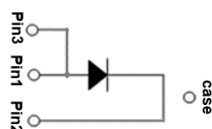
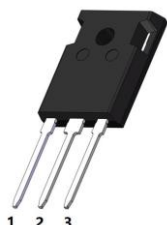


SCD020HL065S23F

G4 Generation 650V/20A SiC Schottky Barrier Diode

第四代 650V/20A 碳化硅肖特基二极管

Package Type: TO-247N-3L



Pin 1 Anode
Pin 2 Cathode
Pin 3 Anode

 $V_{RRM} = 650\text{ V}$ $I_F(135\text{ }^{\circ}\text{C}) = 21\text{ A}$ $V_F(25\text{ }^{\circ}\text{C}) = 1.3\text{ V}$

- 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	$T_C = 25\text{ }^{\circ}\text{C}$		40	A
		$T_C = 135\text{ }^{\circ}\text{C}$		21	A
		$T_C = 138\text{ }^{\circ}\text{C}$		20	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		135	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 $D = 0.1$		108	A
Power dissipation 耗散功率	P_{tot}			125	W
I^2t value 安秒平方值	$\int I^2 dt$	$T_C = 25\text{ }^{\circ}\text{C}$, $t_p = 10\text{ ms}$		91	A ² s
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	1.50	V
				1.50	1.80	V
Reverse current 反向电流	I _R	V _R = 650 V		5	80	µA
				40	600	µA
Total capacitance 总电容	C	f = 1 MHz		1131		pF
				105		pF
				92		pF
Total capacitive charge 总电容电荷	Q _C	V _R = 400 V (∫C(V)dV)		56		nC
Capacitance stored energy 电容储存能量	E _C	V _R = 400 V (∫Q _C (V)dV)		8.4		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)}			1.2		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

