

62mm module with Trench/Fieldstop IGBT and Fast recovery diode



Product Data

VCES	IC @100°C	VCE(sat) @25°C	VF @25°C
1200 V	600 A	1.65 V	2.5 V

Features

- Low Switching loss
- Low V_{CEsat}
- Extended Operation Temperature T_{vjop}

Typical Applications

- Inverter Welders
- Power Supply

IGBT / Maximum Rated Values

特征参数	代号	标注或测试条件		数值	单位
集电极—发射极电压	VCES		$T_{vj} = 25\text{ °C}$	1200	V
连续集电极直流电流	I_{CDC}	$T_{vj\ max} = 175\text{ °C}$	$T_C = 90\text{ °C}$	600	A
模块端子的最大均方根电流	I_{tRMS}		$T_{Terminal} = 115\text{ °C},$ $T_C = 90\text{ °C}$	650	A
			$T_{Terminal} = 115\text{ °C},$ $T_C = 115\text{ °C}$	600	
集电极重复峰值电流	I_{CRM}	t_p 受限于 $T_{vj\ op}$		1200	A
栅极—发射极峰值电压	VGES			±20	V

Diode / Maximum Rated Values

特征参数	代号	标注或测试条件		数值	单位
反向重复峰值电压	V_{RRM}		$T_{vj} = 25\text{ °C}$	1200	V
连续正向直流电流	I_F			600	A
正向重复峰值电流	I_{FRM}	$t_p = 1\text{ ms}$		1500	A

IGBT / Characteristic Values

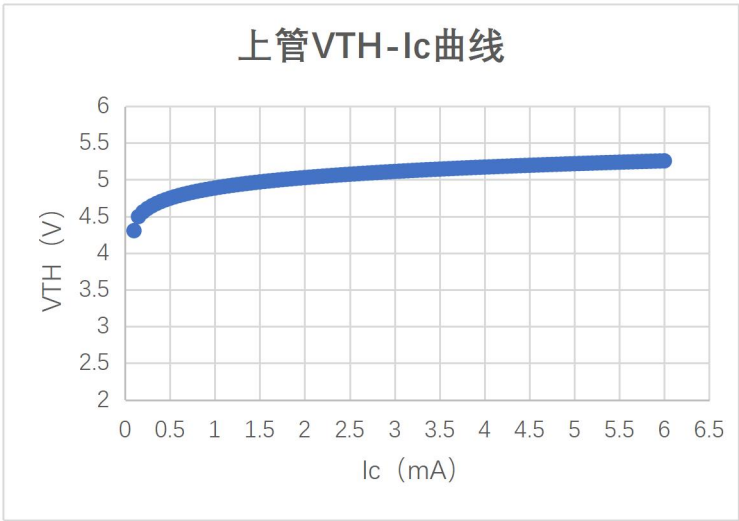
特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
集电极-发射极饱和电压	$V_{CE\ sat}$	$I_C = 600\ A, V_{GE} = 15\ V$	$T_{vj} = 25\ ^\circ C$		1.65	1.9	V
栅极阈值电压	V_{GEth}	$I_C = 6\ mA, V_{CE} = V_{GE}, T_{vj} = 25\ ^\circ C$		4.5	5.25	6.5	V
栅极电荷	Q_G	$V_{GE} = \pm 15\ V, V_{CC} = 600\ V$			5.69		μC
内部栅极电阻	R_{Gint}	$T_{vj} = 25\ ^\circ C$			1.45		Ω
集电极-发射极漏电流	I_{CES}	$V_{CE} = 1200\ V, V_{GE} = 0\ V$	$T_{vj} = 25\ ^\circ C$			100	μA
栅极-发射极漏电流	I_{GES}	$V_{CE} = 0\ V, V_{GE} = 20\ V, T_{vj} = 25\ ^\circ C$				100	nA
开通延迟时间(感性负载)	t_{don}	$I_C = 600\ A, V_{CC} = 600\ V, V_{GE} = \pm 15\ V,$	$T_{vj} = 25\ ^\circ C$		0.75		μs
上升时间(感性负载)	t_r	$I_C = 600\ A, V_{CC} = 600\ V, V_{GE} = \pm 15\ V,$	$T_{vj} = 25\ ^\circ C$		0.075		μs
关断延迟时间(感性负载)	t_{doff}	$I_C = 600\ A, V_{CC} = 600\ V, V_{GE} = \pm 15\ V,$	$T_{vj} = 25\ ^\circ C$		3.8		μs
下降时间(感性负载)	t_f	$I_C = 600\ A, V_{CC} = 600\ V, V_{GE} = \pm 15\ V,$	$T_{vj} = 25\ ^\circ C$		0.3		μs
开通损耗能量 (每脉冲)	E_{on}	$I_C = 600\ A, V_{CC} = 600\ V, L_\sigma = 50\ \mu H, V_{GE} = \pm 15\ V, R_{Gon} = 0.51\ \Omega, di/dt = 3200 A/\mu s (T_{vj} = 175\ ^\circ C)$	$T_{vj} = 25\ ^\circ C$		105		mJ
关断损耗能量 (每脉冲)	E_{off}	$I_C = 600\ A, V_{CC} = 600\ V, L_\sigma = 25\ nH, V_{GE} = \pm 15\ V, R_{Goff} = 0.51\ \Omega, dv/dt = 3150\ V/\mu s (T_{vj} = 175\ ^\circ C)$	$T_{vj} = 25\ ^\circ C$		186		mJ
短路数据	I_{SC}	$V_{GE} \leq 15\ V, V_{CC} = 800\ V, V_{CEmax} = V_{CES} - L_{sCE} * di/dt$	$t_p \leq 8\ \mu s, T_{vj} = 150\ ^\circ C$		1500		A
			$t_p \leq 6\ \mu s, T_{vj} = 175\ ^\circ C$		1350		
结-外壳热阻	R_{thJC}	每个 IGBT				0.0668	K/W
外壳-散热器热阻	R_{thCH}	每个 IGBT, $\lambda_{grease} = 1\ W/(m \cdot K)$			0.0345		K/W
允许开关的温度范围	$T_{vj\ op}$			-40		175	$^\circ C$

