

HFS22/PM75D120(SA)(555)

IGBT MODULE



File No.: E314528



Features

- Half-bridge (two IGBTs)
- SPT⁺ IGBT
- Including fast free-wheeling diodes
- DCB insulated base plate
- Terminals embeded plastic case

Typical Applications

Welding power supplies, UPS

DESCRIPTION

HFS22 IGBT modules are designed for applications such as motor control,uninterrupted power supplies(UPS) and welding machines.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 -50µm and 100µm. It's the same importation to apply thermally-conductive grease with 100 to 200µm 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°C, unless otherwise specified)

Symbol	Item	Condition	Rating	Unit
V _{CES}	Collector-emitter voltage	G、E short	1200	V
V _{GES}	Gate-emitter voltage	G、E short	±20	V
I _c	Collector current	T _c =80°C	75	A
I _{CP}	Peak collector current	T _c =80°C	150	A
V _{iso}	Isolation voltage		2500	VAC
T _j	Junction temperature		-40 ~ 150	°C
T _{stg}	Storage temperature		-40 ~ 125	°C
I _F	Diode forward current	T _c =25°C(80°C), T _j =150°C	75(50)	A
I _{FM}	Diode peak forward current	T _c =25°C, T _j =150°C	150	A



HONAF A 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.	Units
V _{GE(th)}	Gate threshold voltage	I _c =3mA, V _{CE} =V _{GE} , T _j =25°C	5	6.2	7	V
V _{CE(sat)}	Collector-emitter saturation voltage	I _c =75A, V _{GE} =15V, T _j =25°C		1.8		V
		I _c =75A, V _{GE} =15V, T _j =125°C		2.0		V
I _{CES}	Zero gate voltage collector current	V _{GE} =0V, V _{CE} =1200V, T _j =25°C		0.1	1.0	mA
I _{CES}	Gate-emitter leakage current	V _{GE} =±20V, V _{CE} =0V, T _j =125°C	-200		200	μA
C _{ies}	Input capacitance	V _{CE} =25V, V _{GE} =0V, f=1MHz		8		nF
C _{oes}	Output capacitance	V _{CE} =25V, V _{GE} =0V, f=1MHz		0.6		nF
C _{res}	Reverse transfer capacitance	V _{CE} =25V, V _{GE} =0V, f=1MHz		0.3		nF
Q _G	Total gate charge			780		nC
T _{d(on)}	Turn-on delay time	V _{cc} =600V, I _c =75A,		160		ns
T _r	Rise time	R _G =15Ω, V _{GE} =±5V,		65		ns
T _{d(off)}	Turn-off delay time	L _σ =60nH, inductive load		500		ns
T _f	Fall time			70		ns
E _{on}	Turn on energy	V _{cc} =600V, I _c =75A, R _G =15Ω, V _{GE} =±15V,		10.3		mJ
E _{off}	Turn off energy	L _σ =60nH, inductive load		7.8		mJ
V _{EC}	Diode forward voltage				2.2	V
T _{rr}	Reverse recovery time				250	ns

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

Symbol	Item	Condition	Min.	Typ.	Max.	Units
R _{th(j-c)}	Thermal resistance,	per IGBT	—	—	0.44	°C / W
R _{th(j-c)}	Junction to case	per DIODE	—	—	0.87	
R _{th(c-t)}	Contact thermal resistance	—	—	—	0.08	°C / W

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

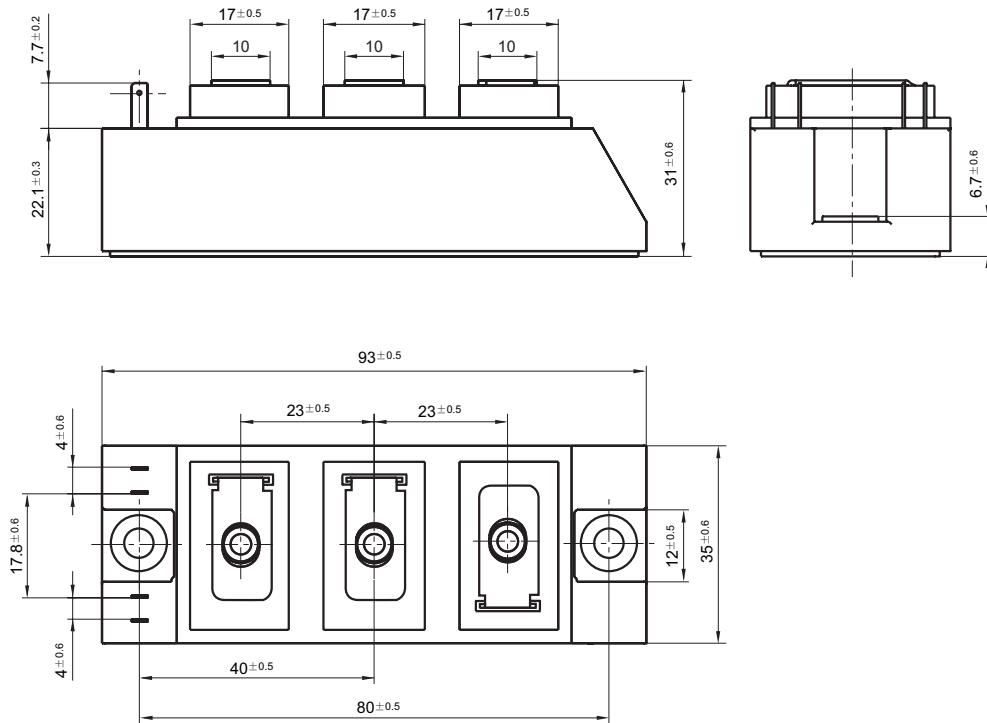
Symbol	Item	Condition	Min.	Typ.	Max.	Units
—	Screw torque	—	1.47	1.7	1.96	N·m
—	Weight	—	—	190	—	g

