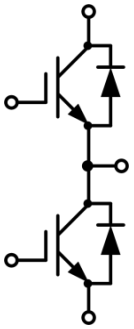
62mm Half Bridge IGBT Module

V_{CES}= 1200V, I_C= 400A, $V_{CE(sat)}$= 2.2V

Features

- Low collector to emitter saturation voltage
- Switching-Loss rating includes all "tail" losses
- Optimized for Fast Switching
- Short circuit withstands time (10us min.)



Applications

- AC motor control
- Motion/servo control
- Inverter and power supplies
- Photovoltaic/Fuel cell

IGBT, Inverter
Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit
Collector-Emitter voltage	V_{CES}	T_{vj}=25℃	1200	V
Continuous DC collector current	$I_{C\ nom}$	T_C=100℃, $T_{vj\ max}$=175℃	400	A
Repetitive peak collector current	I_{CRM}	t_P=1 ms	800	A
Total power dissipation	P_{tot}	T_C=25℃, $T_{vj\ max}$ = 175℃	1666	W
Gate emitter voltage	V_{GE}		±20	V

Characteristics Values

Parameter	Symbol	Conditions		Min	Typ	Max	Unit
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	I_C=1mA,V_{CE}=V_{GE},T_J=25℃		4.5	5.5	6.5	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=400A, V_{GE}=15V	T_J=25℃		2.2		V
			T_J=150℃		2.5		
Collector-Emitter Leakage Current	I_{CES}	V_{GE}=0V,V_{CE}=V_{CES},T_J=25℃				1.0	mA
Gate-Emitter Leakage Current	I_{GES}	V_{GE}=±20V, V_{CE}=0V, T_J=25℃		-100		100	nA
Input Capacitance	C_{ies}	V_{CE}=25V, V_{GE}=0V ,f=1MHz			39.6		pF
Reverse transfer Capacitance	C_{res}				0.92		
Internal gate resistor	R_{gint}				0.2		Ω
Turn-on Delay Time	$t_{d(on)}$		T_J=25℃		109		ns
			T_J=150℃		94		

Rise Time	t_r	V_{CC}=600V, I_C=400A, V_{GE}=±15V, L=525uH, Rg=10Ω	T_J=25℃		141		ns
			T_J=150℃		150		
Turn-off Delay Time	$t_{d(off)}$		T_J=25℃		472		ns
			T_J=150℃		500		
Fall Time	t_f		T_J=25℃		95		ns
			T_J=150℃		114		
Turn-on Switching Loss	E_{on}		T_J=25℃		55.2		mJ
			T_J=150℃		74		
Turn-off Switching Loss	E_{off}		T_J=25℃		25.2		mJ
			T_J=150℃		30.4		
Junction-To-Case (IGBT)	$R_{\theta JC}$				0.09		K/W

Diode, Inverter

Maximum Ratings

Parameter	Symbol	Test Condition	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	T_{vj}=25℃	1200	V
Continuous DC forward current	I_F		400	A
Repetitive peak forward current	I_{FRM}	t_p=1ms	800	A

Characteristics Values

Parameter	Symbol	Conditions		Min	Typ	Max	Unit
Forward Voltage	V_{FM}	I_F=400A,V_{GE}=0V	T_J=25℃		2.8		V
			T_J=150℃		2.3		
Peak Reverse Recovery Current	I_{RM}	I_F=400A, V_{CC}=600V, V_{GE}=-15V, L=525uH, Rg=10Ω	T_J=25℃		110		A
			T_J=150℃		190		
Reverse Recovery Charge	Q_{rr}		T_J=25℃		14.2		μC
			T_J=150℃		39		
Reverse Recovery Energy	E_{rec}		T_J=25℃		3.8		mJ
			T_J=150℃		12.0		
Junction-To-Case Diode	$R_{\theta JC}$				0.15		K/W

Characteristics Values(Module)

Parameter	Symbol	Test Condition	Value			Unit
Isolation test voltage	V_{ISOL}	RMS, f=50Hz, t=1min		4000		V
Maximum Junction Temperature	T_J			175		℃
Storage temperature	T_{stg}		-40		150	℃
Mounting torque for module mounting	M		3.0		5.0	Nm
Weight	W			317		g

