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Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[International Rectifier \(Infineon Technologies Americas Corp.\)
IRG7U150HF12B](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

International
IR Rectifier

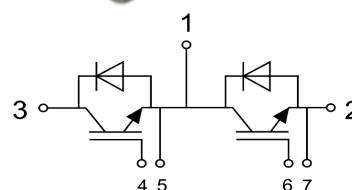
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$$V_{CES} = 1200V$$

$$I_C = 150A \text{ at } T_C = 80^\circ C$$

$$V_{CE(ON)} = 1.70V \text{ at } I_C = 150A$$

**IGBT Half-Bridge
POWIR 62™ Package**



Applications:

- Industrial Motor Drive
- Uninterruptible Power Supply
- Welding and Cutting Machine
- Switched Mode Power Supply
- Induction Heating

Features	Benefits
Low $V_{CE(ON)}$ and Switching Losses	High Efficiency in a Wide Range of Applications
100% RBSOA Tested	Rugged Transient Performance
POWIR 62™ Package	Industry Standard
Lead Free	RoHS Compliant, Environmental Friendly

Base Part Number	Package Type	Standard Pack	Quantity	Orderable Part Number
IRG7U150HF12B	POWIR 62™	Box	45	IRG7U150HF12B

Absolute Maximum Ratings of IGBT

V _{CES}	Collector to Emitter Voltage		1200	V
V _{GES}	Continuous Gate to Emitter Voltage		±20	V
I _C	Continuous Collector Current	T _C = 80°C	150	A
		T _C = 25°C	300	A
I _{CM}	Pulse Collector Current	T _J = 175°C	300	A
P _D	Maximum Power Dissipation (IGBT)	T _C = 25°C, T _J = 175°C	900	W
T _J	Maximum IGBT Junction Temperature		175	°C
T _{JOP}	Maximum Operating Junction Temperature Range		-40 to +150	°C
T _{stg}	Storage Temperature		-40 to +125	°C



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Electrical Characteristics of IGBT at $T_J = 25^\circ\text{C}$ (Unless Otherwise Specified)

Parameter		Min.	Typ.	Max.	Unit	Test Conditions
$V_{(BR)CES}$	Collector to Emitter Breakdown Voltage	1200			V	$V_{GE} = 0V, I_C = 1mA$
$V_{GE(th)}$	Gate Threshold Voltage	3.4	4.2	4.9	V	$I_C = 1mA, V_{CE} = V_{GE}$
$V_{CE(ON)}$	Collector to Emitter Saturation Voltage		1.70	2.00	V	$T_J = 25^\circ\text{C}$
			1.90		V	$T_J = 125^\circ\text{C}$
I_{CES}	Collector to Emitter Leakage Current			1	mA	$V_{GE} = 0V, V_{CE} = V_{CES}$
I_{GES}	Gate to Emitter Leakage Current			200	nA	$V_{GE} = \pm 20V, V_{CE} = 0$
R_{Gint}	Internal Gate Resistance		1.25		Ω	

Switching Characteristics of IGBT

Parameter		Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(on)}$	Turn-on Delay Time		850		ns	$T_J = 25^\circ\text{C}$
			850			$T_J = 125^\circ\text{C}$
t_r	Rise Time		170		ns	$T_J = 25^\circ\text{C}$
			170			$T_J = 125^\circ\text{C}$
$t_{d(off)}$	Turn-off Delay Time		825		ns	$T_J = 25^\circ\text{C}$
			890			$T_J = 125^\circ\text{C}$
t_f	Fall Time		165		ns	$T_J = 25^\circ\text{C}$
			195			$T_J = 125^\circ\text{C}$
E_{on}	Turn-on Switching Loss		13.7		mJ	$T_J = 25^\circ\text{C}$
			15.7			$T_J = 125^\circ\text{C}$
E_{off}	Turn-off Switching Loss		8.7		mJ	$T_J = 25^\circ\text{C}$
			12.0			$T_J = 125^\circ\text{C}$
Q_g	Total Gate Charge		1650		nC	$T_J = 25^\circ\text{C}$
C_{ies}	Input Capacitance		14.0		nF	$V_{CE} = 25V, V_{GE} = 0V,$ $f = 1MHz, T_J = 25^\circ\text{C}$
C_{oes}	Output Capacitance		1.00			
C_{res}	Reverse Transfer Capacitance		0.76			
RBSOA	Reverse Bias Safe Operating Area	Trapezoid				$I_C = 300A, V_{CC} = 960V,$ $V_P = 1200V, R_G = 15\Omega,$ $V_{GE} = +15V \text{ to } 0V,$ $T_J = 150^\circ\text{C}$



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Absolute Maximum Ratings of Freewheeling Diode

