

HFS22

IGBT MODULE



Features

- Low drive power
- Low $V_{CE(sat)}$
- Isolated baseplate for easy heat sinking
- RoHS compliant

Typical Applications

AC motor control, UPS, Welding power supplies

DESCRIPTION

HFS22 IGBT modules are designed use in switching applications. Each module consists of two IGBTs in a half bridge configuration. All components and interconnects are isolated from the heat sinking baseplate.

PRECAUTIONS

1. In order to get effective heat dissipation, heat sink flatness should be between $-50\mu\text{m}$ and $100\mu\text{m}$. It's the same importation to apply thermally-conductive grease with 100 to $200\mu\text{m}$ over the contact surface between a module and a heat sink.
2. Keep the module from being damaged by the static electricity.

MAXIMUM RATINGS ($T_j=25^\circ\text{C}$, unless otherwise specified)

Symbol	Item	Condition	Rating	Unit
V_{CES}	Collector-emitter voltage	G, E short	1200	V
V_{GES}	Gate-emitter voltage	C, E short	± 20	V
I_C	Collector current	$T_c=25^\circ\text{C}$	75	A
I_{CP}	Peak collector current	$T_c=25^\circ\text{C}$	150	A
P_C	Max. collector dissipation	$T_c=25^\circ\text{C}$, $T_j<150^\circ\text{C}$	450	W
Viso	Isolation voltage	Main terminal to baseplate AC 1min	2500	V
T_j	Junction temperature		-40 to 150	$^\circ\text{C}$
T_{stg}	Storage temperature		-40 to 125	$^\circ\text{C}$



HONGFA RELAY

ISO9001、ISO/TS16949、ISO14001、OHSAS18001 CERTIFIED

2007 Rev. 1.00

ELECTRICAL CHARACTERISTICS (T_j=25°C, unless otherwise specified)

Symbol	Item	Condition	Min.	Typ.	Max.	Unit
I _{CES}	Collector-cutoff current	V _{GE} =0V, V _{CE} =V _{CES}			4.0	mA
I _{GES}	Gate leakage current	V _{GE} = V _{GES} , V _{CE} =0V			0.5	μA
V _{GE(th)}	Gate-emitter threshold voltage	I _c =7.5mA, V _{CE} =10V	4.5		6.5	V
V _{CE(sat)}	Collector-emitter saturation voltage	I _c =75A, V _{GE} =15V		2.3		V
C _{IES}	Input capacitance	V _{GE} = 0V, V _{CE} =10V, f=1MHz		5.5	15	nF
t _{on}	Turn-on delay time	V _{CC} =600V, I _c =75A		150		ns
t _r	Rise time	V _{GE1} =V _{GE2} =15V, R _G =22Ω		100		
t _{off}	Turn-off delay time			500		
t _f	Fall time			100		
V _{EC}	Emitter-collector voltage	I _c = -75A, V _{GE} =0V			2.8	V
t _{rr}	Diode reverse recovery time	I _c = -75A, di/dt= -150A/μs			250	ns

THERMAL RESISTANCE (T_j=25°C, unless otherwise specified)

Symbol	Item	Condition	Min.	Typ.	Max.	Unit
R _{th(j-c)}	Thermal resistance from junction to bottom board	IGBT	—	—	0.35	°C / W
R _{th(j-c)}		FWDi	—	—	0.65	
R _{th(c-t)}	Contact thermal resistance	Case to heat sink, thermal grease applied	—	—	0.08	°C / W

MECHANICAL CHARACTERISTICS

Symbol	Item	Condition	Min.	Typ.	Max.	Unit
—	Mounting torque	M5	1.47	1.7	1.96	N·m
—	Weight	—	—	200	—	g

ORDERING INFORMATION

Type	HFS22 /	PM	75	D	120
Module	PM: IGBT module				
Output rating current	75: 75A				
Unit number	D: Dual (half bridge)				
IGBT V _{ces} voltage	120: 1200V				

Uint: mm

Technical drawing of a 3D printed part, showing three views: front, top, and side. The dimensions are specified in millimeters (mm).

