Features：

- 1200V Trench+ Field Stop technology
- Freewheeling diodes with fast and soft reverse recovery
- VCE(sat) with positive temperature coefficient
- Low switching losses
- Short circuit ruggedness

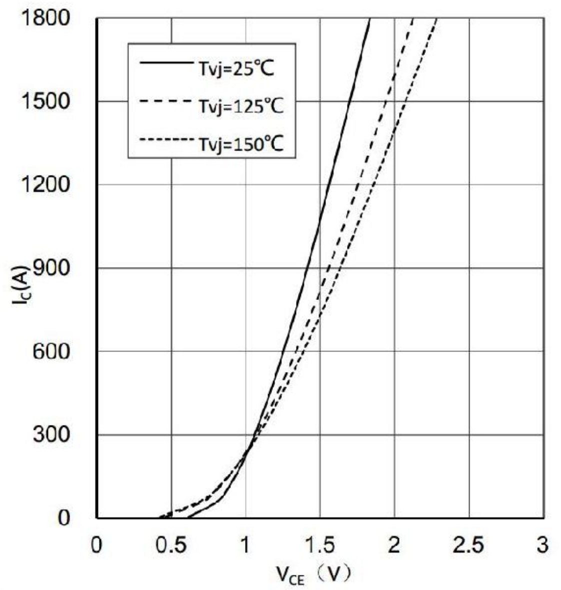
Typical Applications：

- Motor/Servo Drives
- Wind Turbines Converters
- PV Inverters
- Energy Storage Converters
- UPS

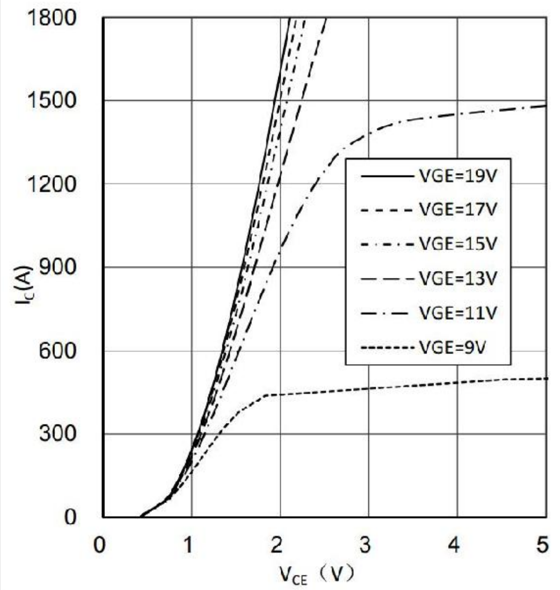
SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE			UNIT
			Min	Type	Max	
V_{CES}	Collector-Emitter voltage	T_j=25°C			1200	V
V_{GES}	Gate-Emitter voltage	T_j=25°C			±20	V
I_C	Collector current	Continuous@ T_C=80°C			900	A
I_{CP}		T_P= 1ms			1800	A
P_{tot}	power dissipation	T_C=25℃, $T_{vj\,max}$=175℃			3000	W
T_j	Junction temperature	/			175	℃
T_{stg}	Storage temperature	/	-40		125	℃
V_{iso}	Isolation between terminal and copper base	T_j=25°C , AC：1minute	3500			V
d_{Creep}	Creepage distance Terminal to heatsink			14.5		mm
	Creepage distance Terminal to terminal			13		mm
d_{Clear}	Clearance Terminal to heatsink			12.5		mm
	Clearance Terminal to terminal			10.0		mm
CTI	Comparative tracking index		200			
RTI	Relative thermal index (electrical)	Housing	140			℃
I_{CES}	Zero gate voltage collector current	T_j=25°C ,V_{CE}=1200V，V_{GE}=0V			0.1	mA
I_{GES}	Gate-Emitter leakage current	T_j=25°C ,V_{CE}=0V，V_{GE}=±20V			±0.2	μA
$V_{GE(th)}$	Gate-Emitter threshold voltage	T_j=25°C ,V_{CE}=20V，I_C=36mA	5.3	6.1	6.8	V
$V_{CE(sat)}$	Collector-Emitter saturation voltage	T_j=25°C ,V_{GE}=15V，I_C=900A		1.45	1.90	V
		T_j=125°C ,V_{GE}=15V，I_C=900A		1.60		V
		T_j=150°C ,V_{GE}=15V，I_C=900A		1.60		V
Q_G	Gate charge	V_{CE}=600V,V_{GE}=±15V		7.5		μC
R_{Gint}	Internal gate resistor	T_j=25°C		1.3		Ω
C_{ies}	Input capacitance	T_j=25°C ,V_{CE}=25V，V_{GE}=0V，f=100kHz		120		nF
C_{res}	Reverse transfer capacitance			2.22		nF
$t_{d(on)}$	Turn-on delay time	T_j=150°C ,V_{CC}=600V，I_C=900A，V_{GE}=±15V，R_g=2Ω，Inductive load		424		ns
t_r	Rise Time			228		ns
$t_{d(off)}$	Turn-off delay time			964		ns
t_f	Fall time			372		ns
E_{on}	Turn-on energy loss per pulse	I_C=900 A, V_{CE}=600 V, L_S=25nH V_{GE}=±15 V, di/dt=4000 A/μs (T_{vj}=150°C), dv/dt=3000 V/μs (T_{vj}=150°C),R_{Gon}=2Ω		246.9		mJ
E_{off}	Turn-off energy loss per pulse			157		mJ
I_{SC}	SC data	V_{GE}≤15 V, V_{CC}=800V, V_{CEmax}=V_{CES}-L_{sCE}·di/dt, t_P≤10μs, T_{vj}=150°C		3600		A
tsc	Short circuit withstand time	T_j=150°C ,V_{CC}=800V,V_{GE}=±15V，R_g=2Ω	10			μs

