

关键参数
Key Parameters

V_R		1200	V
V_F	Typ.	1.40	V
I_F	Max.	20	A
Die Size		2.90×2.90	mm ²

特点
Features

- 零反向恢复电流 Zero Reverse Recovery Current
- 温度依赖性低 Reduced Temperature Dependence
- 高效率 Higher Efficiency
- 简化散热系统 Reduced Cooling Requirements

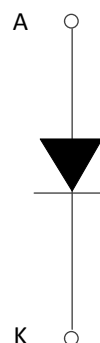
电路结构
Circuit Configuration


图 1. 电路结构

Fig. 1 Circuit configuration

最大额定值
Maximum Ratings

符号 Symbol	参数名称 Parameter	测试条件 Test Conditions	数值 Value	单位 Unit
V_{RRM}	重复峰值反向电压 Repetitive peak reverse voltage		1200	V
I_F	持续正向电流, 由 $T_{vj\ max}$ 限制 Continuous forward current, limited by $T_{vj\ max}$		20	A
I_{FRM}	最大重复正向电流, 由 $T_{vj\ max}$ 限制 Maximum repetitive forward current, limited by $T_{vj\ max}$	$T_C = 25\ ^\circ\text{C}$, $t_P = 10\text{ms}$	80	A
		$T_C = 100\ ^\circ\text{C}$, $t_P = 10\text{ms}$	60	A
I_{FSM}	不可重复正向浪涌电流 Non-Repetitive peak forward surge current	$T_C = 25\ ^\circ\text{C}$, $t_P = 10\text{ms}$, 正弦半波 $T_C = 25\ ^\circ\text{C}$, $t_P = 10\text{ms}$, Half Sine Pulse	392	A
		$T_C = 150\ ^\circ\text{C}$, $t_P = 10\text{ms}$, 正弦半波 $T_C = 150\ ^\circ\text{C}$, $t_P = 10\text{ms}$, Half Sine Pulse	386	A
$R_{\theta t}$	$R_{\theta t}$ 值 $R_{\theta t}$ value	$T_C = 25\ ^\circ\text{C}$, $t_P = 10\text{ms}$, 正弦半波 $T_C = 25\ ^\circ\text{C}$, $t_P = 10\text{ms}$, Half Sine Pulse	492	A ² s
		$T_C = 150\ ^\circ\text{C}$, $t_P = 10\text{ms}$, 正弦半波 $T_C = 150\ ^\circ\text{C}$, $t_P = 10\text{ms}$, Half Sine Pulse	477	A ² s
$T_{vj\ max}$	最大允许结温 Max. Junction temperature		-55...+175	°C
$T_{vj(op)}$	工作结温 Operation junction temperature		-55...+150	°C
T_{Proc}	最大加工温度 Maximum processing temperature	最长持续时间 10min 10min, maximum	325	°C

电特性值
Electrical Characteristics

除非特别声明，否则 $T_{vj}=25^{\circ}\text{C}$
 $T_{vj}=25^{\circ}\text{C}$ unless otherwise stated

符号 Symbol	参数名称 Parameter	条件 Test Conditions	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
V_F	正向电压 Forward voltage drop	$I_F=20\text{A}$		1.40		V
		$I_F=20\text{A}, T_{vj}=175^{\circ}\text{C}$		1.80		V
I_R	反向漏电流 Reverse Current	$V_R=1200\text{V}$			1	μA
		$V_R=1200\text{V}, T_{vj}=175^{\circ}\text{C}$			5	μA
Q_C	总电容电荷 Total Capacitive Charge	$V_R=800\text{V}$		96		nC
C	总电容 Total Capacitance	$V_R=0\text{V}, f=100\text{kHz}$		1215		pF
		$V_R=400\text{V}, f=100\text{kHz}$		86		
		$V_R=800\text{V}, f=100\text{kHz}$		78		
E_C	电容存储能量 Capacitance Stored Energy	$V_R=800\text{V}$		44		μJ

