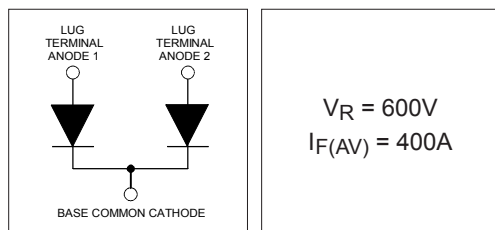


**Features**

- Ultrafast Recovery
- Lead-Free

**Benefits**

- Reduced RFI and EMI
- Higher Frequency Operation
- Reduced Snubbing
- Reduced Parts Count



**Description/ Applications**

These diodes are optimized to reduce losses and EMI/ RFI in high frequency power conditioning systems. The softness of the recovery eliminates the need for a snubber in most applications. These devices are ideally suited for HF welding, power converters and other applications where switching losses are significant portion of the total losses.

**Absolute Maximum Ratings**

Parameters (*)		Max	Units	
V <sub>R</sub>	Cathode-to-Anode Voltage	600	V	
I <sub>F(AV)</sub>	Continuous Forward Current	@ T <sub>C</sub> = 25°C	A	
		@ T <sub>C</sub> = 85°C		230
		@ T <sub>C</sub> = 97°C		200
I <sub>FSM</sub>	Single Pulse Forward Current	1200		
P <sub>D</sub>	Maximum Power Dissipation	@ T <sub>C</sub> = 25°C	W	
		@ T <sub>C</sub> = 97°C		280

**Case Styles**

IRUD400CW60



TO-244

(\*) Per Leg unless otherwise specified

**Electrical Characteristics (per Leg) @ T<sub>J</sub> = 25°C (unless otherwise specified)**

Parameters		Min	Typ	Max	Units	Test Conditions
V <sub>BR</sub>	Breakdown Voltage,	600	-	-	V	I <sub>R</sub> = 100μA
V <sub>FM</sub>	Forward Voltage	-	1.45	2.0		I <sub>F</sub> = 200A
		-	1.67	2.3		I <sub>F</sub> = 400A
		-	1.13	1.4		I <sub>F</sub> = 200A @ T <sub>J</sub> = 150°C
		-	1.39	1.8		I <sub>F</sub> = 400A @ T <sub>J</sub> = 150°C
I <sub>RM</sub>	Reverse Leakage Current	-	0.3	1.38	mA	T <sub>J</sub> = 150°C, V <sub>R</sub> = V <sub>R</sub> Rated
L <sub>S</sub>	Series Inductance	-	5	-	nH	from top of terminal hole to mounting plane

**Dynamic Recovery Characteristics @ T<sub>J</sub> = 25°C (unless otherwise specified)**

Parameters		Min	Typ	Max	Units	Test Conditions
t <sub>rr</sub>	Reverse Recovery Time	-	90	-	ns	I <sub>f</sub> = 200A, dif/dt = 200A/μs, V <sub>r</sub> = 200V
		-	240	-		I <sub>f</sub> = 200A, dif/dt = 200A/μs, V <sub>r</sub> = 200V @ T <sub>J</sub> = 150°C
I <sub>RRM</sub>	Peak Recovery Current	-	8.3	-	A	I <sub>f</sub> = 200A, dif/dt = 200A/μs, V <sub>r</sub> = 200V
		-	24	-		I <sub>f</sub> = 200A, dif/dt = 200A/μs, V <sub>r</sub> = 200V @ T <sub>J</sub> = 150°C
Q <sub>rr</sub>	Reverse Recovery Charge	-	830	-	nC	I <sub>f</sub> = 200A, dif/dt = 200A/μs, V <sub>r</sub> = 200V
		-	4730	-		I <sub>f</sub> = 200A, dif/dt = 200A/μs, V <sub>r</sub> = 200V @ T <sub>J</sub> = 150°C

