

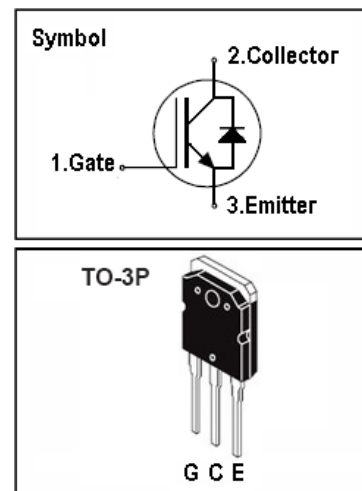
IGBT

Features

- 1200V,15A
- $V_{CE(sat)}(typ.)=2.6V@V_{GE}=15V, I_C=15A$
- 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 ($T_C=25^\circ C$)	140	W
	Maximum Power Dissipation ($T_C=100^\circ C$)	56	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	0.89	$^\circ C / W$
R_{thj-a}	Thermal Resistance, Junction to Ambient	40	$^\circ C / W$

Electrical Characteristics (T_C=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{CES}	Collector-Emitter Breakdown Voltage	V _{GE} = 0V, I _C = 250uA	1200	-	-	V
I _{CES}	Collector-Emitter Leakage Current	V _{CE} = 1200V, V _{GE} = 0V	-	-	250	uA
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 = 250uA	4.0	5.0	6.0	V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	V _{GE} =15V, I _C = 15A	-	2.6		V
		V _{GE} =15V, I _C = 20A	-	2.9		V
Q _g	Total Gate Charge	V _{CC} =600V V _{GE} =15V I _C =15A	-	70		nC
Q _{ge}	Gate-Emitter Charge		-	21		nC
Q _{gc}	Gate-Collector Charge		-	25		nC
t _{d(on)}	Turn-on Delay Time	V _{CC} =600V V _{GE} =15V I _C =15A R _G =28Ω Inductive Load T _C =25 °C	-	36	-	ns
t _r	Turn-on Rise Time		-	47	-	ns
t _{d(off)}	Turn-off Delay Time		-	240	-	ns
t _f	Turn-off Fall Time		-	250	-	ns
E _{on}	Turn-on Switching Loss		-	1.54	-	mJ
E _{off}	Turn-off Switching Loss		-	0.94	-	mJ
E _{ts}	Total Switching Loss		-	2.48	-	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°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _F	Diode Forward Voltage	I _F =15A	-	1.3	1.5	V
t _{rr}	Diode Reverse Recovery Time	V _{CE} = 600V	-	210		ns
I _{rr}	Diode peak Reverse Recovery Current	I _F =15A	-	31		A
Q _{rr}	Diode Reverse Recovery Charge	dI _F /dt = 200A/us	-	3435		nC

Notes:

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

Disclaimers

H&M Semiconductor Co., Ltd reserves the right to make changes without notice in order to improve reliability, function or design and to discontinue any product or service without notice. Customers should obtain the latest relevant information before orders and should verify that such information is current and complete. All products are sold subject to H&M's terms and conditions supplied at the time of order acknowledgement.

H&M Semiconductor Co., Ltd warrants performance of its hardware products to the specifications at the time of sale, Testing, reliability and quality control are used to the extent H&M deems necessary to support this warrantee. Except where agreed upon by contractual agreement, testing of all parameters of each product is not necessarily performed.

H&M Semiconductor Co., Ltd does not assume any liability arising from the use of any product or circuit designs described herein. Customers are responsible for their products and applications using H&M's components. To minimize risk, customers must provide adequate design and operating safeguards.

H&M Semiconductor Co., Ltd does not warrant or convey any license either expressed or implied under its parent rights, nor the rights of others. Reproduction of information in H&M's datasheets or data books is permissible only if reproduction is without modification or alteration. Reproduction of this information with any alteration is an unfair and deceptive business practice. H&M Semiconductor Co., Ltd is not responsible or liable for such altered documentation.

Resale of H&M's products with statements different from or beyond the parameters stated by H&M Semiconductor Co., Ltd for that product or service voids all express or implied warranties for the associated H&M's product or service and is unfair and deceptive business practice. H&M Semiconductor Co., Ltd is not responsible or liable for any such statements.