V_{RRM}	Repetitive Peak Reverse Voltage	1200	V
I_F	Diode Continuous Forward Current, $T_C = 25^\circ\text{C}$	300	A
	Diode Continuous Forward Current, $T_C = 80^\circ\text{C}$	150	
I_{FM}	Pulse Diode Current	300	A

Electrical and Switching Characteristics of Freewheeling Diode

Parameter		Typ.	Max.	Unit	Test Conditions	
V_F	Forward Voltage	2.20	2.70	V	$T_J = 25^\circ\text{C}$	$I_F = 150\text{A}$, $V_{GE} = 0\text{V}$
		2.40			$T_J = 125^\circ\text{C}$	
I_{rr}	Peak Reverse Recovery Current	60		A	$T_J = 25^\circ\text{C}$	$I_F = 150\text{A}$, $di/dt = 970\text{A}/\mu\text{s}$, $V_{rr} = 600\text{V}$, $V_{GE} = -15\text{V}$
		90			$T_J = 125^\circ\text{C}$	
Q_{rr}	Reverse Recovery Charge	7.2		μC	$T_J = 25^\circ\text{C}$	
		15.0			$T_J = 125^\circ\text{C}$	
E_{rec}	Reverse Recovery Energy	2.6		mJ	$T_J = 25^\circ\text{C}$	
		5.9			$T_J = 125^\circ\text{C}$	

Module Characteristics

Parameter		Min.	Typ.	Max.	Unit
V_{iso}	Isolation Voltage (All Terminals Shorted), $f = 50\text{Hz}$, 1minute			2500	V
$R_{\theta JC}$	Junction-to-Case (IGBT)		0.165		$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case (Diode)		0.282		$^\circ\text{C}/\text{W}$
$R_{\theta CS}$	Case-To-Sink (Conductive Grease Applied)		0.1		$^\circ\text{C}/\text{W}$
M	Power Terminals Screw: M6	3.0		5.0	N·m
M	Mounting Screw: M6	4.0		6.0	N·m
G	Weight		230		g



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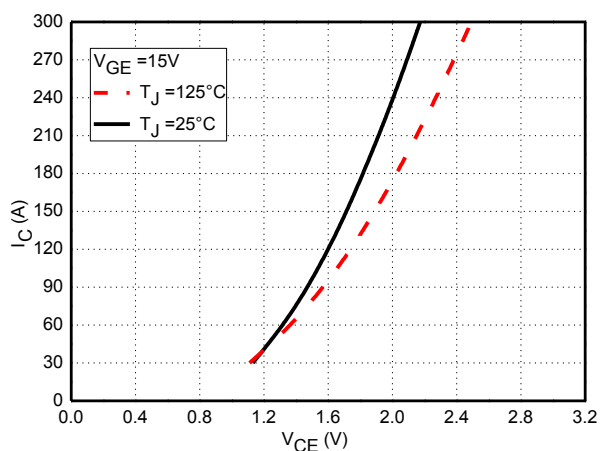


