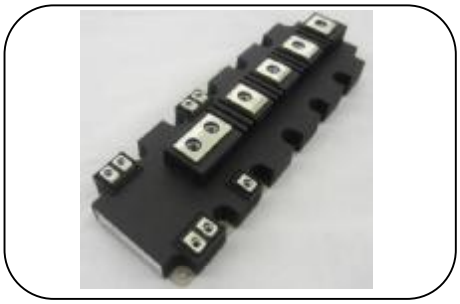


Features：

- Cu baseplate
- Enhanced Al_2O_3 substrates
- High thermal cycling capability
- Low VCE(sat) Device

Typical Applications：

- Motor drives
- High power converters
- Wind turbines
- High reliability inverter

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE			UNIT
			Min	Type	Max	
V_{CES}	Collector-Emitter voltage	T_j=25°C			1700	V
V_{GES}	Gate-Emitter voltage	T_j=25°C			±20	V
I_C	Collector current	T_c=100°C			1400	A
I_{CM}	Repetitive peak collector current	t_P=1ms			2800	A
P_{max}	Max. transistor power dissipation	T_{vj}=175°C, T_C=25 °C			8.98	KW
T_j	Junction temperature	/			150	℃
T_{stg}	Storage temperature	/	-40		150	℃
V_{iso}	Isolation between terminal and copper base	T_j=25°C , AC：1minute	4000			V
I_{CES}	Zero gate voltage collector current	T_j=25°C ,V_{CE}=1700V，V_{GE}=0V			1	mA
I_{GES}	Gate-Emitter leakage current	T_j=25°C ,V_{CE}=0V，V_{GE}=±20V			0.5	μA
$V_{GE(th)}$	Gate-Emitter threshold voltage	T_j=25°C ,V_{CE}=20V，I_C=60mA	5.5	6.1	6.7	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	T_j=25°C ,V_{GE}=15V，I_C=1400A		1.75	2.15	V
		T_j=125°C ,V_{GE}=15V，I_C=1400A		2.00		V
		T_j=150°C ,V_{GE}=15V，I_C=1400A		2.10		V
Q_g	Gate Charge	V_{GE}=±15V		15.6		μC
C_{ies}	Input capacitance	T_j=25°C ,V_{CE}=25V，V_{GE}=0V，f=100kHz		215		nF
C_{res}	Reverse transfer capacitance			1.2		nF
$t_{(d)on}$	Turn-on time	T_j=150°C, V_{CE}=900V，I_C=1400A，V_{GE}=±15V，R_g=0.5Ω，Inductive load		700		ns
t_r				150		ns
$t_{(d)off}$	Turn-off time	T_j=150°C, V_{CE}=900V，I_C=1400A，V_{GE}=±15V，R_g=0.68Ω，Inductive load		1500		ns
t_f				725		ns
E_{ON}	Turn-on energy loss	T_j=150°C, V_{CE}=900V，I_C=1400A，V_{GE}=±15V，R_g=0.5Ω，Inductive load		220		mJ
E_{off}	Turn-off energy loss	T_j=150°C, V_{CE}=900V，I_C=1400A，V_{GE}=±15V，R_g=0.68Ω，Inductive load		670		mJ
I_{sc}	Short circuit current	V_{GE}=15V, V_{CC}=1000V, T_j=150°C		6000		A
tsc	Short circuit withstand time	T_j=150°C ,V_{CC}=720V,V_{GE}=±15V，R_g=7.5Ω	10			μs

