Technical datasheet

1. Product Features

1.1 Electrical features

- V_{CES}=650V
- $I_{C\ nom}$=100A / I_{CRM}=200A
- Low switching losses
- Low inductance
- Fast switching and short tail current
- Integrated NTC temperature sensor
- High power and thermal cycling capability

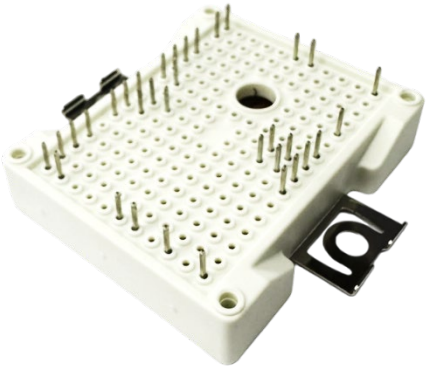


Figure 1 IGBT Module

1.2 Mechanical features

- Al_2O_3 substrate with low thermal resistance
- Integrated NTC temperature sensor
- High power and thermal cycling capability

2. Typical Applications

- 3-Level-Applications
- Solar Applications
- UPS Systems
-

3. Description

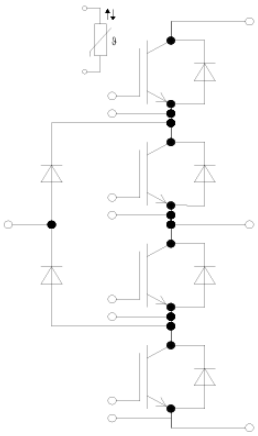


Figure 2 3 Level

4. IGBT, Inverter

4.1 Maximum rated values

Parameter	Note or test condition	Symbol	Values	Unit
Collector-emitter voltage 集电极—发射极间电压	T_{vj} = 25°C	V_{CES}	650	V
Continuous DC collector current 连续集电极电流	T_C = 100°C, $T_{vj\ max}$ = 150°C	$I_{C\ nom}$	100	A
Repetitive peak collector current 集电极峰值电流	t_P = 1 ms	I_{CRM}	200	A
Total power dissipation 总功率损耗	T_C = 25°C, $T_{vj\ max}$ = 175°C	P_{tot}	300	W
Gate-emitter peak voltage 栅极－发射极峰值电压		V_{GES}	+/- 20	V

4.2 Characteristic value

Parameter	Note or test condition		Symbol	Values			Unit
				Min.	Typ.	Max.	
Collector-emitter saturation voltage 集电极－发射极饱和电压	I_C = 100 A, V_{GE} = 15 V	T_{vj} = 25°C	$V_{CE,sat}$		1.90		V
		T_{vj} = 125°C			2.20		V
		T_{vj} = 150°C			2.30		V
Gate threshold voltage 栅极阈值电压	I_C = 1.5mA, V_{CE} = V_{GE}, T_{vj} = 25°C		$V_{GE,th}$		5.35		V
Collector-emitter cut-off current 集电极-发射极截止电流	V_{CE} = 650 V, V_{GE} = 0 V, T_{vj} = 25°C		I_{CES}			1	mA
Gate-emitter leakage current 栅极-发射极漏电流	V_{CE} = 0 V, V_{GE} = 20 V, T_{vj} = 25°C		I_{GES}			400	nA

(table continues...) 待续

Technical datasheet

5. Diode, Inverter

5.1 Maximum rated values

Parameter	Note or test condition	Symbol	Values	Unit
Repetitive peak reverse voltage 反向重复峰值电压	T_{vj} = 25°C	V_{RRM}	650	V
Continuous DC forward current 连续正向直流电流		I_F	100	A
Repetitive peak forward current 正向重复峰值电流	t_P = 1 ms	I_{FRM}	200	A

