

IGBT MODULE (S series)

1200V / 35A / PIM

■ Features

- Low $V_{CE(sat)}$
- Compact package
- P.C. board mount
- Converter diode bridge, Dynamic brake circuit



■ Applications

- Inverter for motor drive
- AC and DC servo drive amplifier
- Uninterruptible power supply

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

■ Maximum ratings and characteristics

● Absolute maximum ratings ($T_c=25^\circ\text{C}$ unless without specified)

Item		Symbol	Condition		Rating	Unit	
Inverter	Collector-Emitter voltage	V _{CES}			1200	V	
	Gate-Emitter voltage	V _{GES}			±20	V	
	Collector current	I _C	Continuous	T _C =25°C	50	A	
				T _C =80°C	35		
		I _{CP}	1ms	T _C =25°C	100	A	
				T _C =80°C	70		
-I _C			35	A			
Collector power dissipation		P _C	1 device		240	W	
Brake	Collector-Emitter voltage	V _{CES}			1200	V	
	Gate-Emitter voltage	V _{GES}			±20	V	
	Collector current	I _C	Continuous	T _C =25°C	35	A	
				T _C =80°C	25		
		I _{CP}	1ms	T _C =25°C	70	A	
				T _C =80°C	50		
	Collector power dissipation		P _C	1 device		180	W
Repetitive peak reverse voltage		V _{R_{RRM}}			1200	V	
Converter	Repetitive peak reverse voltage		V _{R_{RRM}}		1600	V	
	Average output current		I _O		50Hz/60Hz sine wave	35	A
	Surge current (Non-Repetitive)		I _{FSM}		T _J =150°C, 10ms	360	A
	I ² t (Non-Repetitive)		I ² t		half sine wave	648	A²s
Operating junction temperature		T _J				+150	°C
Storage temperature		T _{stg}				-40 to +125	°C
Isolation voltage	between terminal and copper base *2	V _{iso}	AC : 1 minute		AC 2500	V	
	between thermistor and others *3				AC 2500		
Mounting screw torque				3.5 *1		N·m	

*1 Recommendable value : 2.5 to 3.5 N·m (M5)

*2 All terminals should be connected together when isolation test will be done.

*3 Terminal 8 and 9 should be connected together. Terminal 1 to 7 and 10 to 24 should be connected together and shorted to copper base.

● Electrical characteristics (T_j=25°C unless otherwise specified)

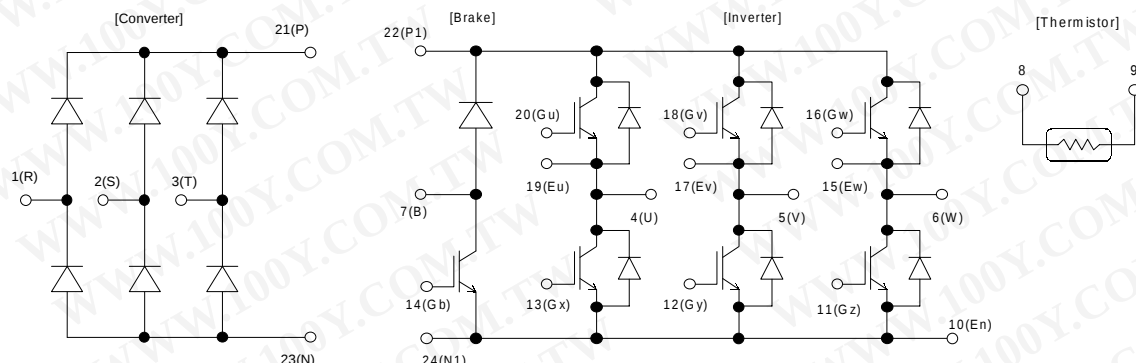
Item		Symbol	Condition		Characteristics			Unit
					Min.	Typ.	Max.	
Inverter	Zero gate voltage collector current	ICES	VCE=1200V, VGE=0V				1.0	mA
	Gate-Emitter leakage current	IGES	VCE=0V, VGE=±20V				0.2	μA
	Gate-Emitter threshold voltage	VGE(th)	VCE=20V, Ic=35mA		5.5	7.2	8.5	V
	Collector-Emitter saturation voltage	VCE(sat)	VGE=15V, Ic=35A	chip		2.1		V
				terminal		2.25	2.7	
	Input capacitance	Cies	VGE=0V, VCE=10V, f=1MHz			4200		pF
	Turn-on time	ton	VCC=600V			0.35	1.2	μs
		tr	Ic=35A			0.25	0.6	
		tr(i)	VGE=±15V			0.1		
	Turn-off	toff	RG=33Ω			0.45	1.0	
		tr				0.08	0.3	
	Forward on voltage	VF	IF=35A	chip		2.3		V
			terminal		2.45	3.3		
Reverse recovery time of FRD	trr	IF=35A				0.35	μs	
Brake	Zero gate voltage collector current	ICES	VCE=1200V, VGE=0V				1.0	mA
	Gate-Emitter leakage current	IGES	VCE=0V, VGE=±20V				0.2	μA
	Collector-Emitter saturation voltage	VCE(sat)	Ic=25A, VGE=15V	chip		2.1		V
				terminal		2.25	2.7	
	Turn-on time	ton	VCC=600V			0.35	1.2	μs
		tr	Ic=25A			0.25	0.6	
	Turn-off time	toff	VGE=±15V			0.45	1.0	
		tr	RG=51Ω			0.08	0.3	
	Reverse current	I _{RRM}	VR=1200V				1.0	mA
Converter	Forward on voltage	VFM	IF=35A	chip		1.1		V
				terminal		1.2	1.5	
Reverse current	I _{RRM}	VR=1600V				1.0	mA	
Thermistor	Resistance	R	T=25°C			5000		Ω
			T=100°C		465	495	520	
	B value	B	T=25/50°C		3305	3375	3450	K

