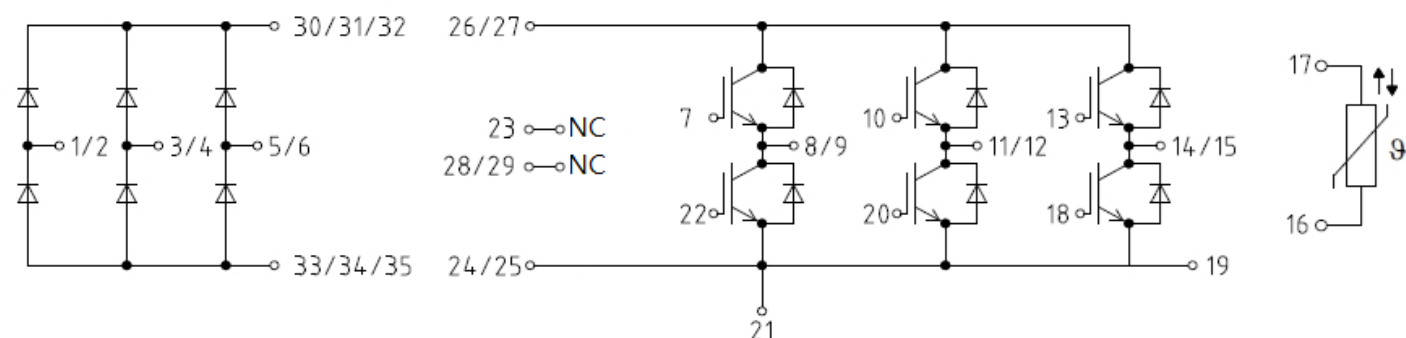
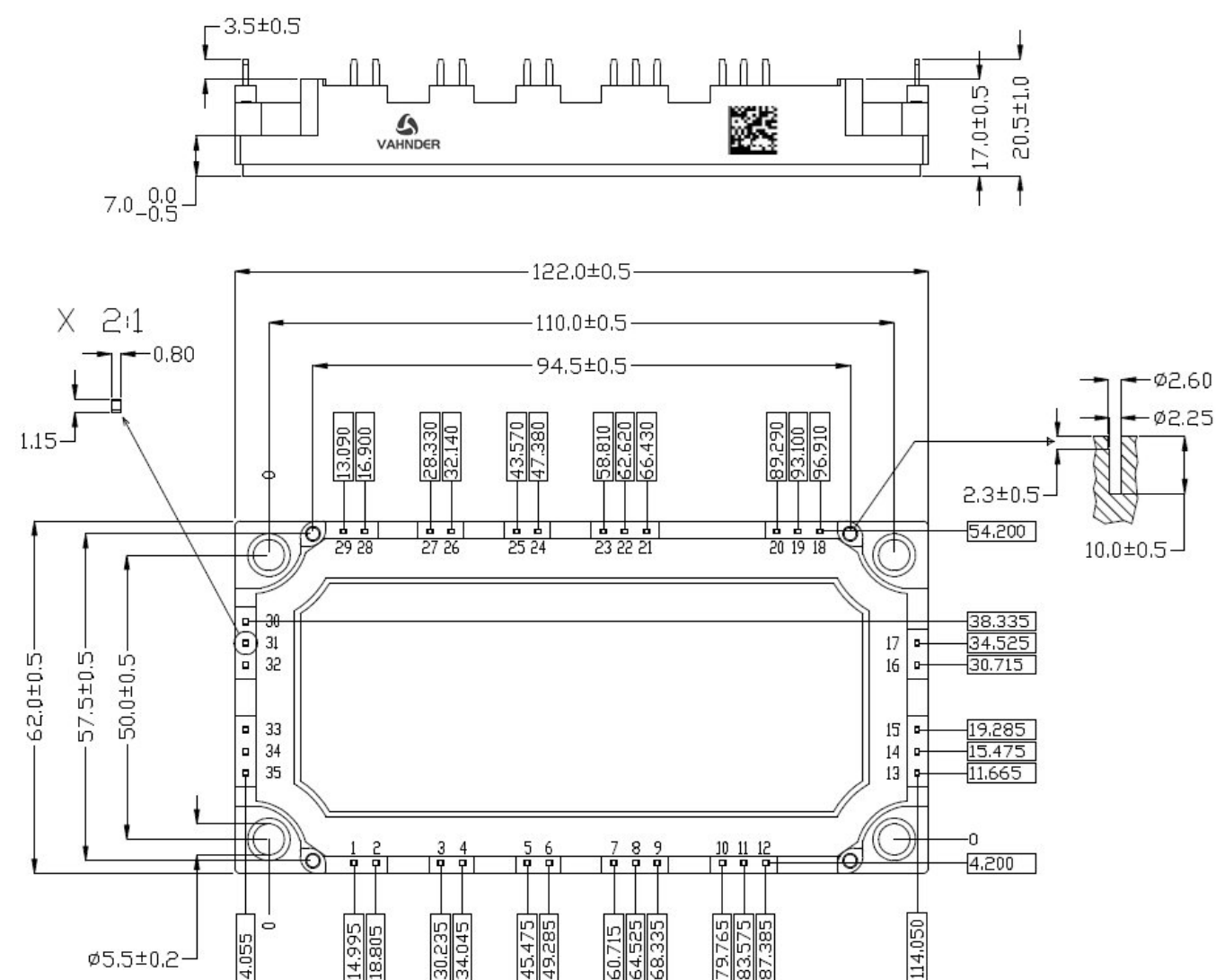