Typical Characteristics

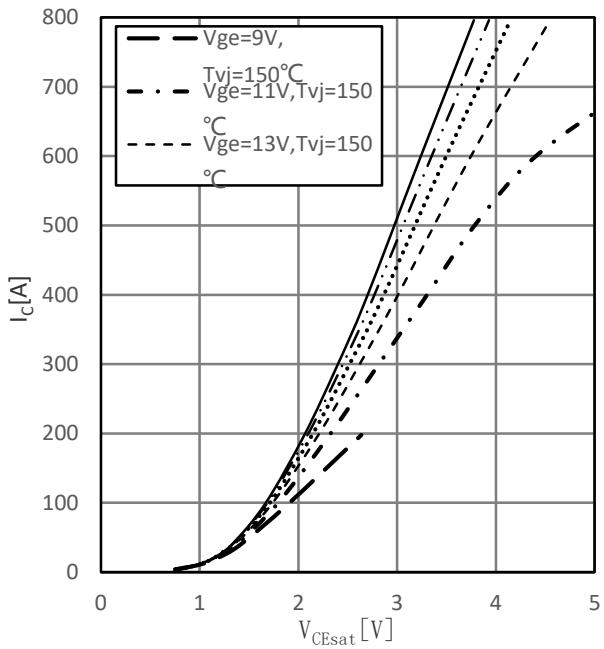


Fig.1 output characteristic IGBT Inverter (typical)

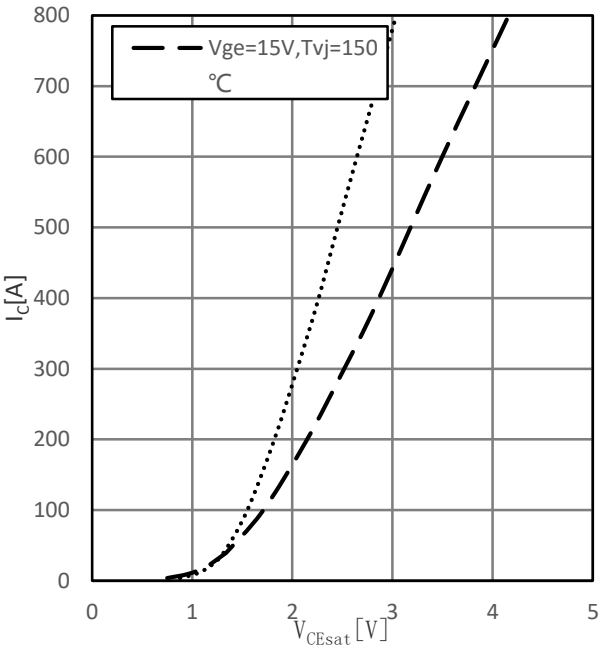


Fig.2 output characteristic IGBT Inverter (typical)

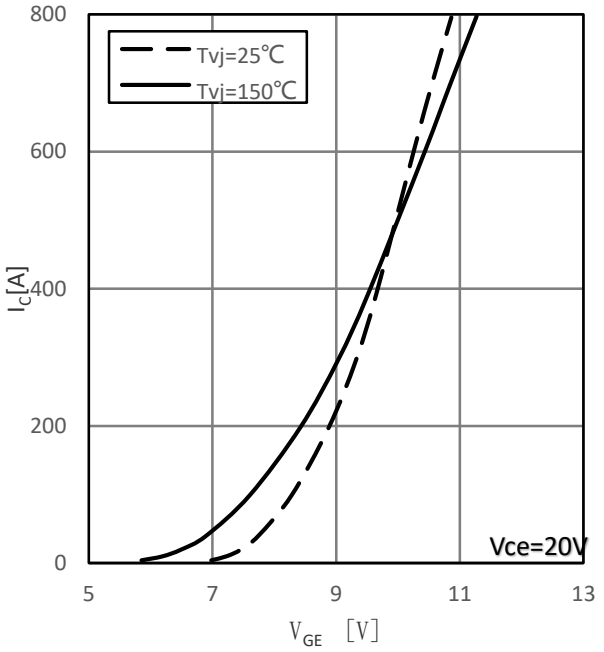


Fig.3 transfer characteristic IGBT Inverter (typical)

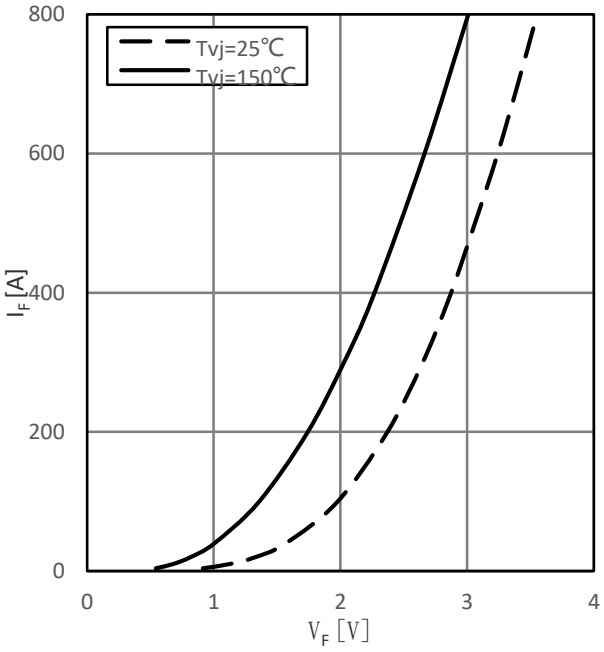


Fig.4 forward characteristic of Diode, Inverter (typical)

