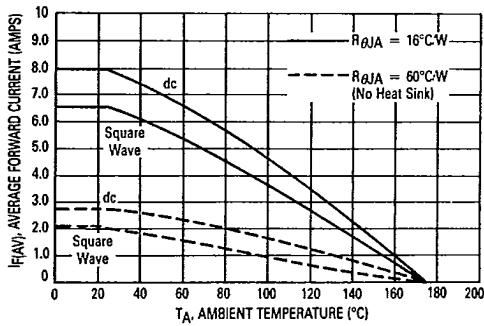
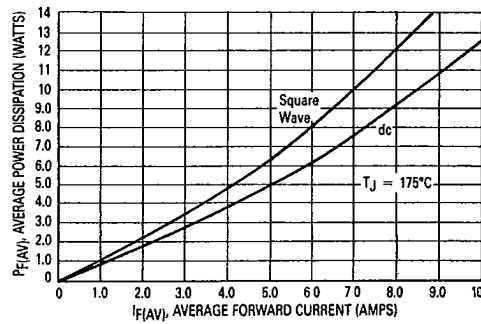


FIGURE 20 — POWER DISSIPATION



MUR805 Series

FIGURE 21 — THERMAL RESPONSE

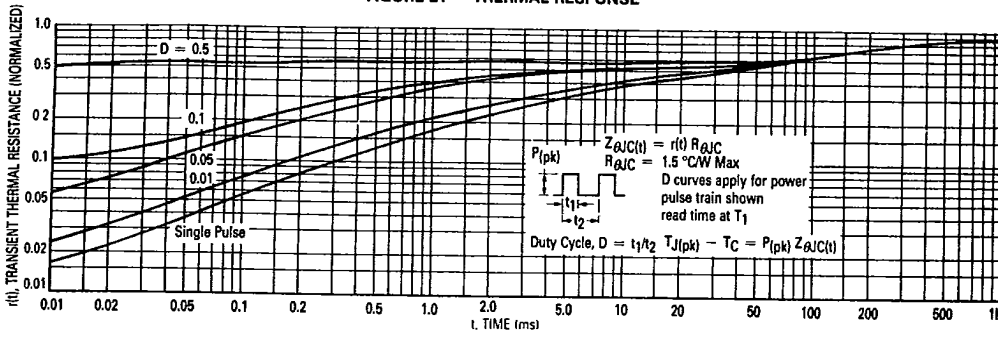


FIGURE 22 — TYPICAL CAPACITANCE

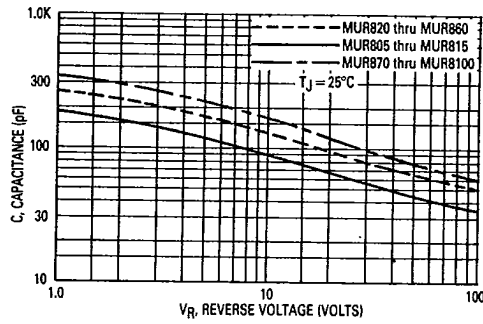


FIGURE 23 — OUTLINE DIMENSIONS