Fig.1 Typical IGBT Saturation Characteristics

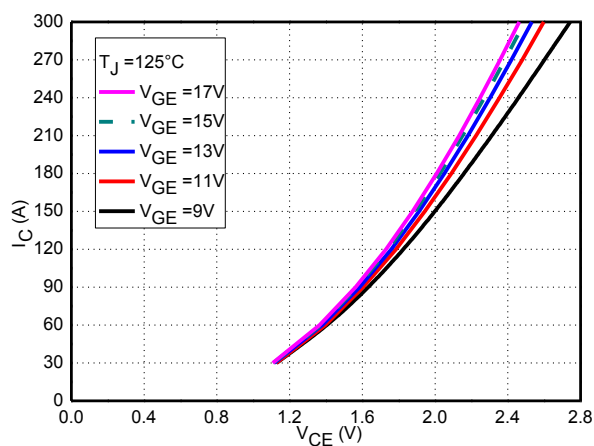


Fig.2 Typical IGBT Output Characteristics

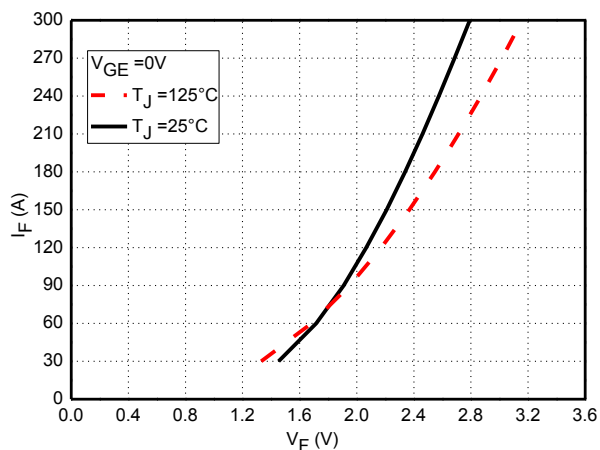


Fig.3 Typical Freewheeling Diode Characteristics

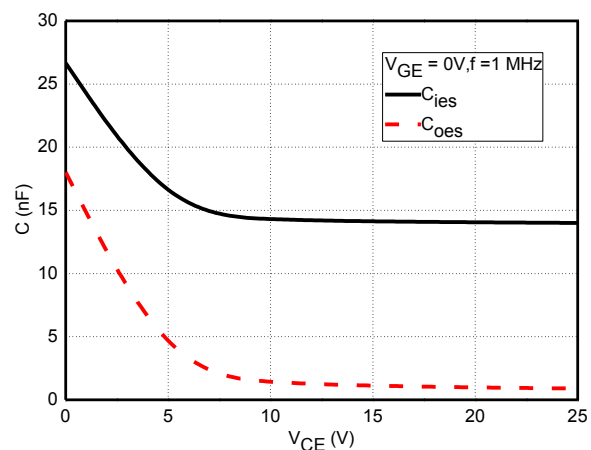


Fig. 4 Typical Capacitance Characteristics

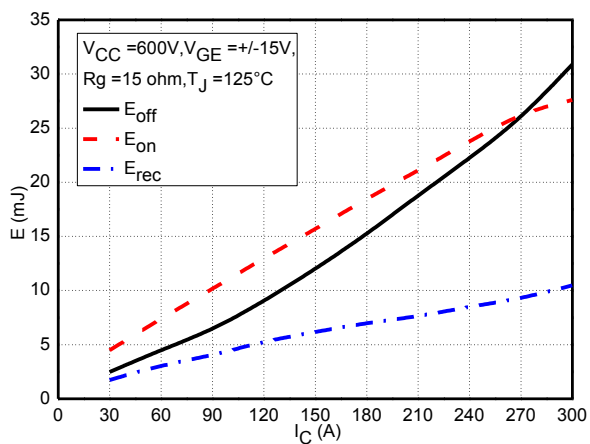


Fig.5 Typical Switching Loss vs. Collector Current

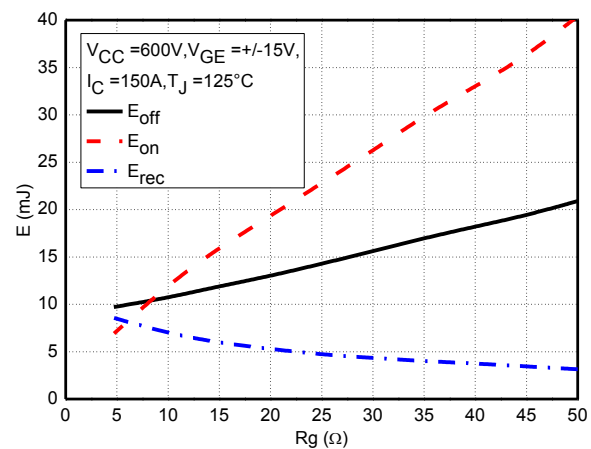


Fig.6 Typical Switching Loss vs. Gate Resistance



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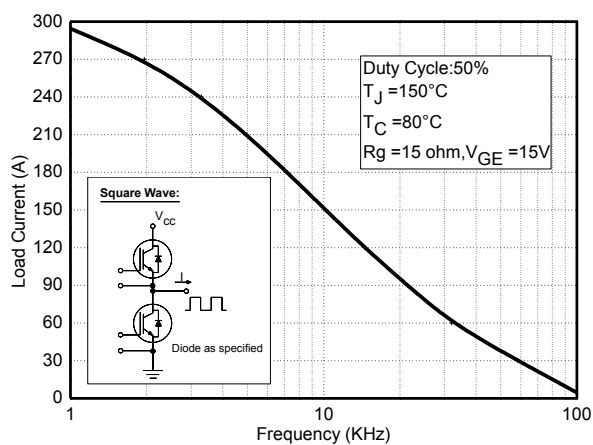


Fig.7 Typical Load Current vs. Frequency

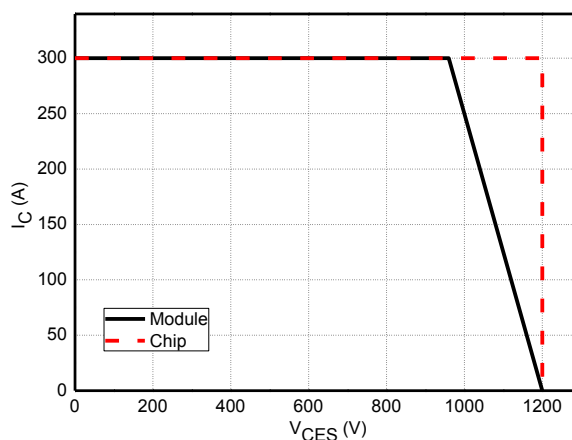


Fig.8 Reverse Bias Safe Operation Area (RBSOA)