V_{CC}=600V，V_{CE}=±15V
R_G=10Ω

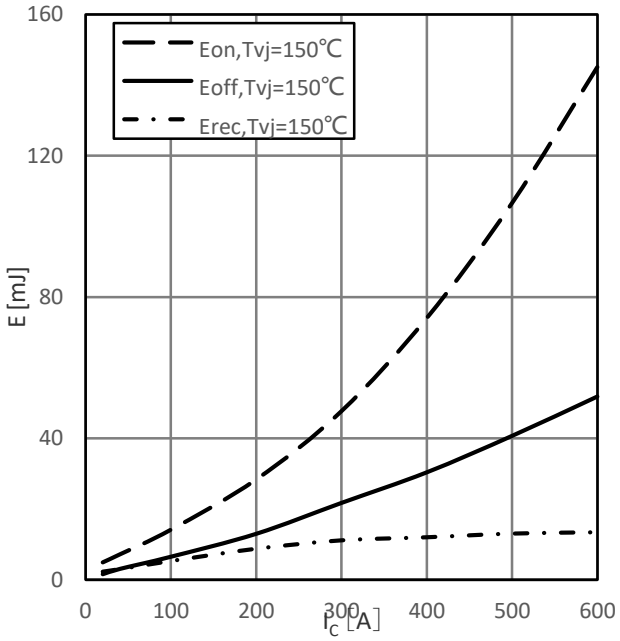


Fig.5 switching losses IGBT Inverter (typical)

V_{CC}=600V，V_{CE}=±15V
I_C=400A

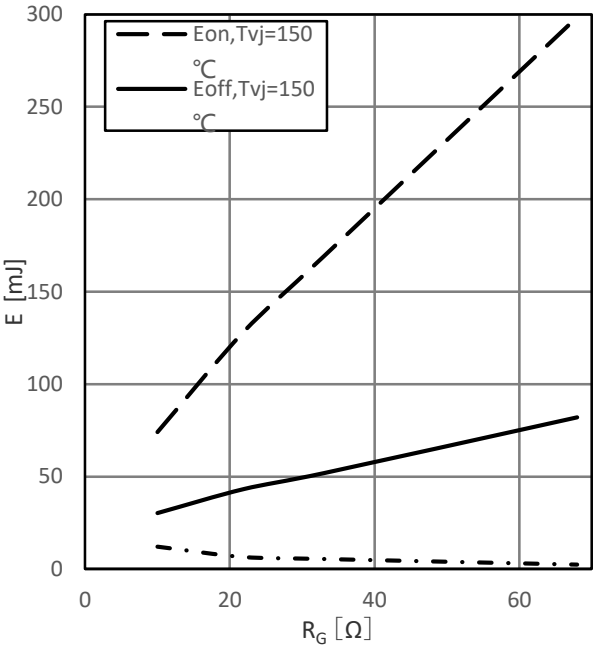


Fig.6 switching Losses vs. Gate Resistance (Typical)