**Thermal - Mechanical Characteristics**

Parameters		Min	Typ	Max	Units
T <sub>J</sub>	Max. Junction Temperature Range	- 40	-	150	°C
T <sub>Stg</sub>	Max. Storage Temperature Range	- 40	-	150	
R <sub>thJC</sub>	Thermal Resistance, Junction to Case	-	-	0.19	°C/W
	Thermal Resistance, Junction to Case			0.095	
R <sub>thCS</sub>	Thermal Resistance, Case to Heatsink	-	0.10	-	
Wt	Weight	-	68 (2.4)	-	g (oz)
T	Mounting Torque	30 (3.4)	-	40 (4.6)	lbf.in (N.m)
	Mounting Torque Center Hole	12 (1.4)	-	18 (2.1)	
	Terminal Torque	30 (3.4)	-	40 (4.6)	
	Vertical Pull	-	-	80	lbf.in
	2 inch. Lever Pull	-	-	35	

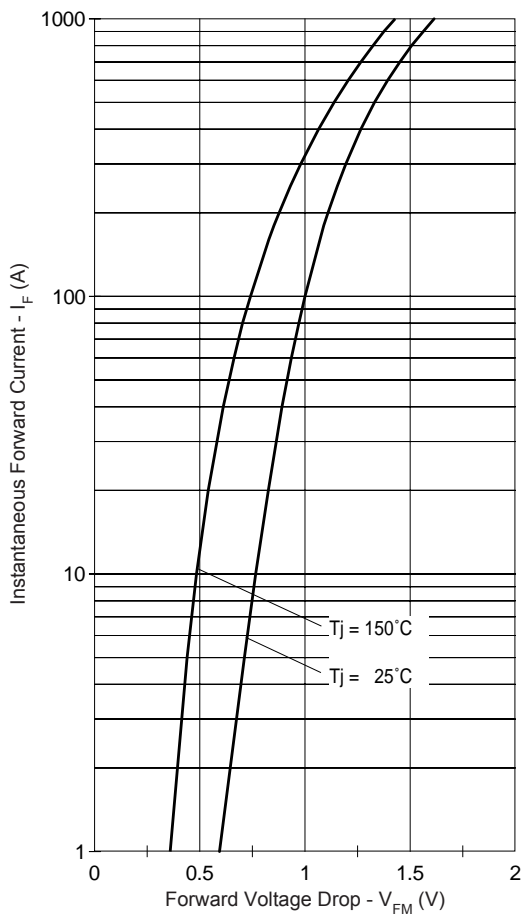


Fig. 1 - Typical Forward Voltage Drop vs. Instantaneous Forward Current (per Leg)

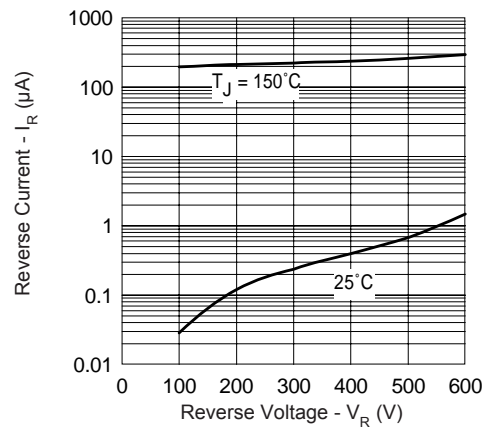


Fig. 2 - Typical Reverse Current vs. Reverse Voltage (per Leg)

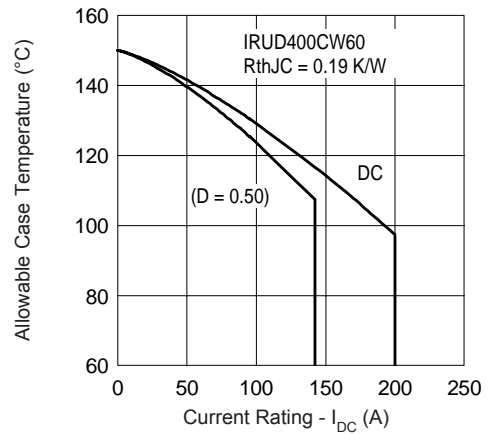


Fig. 3 - Max. Current Rating Capability (per Leg)