Circuit Diagram

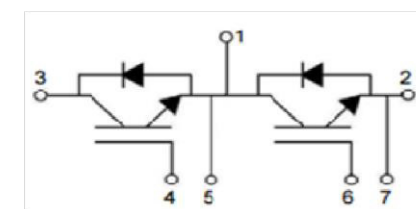


Package outlines



MG100DB120T1

1200V100A IGBT Module 34mm



Equivalent Circuit Schematic

	MG100DB120T1
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IGBT, Inverter

Maximum Rated Values

Collector-emitter voltage	T _{vj} = 25°C	V _{CES}	1200	V
Continuous DC collector current	T _C = 100°C, T _{vj} max = 150°C	I _{C nom}	100	A
Repetitive peak collector current	t _p = 1 ms	I _{CRM}	200	A
Total power dissipation	T _C = 25°C, T _{vj} max = 150 °C	P _{tot}	882	W
Gate-emitter peak voltage		V _{GES}	+/- 20	V

Characteristic value			min.	typ.	Max.		
Collector-emitter saturation voltage	I _C = 100 A, V _{GE} = 15 V	T _{vj} = 25°C	V _{CE,sat}		2.5		V
		T _{vj} = 150°C			3.2		V
Gate threshold voltage	I _C = 1 mA, V _{CE} = V _{GE} , T _{vj} = 25°C		V _{GE,th}	4.8	5.8	6.8	V
Internal gate resistor	T _{vj} = 25°C		R _{Gint}		0.9		Ω
Input capacitance	f=1MHz, T _{vj} =25°C,V _{CE} =25V, V _{GE} =0V		C _{ies}		7.2		nF
Reverse transfer capacitance	f=1MHz, T _{vj} =25°C,V _{CE} =25V, V _{GE} =0V		C _{res}		0.26		pF
Collector-emitter cut-off current	V _{CE} = 1200 V, V _{GE} = 0 V, T _{vj} = 25°C		I _{CES}			1	mA
Gate-emitter leakage current	V _{CE} = 0 V, V _{GE} = 20 V, T _{vj} = 25°C		I _{GES}			100	nA
Turn-on delay time	I _C = 100A, V _{CE} = 600V V _{GE} = +15/-15V R _{G,on} = 10Ω	T _{vj} = 25°C	T _{d,on}		43		ns
		T _{vj} = 150°C			40		ns
Rise time		T _{vj} = 25°C	T _r		75		ns
		T _{vj} = 150°C			77		ns
Turn-off delay time		T _{vj} = 25°C	T _{d,off}		288		ns
		T _{vj} = 150°C			313		ns
Fall time		T _{vj} = 25°C	T _f		134		ns
		T _{vj} = 150°C			214		ns
Turn-on energy loss per pulse		T _{vj} = 25°C	E _{on}		10.8		mJ
		T _{vj} = 150°C			17.1		mJ
Turn-off energy loss per pulse		T _{vj} = 25°C	E _{off}		4.3		mJ
		T _{vj} = 150°C			5.9		mJ
Thermal resistance, junction to case			R _{θJC}			0.17	K/W

