HCG75FS120E1D

V_{CES}=1200V, $I_{C\ (nom)}$ =75A

Package

Features

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

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

Tc=25°C unless otherwise noted

IGBT-inverter

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GES}	Gate - Emitter Voltage	±20	V
I_C	Collector Current @ T_C =25°C, T_{vj}=150°C	75	A
I_{CM}	Pulsed Collector Current t_p=1ms	150	A

Diode-inverter

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V
I_F	Diode Continuous Forward Current	75	A
I_{FM}	Diode Maximum Forward Current t_p =1ms	150	A

IGBT-inverter Characteristics Tc =25℃ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage		1.65	2.0	V	Ic=75A,VGE=15V,Tj=25℃
			1.85			Ic=75A,VGE=15V,Tj=125℃
			1.9			Ic=75A,VGE=15V,Tj=150℃
$V_{GE(th)}$	Gate-Emitter Threshold Voltage	5.2	6.0	6.8	V	IC=2.4mA,VCE=VGE, Tj=25℃
I_{CES}	Collector Cut-Off Current			1.0	mA	VCE=VCES,VGE=0V, Tj=25℃
I_{GES}	Gate-Emitter Leakage Current			400	nA	VGE=VGES,VGE=0V,Tj=25℃
E_{On}	Turn-On Switching Energy	--	3.64	--	mJ	VCC=600V,IC=75A, RG=2.2Ω,VGE=±15V, Tj=25℃
E_{Off}	Turn Off Switching Energy	--	4.33	--		
$t_{d(on)}$	Turn-on Delay Time	--	171	--	ns	
t_r	Turn-on Rise Time	--	32	--		
$t_{d(off)}$	Turn-off Delay Time	--	350	--		
t_f	Turn- off Fall Time	--	82	--		
I_{SC}	SC Data		450		A	tP≤10μs,VGE=15V,Tj=125℃, VCC=900V,VCEM≤1200V
R_{thJC}	Thermal resistance,junction to case		0.394		K/W	*per IGBT*
R_{thCH}	Thermal resistance, case to heatsink		0.199		K/W	*per IGBT*
$T_{vj\ op}$	Temperature under switching conditions	-40		150	℃	

Diode-inverter Characteristics Tc =25℃ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_F	Diode Forward Voltage		1.70	2.15	V	Ic=75A,VGE=15V,Tj=25℃
			1.65			IF=75A,VGE=0V,Tj=125℃
			1.65			IF=75A,VGE=0V,Tj=150℃
Q_r	Recovered Charge	--	6.9	--	μC	VR=600V,IF=75A, -di/dt=1900A/μs,VGE=-15V Tj=25℃
I_{RM}	Peak Reverse Recovery Current	--	84	--	A	
E_{rec}	Reverse Recovery Energy	--	2.47	--	mJ	
R_{thJC}	Thermal resistance,junction to case		0.602		K/W	*per DIODE*
R_{thCH}	Thermal resistance, case to heatsink		0.303		K/W	*per DIODE*
$T_{vj\ op}$	Temperature under switching conditions	-40		150	℃	