Front View Dimensions:

- Overall width: 93 ± 0.5
- Overall height: 31 ± 0.6
- Base height (left): 22.1 ± 0.3
- Base height (right): 7.7 ± 0.2
- Three raised rectangular features, each with a width of 10 and a height of 17 ± 0.5 .

Top View Dimensions:

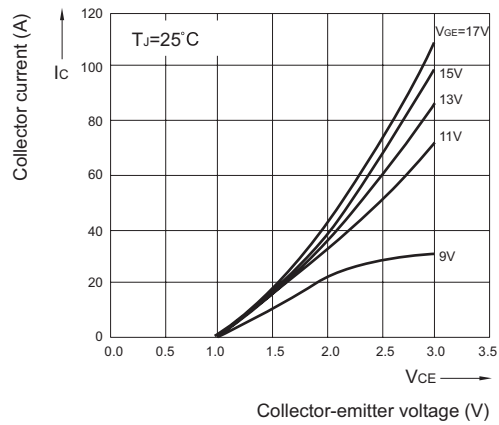
- Overall width: 93 ± 0.5
- Overall height: 35 ± 0.6
- Distance between the centers of the three raised features: 23 ± 0.5 (between the first and second, and between the second and third).
- Distance from the left edge to the center of the first raised feature: 40 ± 0.5
- Distance from the right edge to the center of the third raised feature: 80 ± 0.5
- Distance from the left edge to the center of the first mounting hole: 17.8 ± 0.6
- Distance from the right edge to the center of the last mounting hole: 12 ± 0.5
- Distance from the left edge to the center of the first mounting hole: 4 ± 0.6
- Distance from the right edge to the center of the last mounting hole: 4 ± 0.6

Side View Dimensions:

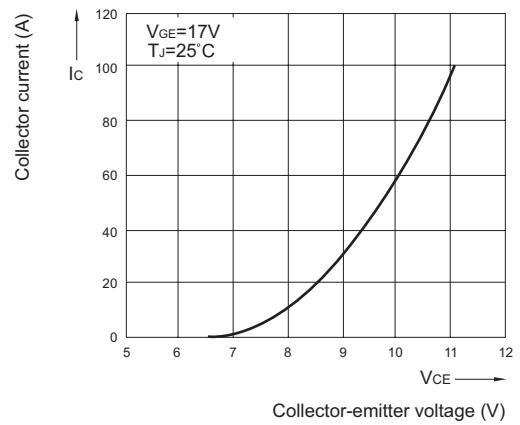
- Overall height: 6.7 ± 0.6

CHARACTERISTIC CURVES

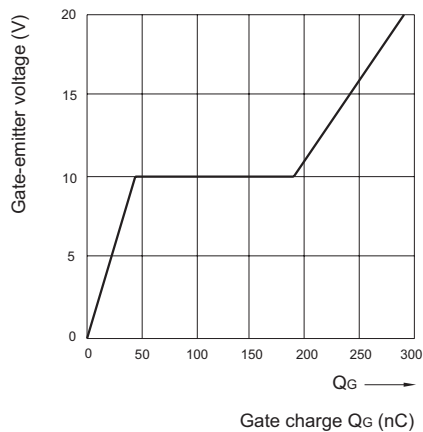
Typ. Output Characteristics



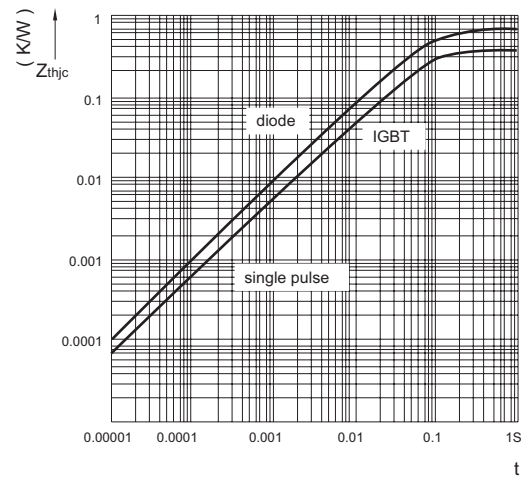
Typ. Transfer Characteristics



Gate Charge V_{GE}



Typ. Transient Thermal Impedance



Disclaimer

This datasheet is for the customers' reference. All the specifications are subject to change without notice.

We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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