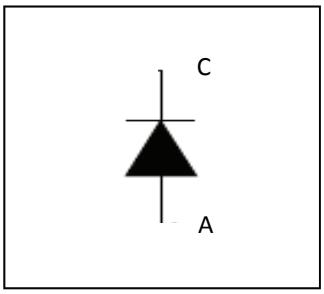
International
IOR Rectifier

IRD3CH101DB6

Ultra Fast-Soft Recovery Diode

V_{RRM} = 1200V
$I_{F\ (Nominal)}$ = 200A
$T_{J\ (max)}$ = 150°C
V_F typ = 2.1V



C	A
Cathode	Anode

Applications

- Industrial Motor Drive
- Uninterruptible Power Supply
- Welding
- Solar Inverter

Features	→	Benefits
Low V_F		High efficiency in a wide range of applications
Ultra Fast-Soft Recovery		Performance optimized for IGBT anti parallel diode

Chip Type	V_{RRM}	$I_{F(Nominal)}$	Die Size	Package Type
IRD3CH101DB6	1200V	200A	10.06 x 10.07mm^2	Wafer

Mechanical Parameters

Die Size	10.06 x 10.07	mm^2
Anode Pad Size	8.62 x 8.64	
Area Total / Active	101.3 / 80.1	
Thickness	330	µm
Wafer Size	150	mm
Minimum Street Width	100	µm
Flat Position	0	Degree
Maximum-Possible Chips per Wafer	130 pcs	
Passivation Frontside	Silicon Nitride	
Front Metal-Anode Pad	Al-1%Si (3µm)	
Backside Metal	Cr /Ni /Ag	
Die Bond	Electrically conductive epoxy or solder	
Reject Ink Dot Size	0.25mm min (black, center)	
Recommended Storage Environment	Store in original container, in dry Nitrogen,	
	<6 months at an ambient temperature of 23°C	

Maximum Ratings

	Parameter	Max.	Units
V_{RRM}	Reverse Voltage	1200	V
T_J, T_{STG}	Operating Junction and Storage Temperature	-40 to +150	°C

Static Characteristics (Tested on wafers) . T_J=25°C

	Parameter	Min.	Typ.	Max.	Units	Conditions
V_{RRM}	Maximum Reverse Breakdown Voltage	1200	—	—	V	I_{RRM}= 500µA,T_J = 25°C
V_{FM}	Maximum Forward Voltage	—	—	1.37		T_J = 25°C, I_F = 10A,
I_{RM}	Maximum Reverse Leakage Current	—	—	100	µA	T_J = 25°C, V_{RRM} = 1200V

Electrical Characteristics (Not subject to production test)

	Parameter	Min.	Typ.	Max.	Units	T_J	Conditions
V_F	Forward Voltage	—	2.1	2.7	V	25°C	I_F = 200A , T_J = 25°C
		—	2.2	—	V	150°C	I_F = 200A , T_J = 150°C
I_R	Leakage Current	—	3.6	—	µA	25°C	V_R = 1200V, T_J = 25°C
		—	3.8	—	mA	150°C	V_R = 1200V, T_J = 150°C

Switching Characteristics (Inductive Load-Not subject to production test)

	Parameter	Min.	Typ.	Max.	Units	T_J	Conditions
t_{rr}	Reverse Recovery Time	—	360	—	ns	25°C	I_F = 200A , di/dt=400A/µs, V_{RR} = 600V
		—	510	—		150°C	
Q_{rr}	Reverse Recovery Charge	—	15	—	µC	25°C	
		—	32	—		150°C	
I_{rr}	Peak Reverse Recovery Current	—	46	—	A	25°C	
		—	78	—		150°C	
E_{rr}	Reverse Recovery Energy	—	8.8	—	mJ	25°C	
		—	19	—		150°C	
S	Softness (t_b/t_a)	—	1.0	—		25°C	
		—	1.0	—		150°C	