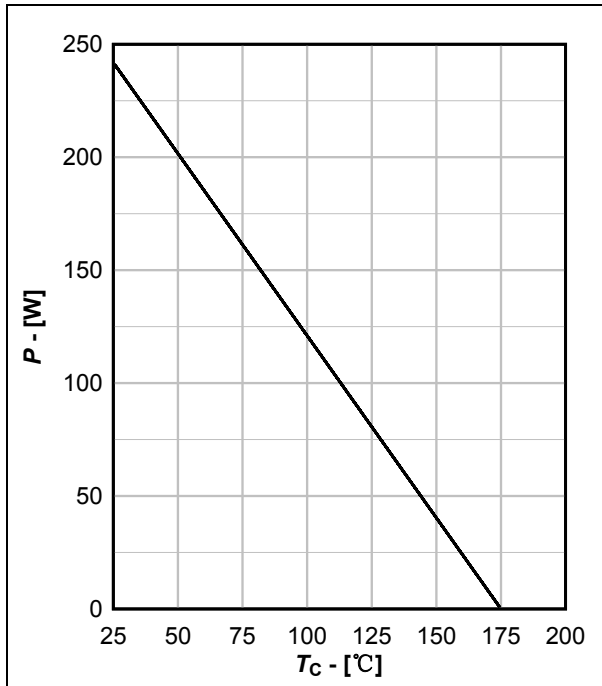


图 2 典型功率降额曲线, $P_{\text{tot}}=f(T_c)$

Fig.2 Power dissipation per leg as function of case temperature, $P_{\text{tot}}=f(T_c)$

