MUR840, MUR850, MUR860, RURP840, RURP850,RURP860

August 1998

8A, 400V - 600V Ultrafast Diodes

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**

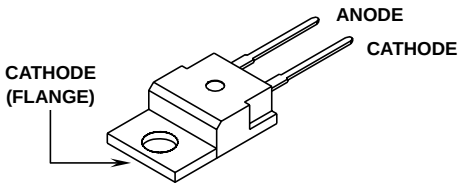
Description

MUR840, MUR850, MUR860 and RURP840, RURP850, RURP860 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 fly-wheel 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.

Package

JEDEC TO-220AC



Symbol

PACKAGING AVAILABILITY

PART NUMBER	PACKAGE	BRAND
MUR840	TO-220AC	MUR840
RURP840	TO-220AC	RURP840
MUR850	TO-220AC	MUR850
RURP850	TO-220AC	RURP850
MUR860	TO-220AC	MUR860
RURP860	TO-220AC	RURP860

NOTE: When ordering, use the entire part number.

Absolute Maximum Ratings T_C = +25°C, Unless Otherwise Specified

	MUR840 RURP840	MUR850 RURP850	MUR860 RURP860
Peak Repetitive Reverse Voltage . . . . . V_{RRM} Working Peak Reverse Voltage, V_{RWM} DC Blocking Voltage, V_R	400V	500V	600V
Average Rectified Forward Current . . . . . $I_{F(AV)}$ Total Device, (Rated V_R), T_C = +150°C	8A	8A	8A
Peak Repetitive Forward Current . . . . . I_{FM} (Rated V_R, Square Wave, 20kHz), T_C = +150°C	16A	16A	16A
Nonrepetitive Peak Surge Current . . . . . I_{FSM} (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60Hz)	100A	100A	100A
Operating and Storage Temperature . . . . . T_{STG}, T_J	-65°C to +175°C	-65°C to +175°C	-65°C to +175°C
Maximum Lead Temperature During Solder . . . . . T_L (At distance > $^1/_8$" (3.17mm) from case for 10s max)	260°C	260°C	260°C

CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.

File Number **2091.3**

Electrical Specifications $T_C = +25^oC$, Unless Otherwise Specified

SYMBOL	TEST CONDITION	LIMITS									UNITS
		MUR840, RURP840			MUR850, RURP850			MUR860, RURP860			
		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 at T_C = +150°C	V_R = 400V	-	-	500	-	-	-	-	-	-	µA
	V_R = 500V	-	-	-	-	-	500	-	-	-	µA
	V_R = 600V	-	-	-	-	-	-	-	-	500	µA
I_R at T_C = +25°C	V_R = 400V	-	-	100	-	-	-	-	-	-	µA
	V_R = 500V	-	-	-	-	-	100	-	-	-	µA
	V_R = 600V	-	-	-	-	-	-	-	-	100	µA
t_{RR}	I_F = 1A (Note 1)	-	-	60	-	-	60	-	-	60	ns
	I_F = 0.5 (Note 2)	-	-	50	-	-	50	-	-	50	ns
$R_{\theta JC}$		-	-	2	-	-	2	-	-	2	°C/W

NOTES:

1. dI_F/dt = 50A/µs.
2. I_R = 1.0A, I_{REC} = 0.25A.

Typical Performance Curves

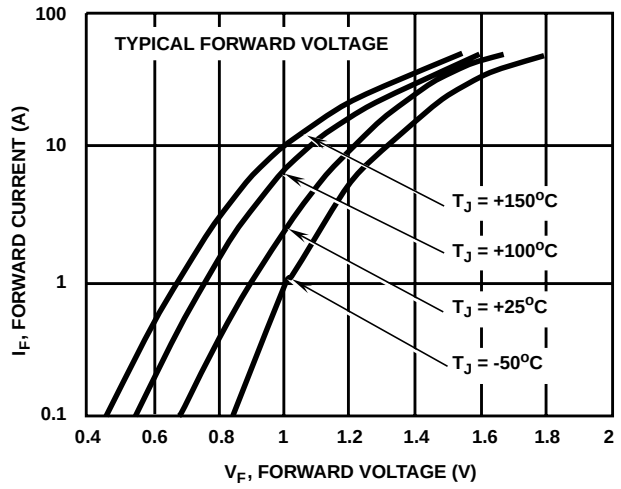


FIGURE 1. TYPICAL FORWARD VOLTAGE (MUR840, RUR840)

