HCG450FF120E3A

V_{CES}=1200V, $I_{C\ (nom)}$ =450A

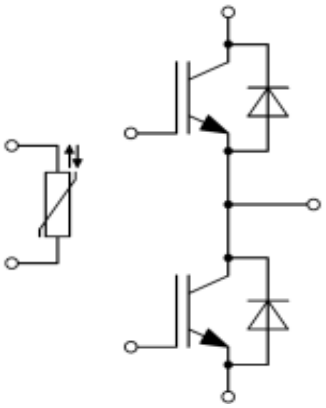
Features

- Low inductive design
- Low Vcesat with high junction temperature
- Fast & soft reverse recovery anti-parallel FWD
- Low Switching Losses

Package

Benefits

- Higher System Efficiency
- Reduce cooling requirements
- Increased power density
- Enabling higher frequency



Applications

- Inverter for motor drive
- AC and DC servo drive amplifier
- Uninterruptible power supply

Absolute Maximum Ratings T_C=25 ℃ unless otherwise noted

IGBT

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GES}	Gate-Emitter Voltage	±20	V
I_C	Collector Current @ T_C=85℃， T_{vj}=150℃	450	A
I_{CM}	Pulsed Collector Current t_p=1ms	900	A

Diode

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V
I_F	Diode Continuous Forward Current	450	A
I_{FM}	Diode Maximum Forward Current t_p=1ms	900	A

IGBT Characteristics T_C=25 ℃ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage		1.70	2.00	V	I_C=450A,V_{GE}=15V,T_j=25ºC
			1.85			I_C=450A,V_{GE}=15V,T_j=125ºC
			1.95			I_C=450A,V_{GE}=15V,T_j=150ºC
$V_{GE(th)}$	Gate-Emitter Threshold Voltage	5.2	6.1	6.7	V	I_C=10.0mA,V_{CE}=V_{GE}, T_j=25ºC
I_{CES}	Collector Cut-Off Current			1.0	mA	V_{CE}=V_{CES},V_{GE}=0V, T_j=25ºC
I_{GES}	Gate-Emitter Leakage Current			400	nA	V_{GE}=V_{GES},V_{CE}=0V, T_j=25ºC
E_{On}	Turn-On Switching Energy	--	5.22	--	mJ	V_{CC}=600V,I_C=450A, R_G=1.5Ω,V_{GE}=±15V, T_j=25ºC
E_{Off}	Turn Off Switching Energy	--	34.3	--		
$t_{d(on)}$	Turn-on Delay Time	--	135	--	ns	
t_r	Turn-on Rise Time	--	35	--		
$t_{d(off)}$	Turn-off Delay Time	--	433	--		
t_f	Turn-off Fall Time	--	79	--		
I_{SC}	SC Data		1800		A	t_P≤10μs,V_{GE}=15V,T_j=150ºC, V_{CC}=900V,V_{CEM}≤1200V
R_{thJC}	Thermal resistance,junction to case		TBD		K/W	*per IGBT*
R_{thCH}	Thermal resistance, case to heatsink		TBD		K/W	*per IGBT*
$T_{vj\ op}$	Temperature under switching conditions	-40		150	℃	

Diode Characteristics T_C=25 ºC unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_F	Diode Forward Voltage		1.70	2.15	V	I_F=450A,V_{GE}=0V,T_j=25ºC
			1.70			I_F=450A,V_{GE}=0V,T_j=125ºC
			1.65			I_F=450A,V_{GE}=0V,T_j=150ºC
Q_r	Recovered Charge	--	35	--	μC	V_R=600V,I_F=450A, -di/dt=8000A/μs,V_{GE}=-15V T_j=25ºC
I_{RM}	Peak Reverse Recovery Current	--	420	--	A	
E_{rec}	Reverse Recovery Energy	--	20.5	--	mJ	
R_{thJC}	Thermal resistance,junction to case		TBD		K/W	*per DIODE*
R_{thCH}	Thermal resistance, case to heatsink		TBD		K/W	*per DIODE*
$T_{vj\ op}$	Temperature under switching conditions	-40		150	℃	

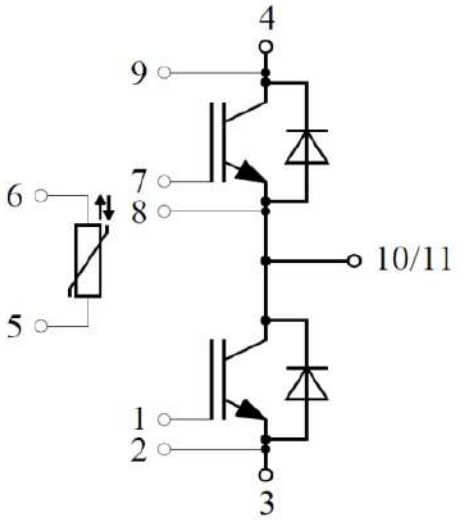
NTC-Thermistor Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
R_{25}	Rated Resistance	T_{NTC}=25℃		5.0		kΩ
$B_{25/50}$	B-value	$R_2=R_{25}\exp[B_{25/50}(1/T_2-1/(298,15K))]$		3380		K
$B_{25/80}$	B-value	$R_2=R_{25}\exp[B_{25/80}(1/T_2-1/(298,15K))]$		3435		K