V_F	Forward on voltage	T_j=25°C ,I_F=1400A		1.80	2.20	V
		T_j=125°C ,I_F=1400A		1.90		V
		T_j=150°C ,I_F=1400A		1.95		V
I_{RM}	Max reverse recovery current	T_j=150°C ,I_F=1400A,V_R=900V		1410		A
Qrr	Diode reverse recovery charge	T_j=150°C ,I_F=1400A,V_R=900V		556		μC
E_{rec}	Reverse recovery energy	T_j=150°C ,I_F=1400A,V_R=900V		410		mJ
t_{rr}	Reverse recovery time	T_j=150°C ,I_F=1400A		280		ns
$R_{th(j-c)}$	Thermal resistance(per chip)	IGBT			16.7	K/kW
		FWD			33.6	K/kW
$R_{th(c-H)}$	Thermal resistance – case to heatsink	IGBT			12	K/kW
		FWD			12	K/kW
R_{25}	Resistance	T_{VJ}=25°C		5		kΩ
△R/R	Deviation of R100	T_C=100°C, R_{100}=493W	-5		5	%
P_{25}	Power dissipation	T_C=25°C		20		mW
$B_{25/50}$	B-value	$R_2=R_{25}$ exp [$B_{25/50}$(1/T_2-1/(298,15K))]		3375		K
$B_{25/80}$		$R_2=R_{25}$ exp [$B_{25/80}$(1/T_2-1/(298,15K))]		3411		K
$B_{25/100}$		$R_2=R_{25}$ exp [$B_{25/100}$(1/T_2-1/(298,15K))]		3433		K
F_m	Mounting torque(M5)		3		6	Nm
	Terminal connection torque(M4)		1.8		2.1	Nm
	Terminal connection torque(M8)		8		10	Nm
Outline	1401H3P					

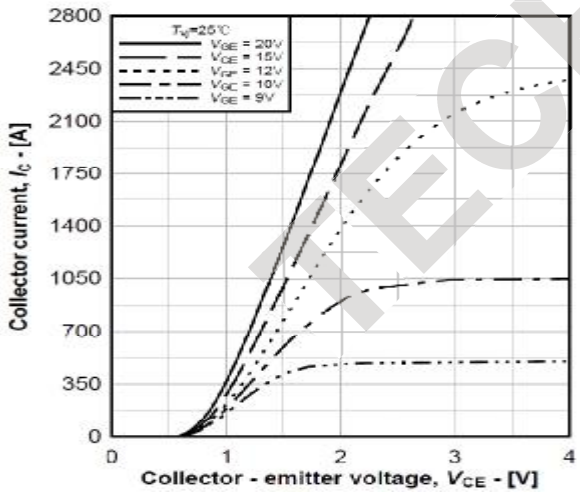


Fig.1 Typical IGBT output characteristics, I_C= f (V_{CE})

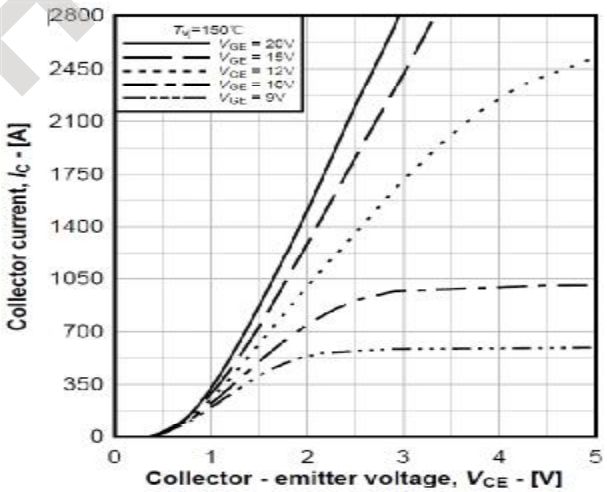


Fig.2 Typical IGBT output characteristics, IC= f (VCE)

