

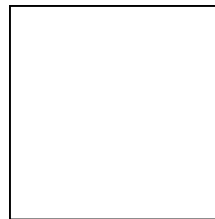
International IOR Rectifier

UFB120FA40

Ultrafast Soft Recovery Diode

Features

- Fast Recovery Time Characteristic
- Electrically Isolated Base Plate
- Large Creepage Distance Between Terminal
- Simplified Mechanical Designs, Rapid Assembly



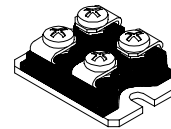
$$V_R = 400V$$

$$V_F(\text{typ.}) = 0.96V$$

$$I_{F(AV)} = 60A$$

Description

The dual diode series configuration (UFB120FA40) is used for output rectification or freewheeling/ clamping operation and high voltage application. The semiconductor in the SOT-227 package is isolated from the copper base plate, allowing for common heatsinks and compact assemblies to be built. These modules are intended for general applications such as HV power supplies, electronic welders, motor control and inverters.



SOT-227

Absolute Maximum Ratings

Parameters	Max	Units
V_R Cathode-to-Anode Voltage	400	V
I_F Continuous Forward Current, $T_C = 100^\circ\text{C}$	60	A
I_{FSM} Single Pulse Forward Current, $T_C = 25^\circ\text{C}$	800	
I_{FRM} Maximum Repetitive Forward Current	120	
V_{ISOL} RMS Isolation Voltage, Any Terminal to Case, $t = 1 \text{ min}$	2500	V
T_J, T_{STG} Operating Junction and Storage Temperatures	- 55 to 150	$^\circ\text{C}$

Thermal - Mechanical Characteristics

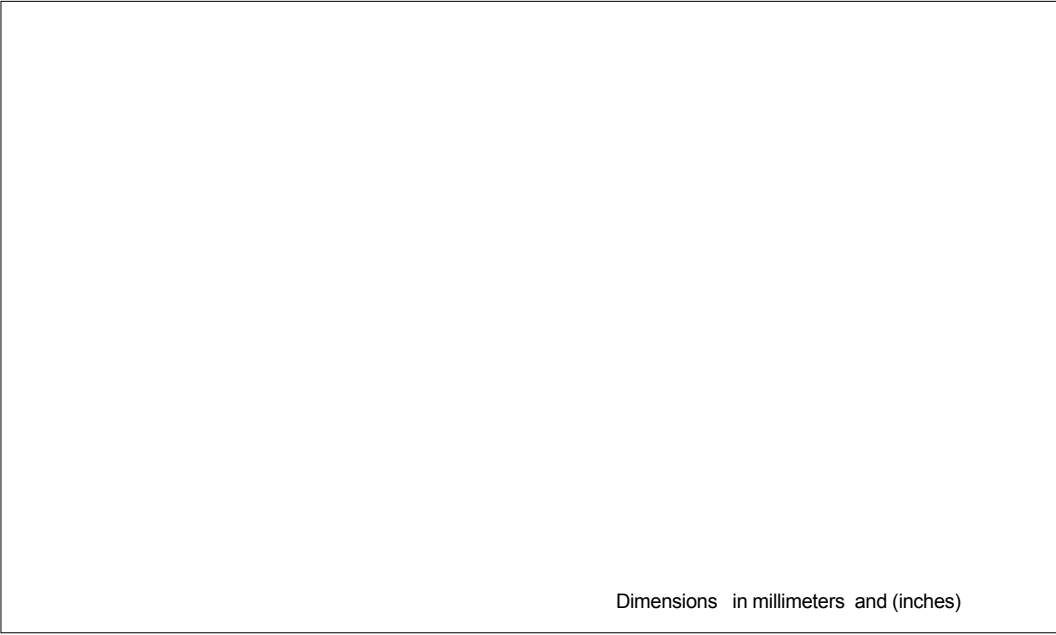
Parameters	Min	Typ	Max	Units
R_{thJC} Junction to Case, Single Leg Conducting			0.8	$^\circ\text{C/W}$
			0.4	K/W
R_{thCS} Case to Heat Sink, Flat, Greased Surface		0.05		
Wt Weight		30		g
T Mounting Torque		1.3		(N*m)

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters		Min	Typ	Max	Units	Test Conditions
V _{BR}	Cathode Anode Breakdown Voltage	400	-	-	V	I _R = 50μA
V _{FM}	Forward Voltage	-	-	1.28	V	I _F = 60A
		-	-	1.03	V	I _F = 60A, T _J = 150°C
I _{RM}	Reverse Leakage Current	-	-	50	μA	V _R = V _R Rated
		-	-	2	mA	T _J = 150°C, V _R = V _R Rated