● Thermal resistance Characteristics

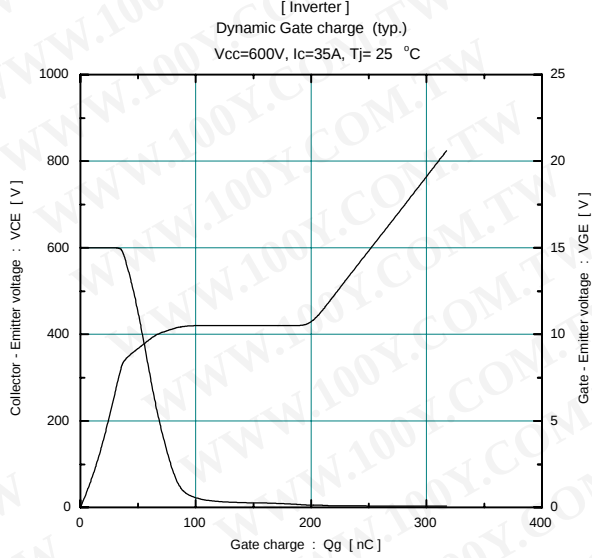
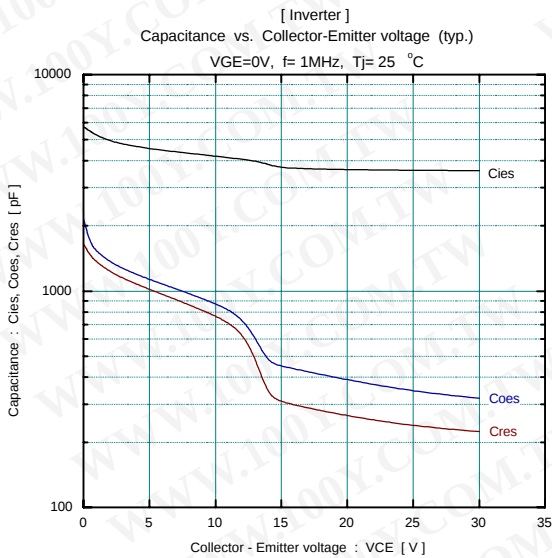
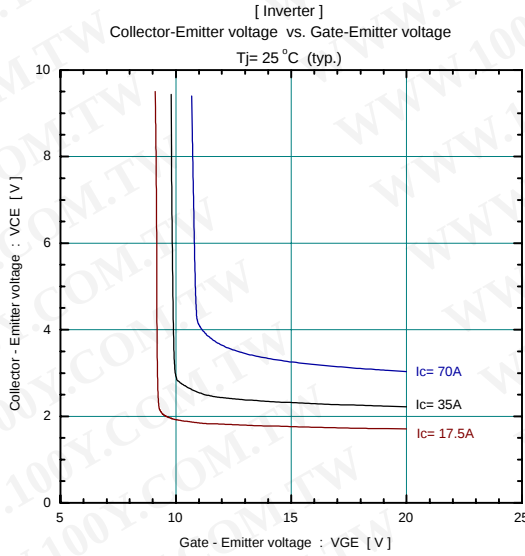
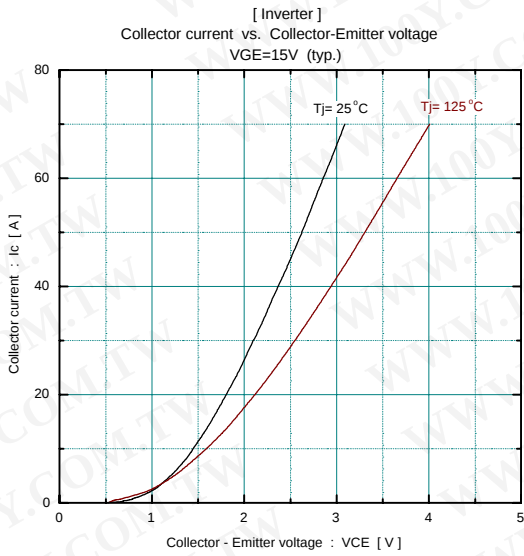
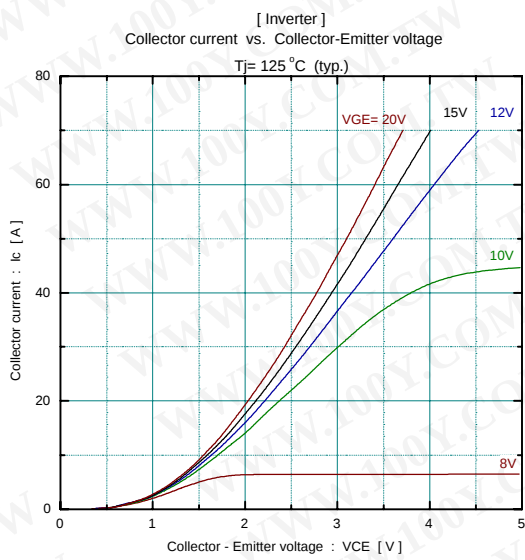
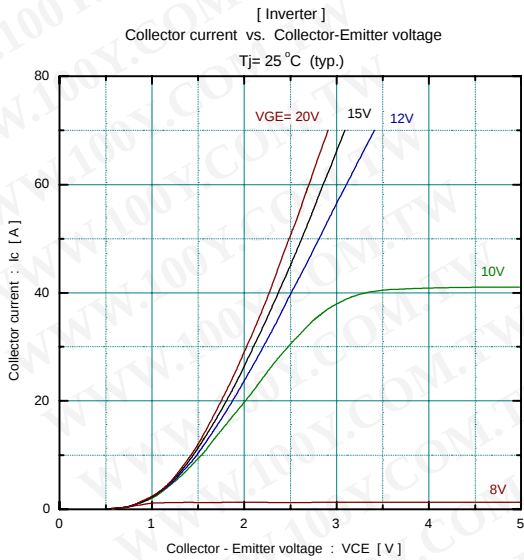
Item	Symbol	Condition	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance (1 device)	Rth(j-c)	Inverter IGBT			0.52	°C/W
		Inverter FWD			0.90	
		Brake IGBT			0.69	
		Converter Diode			0.75	
Contact thermal resistance *	Rth(c-f)	With thermal compound		0.05		