FRD / Characteristic Values

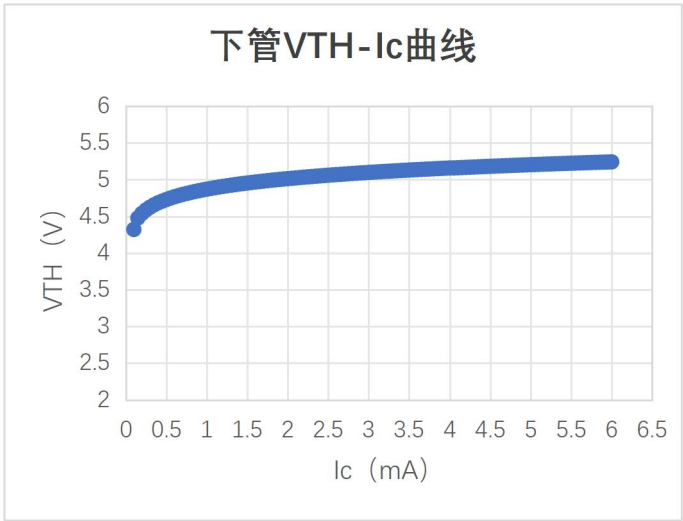
特征参数	代号	标注或测试条件		数值			单位
				最小值	典型值	最大值	
正向电压	V_F	$I_F = 600\text{ A}$, $V_{GE} = 0\text{ V}$	$T_{vj} = 25\text{ }^{\circ}\text{C}$		2.5	2.86	V
反向恢复峰值电流	I_{RM}	$V_{CC} = 600\text{ V}$, $I_F = 600\text{ A}$, $V_{GE} = -15\text{ V}$, $-di_F/dt = 7700\text{ A}/\mu\text{s}$ ($T_{vj} = 175\text{ }^{\circ}\text{C}$)	$T_{vj} = 25\text{ }^{\circ}\text{C}$		448		A
恢复电荷	Q_r	$V_{CC} = 600\text{ V}$, $I_F = 600\text{ A}$, $V_{GE} = -15\text{ V}$, $-di_F/dt = 7700\text{ A}/\mu\text{s}$ ($T_{vj} = 175\text{ }^{\circ}\text{C}$)	$T_{vj} = 25\text{ }^{\circ}\text{C}$		4.2		μC
反向恢复损耗（每脉冲）	E_{rec}	$V_{CC} = 600\text{ V}$, $I_F = 600\text{ A}$, $V_{GE} = -15\text{ V}$, $-di_F/dt = 7700\text{ A}/\mu\text{s}$ ($T_{vj} = 175\text{ }^{\circ}\text{C}$)	$T_{vj} = 25\text{ }^{\circ}\text{C}$		0.6		mJ
结—外壳热阻	R_{thJC}	每个二极管				0.12	K/W
外壳—散热器热阻	R_{thCH}	每个二极管, $\lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$			0.0456		K/W
允许开关的温度范围	$T_{vj\text{ op}}$			-40		175	$^{\circ}\text{C}$

