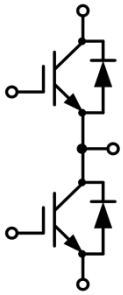
34mm Half Bridge IGBT Module

V_{CES}= 1200V, I_C= 200A, $V_{CE(sat)}$= 2.2V

Features

- Low collector to emitter saturation voltage
- Switching-Loss rating includes all “tail” losses
- Optimized for Fast Switching



Applications

- Uninterruptible Power Supply
- Induction Heating
- High Power Converters
- Electric welding machine

IGBT Inverter

Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Collector to Emitter Voltage	V_{CES}		1200	V
Continuous Gate to Emitter Voltage	V_{GES}		±20	V
Continuous Collector Current	$I_{C\ nom}$	T_C=100℃	200	A
		T_C=25℃	400	A
Repetitive peak collector current	I_{CRM}	t_p=1ms	400	A
Maximum Power Dissipation (IGBT)	P_D	T_C=25℃, T_J=175℃	1500	W
Short Circuit Withstand Time	tsc	V_{CC}=600V, V_{GE}≤15V	10	us

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=200A,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			19.8		nF

Reverse Transfer Capacitance	C_{res}				0.46		
Integrated gate resistor	R_{gint}	T_{vj}=25℃			0.4		Ω
Turn-on Delay Time	$t_{d(on)}$	V_{CC}=600V, I_C=200A, V_{GE}=±15V, L=525uH, Rg=10Ω	T_J=25℃		109		ns
			T_J=150℃		94		
Rise Time	t_r		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℃		27.6		mJ
			T_J=150℃		37		
Turn-off Switching Loss	E_{off}		T_J=25℃		12.6		mJ
			T_J=150℃		15.2		
Junction-To-Case (IGBT)	$R_{θJC}$				0.1		K/W

Diode, Inverter
Maximum Ratings

Parameter	Symbol	Conditions	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	T_{vj}=25℃	1200	V
Diode Continuous Forward Current	I_F	T_C=100℃	200	A
Peak FWD Current Repetitive	I_{FM}	t_p=1ms	400	A

Characteristics Values

Parameter	Symbol	Conditions		Min	Typ	Max	Unit
Forward Voltage	V_{FM}	I_F=200A,V_{GE}=0V	T_J=25℃		2.8		V
			T_J=150℃		2.3		
Peak Reverse Recovery Current	I_{RM}	I_F=200A, V_{CC}=600V, V_{GE}=-15V, L=525uH, Rg=10Ω	T_J=25℃		55.4		A
			T_J=150℃		95.0		
Reverse Recovery Charge	Q_{rr}		T_J=25℃		7.1		μC
			T_J=150℃		19.5		
Reverse Recovery Energy	E_{rec}		T_J=25℃		1.9		mJ
			T_J=150℃		6.0		
Junction-To-Case Diode	$R_{θJC}$				0.36		K/W

Module

Characteristics Values

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Isolation Voltage	V_{ISOL}	f=50Hz, t=1min			2.5	KV
Maximum Junction Temperature	T_J				175	℃
Maximum Operating Junction Temperature Range	T_{JOP}		-40		+150	℃
Storage Temperature	T_{stg}		-40		+150	℃
Case-To-Sink (Conductive Grease Applied)	$R_{\theta CS}$			0.1		K/W
Power Terminals Screw:M5	M		2.5		5	N·m
Mounting Screw:M6	M		3		5	N·m
Weight	G			149		g