5.2 Characteristic value

Parameter	Note or test condition		Symbol	Values			Unit
				Min.	Typ.	Max.	
Forward voltage 正向电压	I_F = 100 A, V_{GE} = 0 V	T_{vj} = 25°C	V_F		1.61		V
		T_{vj} = 125°C			1.42		V
		T_{vj} = 150°C			1.36		V

(table continues...) 待续

6. Diode, D5-D6

6.1 Maximum rated values

Parameter	Note or test condition	Symbol	Values	Unit
Repetitive peak reverse voltage 反向重复峰值电压	T_{vj} = 25°C	V_{RRM}	650	V
Continuous DC forward current 连续正向直流电流		I_F	100	A
Repetitive peak forward current 正向重复峰值电流	t_P = 1 ms	I_{FRM}	200	A

6.2 Characteristic value

Parameter	Note or test condition		Symbol	Values			Unit
				Min.	Typ.	Max.	
Forward voltage 正向电压	I_F = 100 A, V_{GE} = 0 V	T_{vj} = 25°C	V_F		1.61		V
		T_{vj} = 125°C			1.42		V
		T_{vj} = 150°C			1.36		V

(table continues...) 待续

7. NTC-Thermistor

7.1 Characteristic value

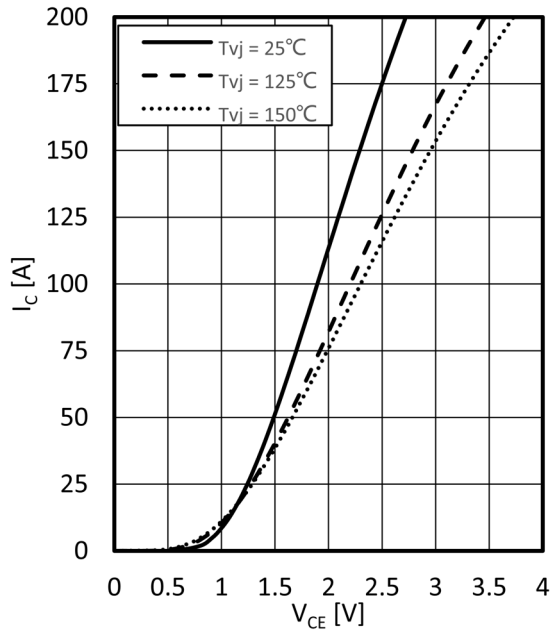
Parameter	Note or test condition	Symbol	Values			Unit
			Min.	Typ.	Max.	
Rated resistance 额定电阻值	Tc = 25°C	R_{25}		5.00		KΩ
Power dissipation 耗散功耗	Tc = 25°C	P_{25}			24	mW
B-value B-Z 值	$R_2=R_{25}\exp[B_{25/50}(1/T_2-1/(298, 15K))]$	B_{25}/B_{50}		3400		K
B-value B-Z 值	$R_2=R_{25}\exp[B_{25/75}(1/T_2-1/(298, 15K))]$	B_{25}/B_{75}		3430		K
B-value B-Z 值	$R_2=R_{25}\exp[B_{25/100}(1/T_2-1/(298, 15K))]$	B_{25}/B_{100}		3445		K

