

1. Product Features

1.1 Electrical features

- $V_{CES}=1700V$
- $I_{C\ nom}=450A / I_{CRM}=900A$
- 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

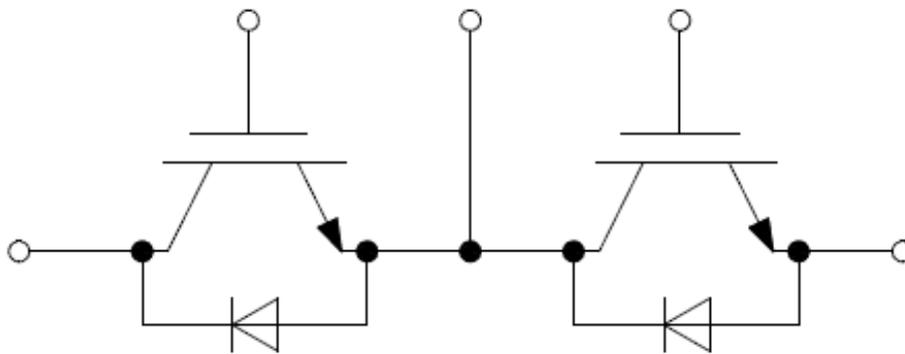


Figure 2 Half Bridge

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	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	1700	V
Continuous DC collector current 连续集电极电流	$T_C = 100^{\circ}\text{C}, T_{vj, max} = 150^{\circ}\text{C}$	$I_{C nom}$	450	A
Repetitive peak collector current 集电极峰值电流	$t_p = 1 \text{ ms}$	I_{CRM}	900	A
Total power dissipation 总功率损耗	$T_C = 25^{\circ}\text{C}, T_{vj, max} = 175^{\circ}\text{C}$	P_{tot}	2400	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	$I_C = 450 \text{ A}, V_{GE} = 15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	1.7	1.9	2.1	V
		$T_{vj} = 125^{\circ}\text{C}$		2.2		V
		$T_{vj} = 150^{\circ}\text{C}$		2.3		V
Gate threshold voltage 栅极阈值电压	$I_C = 3 \text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$	$V_{GE, th}$	5.1	5.6	6.1	V
Gate charge 栅极电荷	$V_{GE} = -15 \text{ V} \dots +15 \text{ V}$	Q_G		0.82		μC
Internal gate resistor 内部栅极电阻	$T_{vj} = 25^{\circ}\text{C}$	R_{Gint}		6.0		Ω
Collector-emitter cut-off current 集电极-发射极截止电流	$V_{CE} = 1700 \text{ V}, V_{GE} = 0 \text{ V}, T_{vj} = 25^{\circ}\text{C}$	I_{CES}			2	mA
Gate-emitter leakage current 栅极-发射极漏电流	$V_{CE} = 0 \text{ V}, V_{GE} = 20 \text{ V}, T_{vj} = 25^{\circ}\text{C}$	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	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	1700	V
Continuous DC forward current 连续正向直流电流		I_F	450	A
Repetitive peak forward current 正向重复峰值电流	$t_p = 1 \text{ ms}$	I_{FRM}	900	A