Typical Characteristics

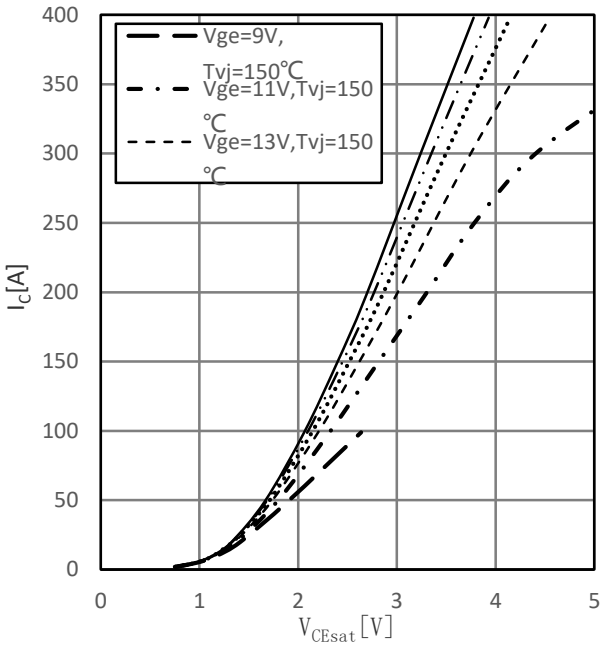


Fig.1 output characteristic IGBT Inverter (typical)

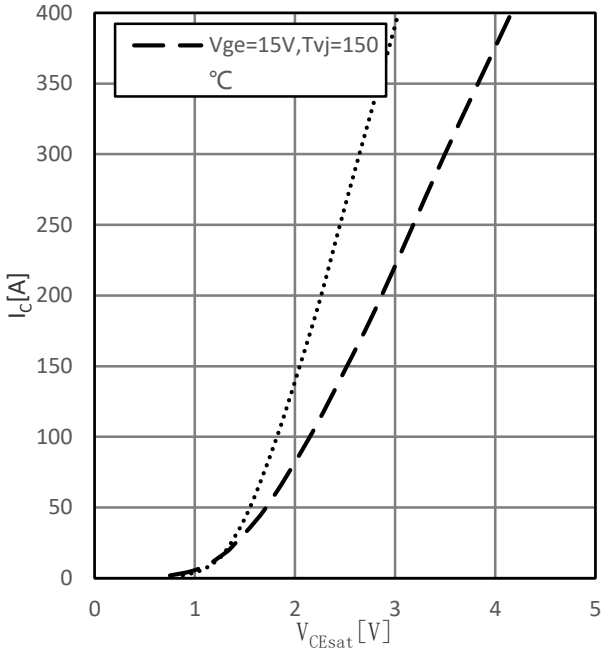


Fig.2 output characteristic IGBT Inverter (typical)

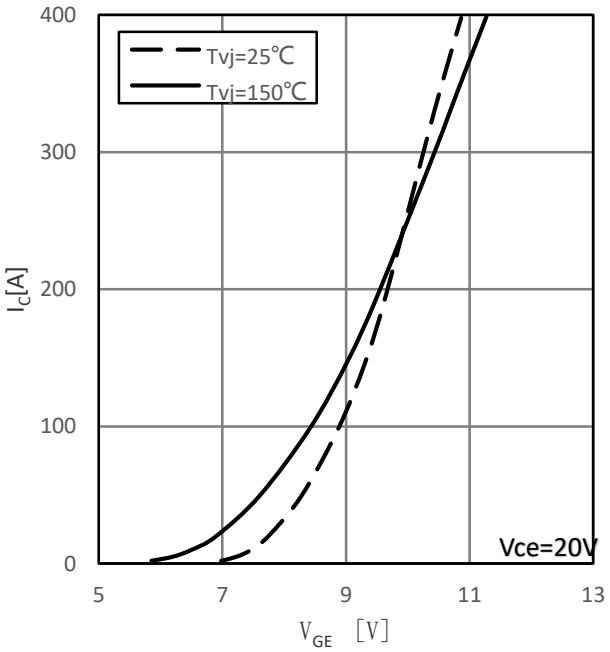


Fig.3 transfer characteristic IGBT Inverter (typical)