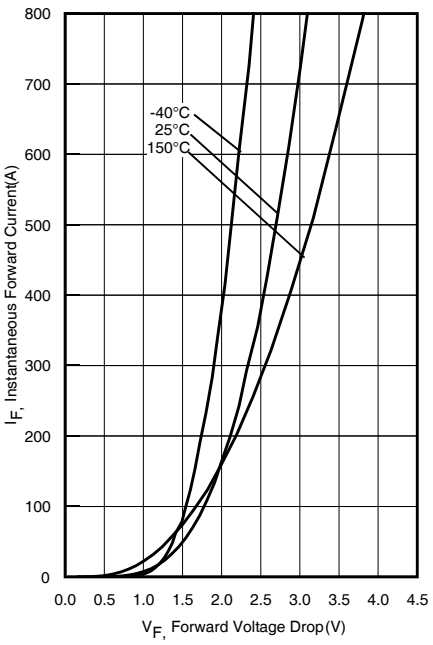


Fig 1. Typical Forward Characteristic

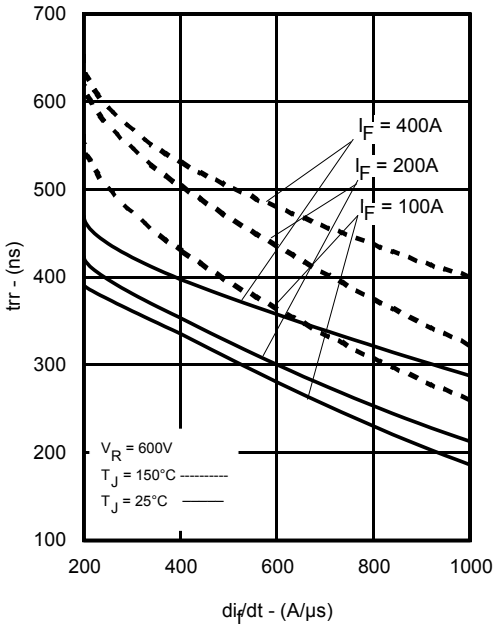


Fig 2. Typical t_{rr} vs. di/dt

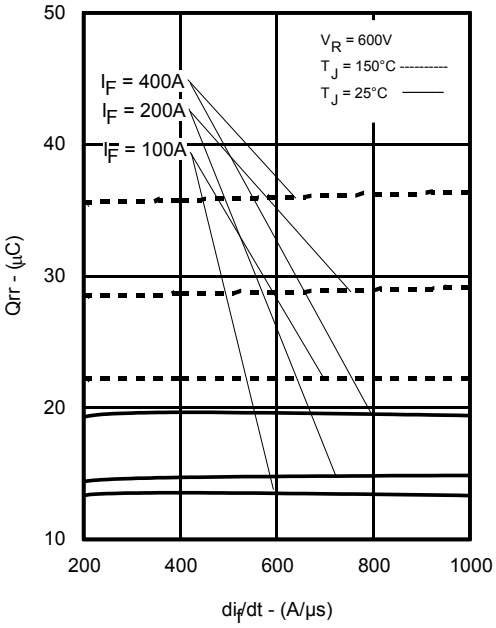


Fig 3. Typical Q_{rr} vs. di/dt