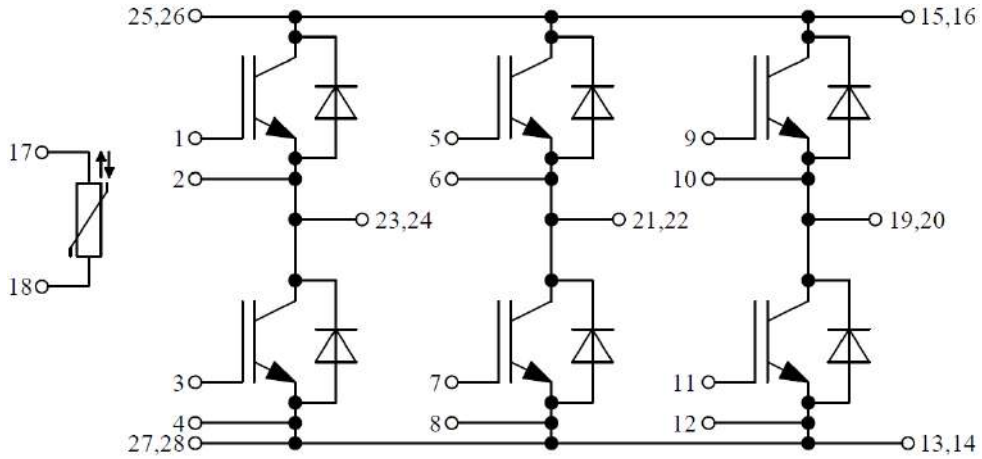
NTC-Thermistor Characteristics

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

Package

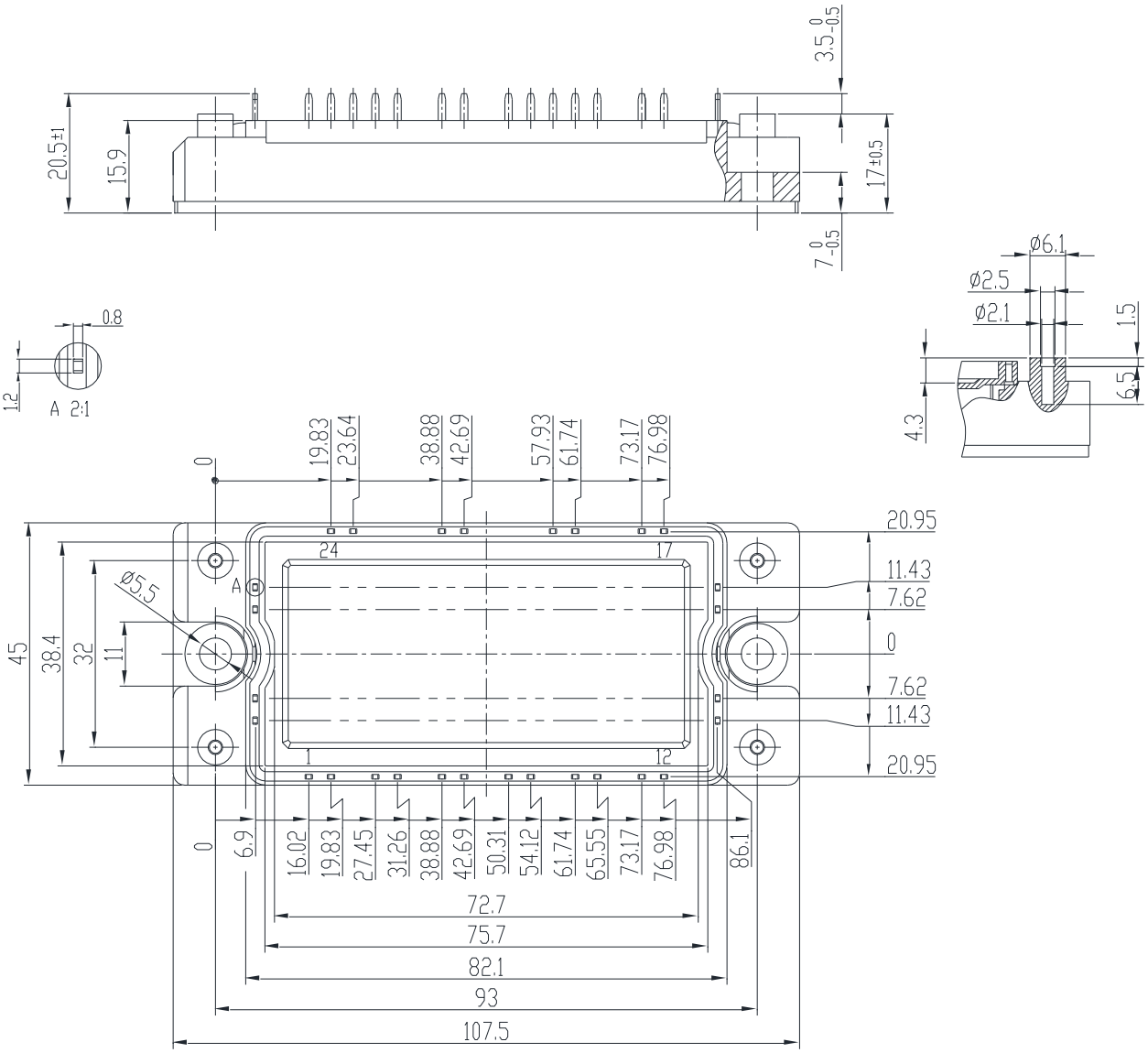
Symbol	Parameter	Test Conditions	Values	Unit
V_{ISOL}	Isolation test voltage	RMS,f=50Hz,t=1min	2.5	kV
d_{Creep}	Creepage distance		10.0	mm
d_{Clear}	Clearance		7.5	mm
CTI	Comparative tracking index		> 200	
L_{sCE}	Stray inductance module		60	nH
T_{stg}	Storage temperature		-40~125	℃
M	Mounting torque for module mounting	M5, Screw	3~6	Nm
G	Weight		300	g

Circuit diagram



Package Dimensions

Dimensions in Millimeters



Revision History

Document Version	Description of Changes
RevX.0.1	Released