SEMICONDUCTOR

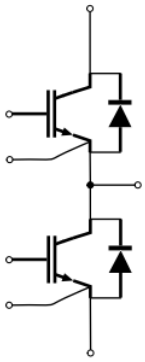
JFF600R12KHT6
HALF BRIDGE IGBT Module

Features

- Low Switching Losses
- Low V_{CEsat}
- V_{CEsat} with positive Temperature Coefficient

Product Summary		
V_{CES}(V)	V_{CESAT}(V)Typ	I_C(A)
1200	1.70 @ 15V,200A	600

Block Diagram



Application

- High power converters
- UPS
- Motor Drives
- Soft switching welding machine

IGBT,Inverter

Table1 Absolute Maximum Ratings (T_C=25℃, unless otherwise specified)

Parameters	Symbol	Value	Unit
Collector-Emmiter Voltage	V_{CES}	1200	V
Gate-Emmiter Voltage	V_{GES}	±20	V
Collector DC Current-continuous T_C=75°C, T_J max=150℃	I_C	600	A
Repetitive peak collector current tp=1ms	I_{CRM}	1200	A

Table 2. Electrical Chatacteristics (T_J=25℃, unless otherwise specified)

Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emmiter saturation Voltage	V_{CESAT}	V_{GE}=15V,I_C=600A,T_j=25°C		1.70	2.30	V
Gate Threshold Voltage	$V_{GE(TH)}$	V_{CE}=V_{GE},I_C=22.8mA		5.8	6.5	V
Internal gate resistor	R_{gint}	T_j=25°C		4.1		Ω
Gate charge	Q_G	V_{GE}=-15V~+15V,V_{CE}=600V		4.85		μC
Zero Gate Voltage Collector Current	I_{CES}	V_{CE}=1200V,V_{GE}=0V			1	mA
Gate-body Leakage Current	I_{GES}	V_{CE}=0V,V_{GE}=20V			400	nA

Input Capacitance	C_{IES}	V_{CE}=25V,V_{GE}=0V,f=1MHz		82		nF
Reverse Transfer Capacitance	C_{RES}			2.0		nF
Turn-On Delay Time	td(on)	V_{CE}=600V,I_C=600A, V_{GE}=-8V~+15V,R_G=1.0Ω, di/dton=3720A/us dv/dtoff=3450V/us, T_j=25°C		174.8		ns
Turn-On Rise Time	tr			144.8		ns
Turn-Off Delay Time	td(off)			706.0		ns
Turn-Off Fall Time	tf			92.8		ns
Turn-On energy	E_{on}			63.02		mJ
Turn-Off energy	E_{off}			65.16		mJ
Temperature under switching conditions	T_{vjop}		-40		150	℃
SC data	I_{SC}	tp≤8us, V_{GE}=15V, Vcc=800V, V_{CEM}≤1200V, T_j=25°C		4160		A
Thermal resistance,junction to case	R_{thJC}	per IGBT		TBD		K/W
Thermal resistance,case to heatsink	R_{thCH}	per IGBT λgrease=1W/(m·K)		TBD		K/W

Diode, Inverter

Table1 Absolute Maximum Ratings (T_C=25℃, unless otherwise specified)

Parameters	Symbol	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	1200	V
Continuous DC forward current	I_F	600	A
Repetitive peak forward current tp=1ms	I_{FRM}	1200	A

Table 2. Electrical Chatacteristics (T_J=25℃, unless otherwise specified)

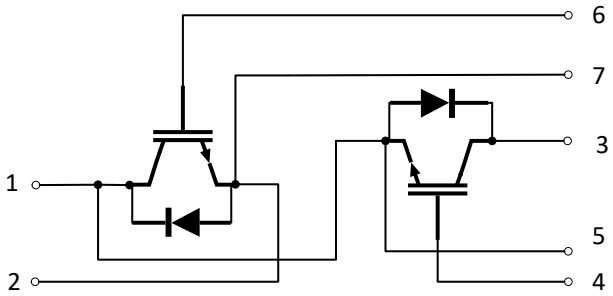
Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	V_F	I_F=600A,T_j=25°C		1.75		V
Diode Peak Reverse Recovery Current	Irrm	I_F=600A V_R=600V -diF/dt =3740A/μs T_j=25°C		185		A
Reverse Recovery Charge	Qrr			15.2		μC
Reverse recovery energy	Erec			10.20		mJ
Temperature under switching conditions	T_{vjop}		-40		150	℃
Thermal resistance,junction to case	R_{thJC}	per diode		TBD		K/W
Thermal resistance,case to heatsink	R_{thCH}	per diode λgrease=1W/(m·K)		TBD		K/W

