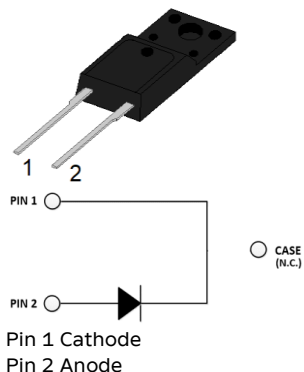


SCD020TD065S23F

4th Generation 650V/20A SiC Schottky Barrier Diode

第四代 650V/20A 碳化硅肖特基二极管

Package Type: TO-220F-2L

 $V_{RRM} = 650\text{ V}$ $I_F (135\text{ }^{\circ}\text{C}) = 15\text{ A}$ $V_F (25\text{ }^{\circ}\text{C}) = 1.3\text{ V}$

- High-speed switching performance
高速开关表现
- No reverse recovery
无反向恢复

Maximum ratings 最大额定值^{1 2}

PARAMETER 参数	SYMBOL 符号	CONDITIONS 条件	MIN 最小	MAX 最大	UNIT 单位
Repetitive peak reverse voltage 重复反向峰值电压	V_{RRM}	$T_{vj} = 25\text{ }^{\circ}\text{C}$		650	V
Surge peak reverse voltage 浪涌峰值反向电压	V_{RSM}			650	V
DC reverse voltage 直流反向电压	V_{DC}			650	V
Continuous forward current 连续正向电流	I_F	$T_C = 25\text{ }^{\circ}\text{C}$		29	A
		$T_C = 101\text{ }^{\circ}\text{C}$		20	A
		$T_C = 135\text{ }^{\circ}\text{C}$		15	A
Surge non-repetitive forward current 非重复正向浪涌电流	I_{FSM}	$T_C = 25\text{ }^{\circ}\text{C}$, $t_p = 10\text{ ms}$, half sine pulse		122	A
Repetitive peak forward current 重复峰值正向电流	I_{FRM}	$T_C = 25\text{ }^{\circ}\text{C}$, $t_p = 10\text{ ms}$, half sine wave $D = 0.1$		71	A
Power dissipation 耗散功率	P_{tot}			61	W
i^2t value 安秒平方值	$\int i^2 dt$	$T_C = 25\text{ }^{\circ}\text{C}$, $t_p = 10\text{ ms}$		74	A^2s
Operation junction temperature 工作结温范围	T_{vj}		-55	175	$^{\circ}\text{C}$
Storage temperature 存储温度范围	T_{stg}		-55	175	$^{\circ}\text{C}$



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¹ Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747¹ 根据标准 IEC 60747 要求，最大额定值表示超过该限值可能会对器件造成损坏² $T_{vj} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified / 除非另有规定, $T_{vj} = 25\text{ }^{\circ}\text{C}$



SiC Diode^{3 4}

PARAMETER 参数	SYMBOL 符号	CONDITIONS 条件	MIN 最小	TYP 典型	MAX 最大	UNIT 单位
DC blocking voltage 直流击穿电压	V _{DC}	I _R = 100 µA	650			V
Forward voltage 正向导通压降	V _F	I _F = 20 A		1.30	1.45	V
				1.50	1.75	V
Reverse current 反向电流	I _R	V _R = 650 V		5	120	µA
				50	600	µA
Total capacitance 总电容	C	f = 1 MHz		1205		pF
				114		pF
				87		pF
Total capacitive charge 总电容电荷	Q _C	V _R = 400 V (∫C(V)dV)		59		nC
Capacitance stored energy 电容储存能量	E _C	V _R = 400 V (∫Q _C (V)dV)		8.7		µJ

Package properties 封装特性

PARAMETER 参数	SYMBOL 符号	CONDITIONS 条件	MIN 最小	TYP 典型	MAX 最大	UNIT 单位
Thermal resistance from junction to case 结到壳热阻	R _{th(j-c)}			2.46		K/W

