Technical datasheet

1. Product Features

1.1 Electrical features

- V_{CES}=1700V
- $I_{C\ nom}$=600A / I_{CRM}=1200A
- Low switching losses
- Low inductance
- Fast switching and short tail current
- High power and thermal cycling capability

Figure1 IGBT Module

1.2 Mechanical features

- High power and thermal cycling capability
- Al_2O_3 substrate with low thermal resistance
- Copper base plate

2. Typical Applications

- Switching mode power supply
- Drive inverters with brake system
- Uninterruptible power supply
- AC and DC servo drive amplifier

3. Description

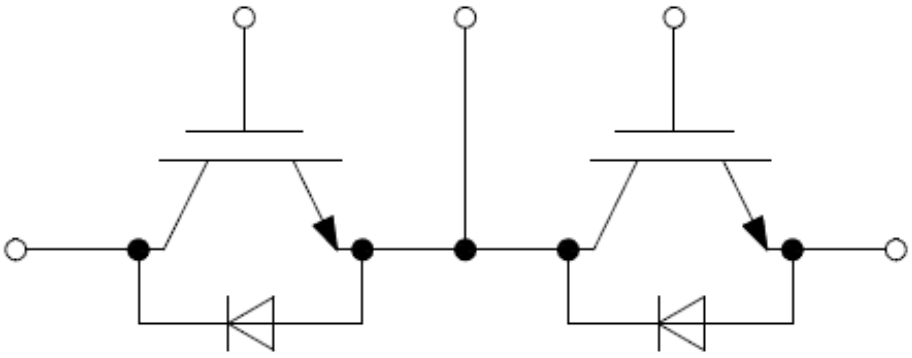


Figure2 Half Bridge

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}	1700	V
Continuous DC collector current 连续集电极电流	T_C = 100°C, $T_{vj, max}$ = 150°C	$I_{C\ nom}$	600	A
Repetitive peak collector current 集电极峰值电流	t_P = 1 ms	I_{CRM}	1200	A
Total power dissipation 总功率损耗	T_C = 25°C, $T_{vj, max}$ = 175 °C	P_{tot}	3350	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 = 600 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE,sat}$	1.7	1.9 2.2 2.3	2.1	V V V
Gate threshold voltage 栅极阈值电压	I_C = 4mA, V_{CE} = V_{GE}, T_{vj} = 25°C		$V_{GE,th}$	5.1	5.6	6.1	V
Gate charge 栅极电荷	V_{GE} = -15 V ... +15 V		Q_G		1.1		µC
Internal gate resistor 内部栅极电阻	T_{vj} = 25°C		R_{Gint}		6.0		Ω
Collector-emitter cut-off current 集电极-发射极截止电流	V_{CE} = 1700 V, V_{GE} = 0 V, T_{vj} = 25°C		I_{CES}			2	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}			200	nA

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}	1700	V
Continuous DC forward current 连续正向直流电流		I_F	600	A
Repetitive peak forward current 正向重复峰值电流	t_P = 1 ms	I_{FRM}	1200	A

5.2 Characteristic value

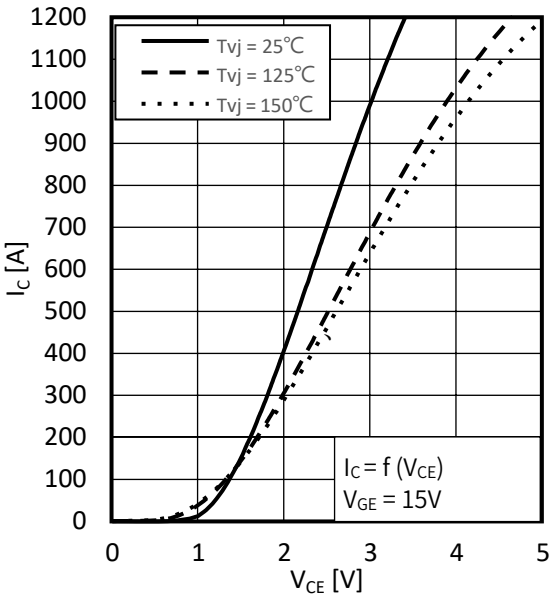
Parameter	Note or test condition		Symbol	Values			Unit
				Min.	Typ.	Max.	
Forward voltage 正向电压	I_F = 600 A, V_{GE} = 0 V	T_{vj} = 25°C	V_F		1.92		V
		T_{vj} = 125°C			1.73		V
		T_{vj} = 150°C			1.69		V