Electrical Characteristics of Diode

Static characteristics

Forward Voltage	I _F = 100A, V _{GE} = 0 V	T _{vj} = 25°C	V _{FM}	2.2		V
		T _{vj} = 150°C		1.8		

	MG100DB120T1
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Characteristic value

Peak reverse recovery current	I _F = 100A, (T _{vj} = 150°C), V _R = 600V V = 15V L = 525 uH R _{G,on} = 10Ω	T _{vj} = 25°C	I _{RM}		49.8		A
		T _{vj} = 150°C			72.7		
Recovered charge		T _{vj} = 25°C	Q _r		4.7		μC
		T _{vj} = 150°C			12.2		
Reverse recovery energy		T _{vj} = 25°C	E _{rec}		1.8		mJ
		T _{vj} = 150°C			3.1		
Thermal resistance, junction to case	Per diode		R _{th,JC}		0.3		K/W

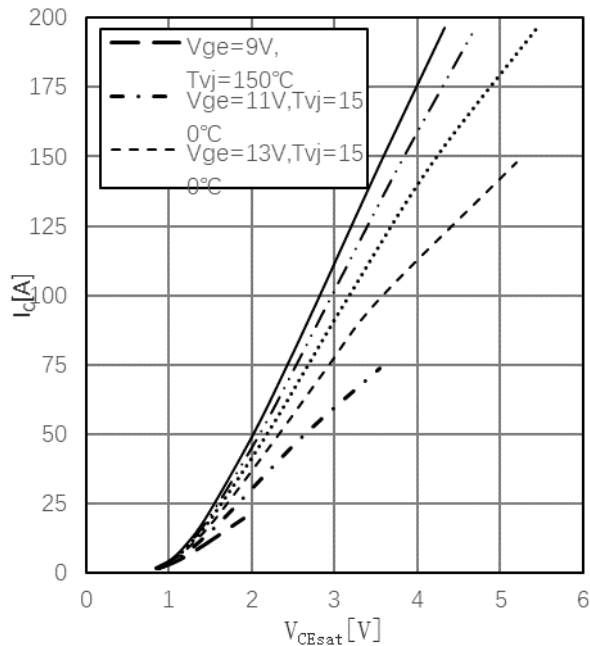


Fig.1 output characteristic IGBT Inverter (typical)

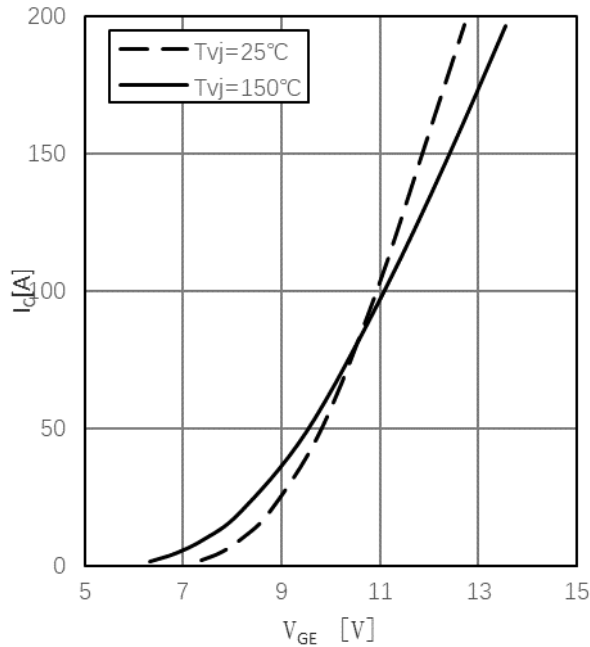


Fig.3 transfer characteristic IGBT Inverter (typical)

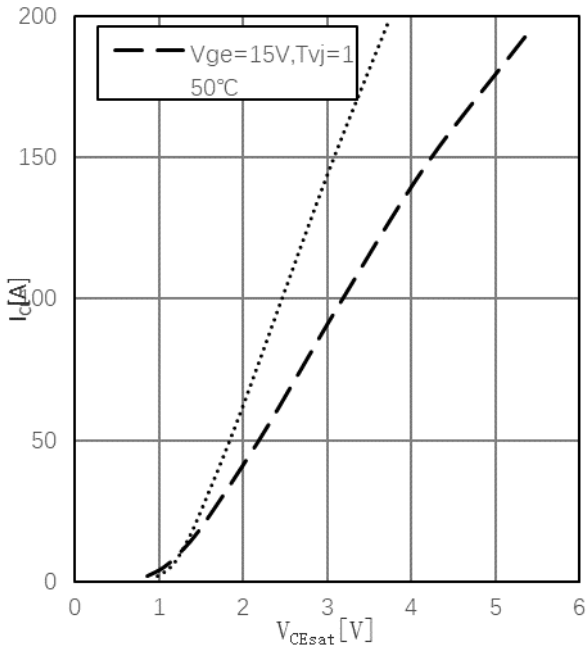


Fig.2 output characteristic IGBT Inverter (typical)