$$I_F = f(V_F)$$

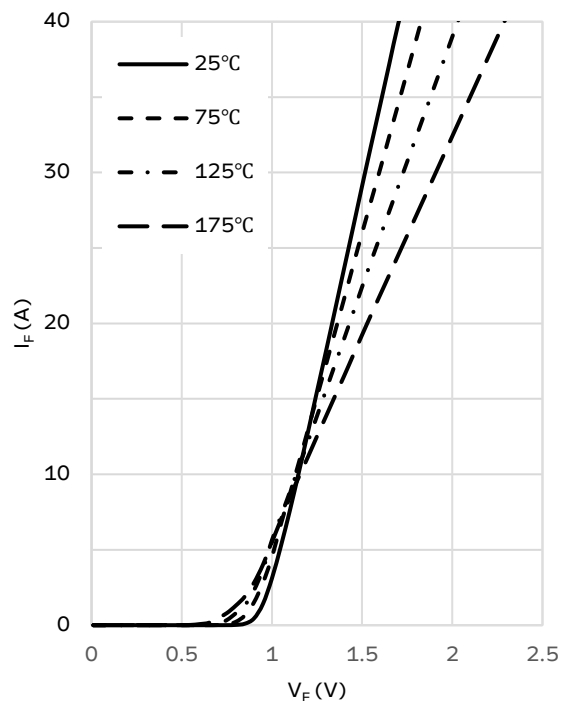


Figure 2. Reverse characteristics

图 2. 反向特性

$$I_R = f(V_R)$$

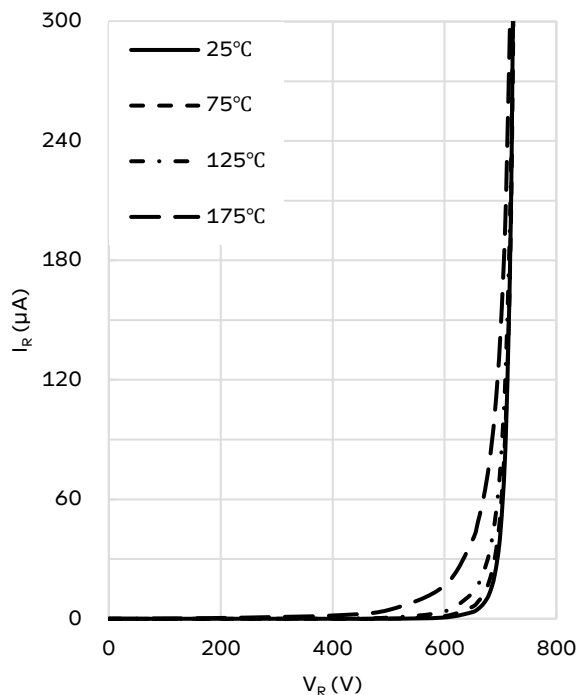


Figure 3. Current derating

图 3. 电流降额

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

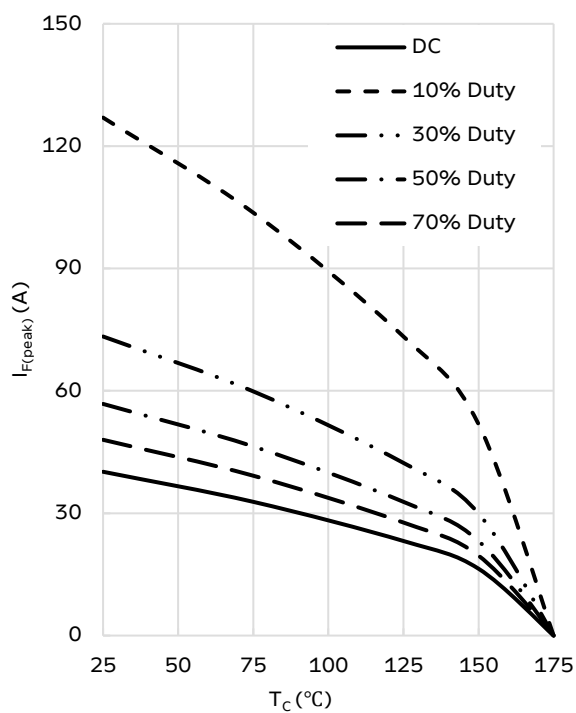


Figure 4. Power derating

图 4. 功率降额

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

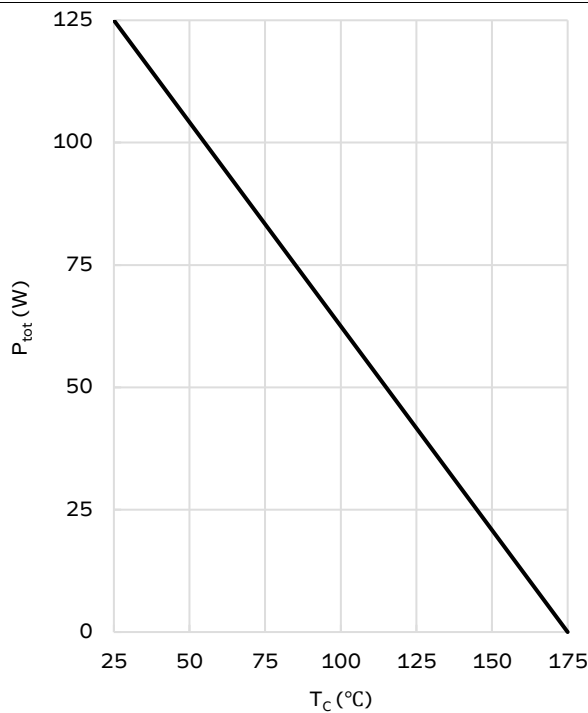




Figure 5. Capacitance vs. reverse voltage

图 5. 电容 vs 反向电压

$$C = f(V_R)$$

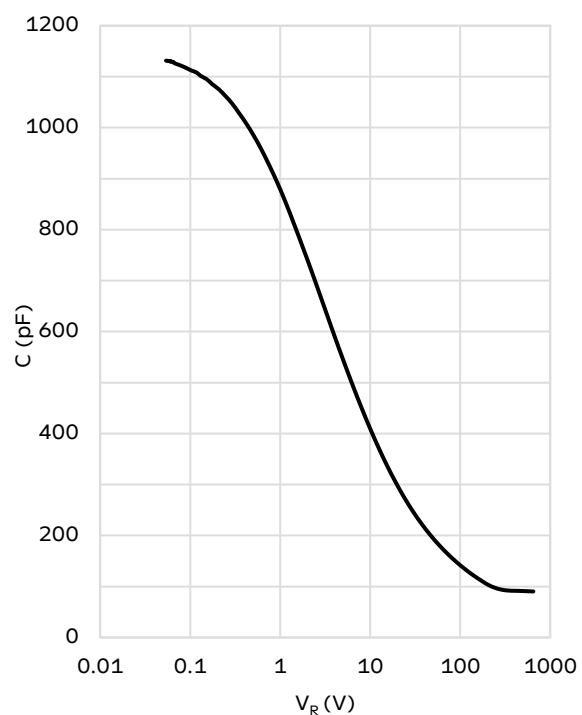


Figure 6. Total capacitance charge vs. reverse voltage

图 6. 总电容电荷 vs 反向电压

$$Q_C = f(V_R)$$

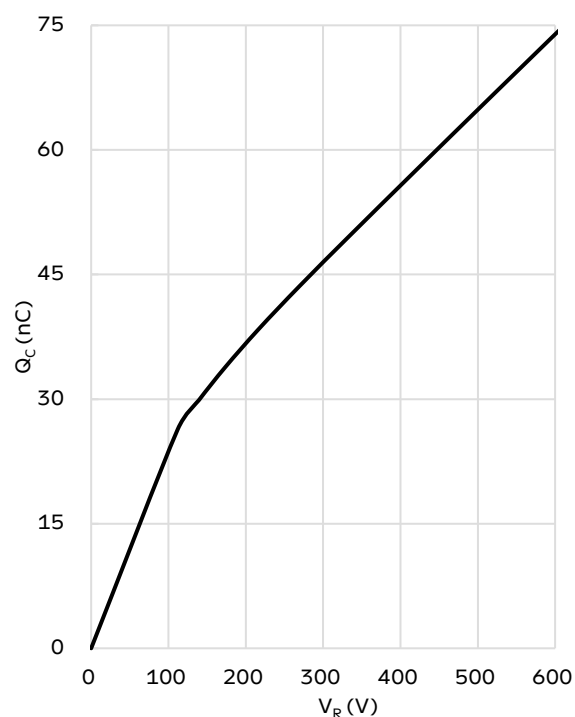