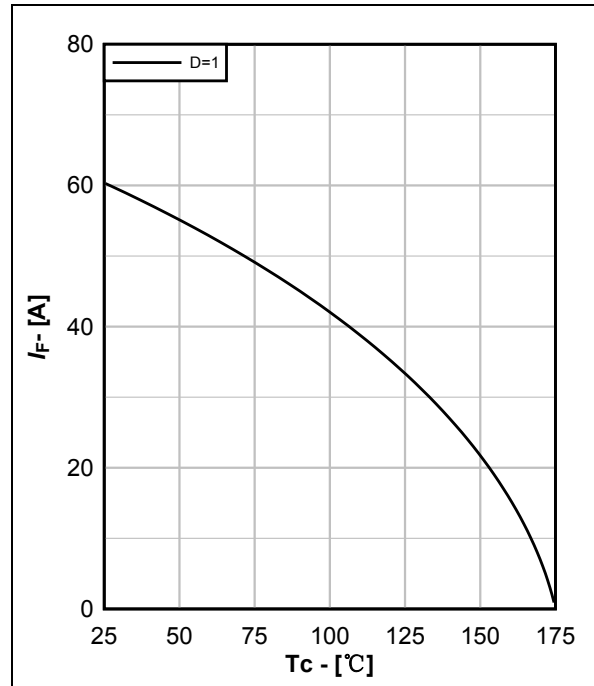


图 3. 不同负载下的电流曲线, $I_F=f(T_c)$

Fig.3 Diode forward current per leg as function of temperature, $I_F=f(T_c)$

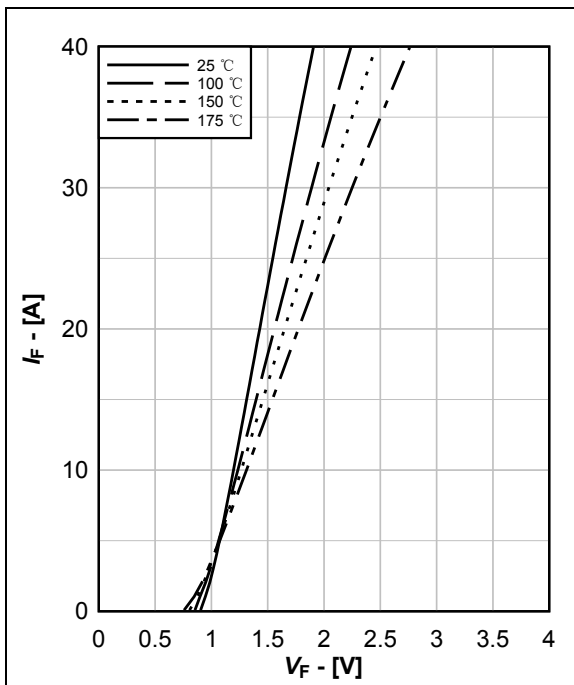


图 4. 典型正向特性曲线, $I_F=f(V_F)$

Fig.4 Typical forward characteristics per leg, $I_F=f(V_F)$

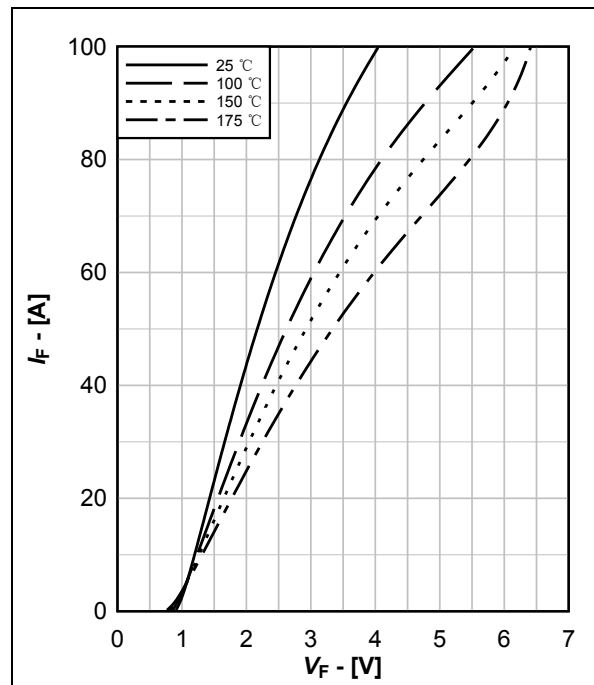


图 5. 典型正向特性曲线, $I_F=f(V_F)$

Fig.5 Typical forward characteristics per leg, $I_F=f(V_F)$

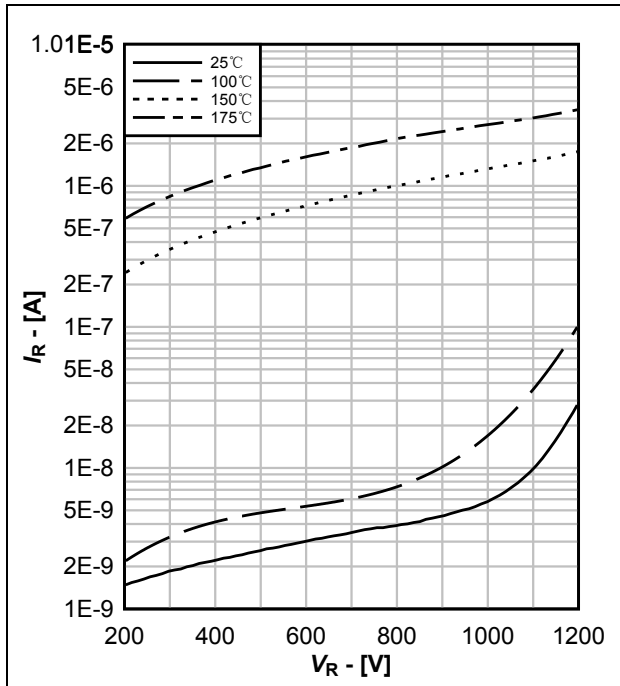


图 6. 典型反向特性曲线, $I_R = f(V_R)$

Fig.6 Typical IGBT output characteristics, $I_R = f(V_R)$

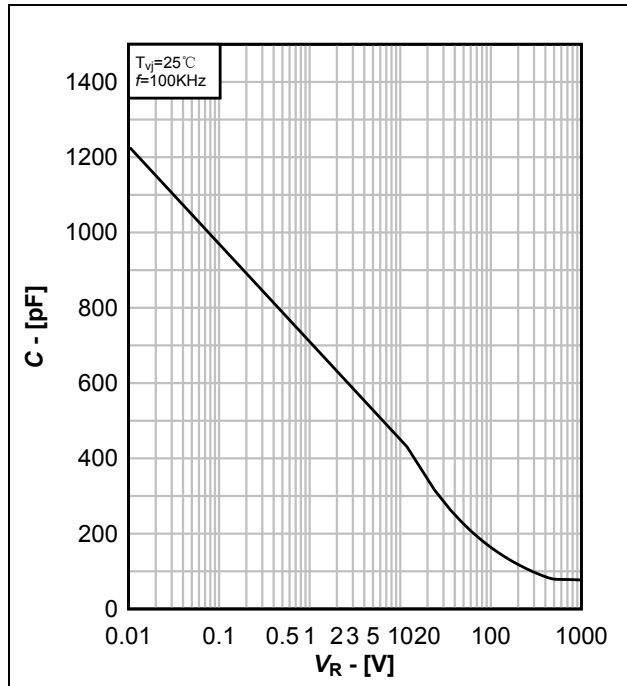


图 7. 典型电容与反向电压曲线, $C = f(V_R)$

Fig.7 Typical capacitance per leg as function of reverse voltage, $C = f(V_R)$

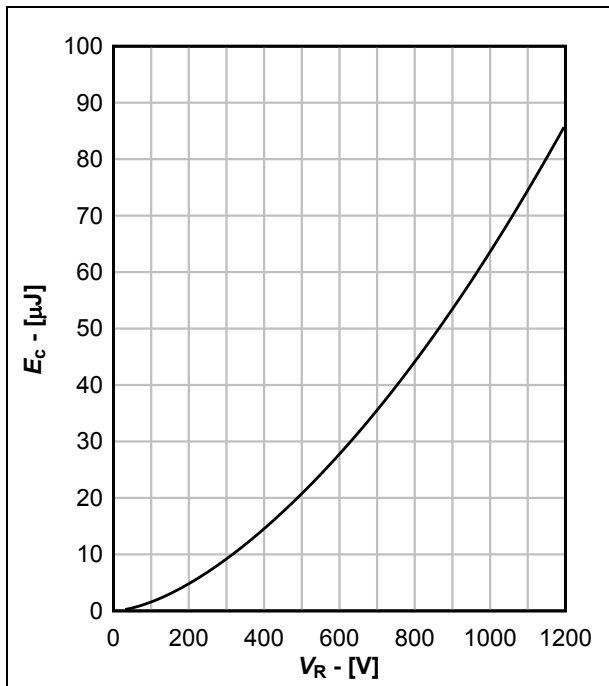


图 8. 典型电容能量与反向电压曲线, $E_c = f(V_R)$

Fig.8 Typical capacitively stored energy as function of reverse voltage, per leg, $E_c = f(V_R)$