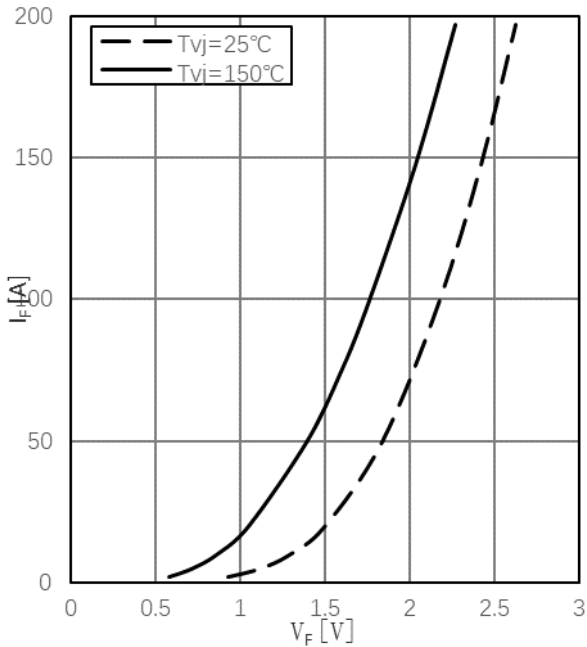


Fig.4 forward characteristic of Diode, Inverter (typical)

$V_{CC}=600V$, $V_{CE}=\pm 15V$
 $R_G=10\Omega$

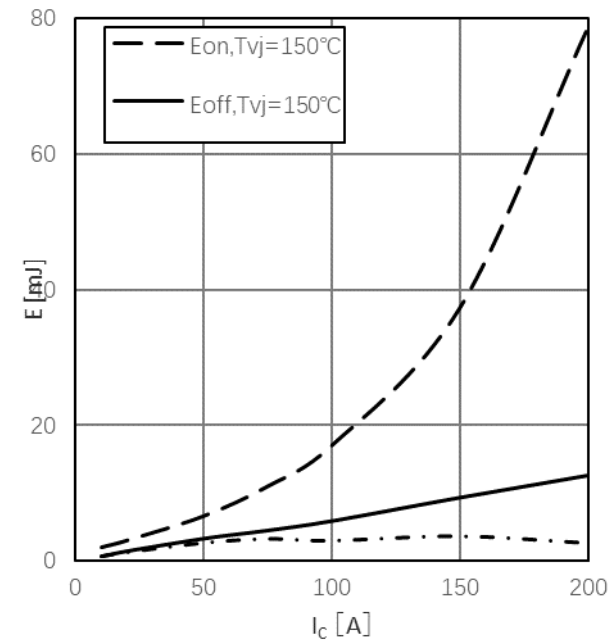


Fig.5 switching losses IGBT Inverter (typical)

$V_{CC}=600V$, $V_{CE}=\pm 15V$
 $I_C=100A$

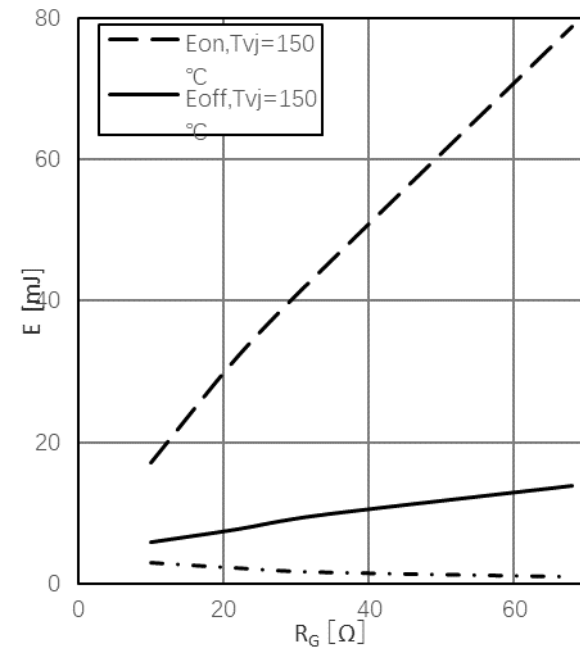


Fig.6 switching Losses vs. Gate Resistance (Typical)

