

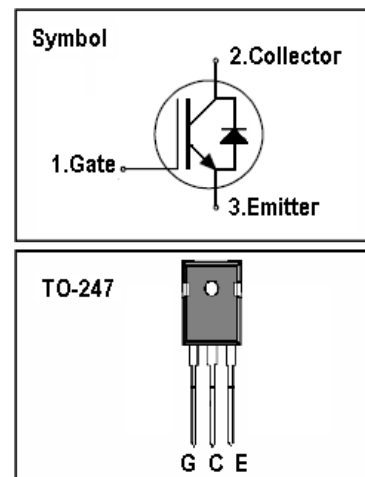
IGBT

Features

- 1200V, 15A
- $V_{CE(sat)}(typ.)=2.5V@V_{GE}=15V, I_C=15A$
- High speed switching
- Higher system efficiency
- Soft current turn-off waveforms

General Description

H&M IGBTs offer lower losses and higher energy efficiency for application such as IH (induction heating), UPS, General inverter and other soft switching applications.



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GES}	Gate-Emitter Voltage	± 30	V
I_C	Continuous Collector Current ($T_C=25^\circ C$)	28	A
	Continuous Collector Current ($T_C=100^\circ C$)	15	A
I_{CM}	Pulsed Collector Current (Note 1)	65	A
I_F	Diode Continuous Forward Current ($T_C=100^\circ C$)	15	A
I_{FM}	Diode Maximum Forward Current (Note 1)	80	A
P_D	Maximum Power Dissipation ($T_C=25^\circ C$)	150	W
	Maximum Power Dissipation ($T_C=100^\circ C$)	60	W
T_J	Operating Junction Temperature Range	-55 to +150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Max.	Units
R_{thj-c}	Thermal Resistance, Junction to case for IGBT	0.83	$^\circ C / W$
R_{thj-a}	Thermal Resistance, Junction to Ambient	40	$^\circ C / W$

Electrical Characteristics ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{CES}	Collector-Emitter Breakdown Voltage	$V_{GE}=0V, I_C=250\mu A$	1200	-	-	V
I_{CES}	Collector-Emitter Leakage Current	$V_{CE}=1200V, V_{GE}=0V$	-	-	250	μA
I_{GES}	Gate Leakage Current, Forward	$V_{GE}=30V, V_{CE}=0V$	-	-	100	nA
	Gate Leakage Current, Reverse	$V_{GE}=-30V, V_{CE}=0V$	-	-	-100	nA
$V_{GE(th)}$	Gate Threshold Voltage	$V_{GE}=V_{CE}, I_C=250\mu A$	4.0	5.0	6.0	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=15V, I_C=15A$	-	2.5		V
		$V_{GE}=15V, I_C=20A$	-	2.7		V
Q_g	Total Gate Charge	$V_{CC}=600V$ $V_{GE}=15V$ $I_C=15A$	-	100	120	nC
Q_{ge}	Gate-Emitter Charge		-	22	25	nC
Q_{gc}	Gate-Collector Charge		-	45	50	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=600V$ $V_{GE}=15V$ $I_C=15A$ $R_G=28\Omega$ Inductive Load $T_C=25^\circ\text{C}$	-	45	-	ns
t_r	Turn-on Rise Time		-	59	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	375	-	ns
t_f	Turn-off Fall Time		-	210	-	ns
E_{on}	Turn-on Switching Loss		-	2.7	-	mJ
E_{off}	Turn-off Switching Loss		-	1.8	-	mJ
E_{ts}	Total Switching Loss		-	4.5	-	mJ
C_{ies}	Input Capacitance	$V_{CE}=25V$	-	482	-	pF
C_{oes}	Output Capacitance	$V_{GE}=0V$	-	87	-	pF
C_{res}	Reverse Transfer Capacitance	$f=1kHz$	-	27	-	pF

Electrical Characteristics of Diode ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	$I_F=15A$	-	1.35	1.5	V
t_{rr}	Diode Reverse Recovery Time	$V_{CE}=600V$	-	200		ns
I_{rr}	Diode peak Reverse Recovery Current	$I_F=15A$	-	23		A
Q_{rr}	Diode Reverse Recovery Charge	$dI_F/dt=200A/\mu s$	-	2450		nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature

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