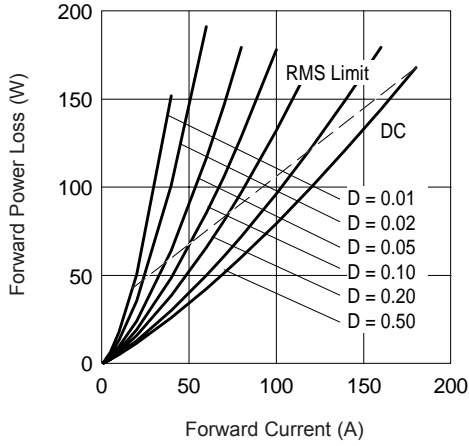


Fig. 4 - Typical Recovery Current vs.  $di_f/dt$  (per Leg)

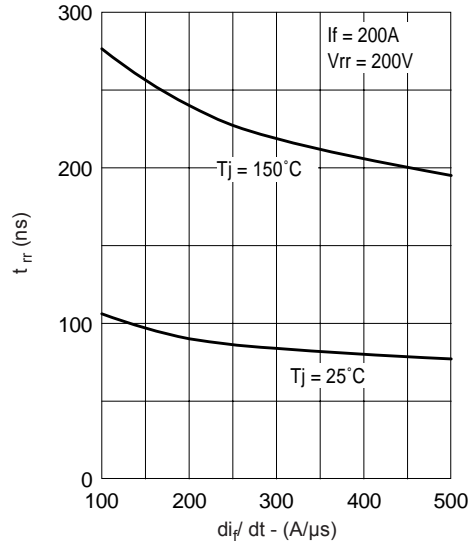


Fig. 5 - Typical Reverse Recovery Time vs.  $di_f/dt$  (per Leg)

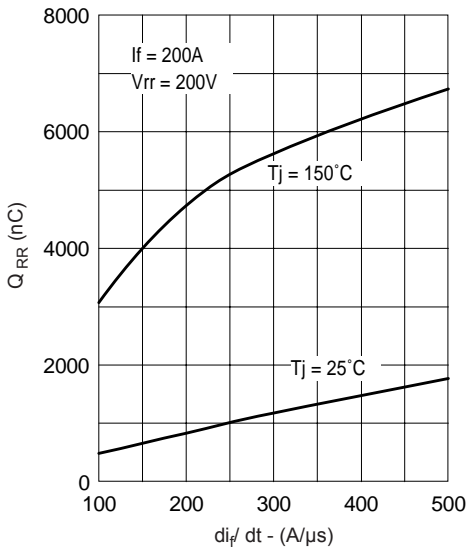


Fig. 6 - Typical Reverse Recovery Charge vs.  $di_f/dt$  (per Leg)

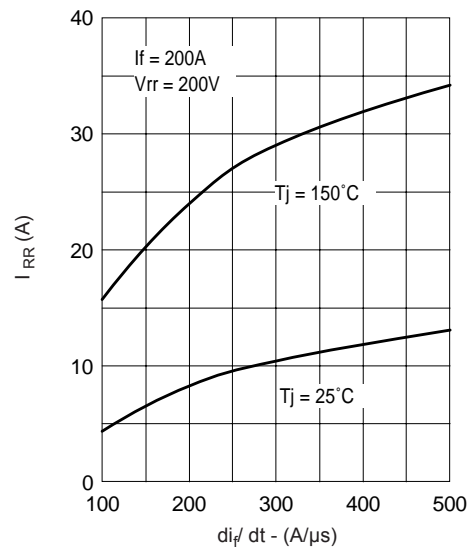


Fig. 7 - Typical Reverse Recovery Current vs.  $di_f/dt$  (per Leg)