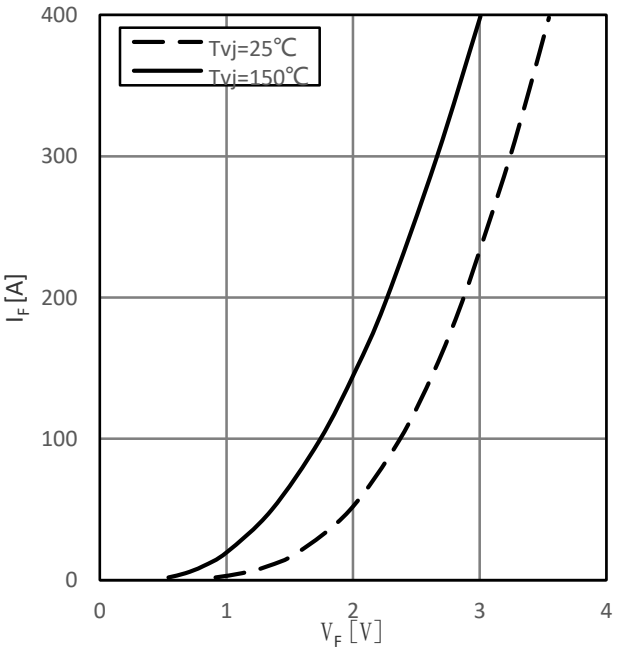


Fig.4 forward characteristic of Diode, Inverter (typical)

V_{CC}=600V，V_{CE}=±15V
R_G=10Ω

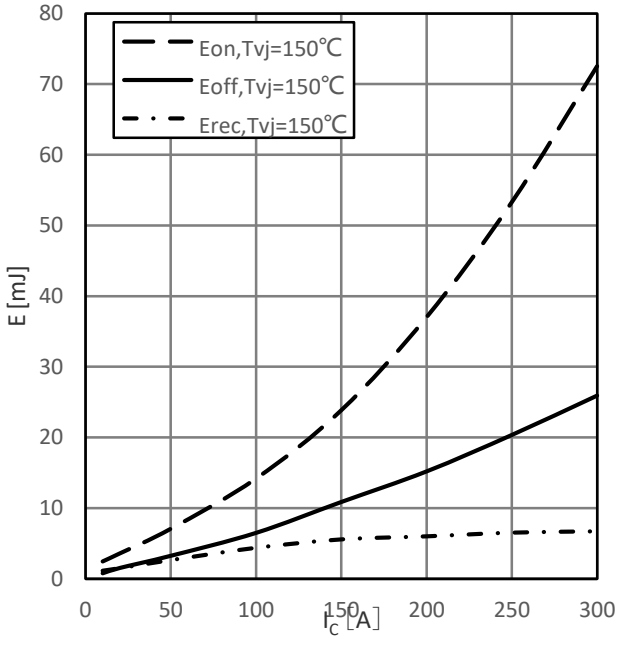


Fig.5 switching losses IGBT Inverter (typical)

V_{CC}=600V，V_{CE}=±15V
I_C=200A

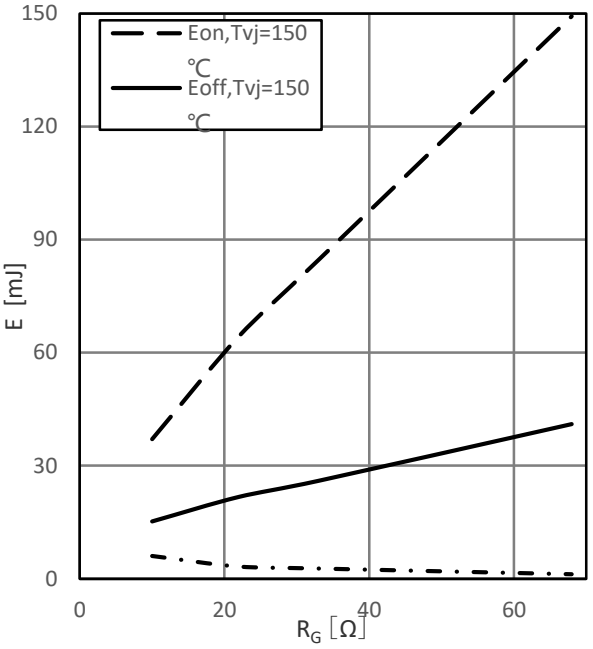


Fig.6 switching Losses vs. Gate Resistance (Typical)