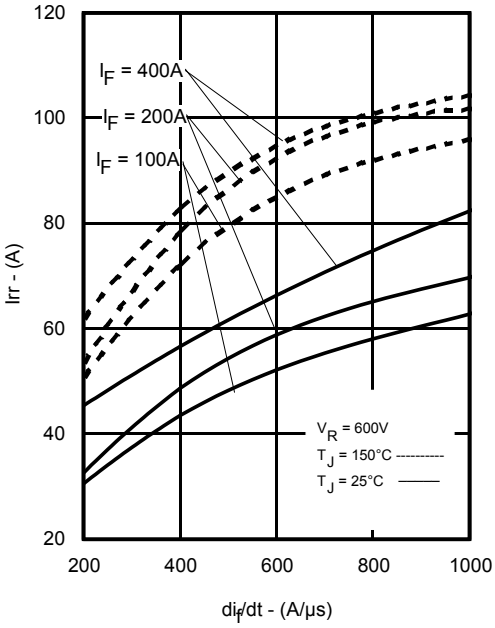


Fig 4. Typical I_{rr} vs. di/dt

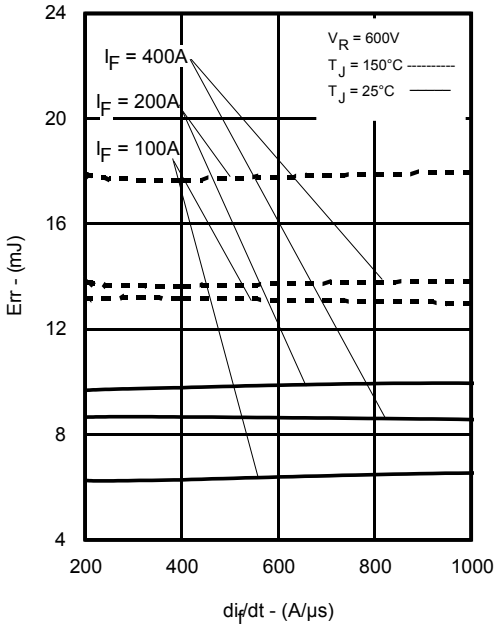


Fig 5. Typical Err vs. di/dt

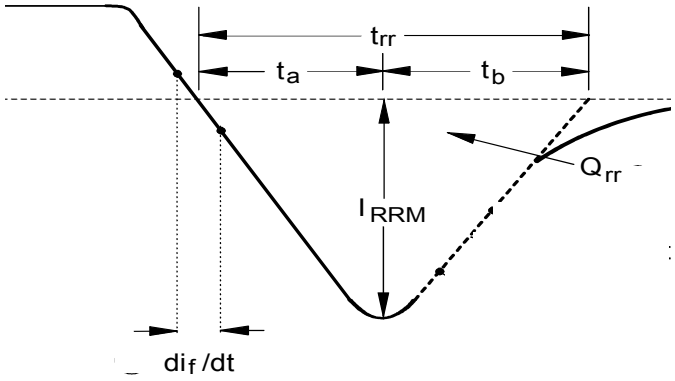
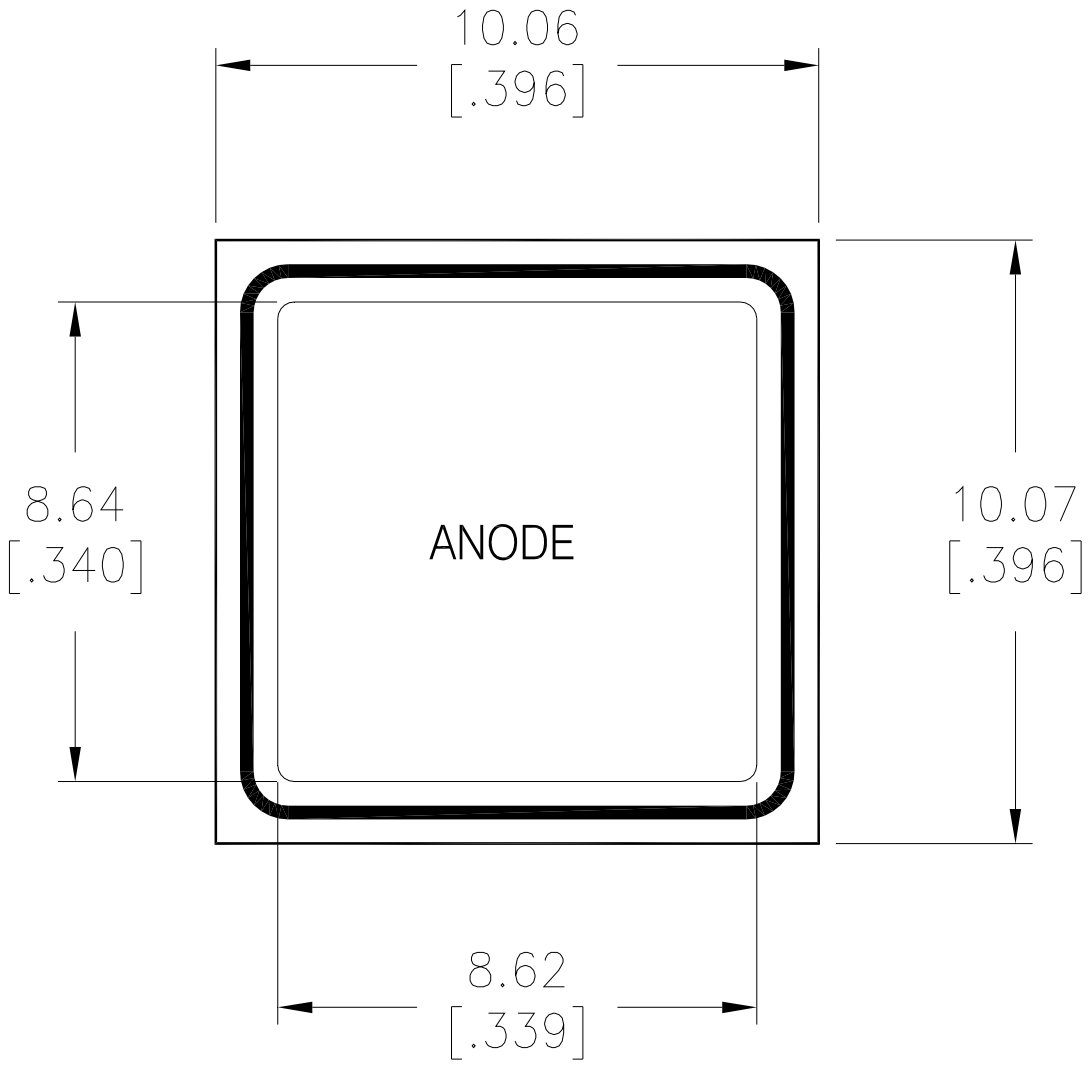