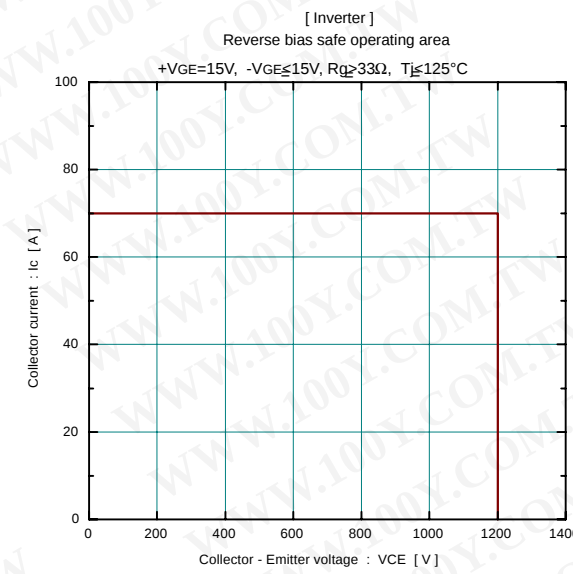
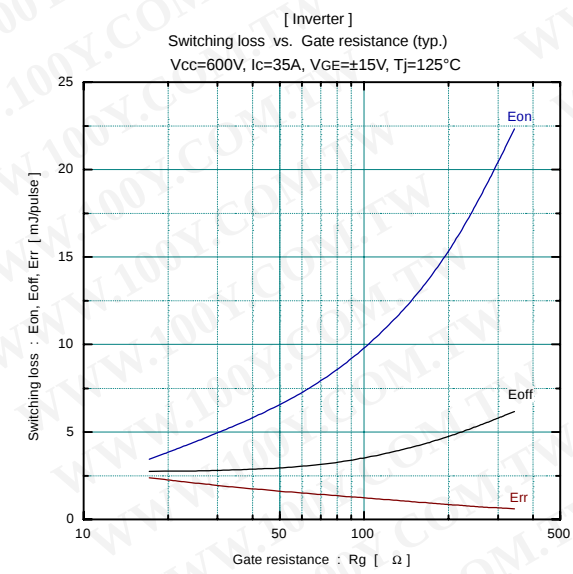
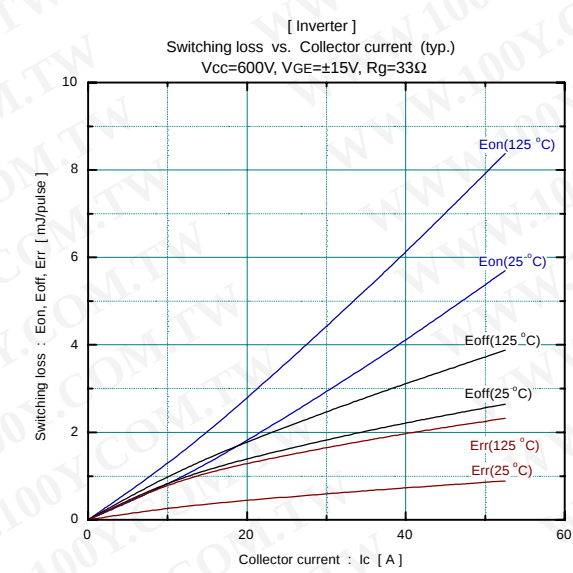
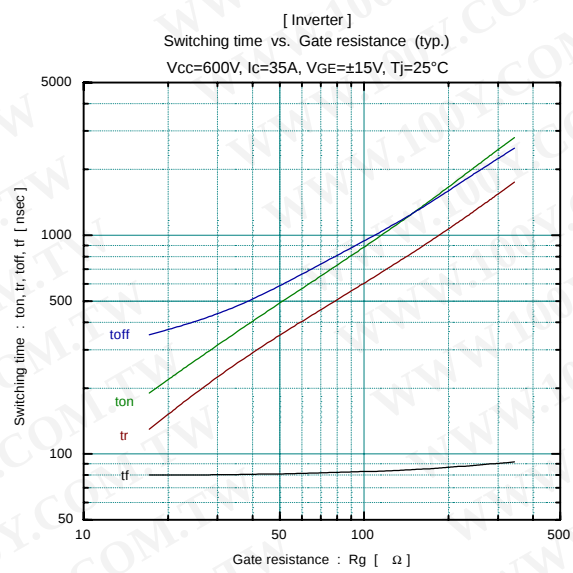