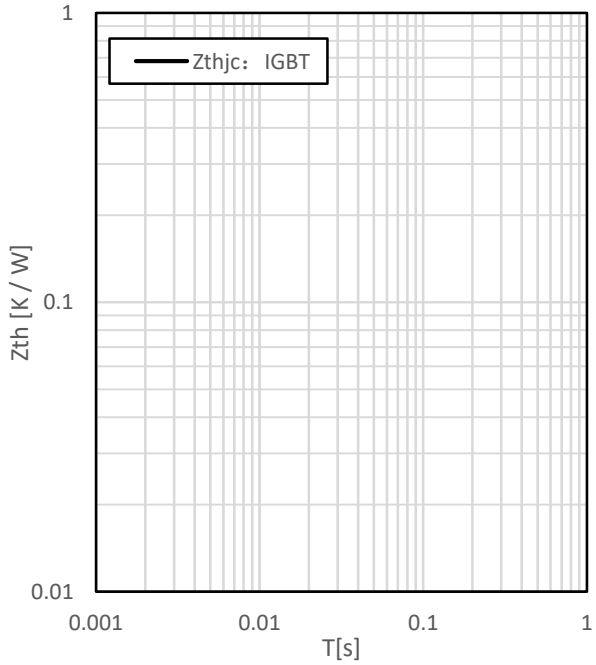


Fig.7 Transient thermal impedance IGBT

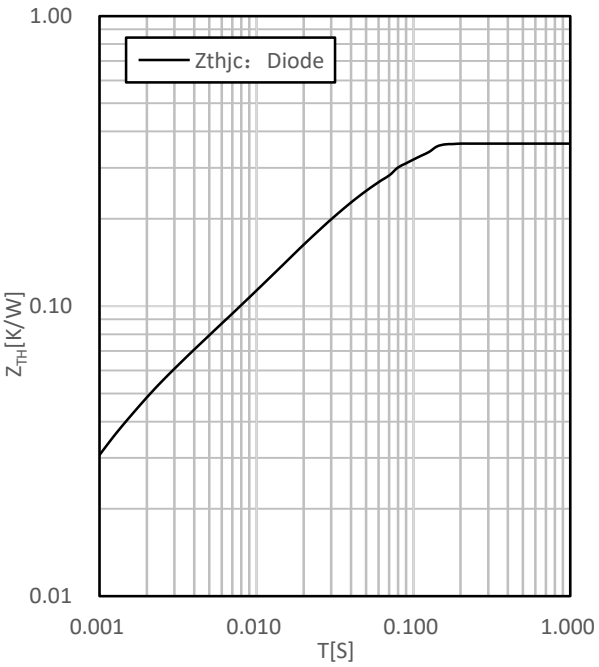
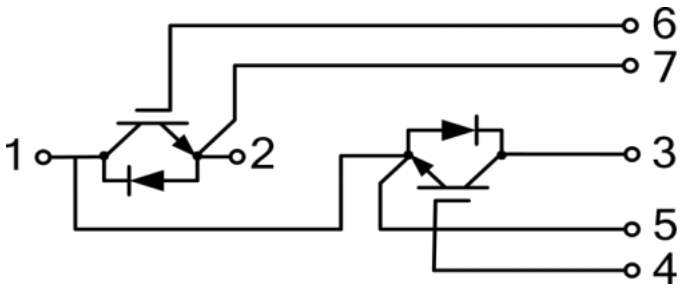