V_F	Forward on voltage	T_j=25°C ,I_F=900A		1.65	2.00	V
		T_j=125°C ,I_F=900A		1.80		V
		T_j=150°C ,I_F=900A		1.80		V
I_{RM}	Peak reverse recovery current	I_F=900 A, -diF/dt=4000 A/µs (T_{vj}=150°C), V_R=600V, V_{GE}=-15V, T_j=150°C		596		A
Q_r	Recovered charge	I_F=900 A, -diF/dt=4000 A/µs (T_{vj}=150°C), V_R=600V, V_{GE}=-15V, T_j=150°C		187.2		µC
E_{rec}	Reverse recovery energy	I_F=900 A, -diF/dt=4000 A/µs (T_{vj}=150°C), V_R=600V, V_{GE}=-15V, T_j=150°C		51.0		mJ
t_{rr}	Reverse recovery time	T_j=150°C ,I_F=900A		520		ns
$R_{th(j-c)}$	Thermal resistance(1 device)	IGBT			0.05	℃/W
		FWD			0.09	℃/W
$R_{th(c-f)}$	Contact thermal resistance (1 device)	With thermal compound		0.050		℃/W
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
L_{sCE}	Stray inductance module			20		nH
$R_{CC'+EE'}$	Module lead resistance, terminal to chip	T_C=25°C,per switch		1.1		mΩ
Screw torque	Mounting(M5)	/	2.4		3.0	N·m
	Terminals(M6)	/	3.5		5.0	N·m
W_t	Weight			350		g
Outline	M43					

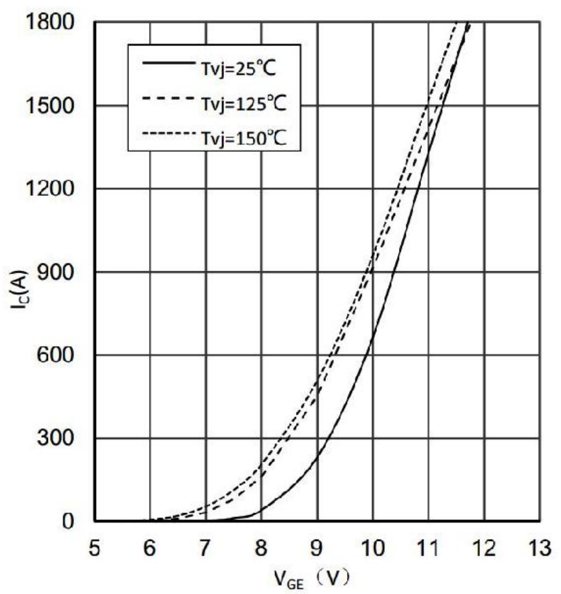
Output characteristic(typical) Fig-1
$I_C = f(V_{CE})$
$V_{GE} = 15V$