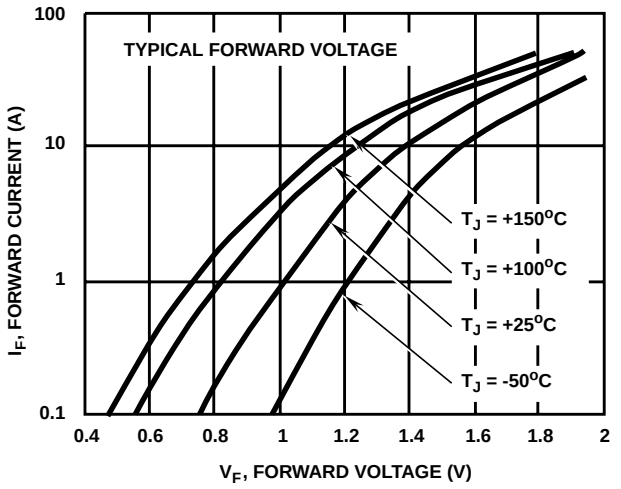


FIGURE 2. TYPICAL FORWARD VOLTAGE (MUR850, MUR860, RUR850, AND RUR860)

Typical Performance Curves (Continued)

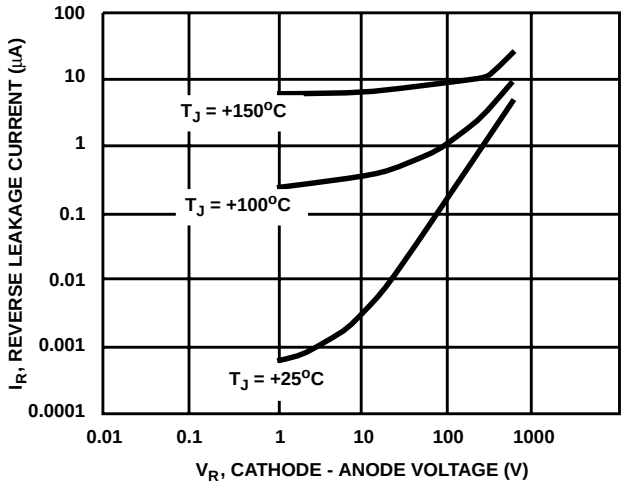


FIGURE 3.TYPICAL REVERSE LEAKAGE (MUR840, RURP840)

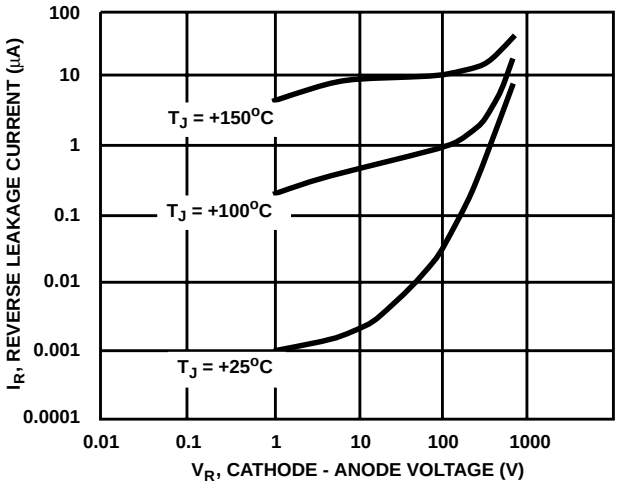


FIGURE 4. TYPICAL REVERSE LEAKAGE (MUR850, MUR860, RURP850, AND RURP860)

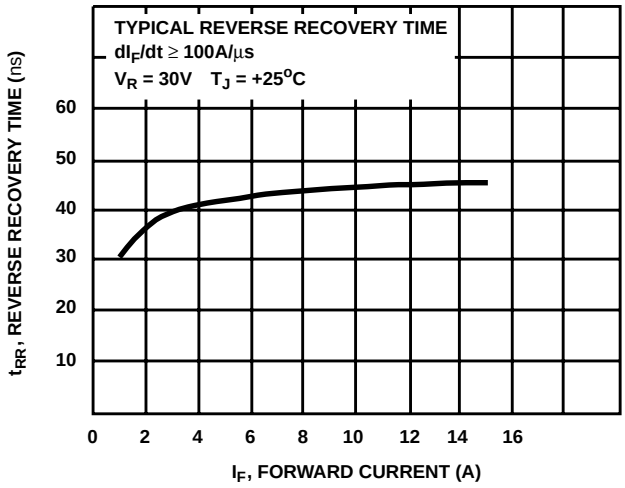


FIGURE 5. TYPICAL REVERSE RECOVERY TIME (ALL TYPES)