5.2 Characteristic value

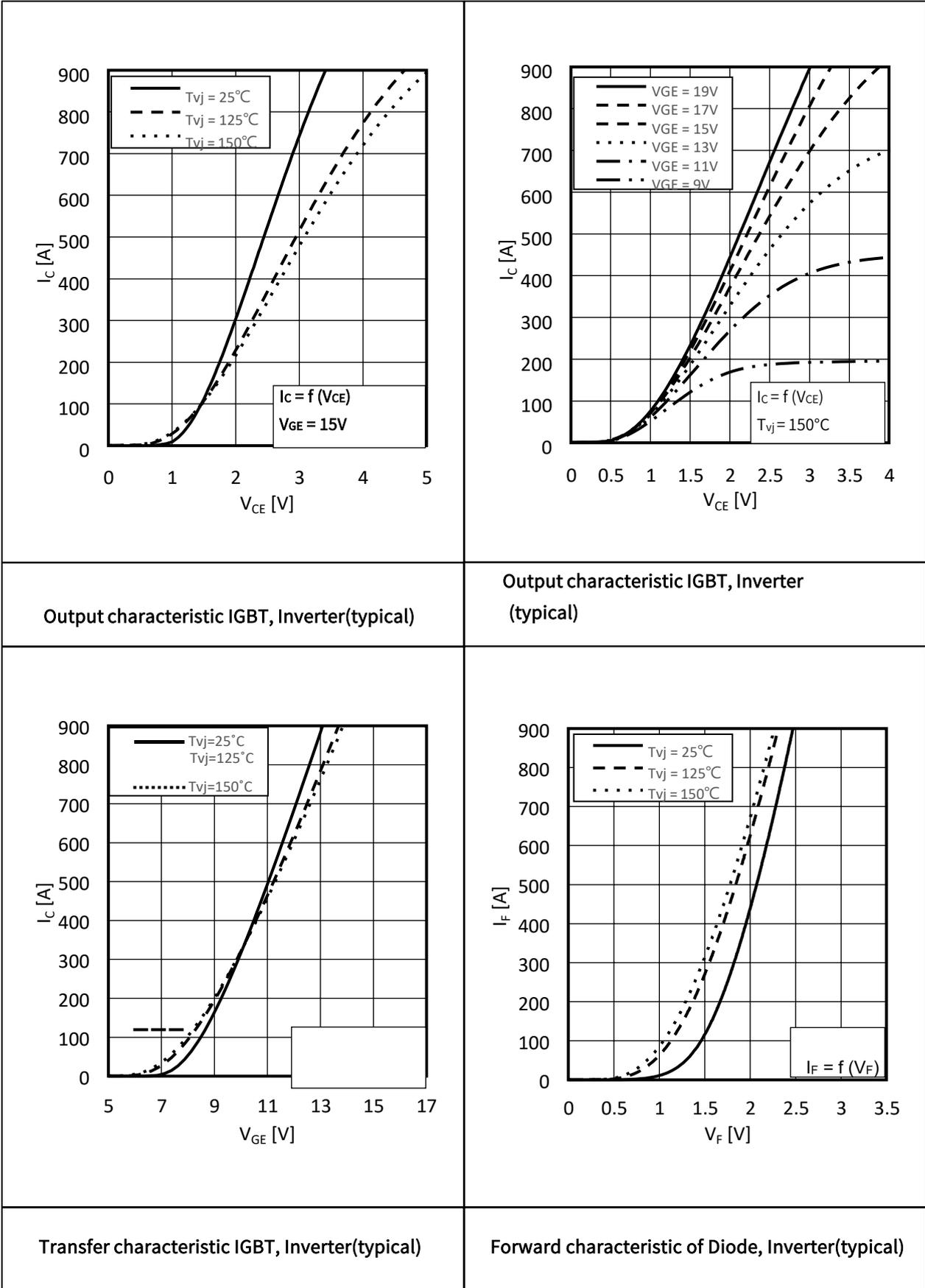
Parameter	Note or test condition	Symbol	Values			Unit
			Min.	Typ.	Max.	
Forward voltage 正向电压	$I_F = 450 \text{ A}, V_{GE} = 0 \text{ V}$	V_F		$T_{vj} = 25^{\circ}\text{C}$ 1.98		V
				$T_{vj} = 125^{\circ}\text{C}$ 1.83		V
				$T_{vj} = 150^{\circ}\text{C}$ 1.72		V

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	$^{\circ}\text{C}$
Storage Temperature Range 存储温度范围		T_{stg}	-40		125	$^{\circ}\text{C}$
Mounting Torque 安装扭矩	Screw M5	M	3		6	N.m
Weight of Module 重量		G		340		g