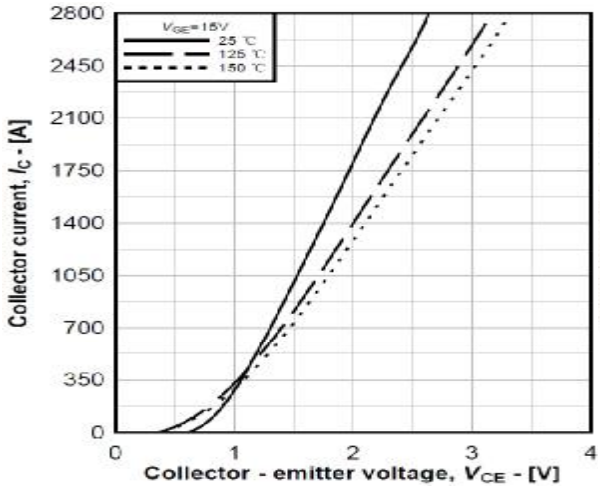


Fig.3 Typical IGBT output characteristics, *IC= f (VCE)*

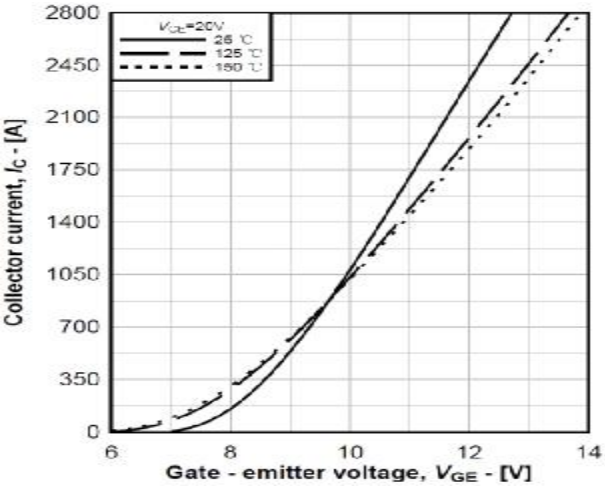


Fig.4 Typical IGBT transfer characteristics, *IC= f (VGE)*

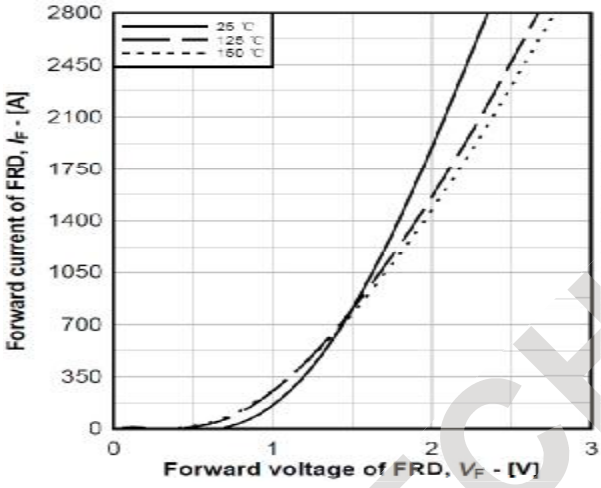


Fig.5 Typical FRD output characteristics, I_F= f (V_F)

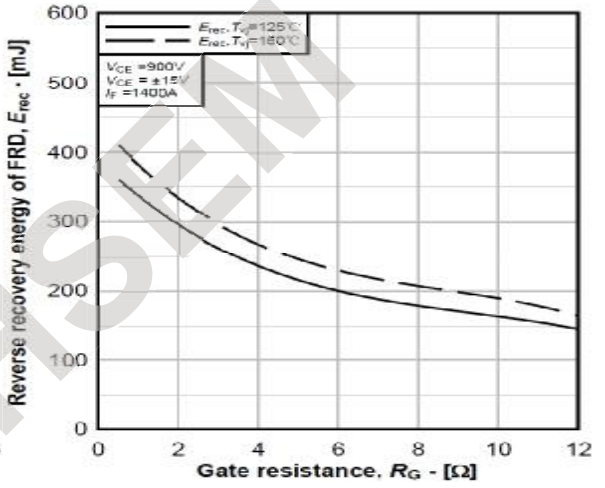


Fig.6 Typical FRD E_{rec}, E_{rec}=f(R_G)