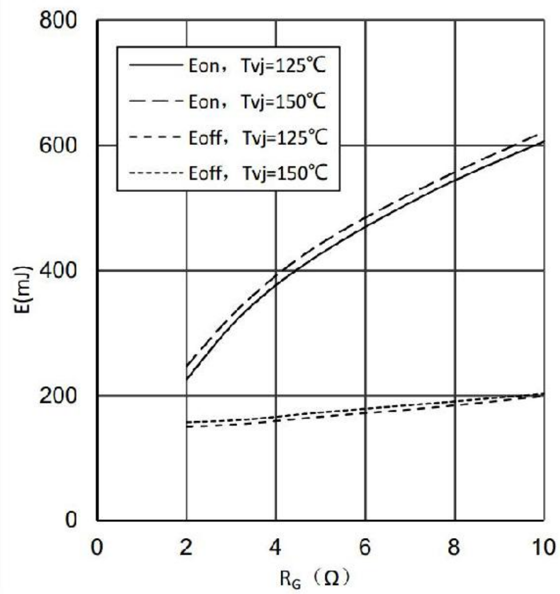
Output characteristic(typical) Fig-2
$I_C = f(V_{CE})$
$T_{vj} = 150°C$



Transfer characteristic(typical) Fig-3
$I_C = f(V_{GE})$
$V_{CE} = 20V$

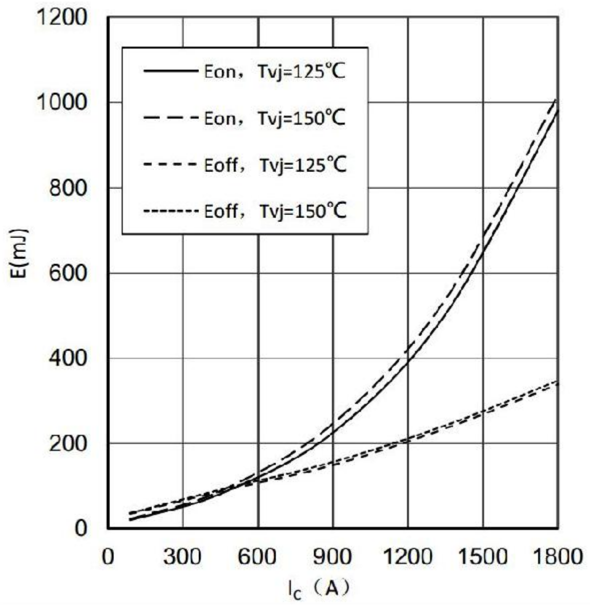


Switching losses IGBT (typical) Fig-4
$E = f(R_G)$
$V_{GE} = \pm15V$, $I_C = 900A$, $V_{CE} = 600V$



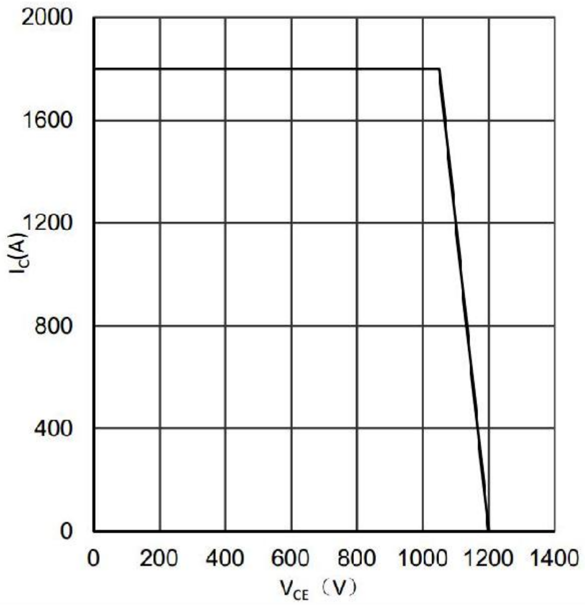
Switching losses IGBT (typical)
$E = f(I_C)$
$V_{GE} = \pm 15V$, $R_G = 2\Omega$, $V_{CE} = 600V$