Fig 6. Reverse Recovery Waveform

Die Drawing



NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIE WIDTH AND LENGTH TOLERANCE: +0 / -0.0508 [+0 / -0.002]
4. DIE THICKNESS = 0.330 [.013]

Additional Testing and Screening

For Customers requiring product supplied as Known Good Die (KGD) or requiring specific die level testing, please contact your local IR Sales.

Shipping

Three shipping options are offered.

- Un-sawn wafer
- Die in waffle pack (consult the IR Die Sales team for availability)
- Die on film (consult the IR Die Sales team for availability)

Tape and Reel is also available for some products. Please consult your local IR sales office or email http://die.irf.com for additional information.

Please specify your required shipping option when requesting prices and ordering Die product. If not specified, Un-sawn wafer will be assumed.

Handling

- Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.
- Product must be handled only in a class 10,000 or better-designated clean room environment.
- Singulated die are not to be handled with tweezers. A vacuum wand with a non-metallic ESD protected tip should be used.

Wafer/Die Storage

- Proper storage conditions are necessary to prevent product contamination and/or degradation after shipment.
- Un-sawn wafers and singulated die can be stored for up to 12 months when in the original sealed packaging at room temperature (45% +/- 15% RH controlled environment).
- Un-sawn wafers and singulated die that have been opened can be stored when returned to their containers and placed in a Nitrogen purged cabinet, at room temperature (45% +/- 15% RH controlled environment).
- Note: To reduce the risk of contamination or degradation, it is recommended that product not being used in the assembly process be returned to their original containers and resealed with a vacuum seal process.
- Sawn wafers on a film frame are intended for immediate use and have a limited shelf life.
- Die in Surf Tape type carrier tape are intended for immediate use and have a limited shelf life. This is primarily due to the nature of the adhesive tape used to hold the product in the carrier tape cavity. This product can be stored for up to 30 days. This applies whether or not the material has remained in its original sealed container.

Further Information

For further information please contact your local IR Sales office or email your enquiry to

http://die.irf.com

International
IOR Rectifier

IR WORLD HEADQUARTERS: 101 N. Sepulveda Blvd., El Segundo, California 90245, USA

To contact International Rectifier, please visit http://www.irf.com/whoto-call/