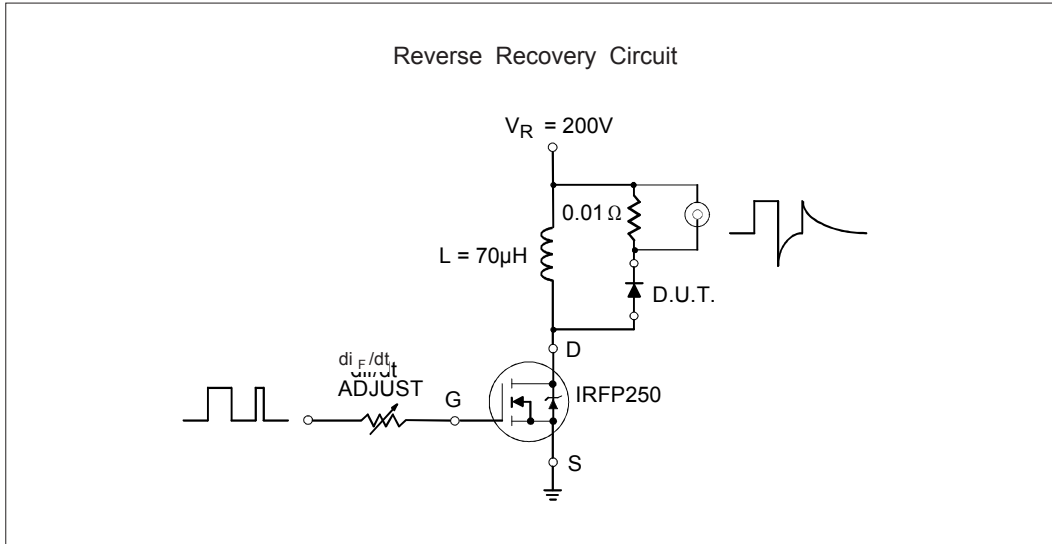
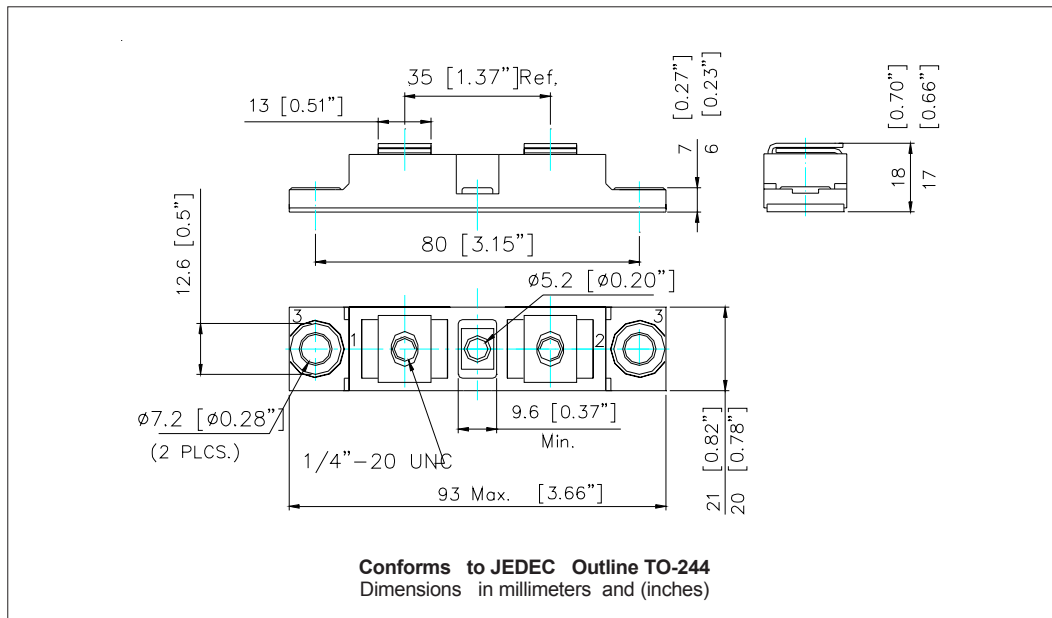


Fig. 8 - Reverse Recovery Parameter Test Circuit

Outline Table



Ordering Information Table

Device Code	
IR	UD 400 C W 60
①	② ③ ④ ⑤ ⑥
<b>1</b>	- International Rectifier
<b>2</b>	- UD = Fred
<b>3</b>	- Current Rating (400 = 400A)
<b>4</b>	- Circuit Configuration (C = Common Cathode)
<b>5</b>	- W = TO-244 Wire Bondable not Isolated
<b>6</b>	- Voltage Rating (60 = 600V)

Data and specifications subject to change without notice.  
This product has been designed for Industrial Level.  
Qualification Standards can be found on IR's Web site.