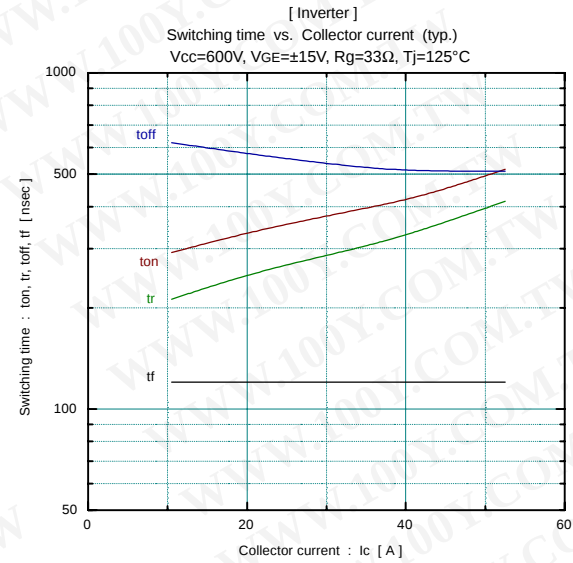
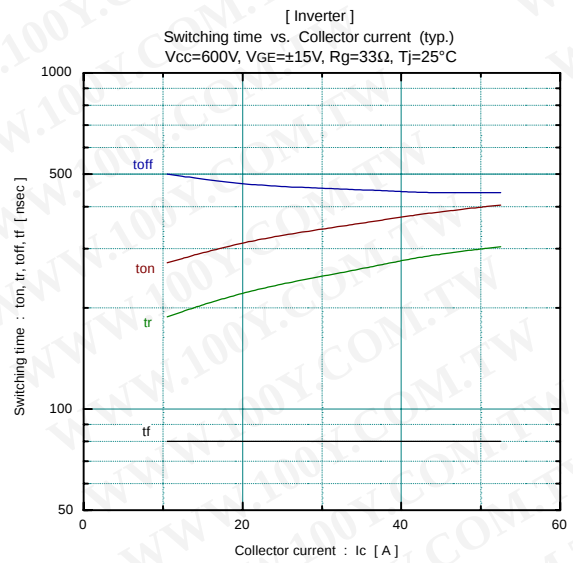
* This is the value which is defined mounting on the additional cooling fin with thermal compound