Module

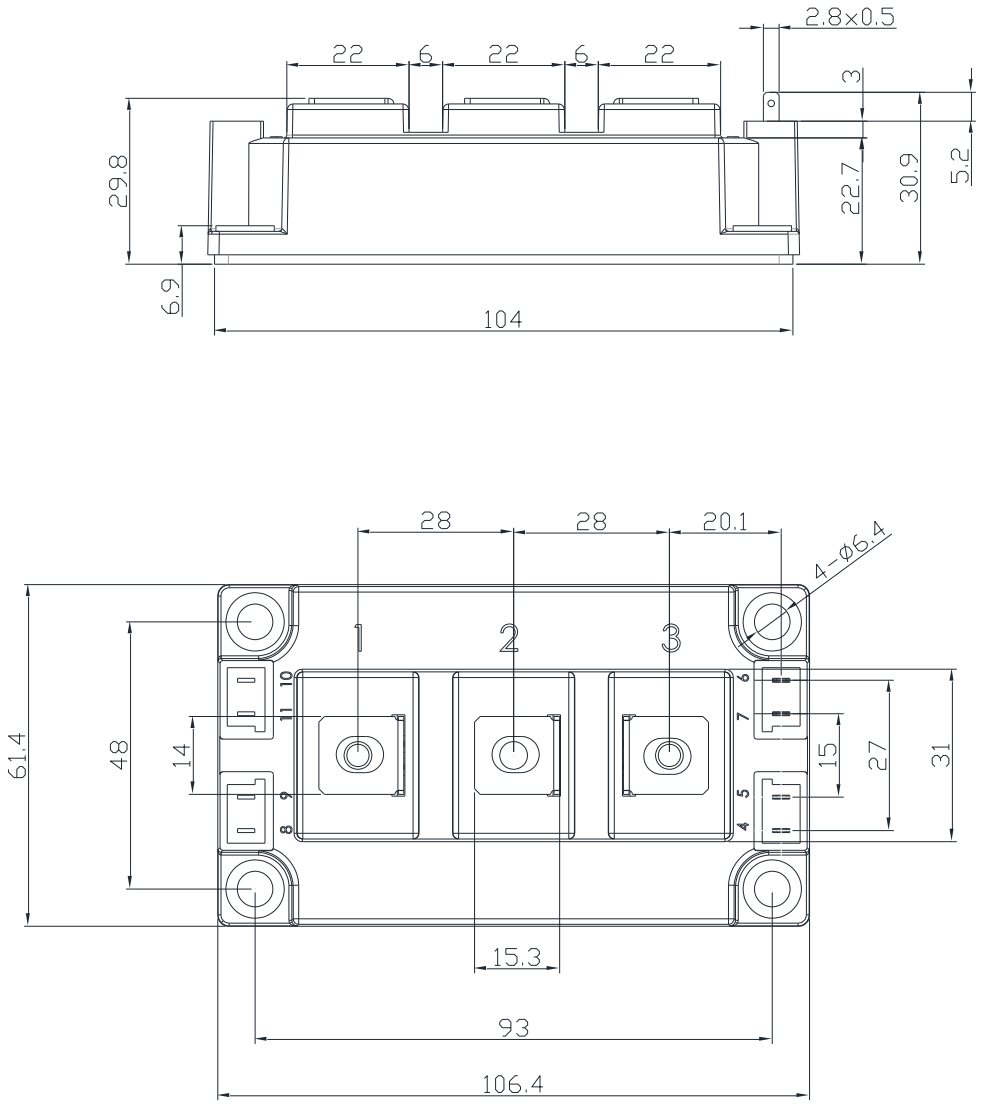
Table 1. Electrical Chatacteristics (T_J=25℃, unless otherwise specified)

Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Isolation test voltage	V_{ISOL}	RMS, f=50Hz, t=60s	2500			V
Maximum junction temperature	T_{jmax}				150	℃
Storage temperature	T_{stg}		-40		125	℃
Operating junction temperature	$T_{j\ op}$		-40		150	℃
Stray inductance	L_{CE}			20		nH
Thermal resistance,case to heatsink	R_{thCH}	per module,λ_{grease}=1W/(m·K)		0.01		K/W
Mounting torque for modul mounting	M		2.5		5.0	Nm
Weight	W			340		g

Circuit diagram



Package outlines



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