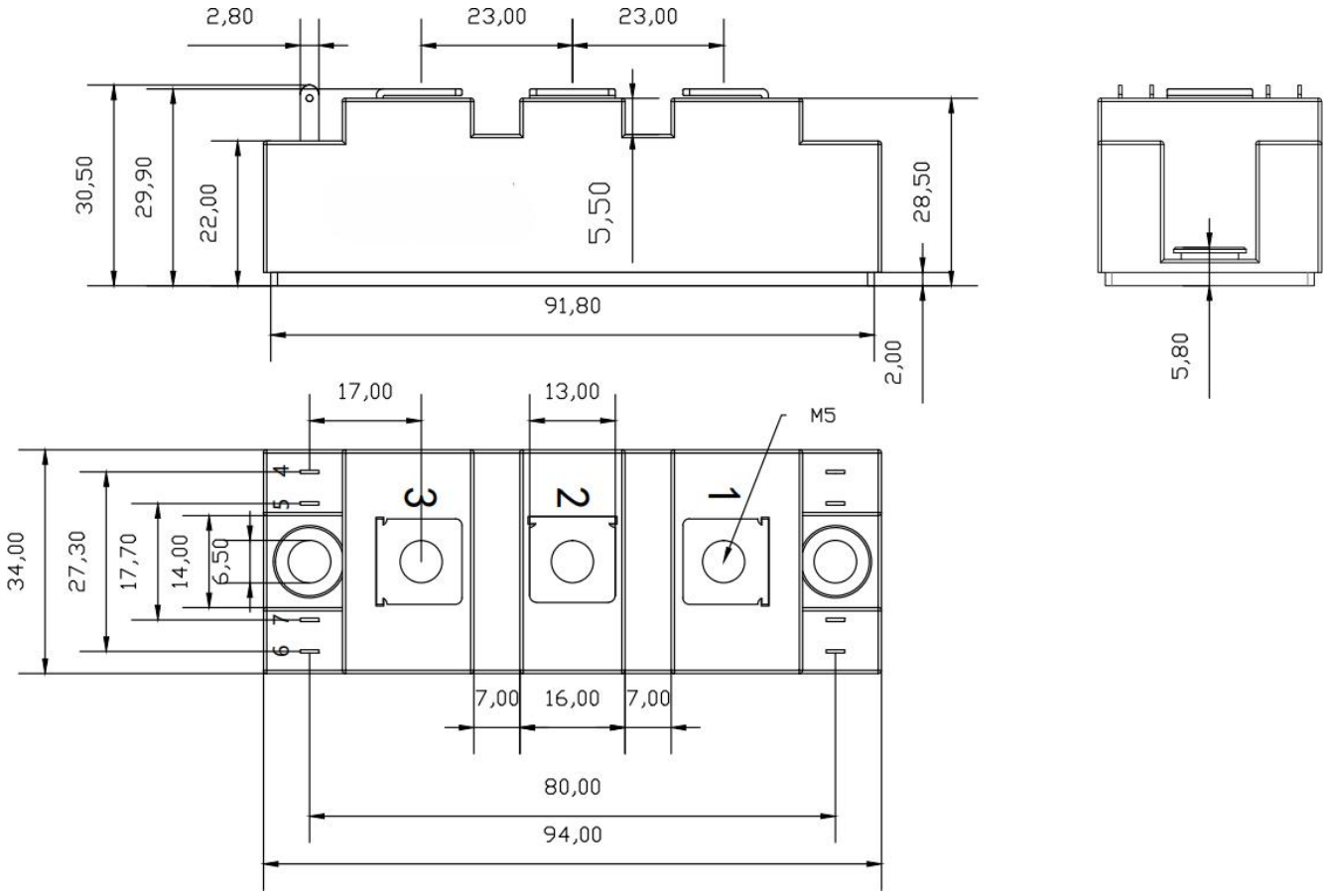


Fig.8 Transient thermal impedance Diode

Circuit Diagram



Package Outlines (Unit: mm)



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