³ Characteristic values according to IEC 60747-2 / 特性值依据 IEC 60747-2

⁴ T_{vj} = 25 °C, unless otherwise specified / 除非另有规定, T_{vj} = 25 °C

Characteristics 特性曲线

Figure 1. Forward characteristics

图 1. 正向特性

$$I_F = f(V_F)$$

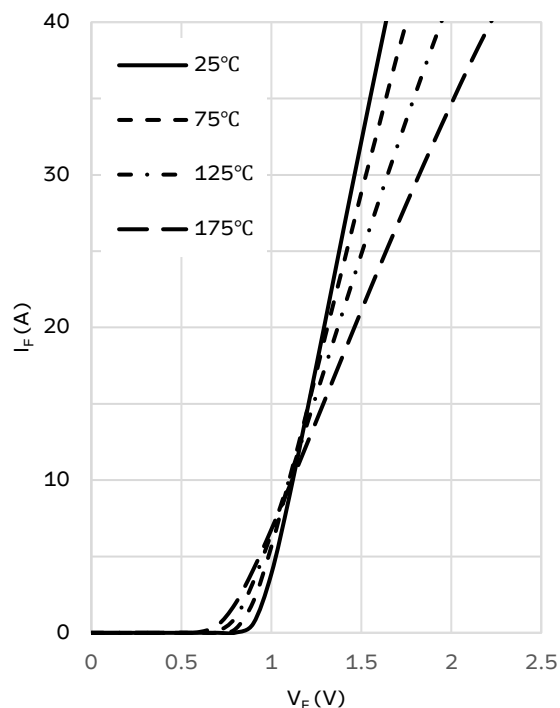


Figure 2. Reverse characteristics

图 2. 反向特性

$$I_R = f(V_R)$$

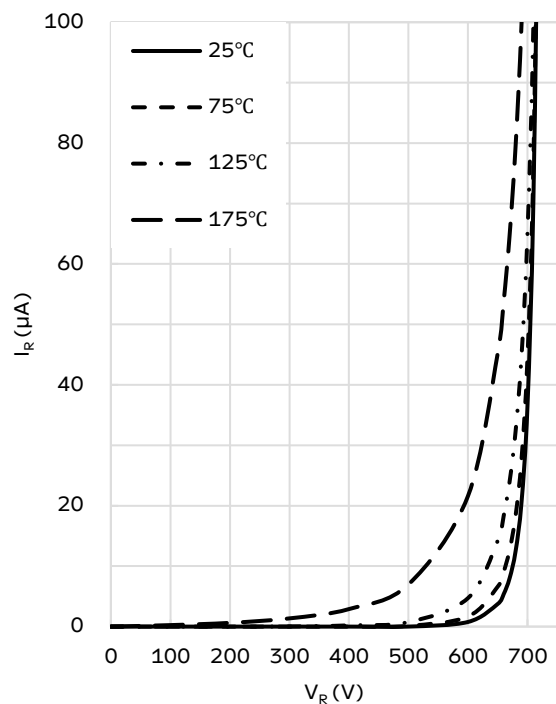


Figure 3. Current derating

图 3. 电流降额

$$I_{F(\text{peak})} = f(T_C)$$