Fig-5



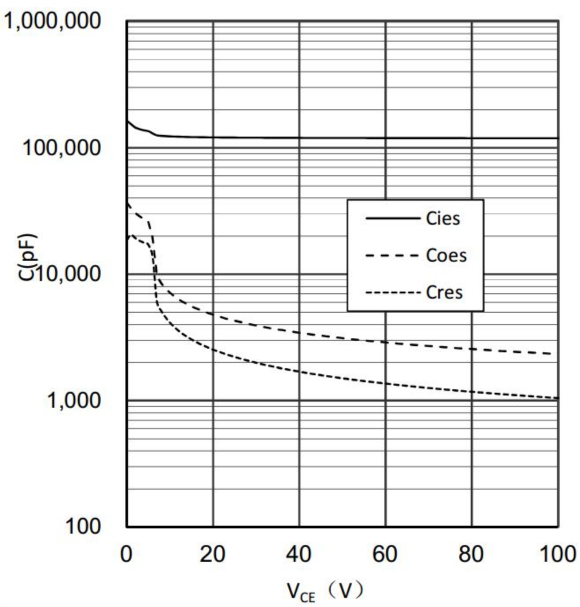
Reverse bias safe operating area(RBSOA)
$I_C = f(V_{CE})$
$V_{GE} = \pm 15V$, $R_{Goff} = 4.7\Omega$, $T_{vj} = 150°C$

Fig-6



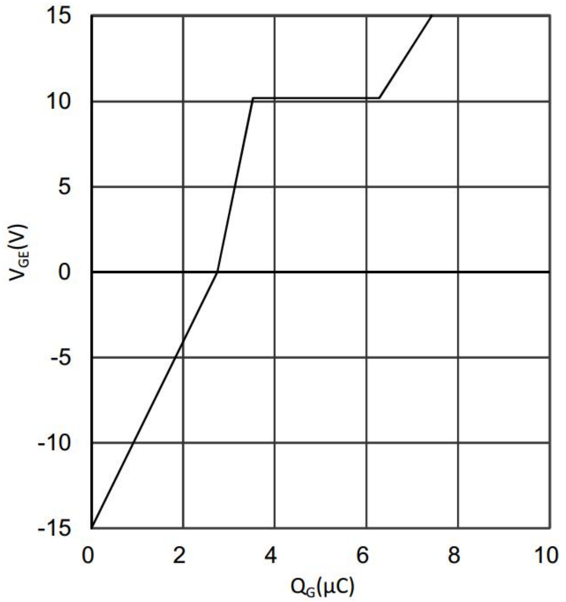
Typical capacitance as a function of collector-emitter voltage
$C = f(V_{CE})$
$f = 100$ kHz, $V_{GE} = 0V$

Fig-7



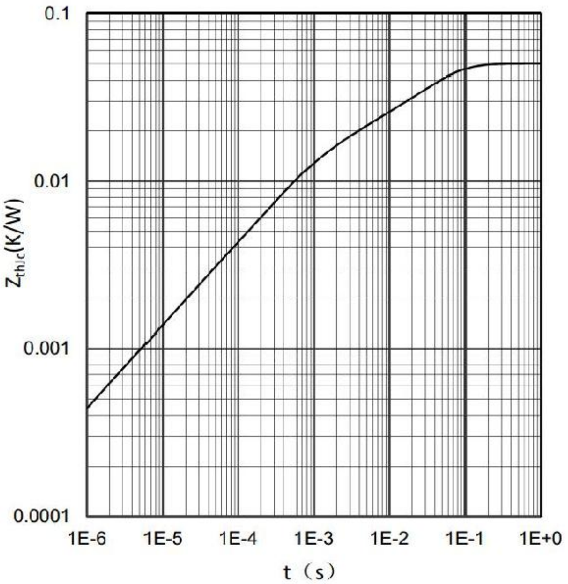
Gate charge (typical)
$V_{GE} = f(Q_G)$
$I_C = 900A$, $V_{CE} = 600V$

Fig-8



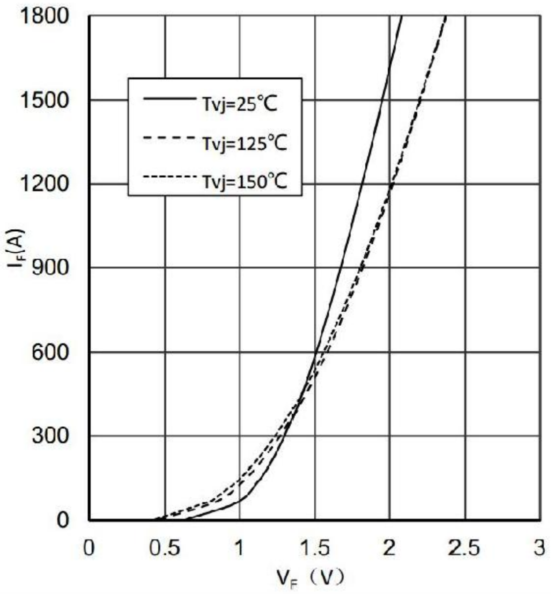
IGBT transient thermal impedance as a function of pulse width Fig-9