6. Module

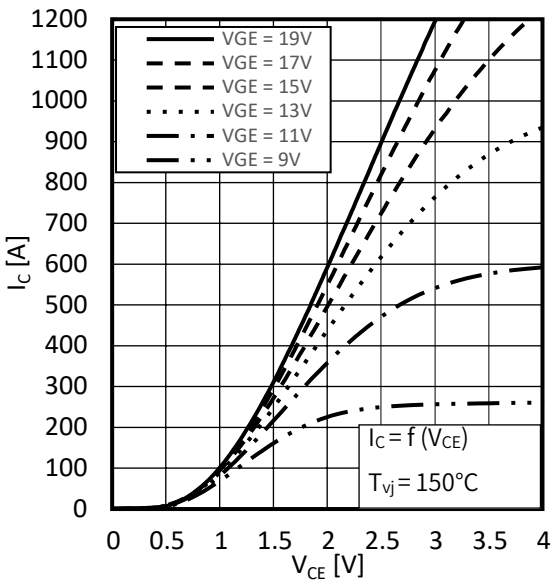
6.1 Characteristic value

Parameter	Note or test condition	Symbol	Values			Unit
			Min.	Typ.	Max.	
Isolation Voltage 隔离电压	RMS, f=50HZ,1min	V_{ISOL}			3400	V
Stray inductance module 杂散电感		L_{sCE}		20		nH
Operation Junction Temperature 结温		T_{jop}	-40		150	˚C
Storage Temperature Range 存储温度范围		T_{stg}	-40		125	˚C
Mounting Torque 安装扭矩	Screw M5	M	3		6	N.m
Weight of Module 重量		G		340		g

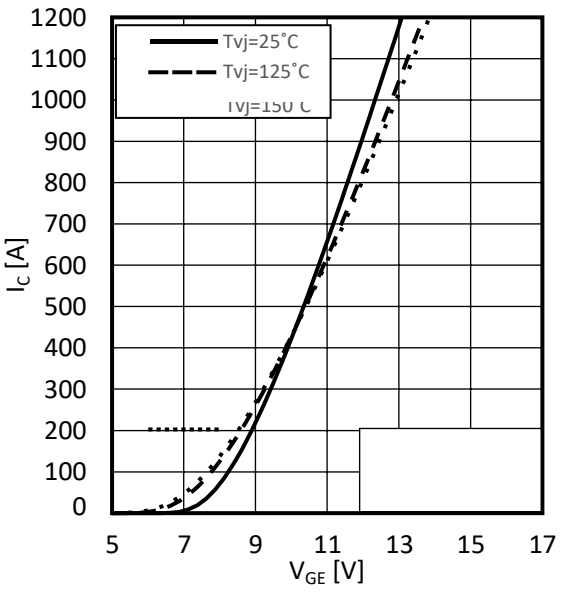
7. Characteristics diagrams



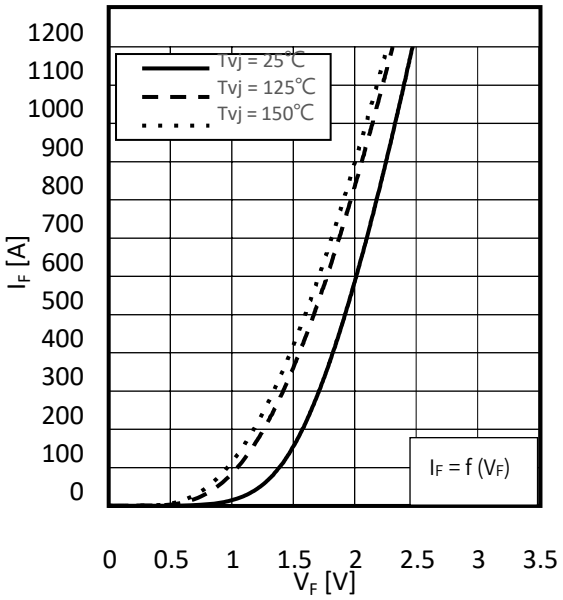
Output characteristic IGBT, Inverter(typical)



Output characteristic IGBT, Inverter(typical)



Transfer characteristic IGBT, Inverter(typical)



Forward characteristic of Diode, Inverter(typical)