8. Module

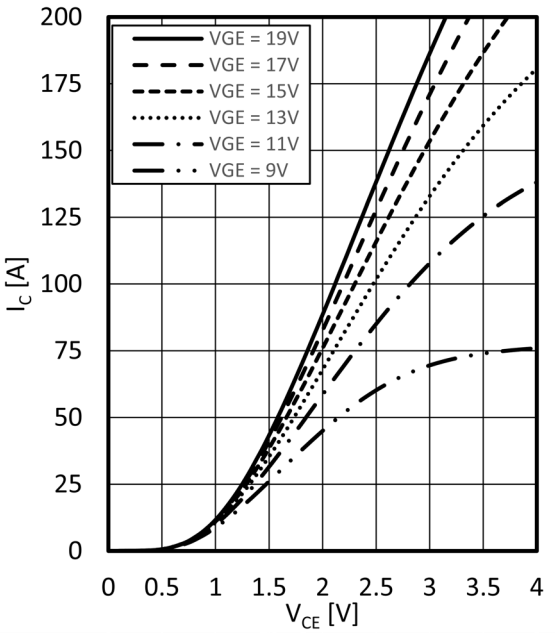
8.1 Characteristic value

Parameter	Note or test condition	Symbol	Values			Unit
			Min.	Typ.	Max.	
Isolation Voltage 隔离电压	RMS, f=50HZ,1min	V_{ISOL}			2500	V
Stray inductance module 杂散电感		L_{sCE}		30		nH
Operation Junction Temperature 结温		T_{jop}	-40		150	℃
Storage Temperature Range 存储温度范围		T_{stg}	-40		125	℃
Mounting Torque 安装扭矩	Screw M5	M	2		2.3	N.m
Weight of Module 重量		G		24		g

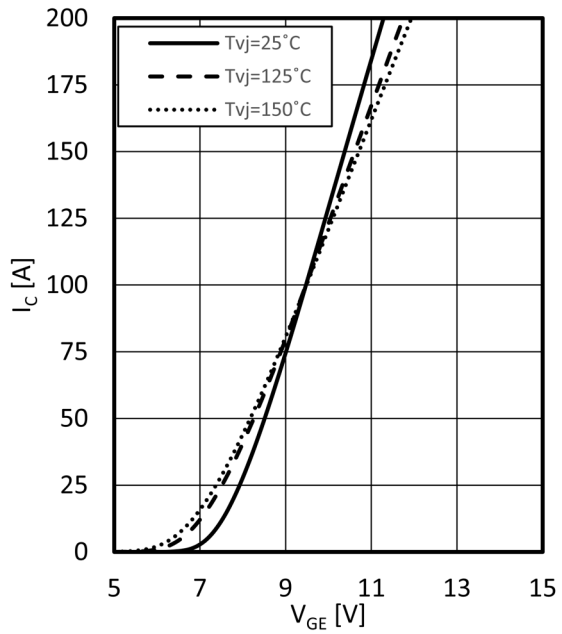
9. Characteristics diagrams



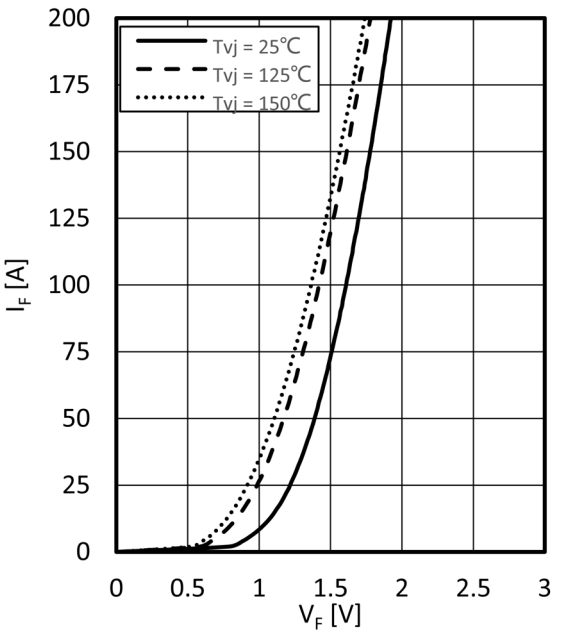
Output characteristic IGBT, Inverter (typical)
$I_C = f(V_{CE})$
$V_{GE} = 15V$