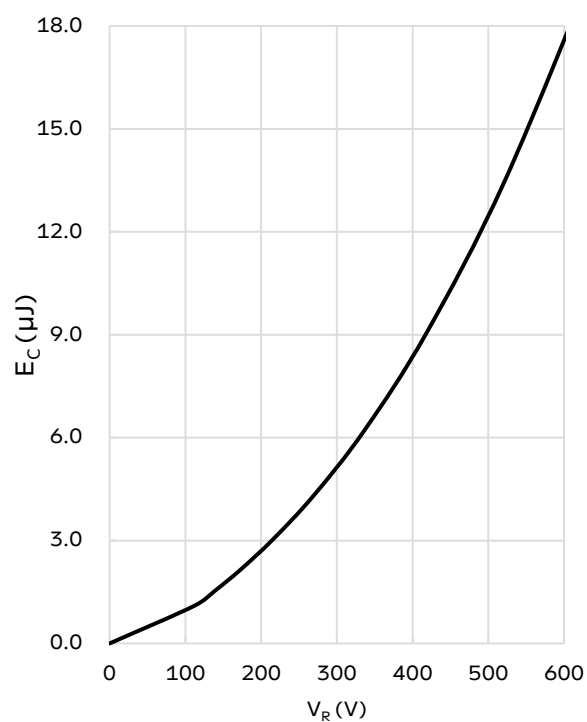


Figure 7. Capacitance stored energy

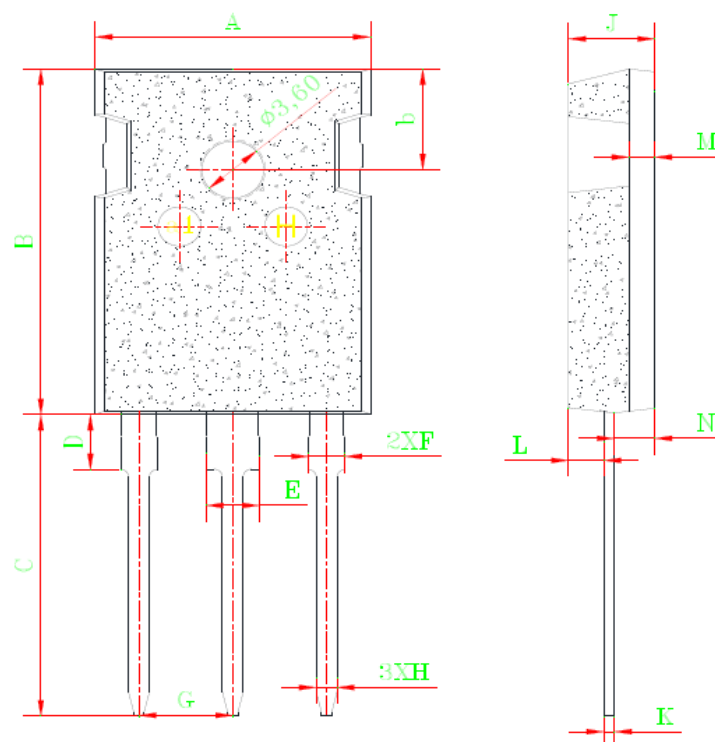
图 7. 电容储存能量

$$E_C = f(V_R)$$



Outline drawing 外形图

Marking SCDS23F020HL065



Sym- bol	Dimensions In Milli- meters	
	Min.	Max.
A	15.70	16.30
b	6.10	6.50
B	20.70	22.10
C	18.80	19.40
D	3.20	3.60
E	2.90	3.30
F	1.90	2.30
G	5.25	5.65
H	1.10	1.30
J	4.90	5.10
K	0.55	0.65
L	1.85	2.15
M	1.40	1.60
N	2.10	2.50

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)	SCD020HL065S23F
Packaging Method 包装方式	Tube (_P20)	SCD020HL065S23F _P20

Revision History 修订历史

Release 发布	Version 版本	Description 描述
2026-07-23	v1.0	Preliminary Datasheet 初始规格书