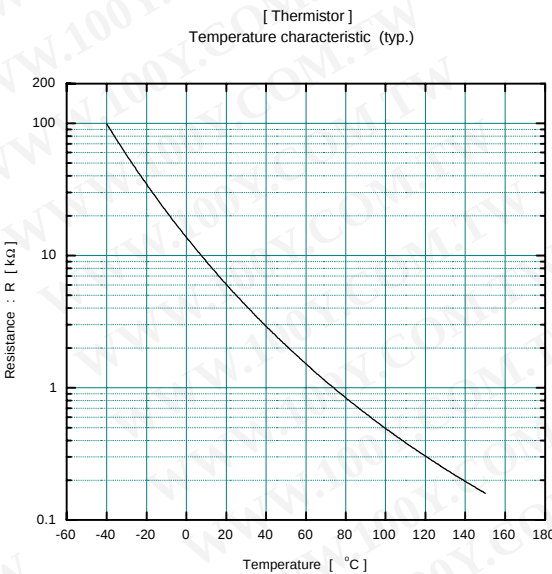
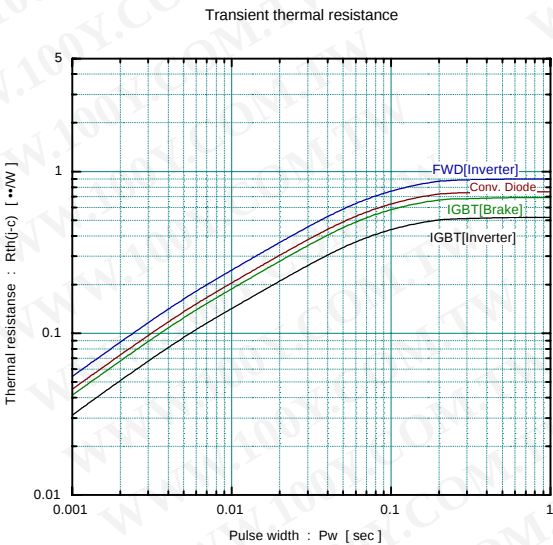
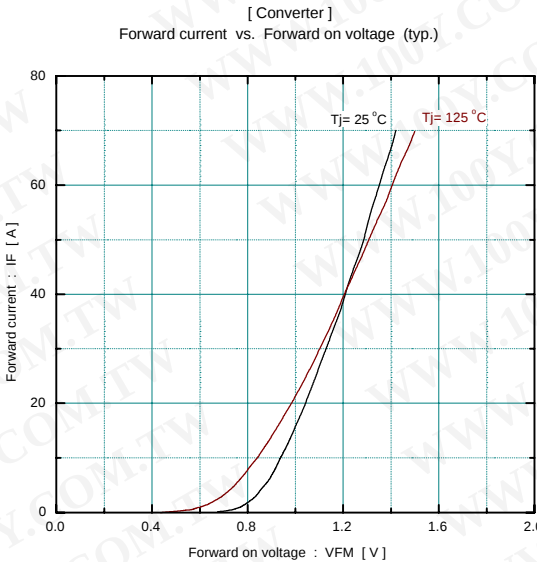
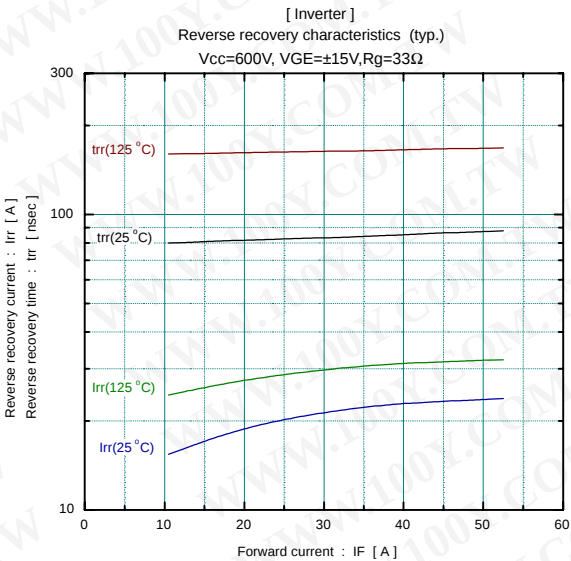
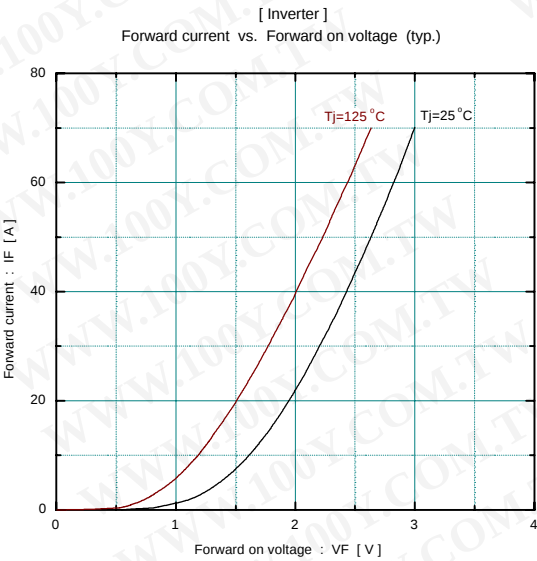
■ Equivalent Circuit Schematic