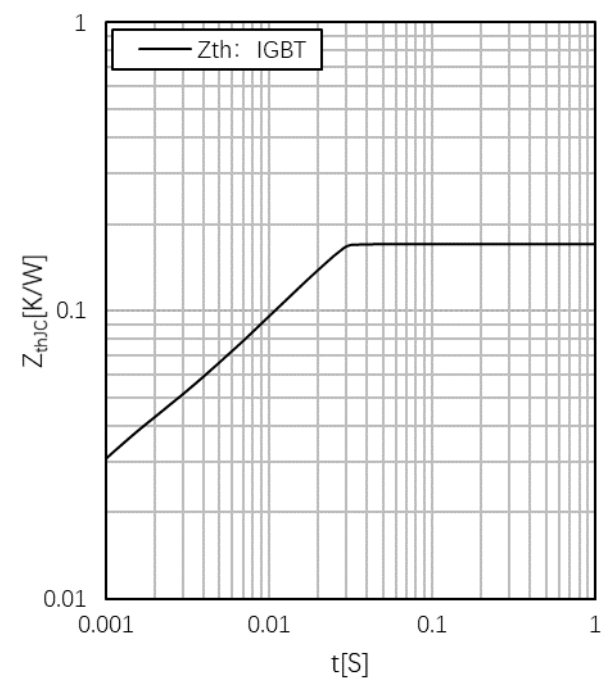


Fig.7 Transient thermal impedance IGBT

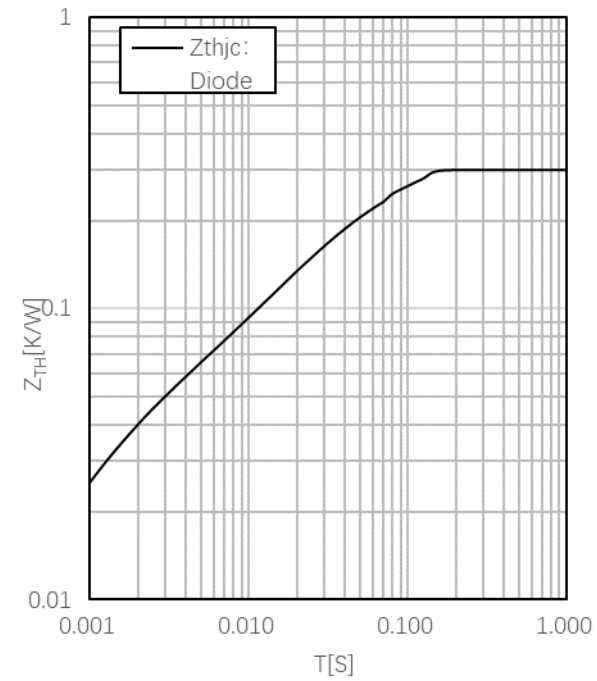
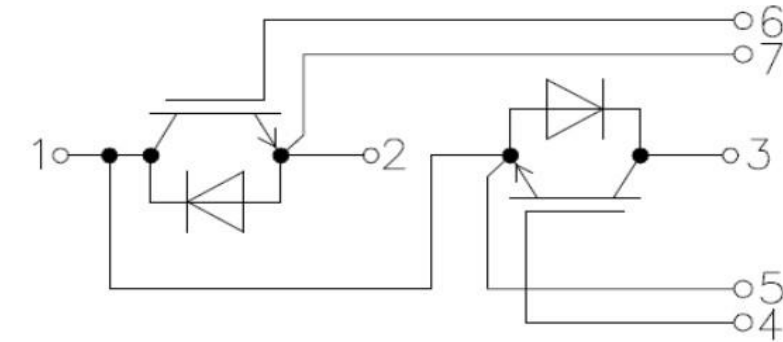


Fig.8 Transient thermal impedance Diode

Internal Circuit:



Package Outline (Unit: mm):