8. Circuit Diagram

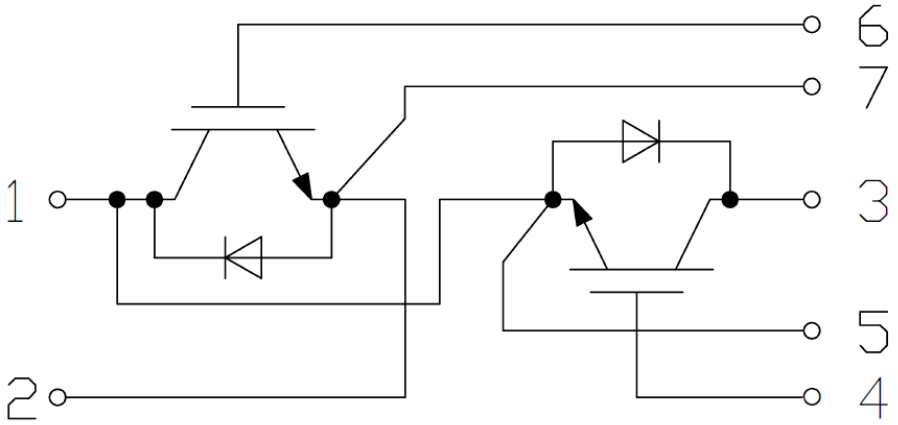


Figure 3

9. Package Outlines

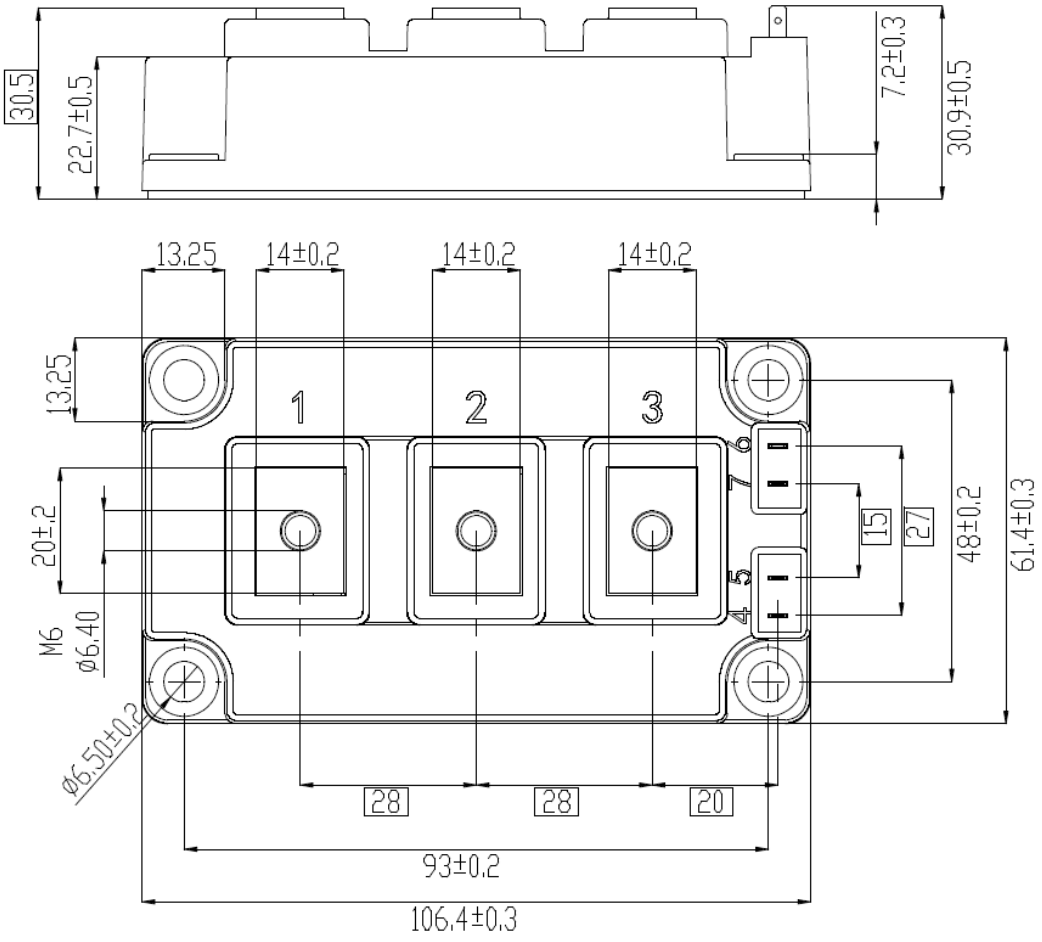


Figure 4