ORDERING INFORMATION

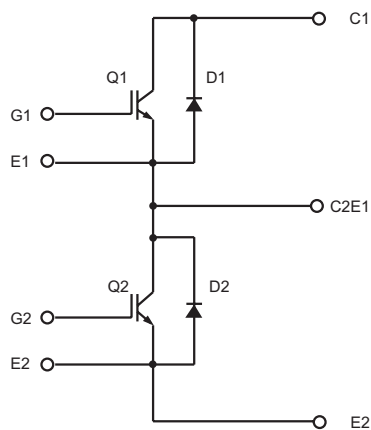
Type	HFS22 / PM 75 D 120 (SA) (XXX)
Module	PM: IGBT module
Output rating current	75: 75A
Unit numbers	D: Dual(half bridge)
IGBT V _{ces} voltage	120: 1200V
IGBT type	(SA): SPT ⁺
Customer special code	Only for special requirements, e.g. (555) stands for RoHS compliant

Notes: HFS22 is an environmental friendly product, please mark special code (555) when order.

Outline Dimensions

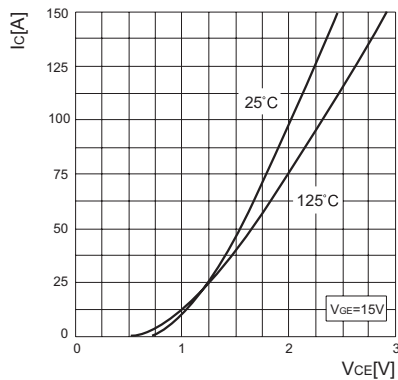


Circuit Diagram

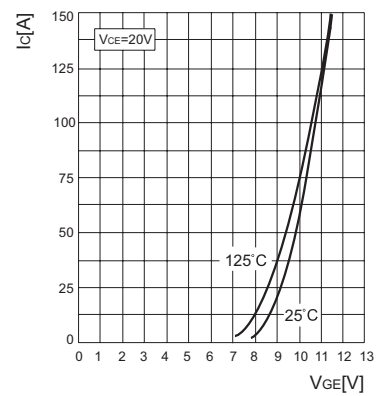


CHARACTERISTIC CURVES

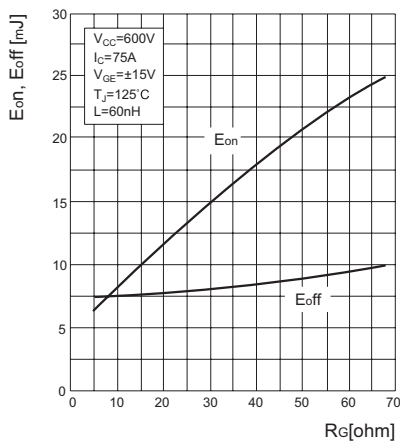
Collector-emitter voltage(V_{CE}) VS collector current(I_c)



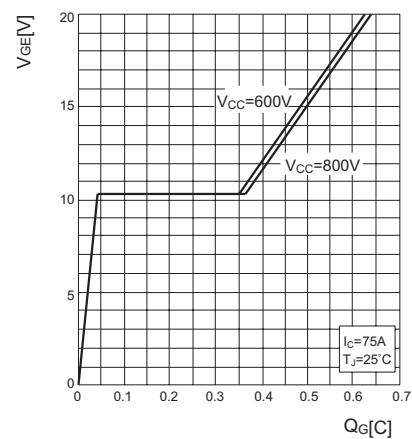
Typ. transfer characteristic



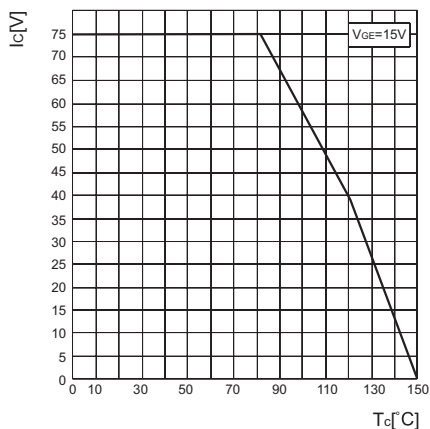
Typ. turn off energy and switching times versus gate resistor



Gate charge curve



Case temperature(T_c)VS collector current(I_c)



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.