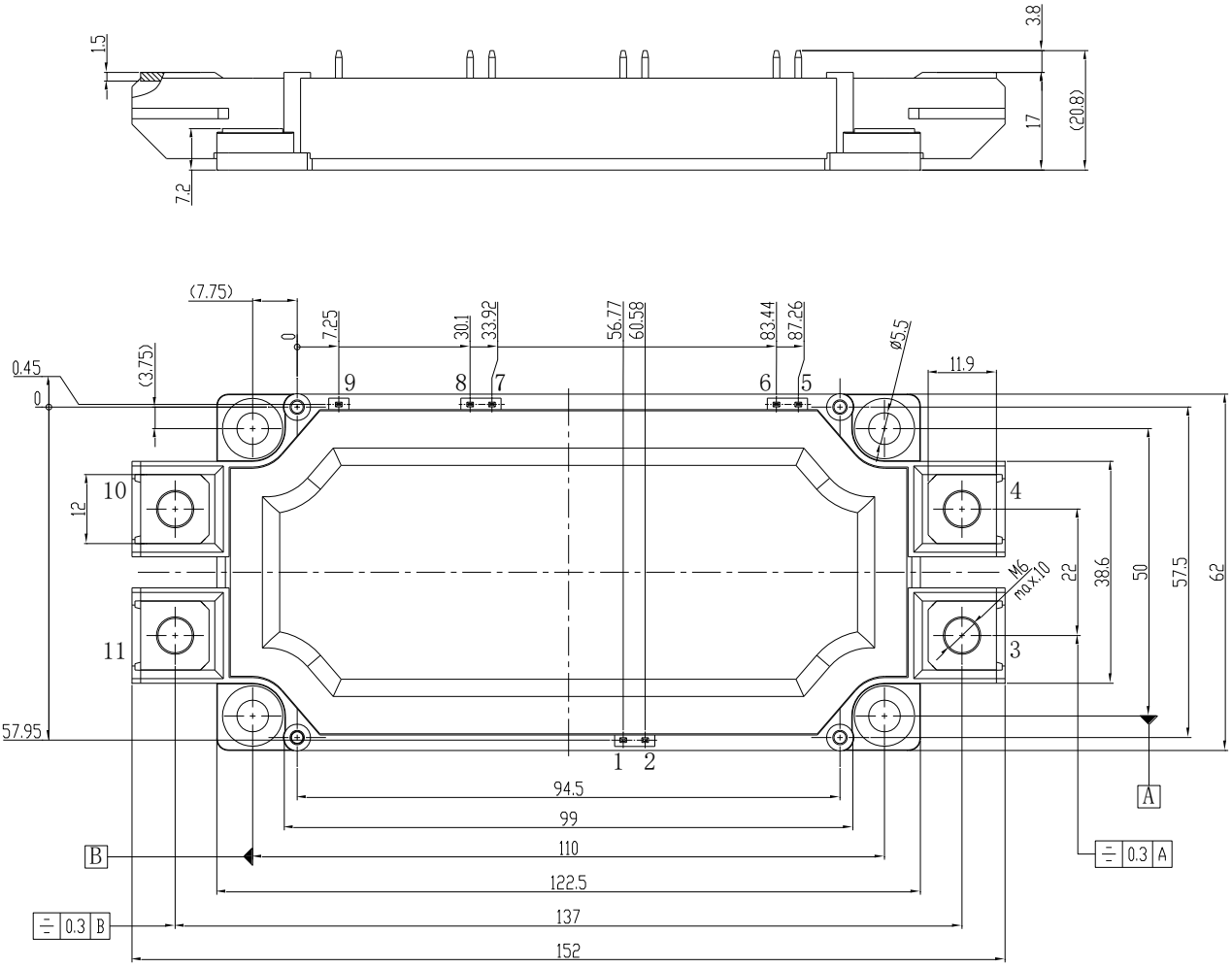
Package

Symbol	Parameter	Test Conditions	Values	Unit
V_{ISOL}	Isolation test voltage	RMS,f=50Hz,t=1min	2.5	kV
d_{Creep}	Creepage distance		13	mm
d_{Clear}	Clearance		10	mm
CTI	Comparative tracking index		> 200	
L_{sCE}	Stray inductance module		20	nH
T_{stg}	Storage temperature		-40~125	℃
M	Terminal Connection Torque, Screw M6 Mounting Torque, Screw M5		3~6	N.m
G	Weight		345	g

Circuit diagram



Package Dimensions (Dimensions in Millimeters)



Revision History

Document Version	Description of Changes
RevX.0.1	Released

Zhejiang HIITIO New Energy Co., Ltd

ADD : NO.1125 Zhixing Road,Qiaonan District, Xiaoshan Economic and Technological Development Zone,Hangzhou,Zhejiang

TEL :400-667-9977