特征参数图表

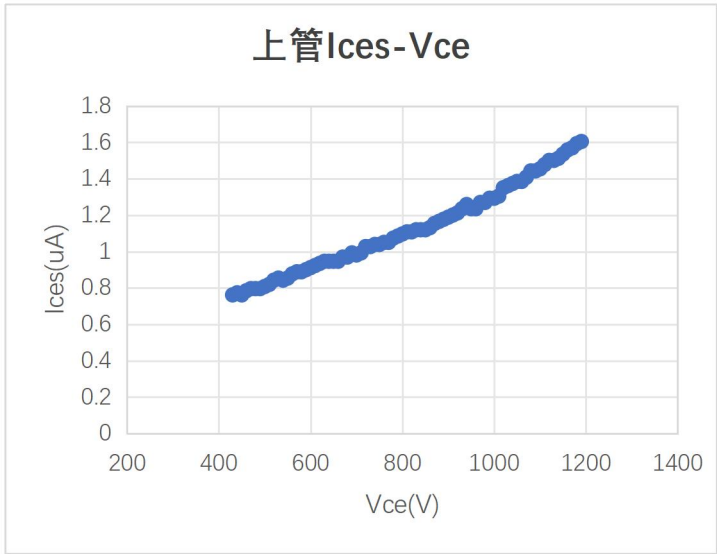
上管VTH-Ic曲线



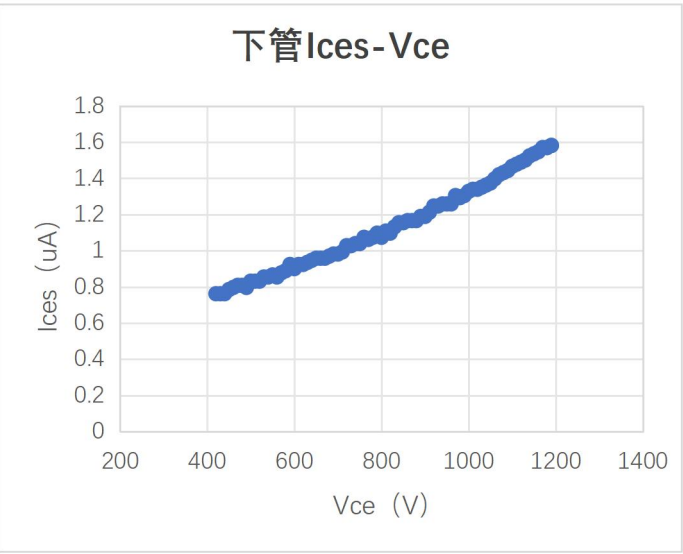
下管VTH-Ic曲线



上管Ices-Vce

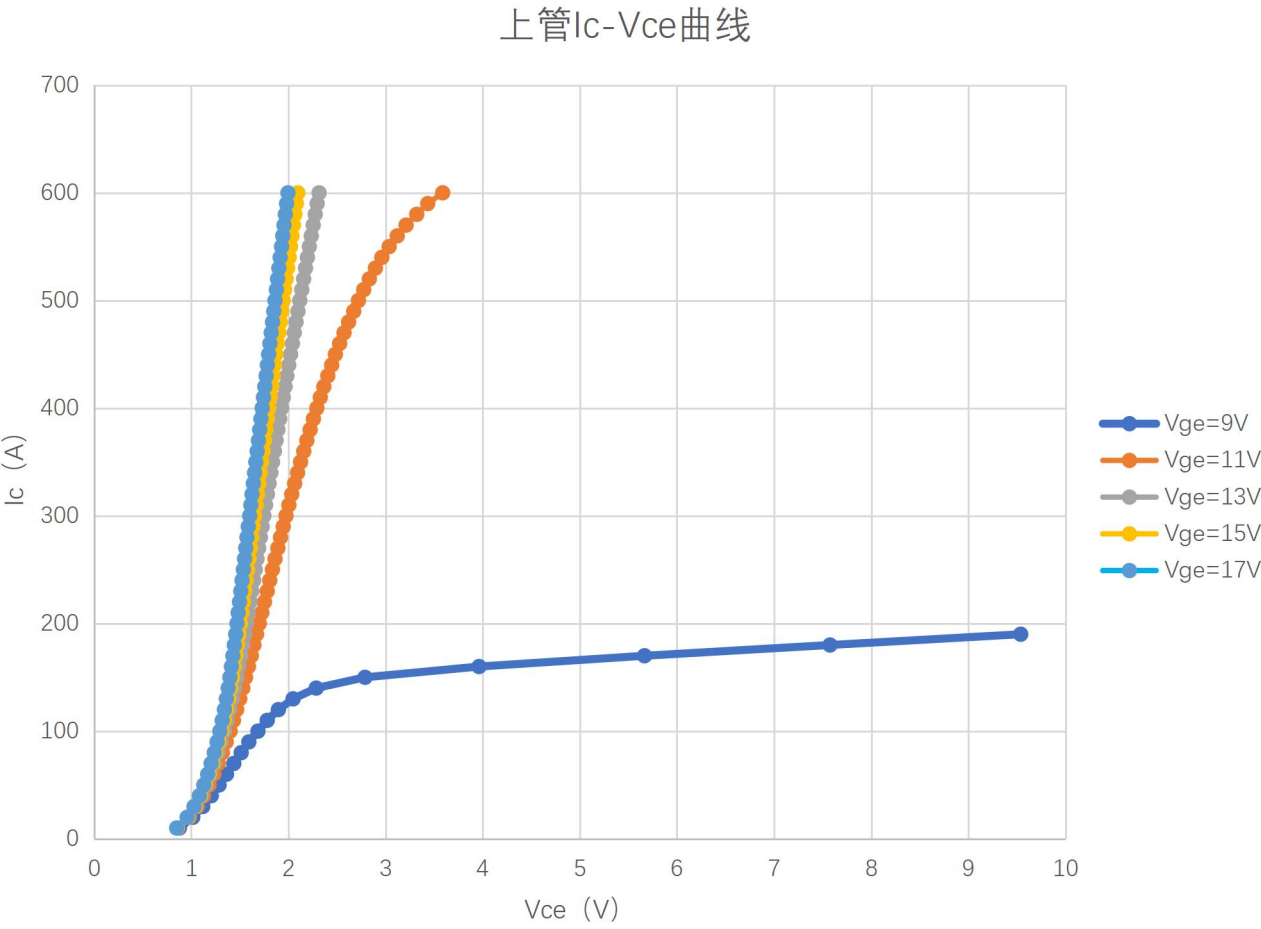


下管Ices-Vce



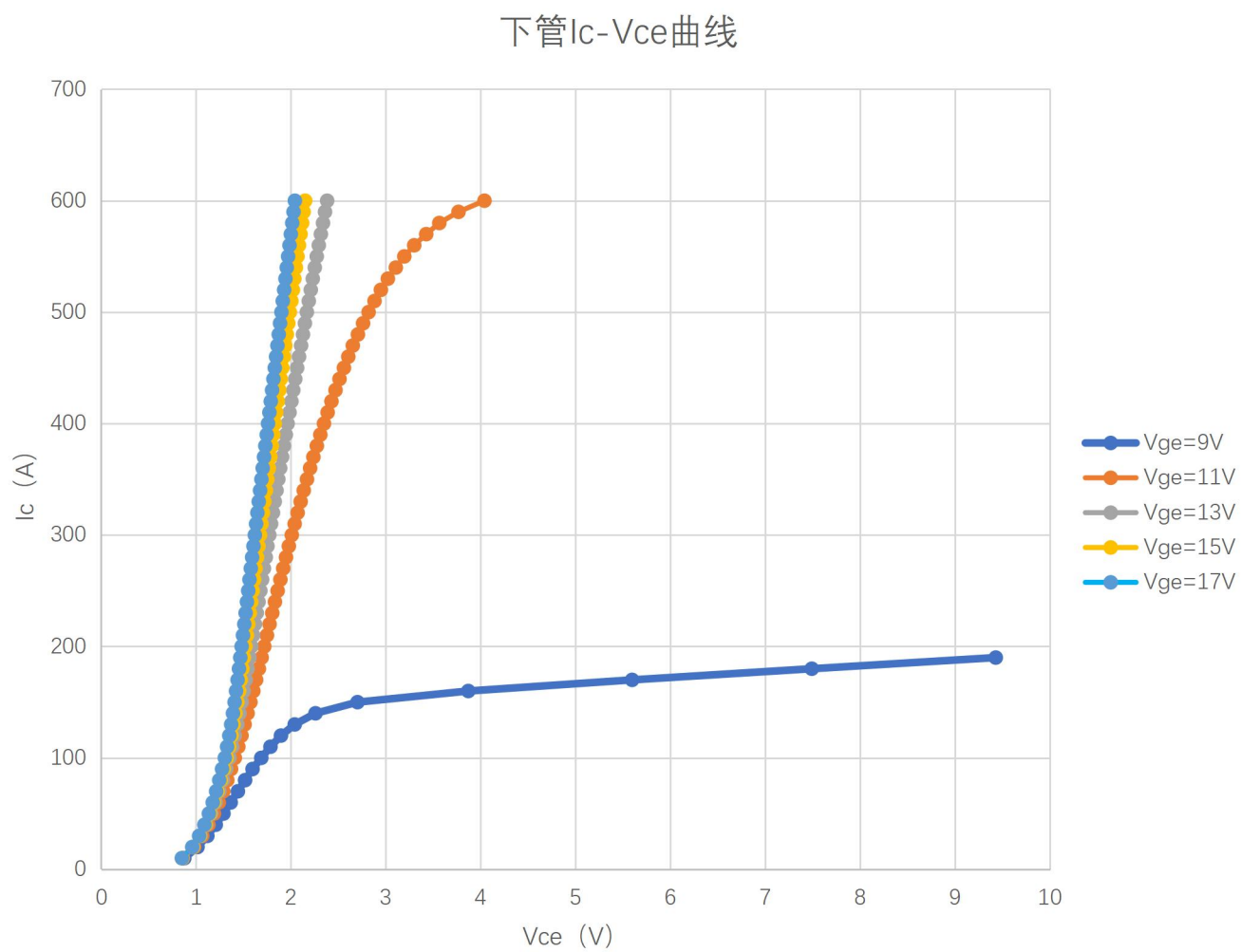
特征参数图表

上管Ic-Vce曲线



特征参数图表

下管Ic-Vce曲线



The diagram shows a full-bridge rectifier circuit with six terminals. Terminals 1 and 2 are the AC input. Terminals 3, 4, 5, and 6 are the DC output. The bridge consists of four diodes: two in the left leg (terminals 1 and 2) and two in the right leg (terminals 3 and 4). The