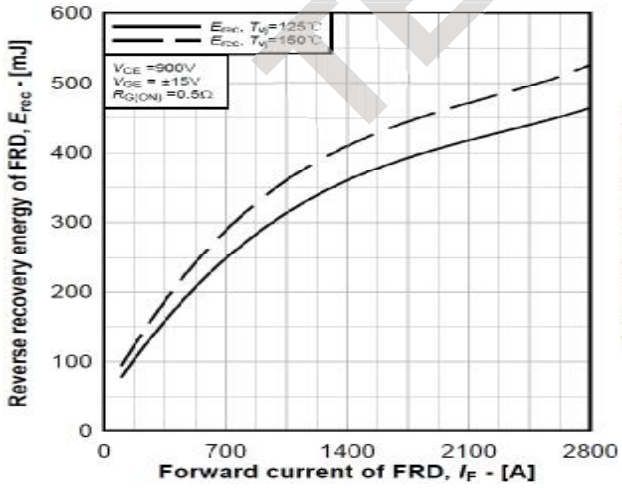


Fig.7 Typical FRD E_{rec}, E_{rec}=f(I_F)

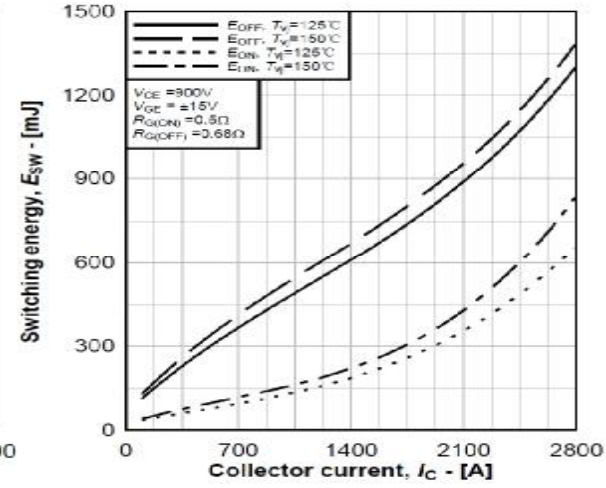


Fig.8 Typical IGBT switching energy, E_{on}= f (I_C), E_{off}= f (I_C)

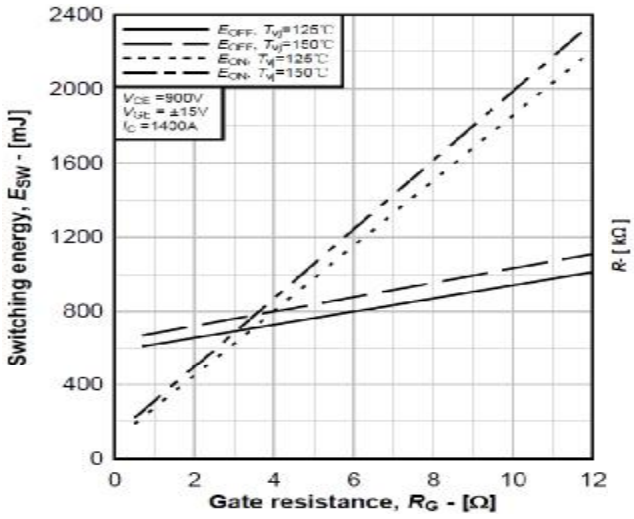


Fig.9 Typical IGBT switching energy,E_{on}= f(R_G), E_{off}= f (R_G)

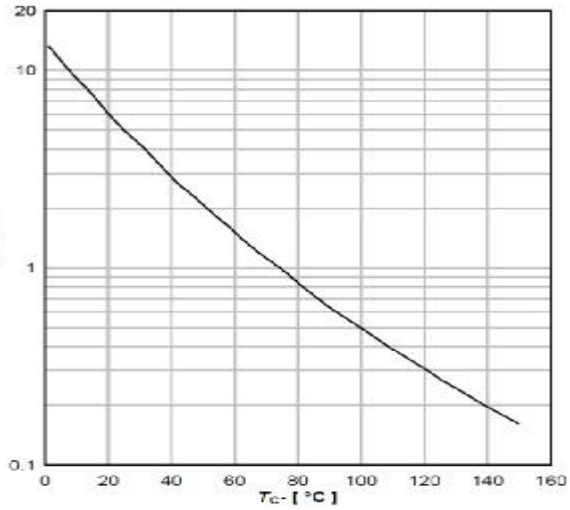


Fig.10 Typical NTC thermistor characteristic,R= f(TC)