Dynamic Recovery Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters		Min	Typ	Max	Units	Test Conditions
t _{rr}	Reverse Recovery Time	-	-	100	ns	I _F = 1.0A, di _F /dt = 15A/μA, V _R = 30V
t _{rr1}		-	-	-		T _J = 25°C
t _{rr2}		-	-	-		T _J = 125°C
I _{RRM1}	Peak Recovery Current	-	-	-	A	T _J = 25°C
I _{RRM2}		-	-	-		T _J = 125°C
Q _{rr1}	Reverse Recovery Charge	-	-	-	nC	T _J = 25°C
Q _{rr2}		-	-	-		T _J = 125°C



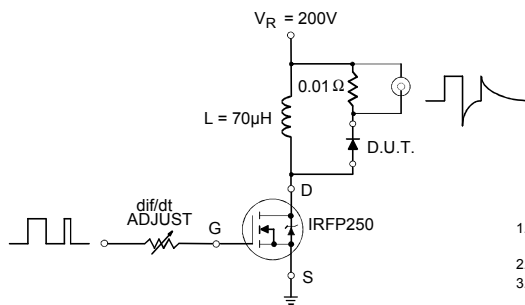
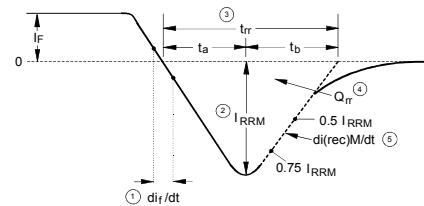


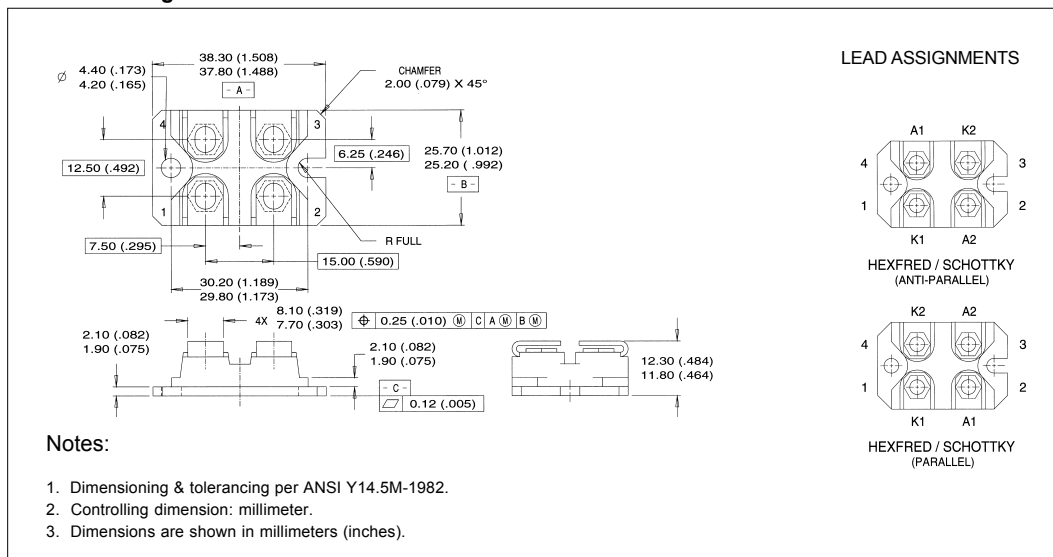
Fig. 1 - Reverse Recovery Parameter Test Circuit



1. di_F/dt - Rate of change of current through zero crossing
2. I_{RRM} - Peak reverse recovery current
3. t_{rr} - Reverse recovery time measured from zero crossing point of negative going I_F to point where a line passing through $0.75 I_{RRM}$ and $0.50 I_{RRM}$ extrapolated to zero current
4. Q_{rr} - Area under curve defined by t_{rr} and I_{RRM}
$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$
5. $di_{(rec)M}/dt$ - Peak rate of change of current during t_b portion of t_{rr}

Fig. 2 - Reverse Recovery Waveform and Definitions

SOT-227 Package Details



UFB120FA40

Target Data Sheet rev. A 07/00

SOT-227 Package Details

Tube

QUANTITIES PER TUBE IS 10
M4 SREW AND WASHER INCLUDED

Ordering Information Table

Device Code

UF	B	120	F	A	40	-
1	2	3	4	5	6	7

1	-	ULTRAFast RECTIFIER
2	-	Ultrafast Pt diffused GEN 5
3	-	Current Rating (120 = 120A)
4	-	Circuit Configuration (2 separate Diodes, parallel Pin-out)
5	-	Package Indicator (SOT-227 Standard Isolated Base)
6	-	Voltage Rating (40 = 400V)
7	-	Special Options

Empty = No special Option
LC = Low Charge

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