positive DC output is taken from terminal 6 (top of right leg) and terminal 5 (bottom of left leg). The negative DC output is taken from terminal 4 (bottom of right leg) and terminal 3 (top of left leg).

Technical drawing of a mechanical part, showing front and top views with dimensions.

Front View Dimensions:

- Overall width: 106.4 ± 0.5
- Overall height: 31.0 ± 0.5
- Top flange width: 20.3
- Top flange height: 26.0 ± 0.5
- Top flange thickness: 7.3 ± 0.5
- Top flange hole diameter: 6.3 ± 0.5
- Top flange hole offset: 1.5 ± 0.3
- Bottom flange height: 23.0 ± 0.5
- Bottom flange thickness: 28.8 ± 0.5
- Bottom flange hole diameter: 30.3 ± 0.5

Top View Dimensions:

- Overall width: 106.4 ± 0.5
- Overall height: 61.4 ± 0.5
- Top flange width: 14
- Top flange height: 13.25
- Top flange hole diameter: M6×3
- Top flange hole offset: R3.25
- Top flange hole offset: R3.20
- Top flange hole offset: R5 ± 0.20
- Top flange hole offset: 20 ± 0.3
- Top flange hole offset: 28
- Top flange hole offset: 27
- Top flange hole offset: 15
- Top flange hole offset: 30 ± 0.5
- Top flange hole offset: 48