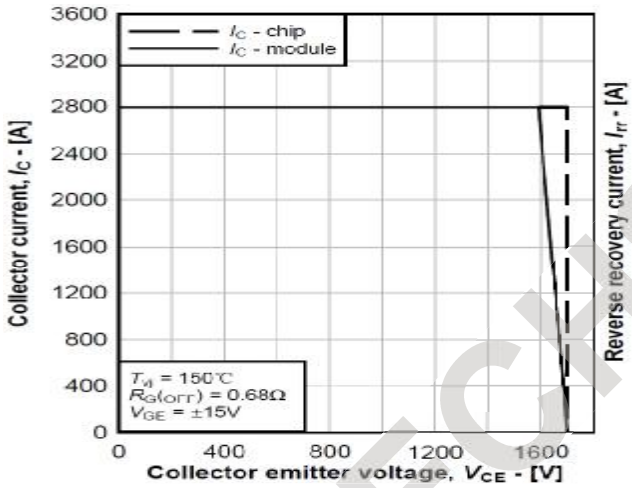


Fig.11 Reverse bias safe operating area of IGBT,*IC = f (VCE)*

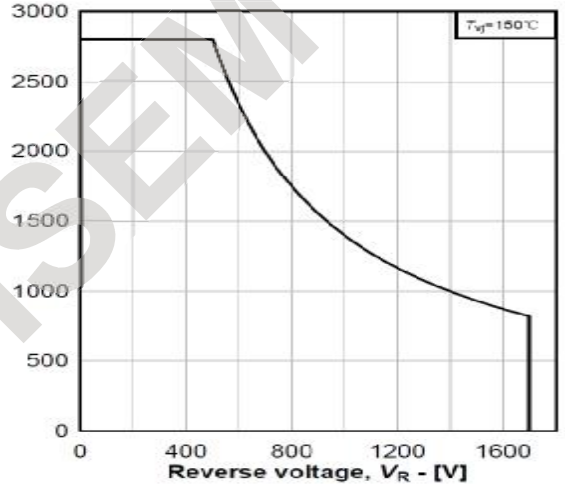


Fig.12 Reverse bias safe operating area ofFRD,*Irr = f (VR)*

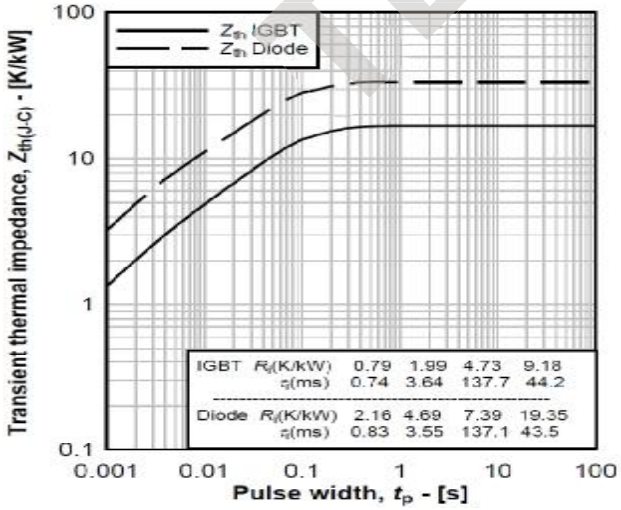