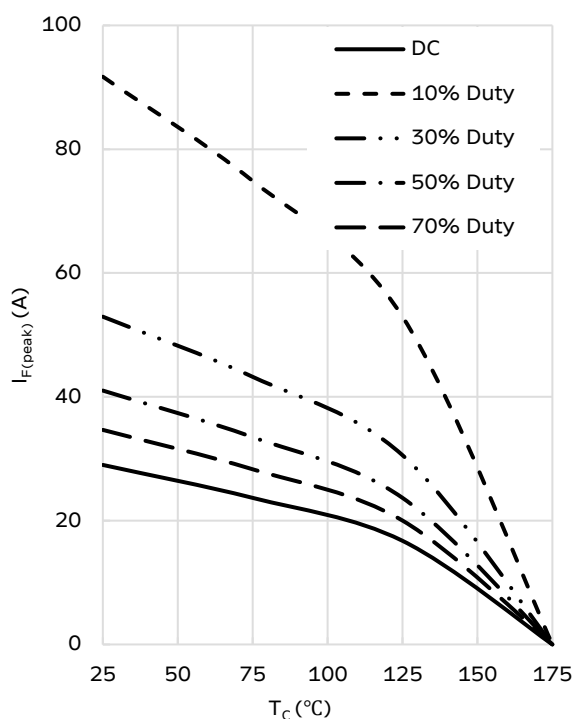


Figure 4. Power derating

图 4. 功率降额

$$P_{\text{tot}} = f(T_C)$$

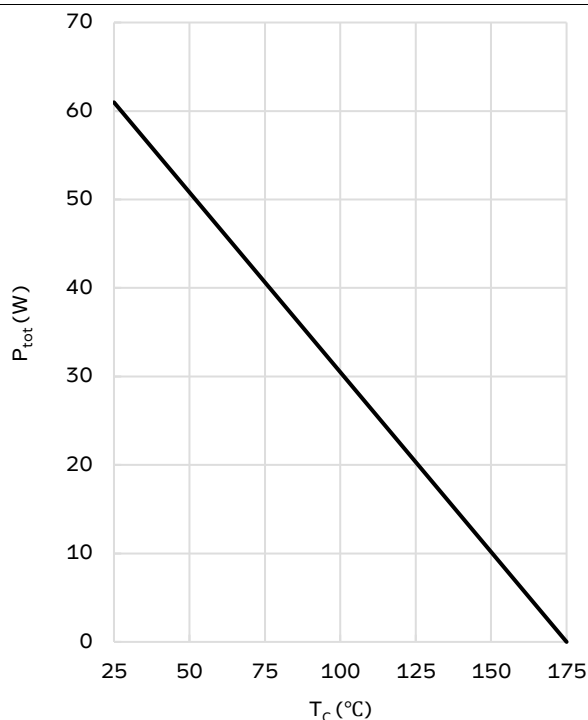


Figure 5. Capacitance vs. reverse voltage

图 5. 电容 vs 反向电压

$$C = f(V_R)$$

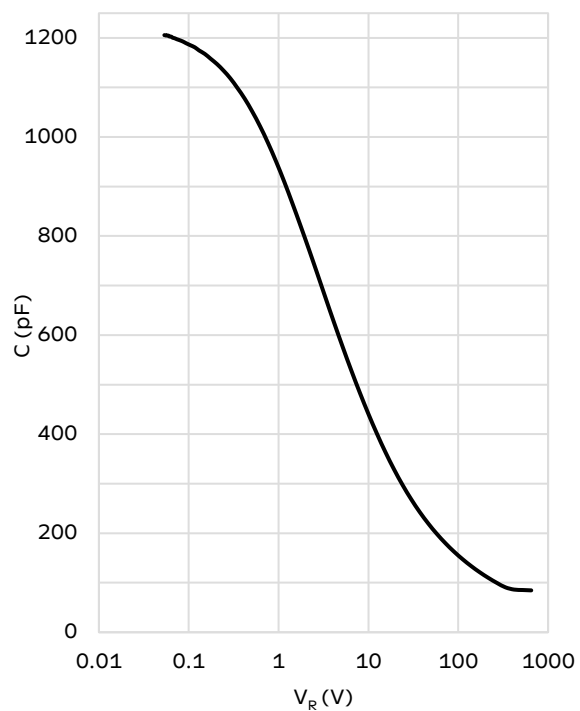


Figure 6. Total capacitance charge vs. reverse voltage

图 6. 总电容电荷 vs 反向电压

$$Q_C = f(V_R)$$

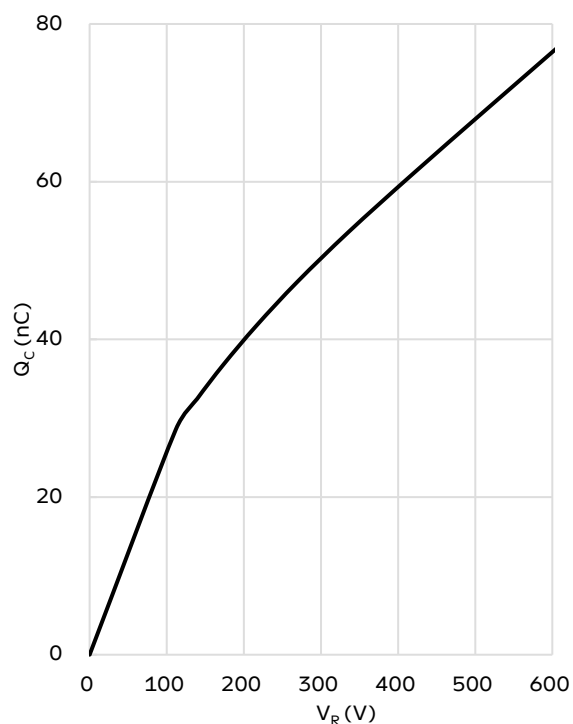
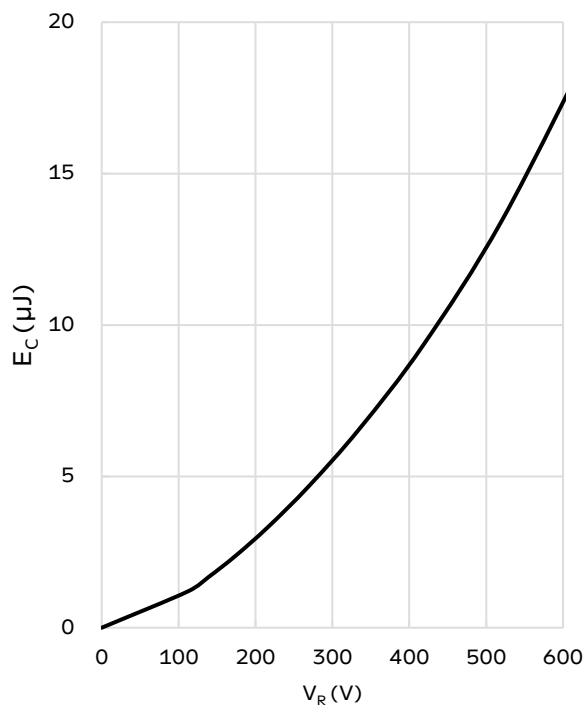