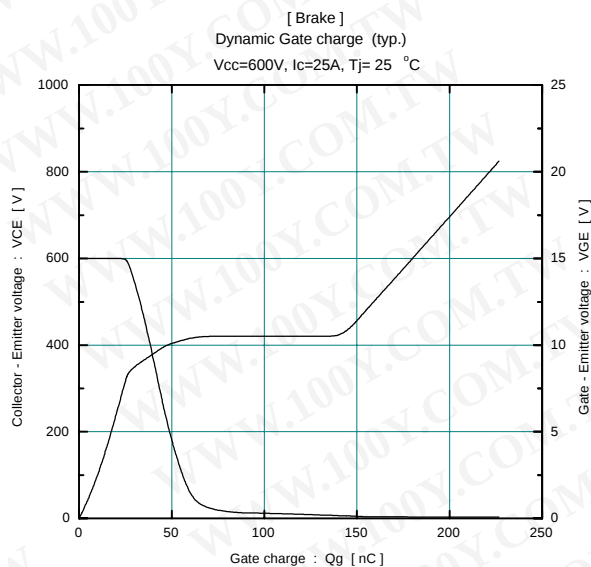
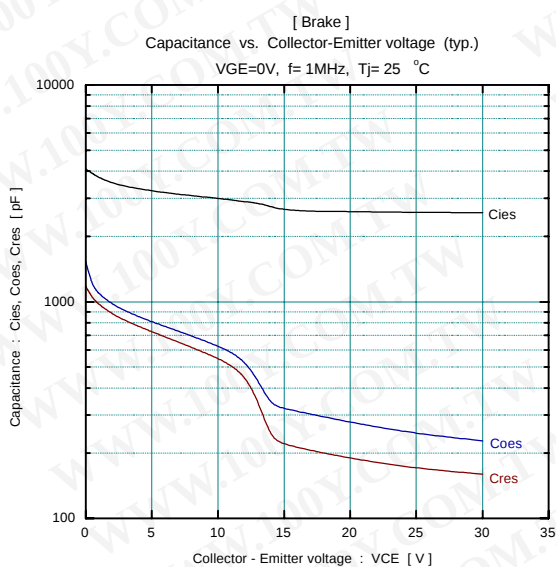
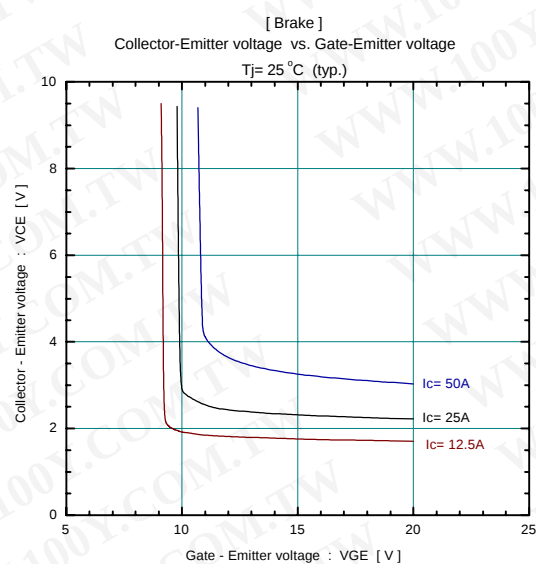
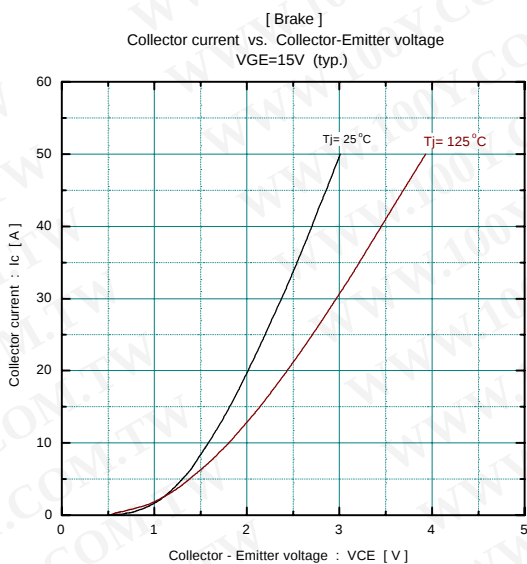
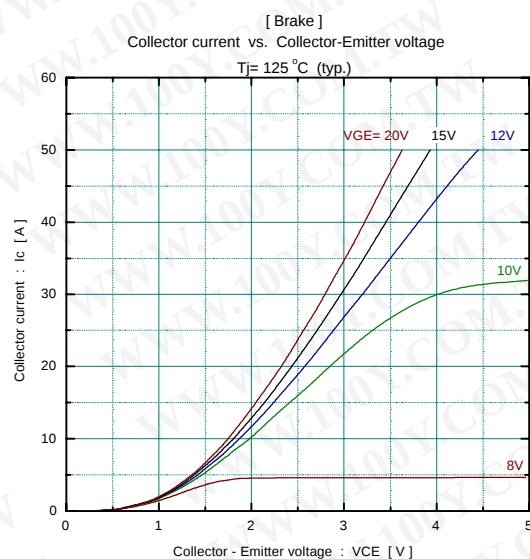
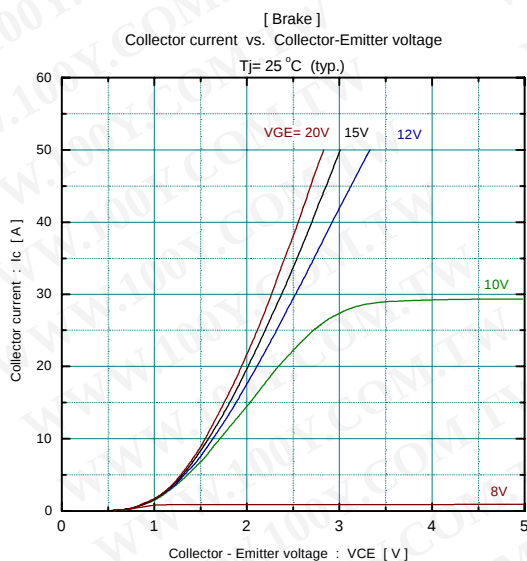


