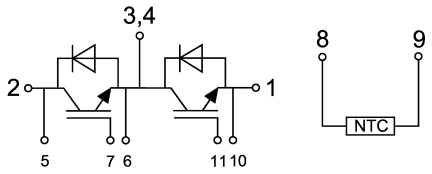
V_{CES} = 1200V
I_C = 450A at T_C = 80°C
t_{SC} ≥ 10µsec
$V_{CE(ON)}$ = 1.90V at I_C = 450A

IGBT Half-Bridge
POWIR ECO 3+™ 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
RBSOA Tested	Rugged Transient Performance
10µsec Short Circuit Safe Operating Area	
POWIR ECO 3+™ Package	Industry Standard
Lead Free	RoHS Compliant, Environmental Friendly

Base Part Number	Package Type	Standard Pack	Quantity	Orderable Part Number
IRG7T450HF12J	***POWIR ECO 3+***™	Box	80	RG7T450HF12J

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	450	A
		T_C = 25°C	800	A
I_{CM}	Pulse Collector Current	T_J = 175°C	900	A
P_D	Maximum Power Dissipation (IGBT)	T_C = 25°C, T_J = 175°C	2300	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

Electrical Characteristics of IGBT at T_J = 25°C (Unless Otherwise Specified)

Parameter		Min.	Typ.	Max.	Unit	Test Conditions	
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	1200			V	V_{GE} = 0V, I_C = 5mA	
$V_{GE(th)}$	Gate Threshold Voltage	5.0	5.8	6.5	V	I_C = 21mA, V_{CE} = V_{GE}	
$V_{CE(ON)}$	Collector to Emitter Saturation Voltage		1.90	2.20	V	T_J = 25°C	I_C = 450A, V_{GE} = 15V
			2.20		V	T_J = 125°C	
I_{CES}	Collector to Emitter Leakage Current			5	mA	V_{GE} = 0V, V_{CE} = V_{CES}	
I_{GES}	Gate to Emitter Leakage Current			400	nA	V_{GE} = ±20V, V_{CE} = 0	
R_{Gint}	Internal Gate Resistance		0.83		Ω		

Switching Characteristics of IGBT

Parameter		Min.	Typ.	Max.	Unit	Test Conditions	
$t_{d(on)}$	Turn-on Delay Time		980		ns	T_J = 25°C	V_{CC}=600V, I_C = 450A, R_G = 5Ω, V_{GE}=±15V, Inductive Load
			970			T_J = 125°C	
t_r	Rise Time		300		ns	T_J = 25°C	
			290			T_J = 125°C	
$t_{d(off)}$	Turn-off Delay Time		740		ns	T_J = 25°C	
			770			T_J = 125°C	
t_f	Fall Time		130		ns	T_J = 25°C	
			150			T_J = 125°C	
E_{on}	Turn-on Switching Loss		55.5		mJ	T_J = 25°C	
			65.0			T_J = 125°C	
E_{off}	Turn-off Switching Loss		45.9		mJ	T_J = 25°C	
			54.0			T_J = 125°C	
Q_g	Total Gate Charge		3700		nC	T_J = 25°C	
C_{ies}	Input Capacitance		60.6		nF	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz, T_J = 25°C	
C_{oes}	Output Capacitance		3.45				
C_{res}	Reverse Transfer Capacitance		2.00				
RBSOA	Reverse Bias Safe Operating Area	Trapezoid				I_C = 900A, V_{CC} = 960V, V_P =1200V, R_G = 15Ω, V_{GE} = +15V to 0V, T_J = 150°C	
SCSOA	Short Circuit Safe Operating Area	10			µs	V_{CC} = 600V, V_{GE} = 15V, T_J = 150°C	