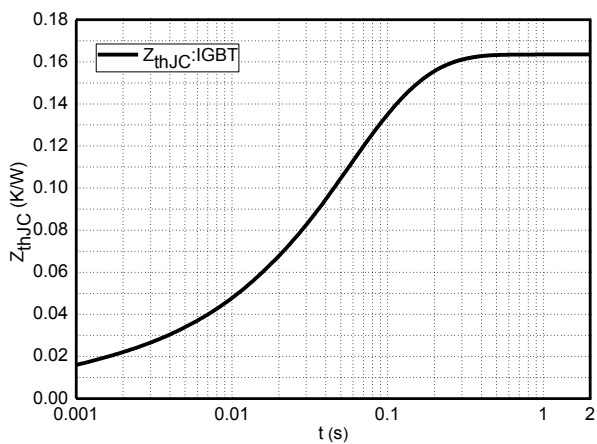


Fig.9 Typical Transient Thermal Impedance (IGBT)

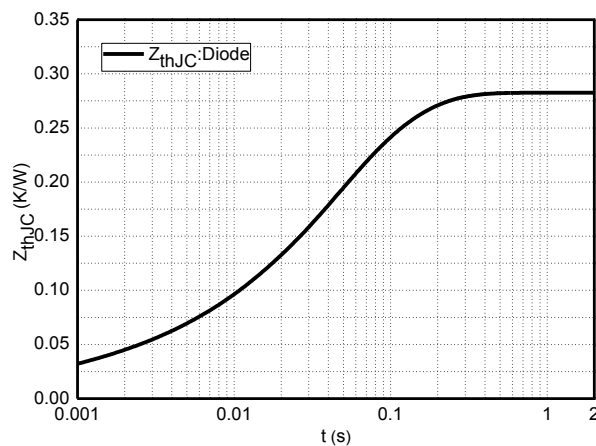
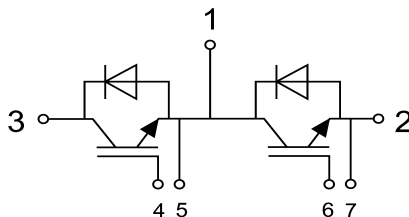


Fig.10 Typical Transient Thermal Impedance (Diode)



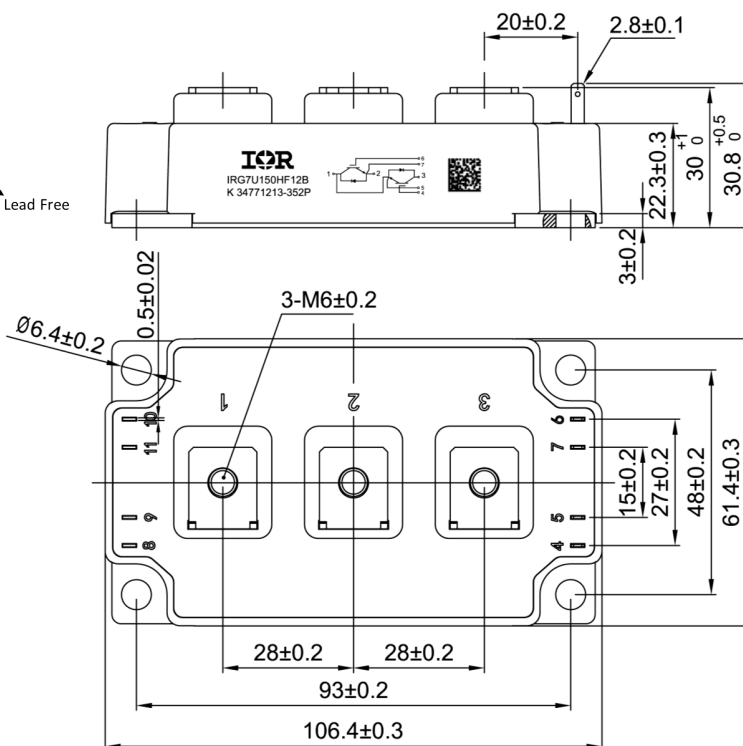
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Internal Circuit:



Package Outline (Unit: mm):

Marking Information
K XXXXXXXX-YWWP
Assembly Site Code Lot No. Date Code P = Lead Free
Y = Year
WW = Week



Qualification Information[†]

Qualification Level	Industrial
Moisture Sensitivity Level	Not Applicable
RoHS Compliant	Yes

[†] Qualification standards can be found at International Rectifier's web site: <http://www.irf.com/product-info/reliability/>

International
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IR WORLD HEADQUARTERS: 101 North Sepulveda Blvd, El Segundo, California, 90245, USA
To contact International Rectifier, please visit: <http://www.irf.com/whoto-call/>