■ Characteristics (Representative)

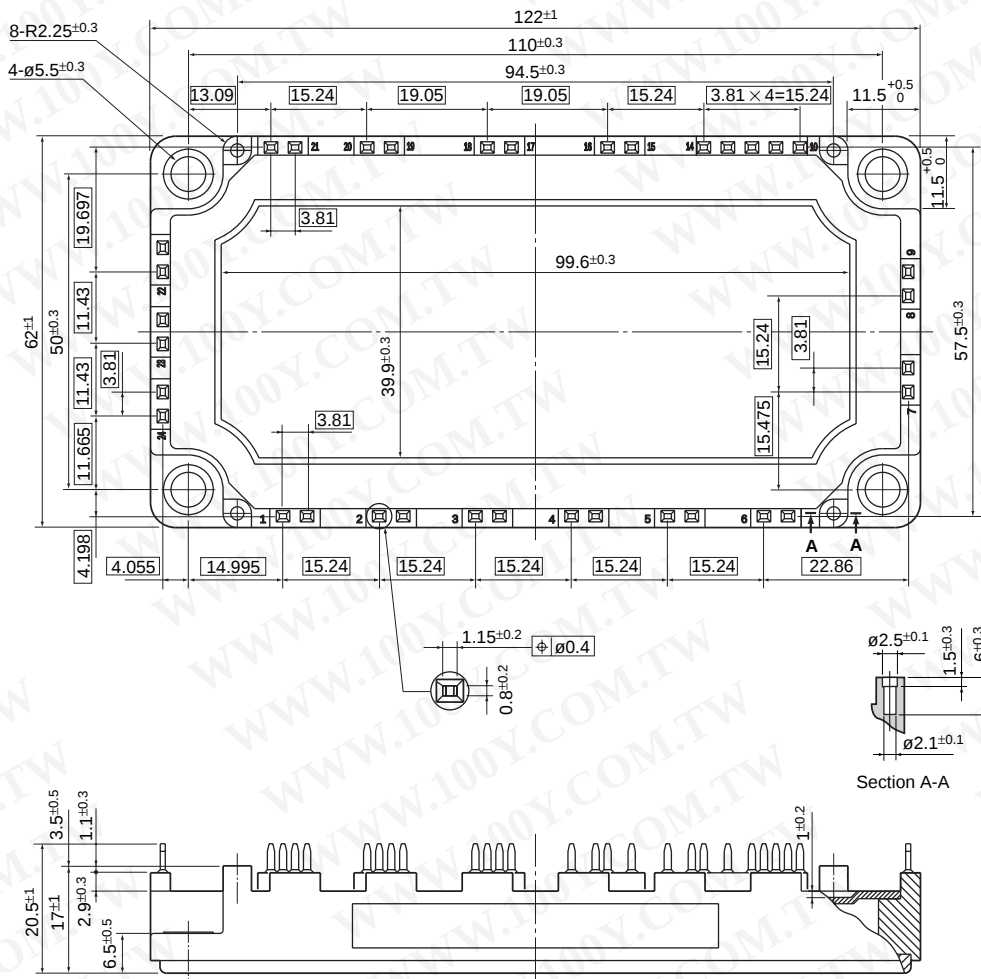








■ Outline Drawings, mm



☐ Shows theory dimensions