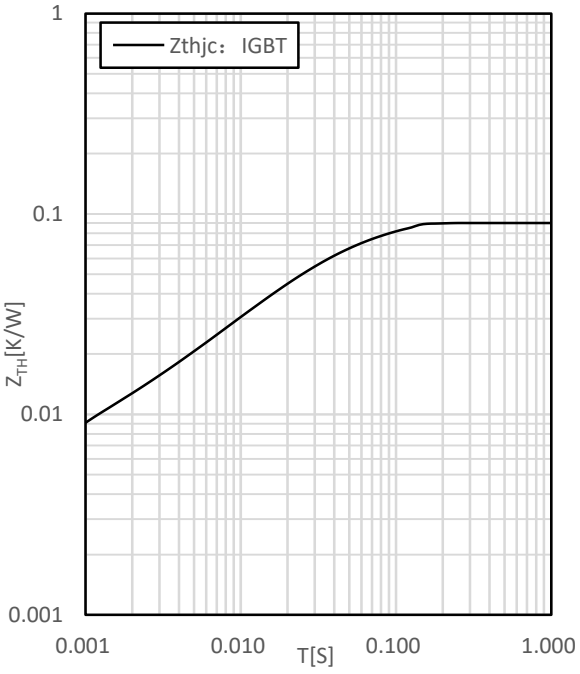


Fig.7 Transient thermal impedance IGBT

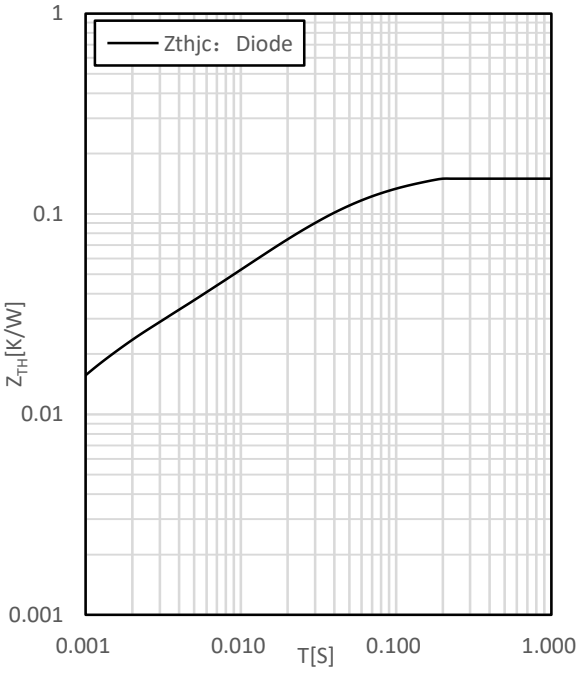
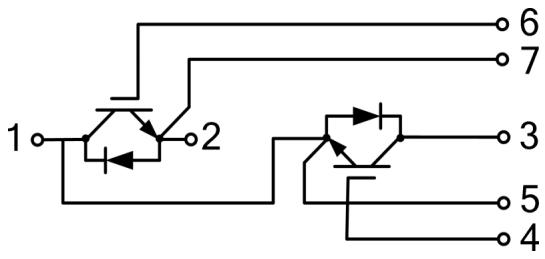
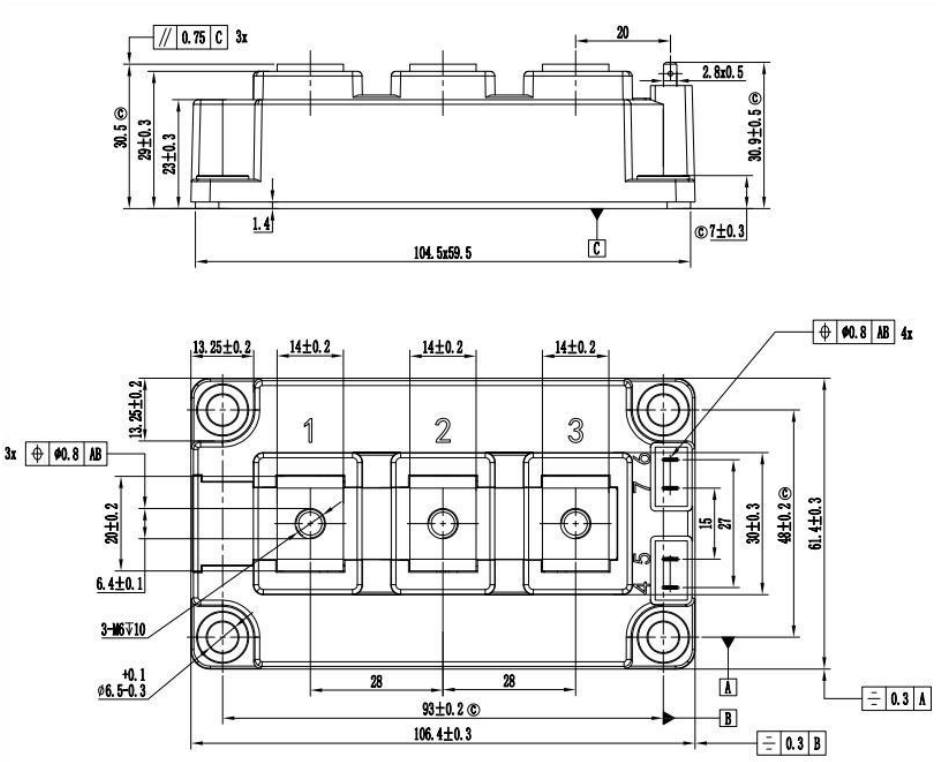


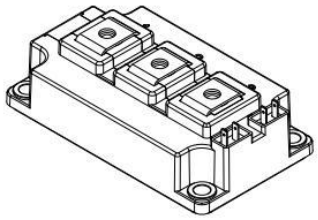
Fig.8 Transient thermal impedance Diode

Circuit Diagram



Package Outlines(Unit： mm)





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