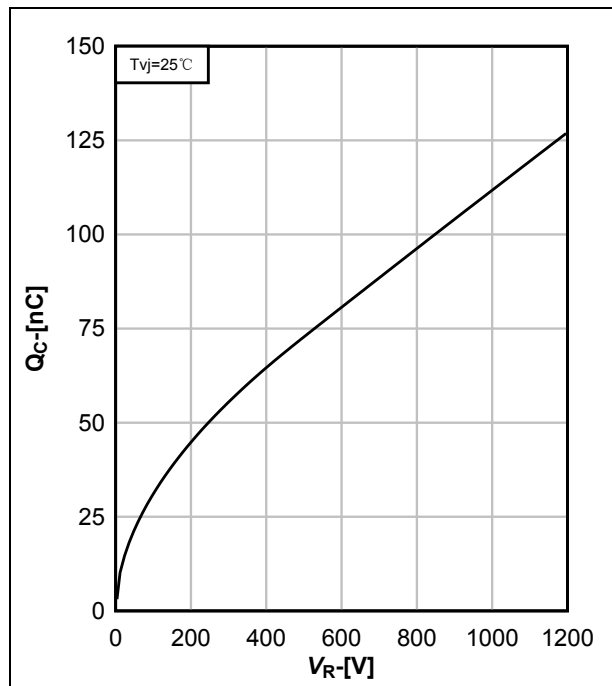


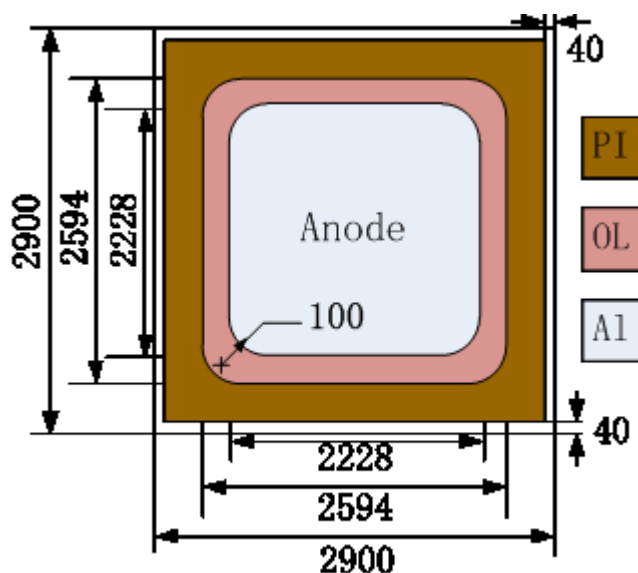
图 9. 总电容电荷曲线, $Q_C = f(V_R)$

Fig.9 Total Capacitance Charge vs. Reverse Voltage, $Q_C = f(V_R)$

工艺参数值

Mechanical Parameters

芯片尺寸 Chip size	2.90×2.90	mm ²
阳极区尺寸 Anode pad size	2.228×2.228	mm ²
总面积 Area total	8.41	mm ²
厚度 Thickness	150	μm
晶圆尺寸 Wafer size	150	mm
每片晶圆上最大芯片数 Max. possible chips per wafer	1731	
阳极金属 Anode metal	Ti(0.2μm)-Al(4μm)	
阴极金属 Cathode metal	Ti(50nm)- Ni(500nm)- Ag(500nm)	
正面钝化 Passivation frontside	Polyimide	
建议存储环境 Recommended storage environment	存储在原始容器中，23°C 干燥氮气柜小于 6 个月 Store in original container, in dry nitrogen, <6 months at an ambient temperature of 23°C	



单位：微米

Unit: μm

图 10. 芯片外观尺寸

Fig. 10 Chip drawing

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