$Z_{th(j-c)} = f(t)$



Forward characteristic of Diode (typical) Fig-10

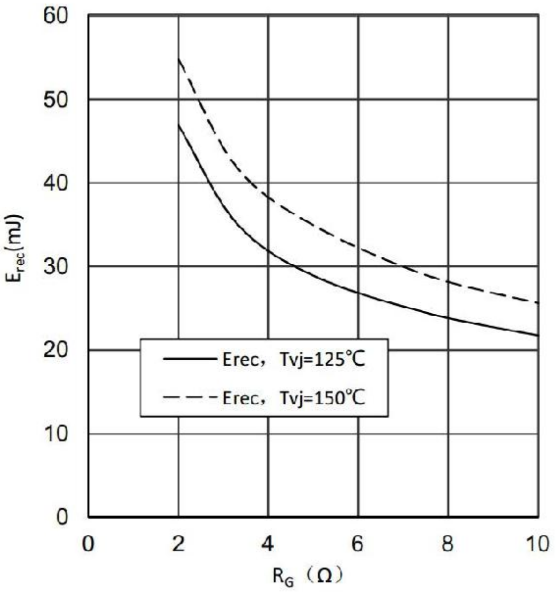
$I_F = f(V_F)$



Switching losses Diode(typical) Fig-11

$E_{rec} = f(R_G)$

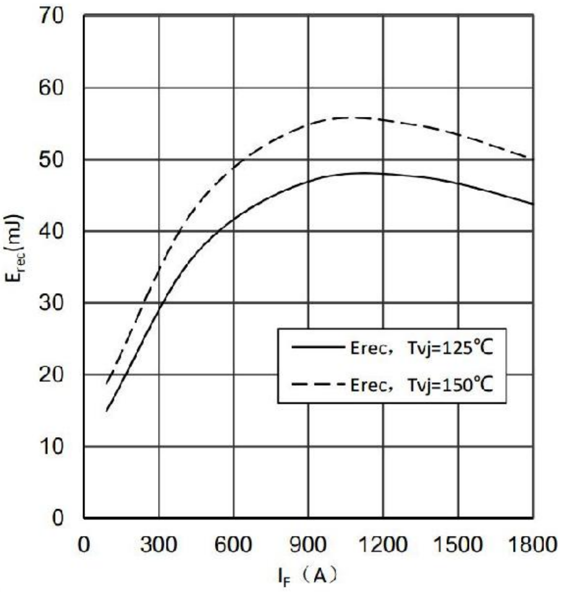
I_F = 900A, V_{CE} = 600V



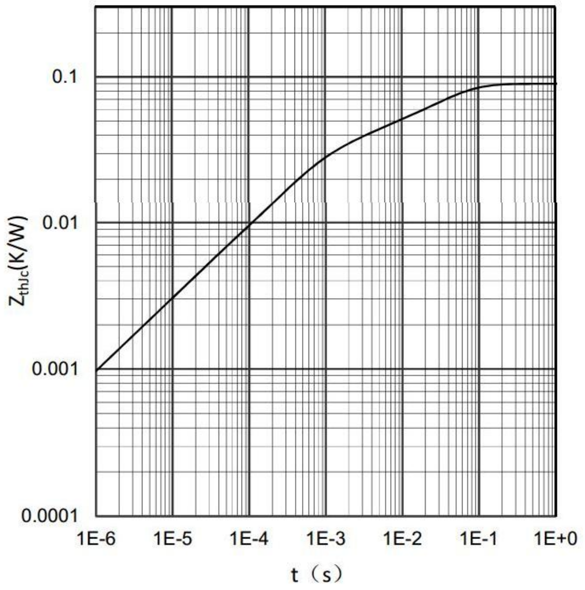
Switching losses Diode(typical) Fig-12

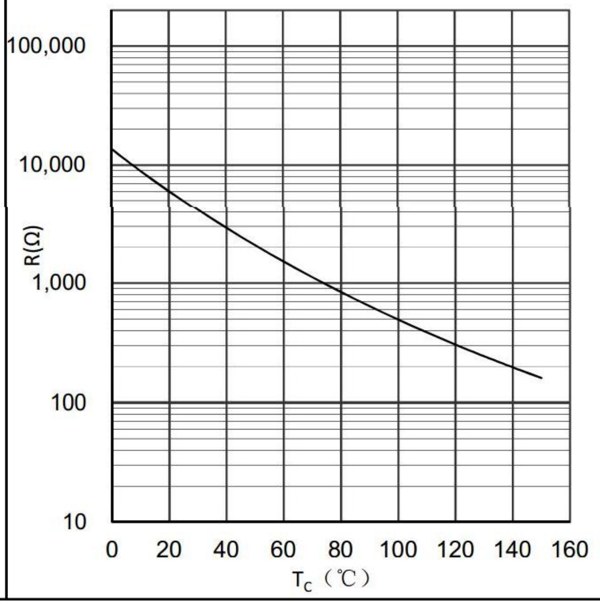
$E_{rec} = f(I_F)$

R_G = 2Ω, V_{CE} = 600V