Figure 7. Capacitance stored energy

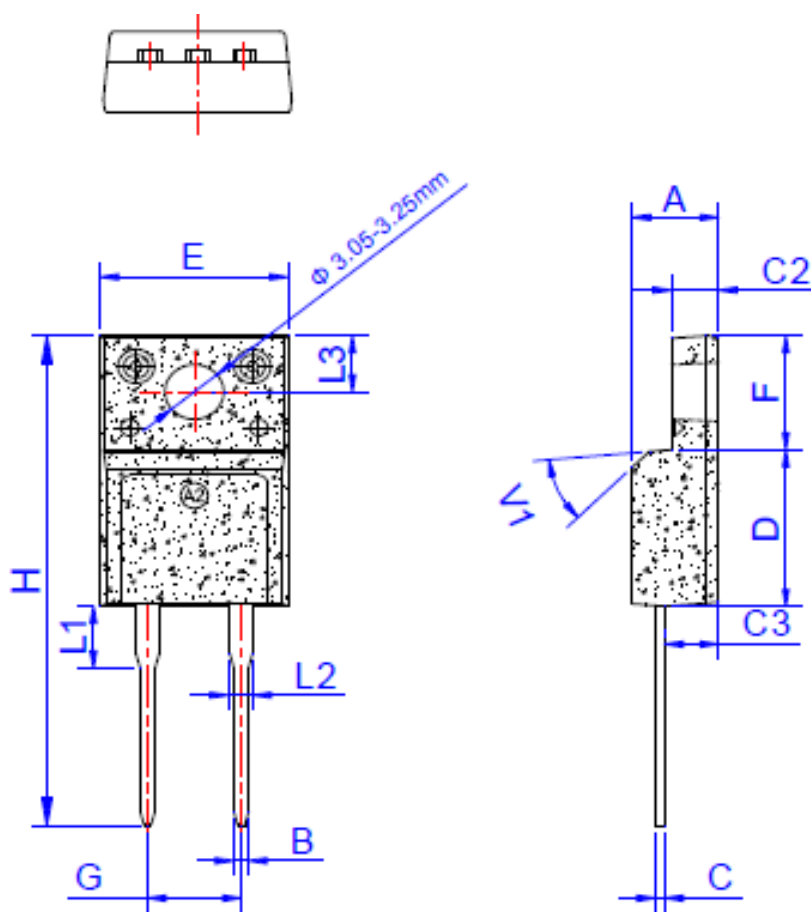
图 7. 电容储存能量

$$E_C = f(V_R)$$



Outline drawing 外形图

Marking SCDS23F020TD065



Sym- bol	Dimensions In Millimeters	
	Min.	Max.
A	4.50	4.90
B	0.74	0.83
C	0.47	0.65
C2	2.45	2.75
C3	2.60	3.00
D	8.80	9.30
E	9.80	10.4
F	6.40	6.80
G	4.80	5.40
H	28.0	29.8
L1	TYP 3.63	
L2	1.14	1.70
L3	TYP 3.30	
V1	TYP 45°	

This is an electrostatic sensitive device. 本产品对静电特别敏感。

This product has been designed and qualified for industry Level. 本产品的设计符合工业级标准。

Note: All dimensions are in mm



Ordering Information 订购信息

OPTION 选项		ARTICLE NUMBER 商品编号
Qualification grade	Industrial (F)	SCD020TD065S23F
Packaging Method 包装方式	Tube (_P20)	SCD020TD065S23F _P20

Revision History 修订历史

Release 发布	Version 版本	Description 描述
2026-07-29	v1.0	Preliminary Datasheet 初始规格书