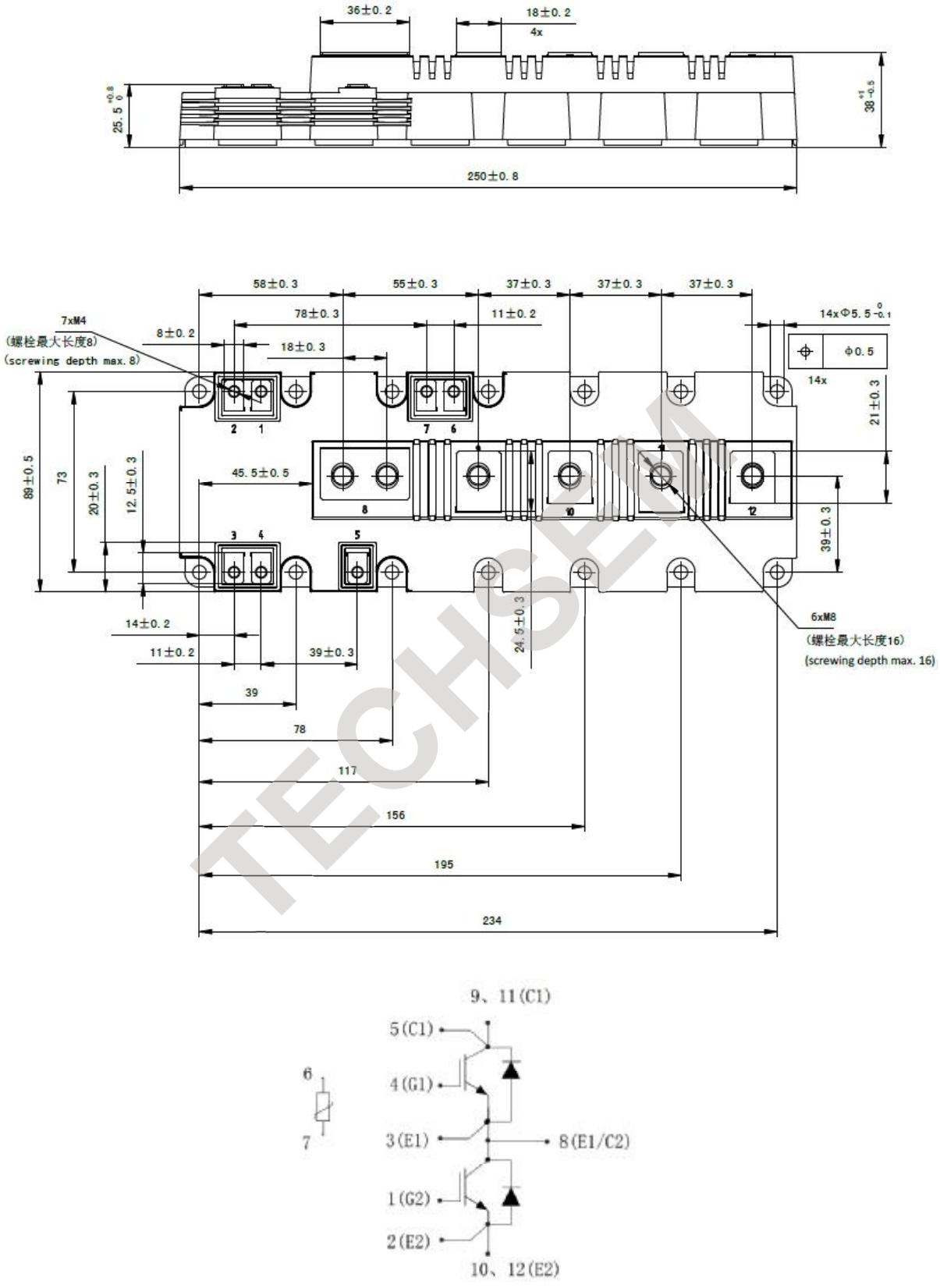


Fig.13 Transient thermal impedance,$Z_{th(J-C)}$ = f (t_p)

Outline:



Unmarked dimensional tolerance：±0.5mm

TECHSEM reserves the right to change specifications without notice.