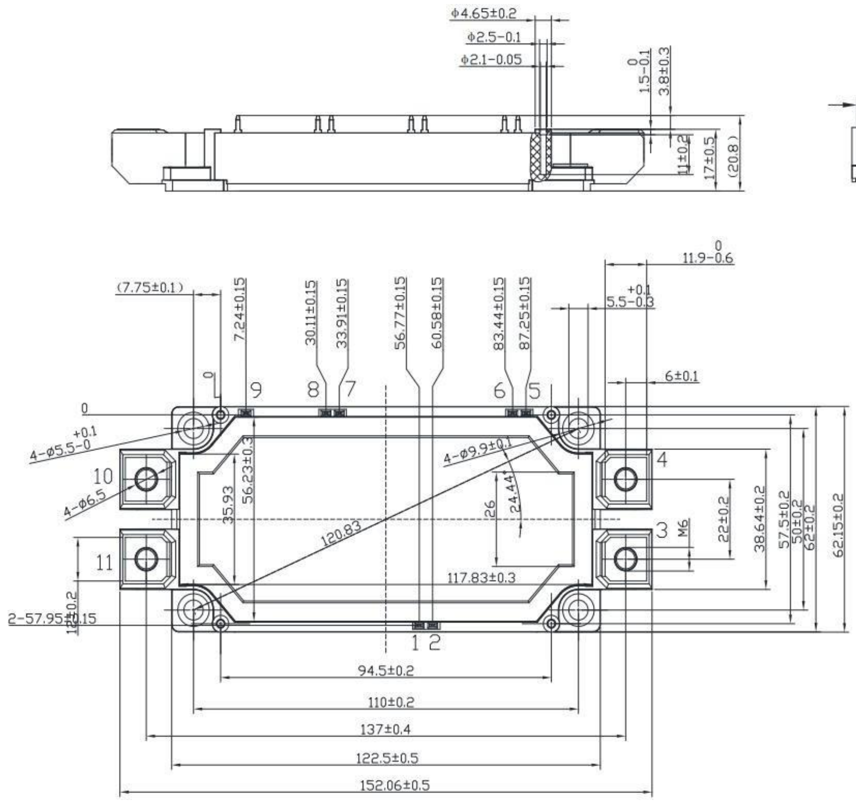


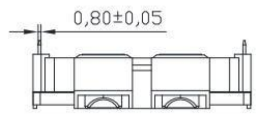
Diode transient thermal impedance as a function of pulse width $Z_{th(j-c)} = f(t)$ Fig-13	NTC-Thermistor-temperature characteristic (typical) $R = f(T)$ Fig-14

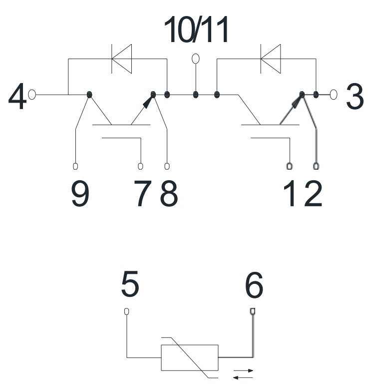




Outline & Circuit Diagram







Unmarked dimensional tolerance：±0.5mm

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