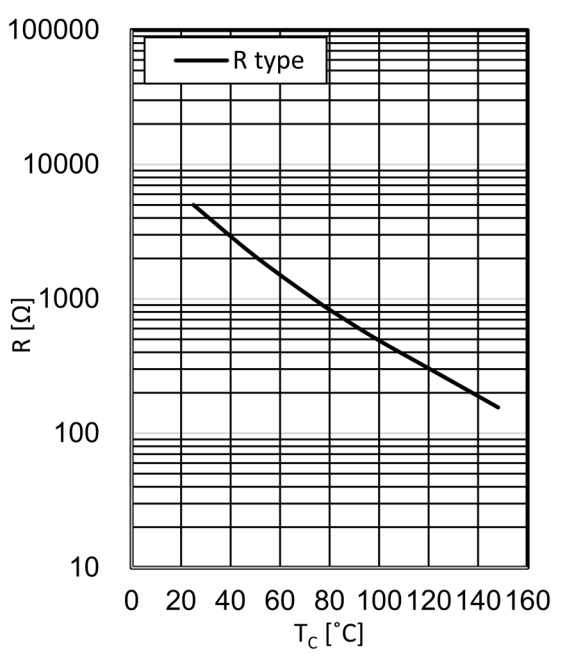
Output characteristic IGBT, Inverter (typical)
$I_C = f(V_{CE})$
$T_{vj} = 150°C$



Transfer characteristic IGBT, Inverter (typical)
$I_C = f(V_{GE})$
$V_{CE} = 20V$



Forward characteristic of Diode, Inverter (typical)
$I_F = f(V_F)$



NTC-Thermistor-temperature characteristic (typical) $R = f(T_{NTC})$	

10. Circuit Diagram

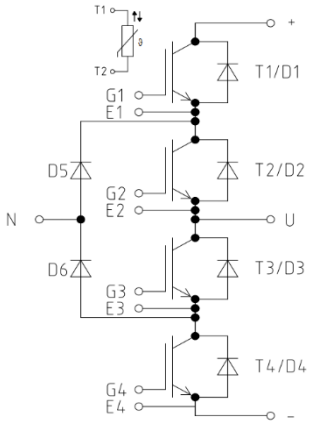


Figure 3

11. Package Outlines

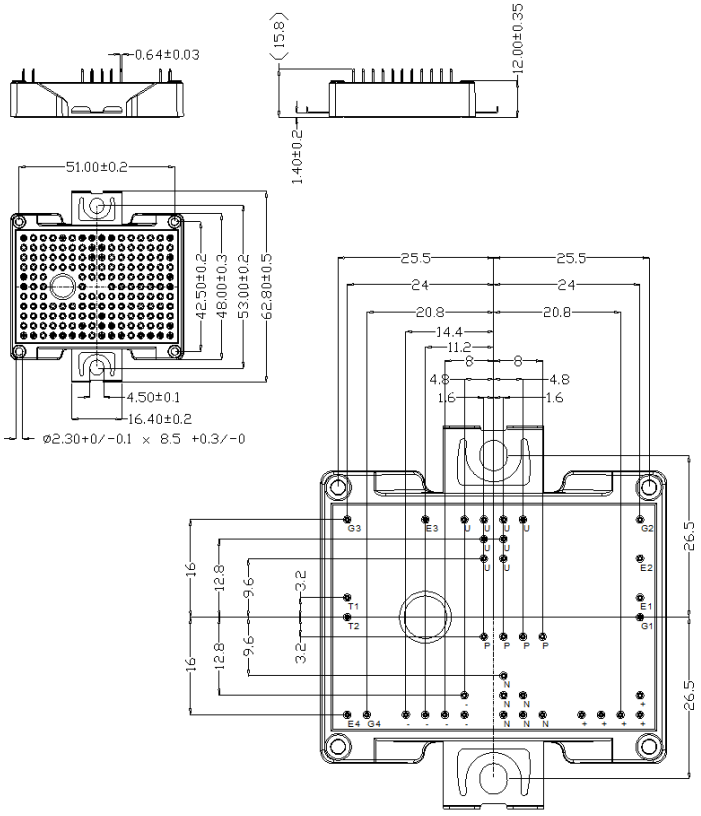


Figure 4