

**8A High-Speed, High-Voltage,
 High Efficiency Epitaxial Silicon Rectifiers**

August 1991

T-03-17

Features

- Ultrafast Recovery Time ($t_{rr} < 50ns$)
- Low Forward Voltage
- Low Thermal Resistance
- Hard Glass Passivation
- Wire-Bonded Construction

Applications

- General Purpose
- Power Switching Circuits to 100kHz
- Output Rectification in Switching Power Supplies

Description

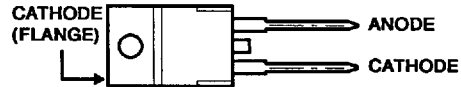
MUR840, MUR850, MUR860 and RUR840, RUR850, RUR860 are low forward voltage drop ultrafast recovery rectifiers ($t_{rr} < 50ns$). They use a glass-passivated ion-implanted, epitaxial construction.

These devices are intended for use as output rectifiers and flywheel diodes in a variety of high-frequency pulse-width modulated switching regulators. Their low stored charge and attendant fast reverse-recovery behavior minimize electrical noise generation and in many circuits markedly reduce the turn-on dissipation of the associated power switching transistors.

All are supplied in TO-220AC packages.

Package

TO-220AC
TOP VIEW



Symbol



Absolute Maximum Ratings ($T_C = +25^{\circ}C$)

	MUR840 RUR840	MUR850 RUR850	MUR860 RUR860
Peak Repetitive Reverse Voltage..... V_{RRM}	400V	500V	600V
Working Peak Reverse Voltage, V_{RWM}			
DC Blocking Voltage, V_R			
Average Rectified Forward Current $I_{F(AV)}$	8A	8A	8A
Total Device, (Rated V_R), $T_C = 150^{\circ}C$			
Peak Repetitive Forward Current I_{FM}	16A	16A	16A
(Rated V_R , Square Wave, 20kHz), $T_C = 150^{\circ}C$			
Nonrepetitive Peak Surge Current I_{FSM}	100A	100A	100A
(Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60Hz)			
Operating and Storage Temperature T_{STG}, T_J	$-65^{\circ}C$ to $+175^{\circ}C$	$-65^{\circ}C$ to $+175^{\circ}C$	$-65^{\circ}C$ to $+175^{\circ}C$
Maximum Lead Temperature During Solder T_L	260 $^{\circ}C$	260 $^{\circ}C$	260 $^{\circ}C$
(At distance > 1/8" (3.17mm) from case or 10s max)			

**ULTRA-FAST
RECTIFIERS**

T-03-17

SYMBOL	TEST CONDITION	LIMITS									UNITS
		MUR840, RUR840			MUR850, RUR850			MUR860, RUR860			
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
V _F	I _F = 8A T _C = +150°C	-	-	1.0	-	-	1.2	-	-	1.2	V
	I _F = 8A T _C = +25°C	-	-	1.3	-	-	1.5	-	-	1.5	V
I _R @ T _C = +150°C	V _R = 400V	-	-	500	-	-	-	-	-	-	μA
	V _R = 500V	-	-	-	-	-	500	-	-	-	μA
	V _R = 600V	-	-	-	-	-	-	-	-	500	μA
I _R @ T _C = +25°C	V _R = 400V	-	-	10	-	-	-	-	-	-	μA
	V _R = 500V	-	-	-	-	-	10	-	-	-	μA
	V _R = 600V	-	-	-	-	-	-	-	-	10	μA
t _{rr}	I _F = 1A*	-	-	60	-	-	60	-	-	60	ns
	I _F = 0.5**	-	-	50	-	-	50	-	-	50	ns
R _{θjc}		-	-	2	-	-	2	-	-	2	°C/W

*di_F/dt = 50A/μs

**I_R = 1.0A, I_{REC} = 0.25A.

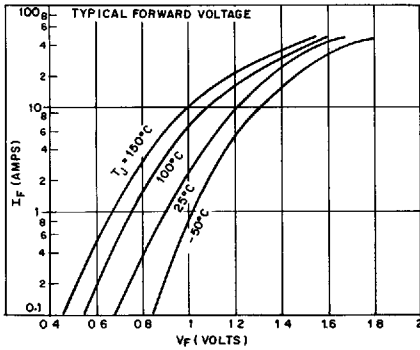


FIGURE 1. TYPICAL FORWARD VOLTAGE (MUR840, RUR840)

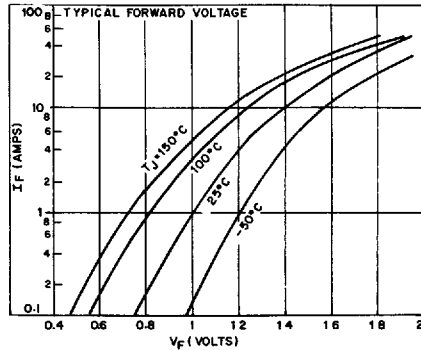


FIGURE 2. TYPICAL FORWARD VOLTAGE (MUR850, MUR860, RUR850, AND RUR860)

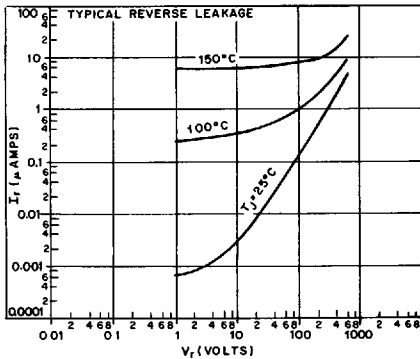


FIGURE 3. TYPICAL REVERSE LEAKAGE (MUR840, RUR840)

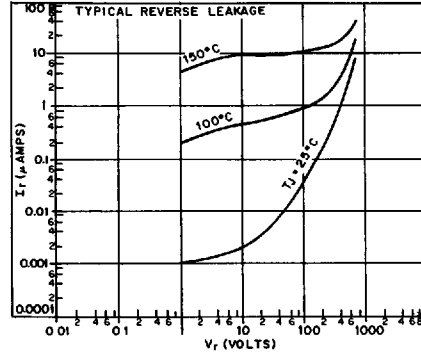
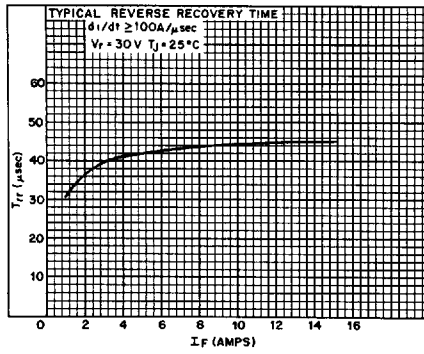


FIGURE 4. TYPICAL REVERSE LEAKAGE (MUR850, MUR860, RUR850, AND RUR860)



T-03-17

FIGURE 5. TYPICAL REVERSE RECOVERY TIME (ALL TYPES)



ULTRA-FAST
RECTIFIERS