7. Characteristics diagrams



8. Circuit Diagram

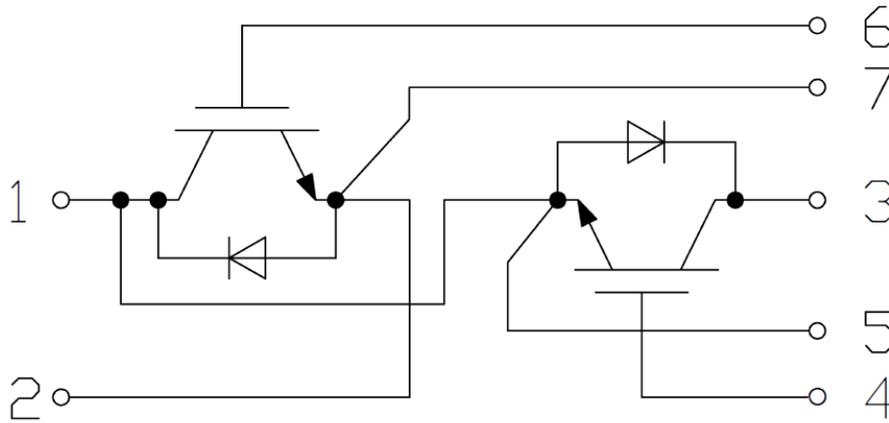


Figure 3

9. Package Outlines

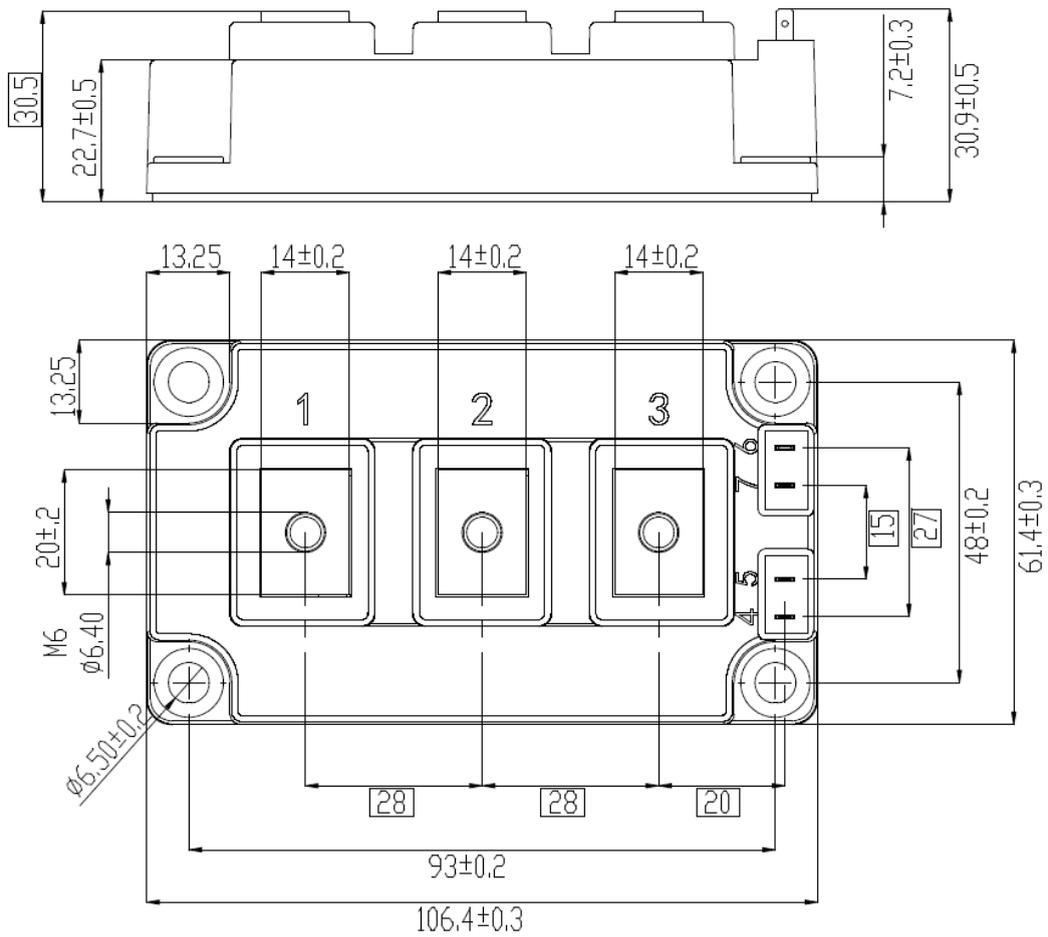


Figure 4