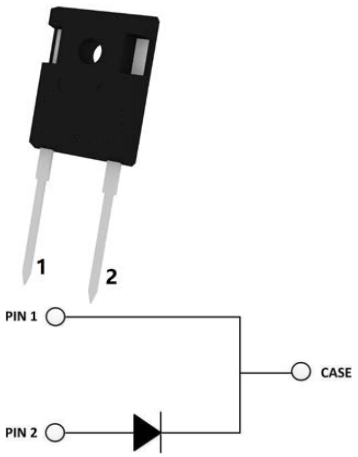
DATASHEET 规格书

SCD040HA120S24F

5th Generation 1200V/40A SiC Schottky Barrier Diode
第五代 1200V/40A 碳化硅肖特基二极管
Package Type: TO-247-2L



Pin 1 Cathode
Pin 2 Anode

V_{RRM} = 1200 V
I_F (135 °C) = 46 A
V_F (25 °C) = 1.45 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 °C		1200	V
Surge peak reverse voltage 浪涌峰值反向电压	V_{RSM}			1200	V
DC reverse voltage 直流反向电压	V_{DC}			1200	V
Continuous forward current 连续正向电流	I_F	T_C = 25 °C		89	A
		T_C = 135 °C		46	A
		T_C = 146 °C		40	A
Surge non-repetitive forward current 非重复正向浪涌电流	I_{FSM}	T_C = 25 °C t_p = 10 ms, half sine pulse		395	A
Repetitive peak forward current 重复峰值正向电流	I_{FRM}	T_C = 25 °C, t_p = 10 ms, half sine wave D = 0.1		166	A
Power dissipation 耗散功率	P_{tot}			429	W
i^2t value 安秒平方值	$\int i^2dt$	T_C = 25 °C, t_p = 10 ms		780	A^2s
Operation junction temperature 工作结温范围	T_{vj}		-55	175	°C
Storage temperature 存储温度范围	T_{stg}		-55	175	°C

Scan for latest product catalogue 扫描查看最新产品目录

[1] Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747
[1] 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 °C, unless otherwise specified / 除非另有规定, T_{vj} = 25 °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		1200			V
Forward voltage 正向导通压降	V_F	I_F = 40 A	T_{vj} = 25 °C		1.45	1.65	V
			T_{vj} = 175 °C		2.15	2.50	V
Reverse current 反向电流	I_R	V_R = 1200 V	T_{vj} = 25 °C		5	100	µA
			T_{vj} = 175 °C		30	640	µA
Total capacitance 总电容	C	f =1 MHz	VR = 0 V		2429		pF
			VR = 400 V		155		pF
			VR = 800 V		112		pF
Total capacitive charge 总电容电荷	Q_C	V_R =800 V (∫C(V)dV)			166		nC
Capacitance stored energy 电容储存能量	E_C	V_R =800 V (∫Q_C(V)dV)			47		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	$R_{th(j-c)}$			0.35		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
$I_F = f(V_F)$

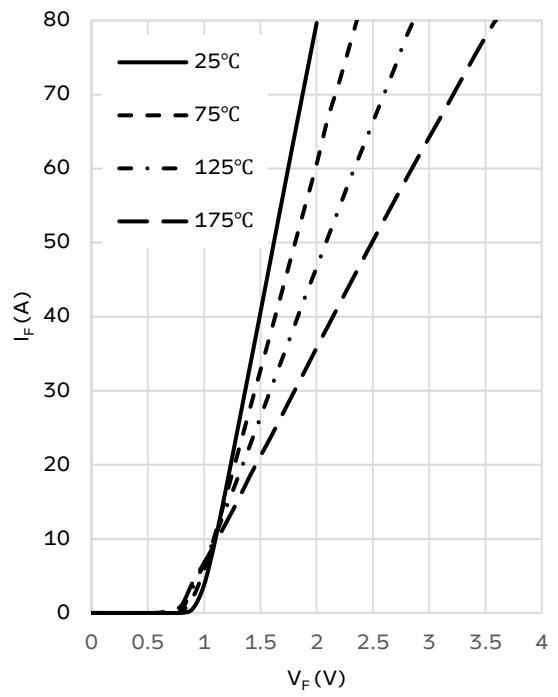


Figure 2. Reverse characteristics
图 2. 反向特性
$I_R = f(V_R)$

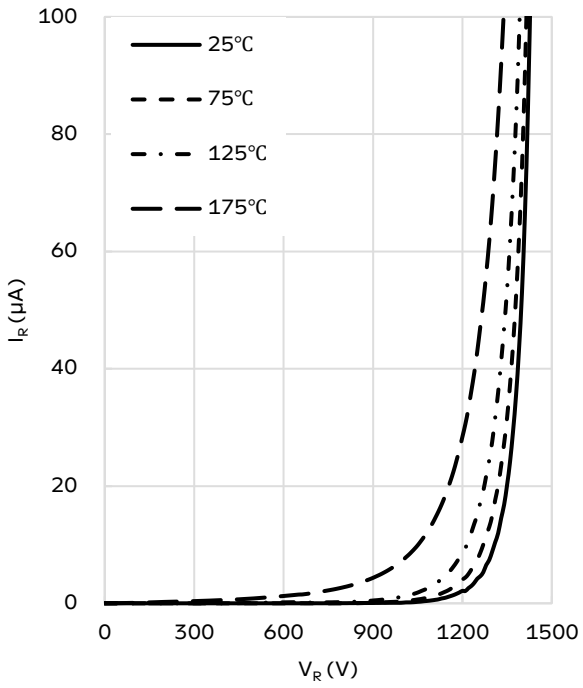


Figure 3. Current derating
图 3. 电流降额
$I_{F(peak)} = f(Tc)$

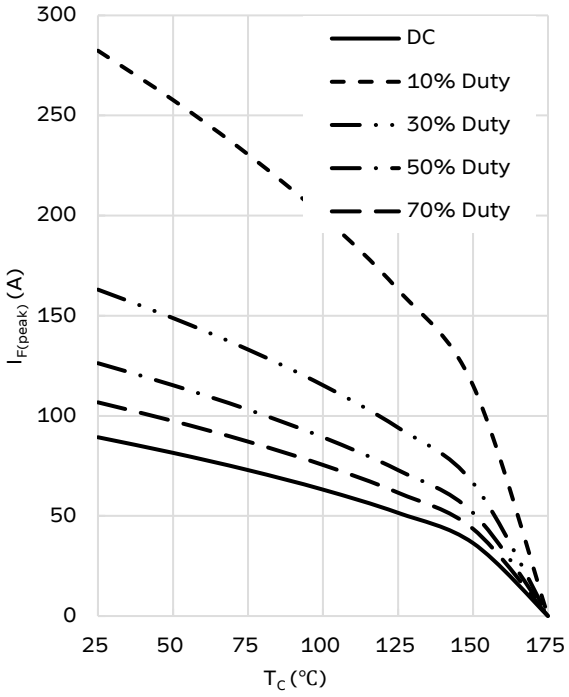


Figure 4. Power derating
图 4. 功率降额
$P_{tot} = f(T_C)$

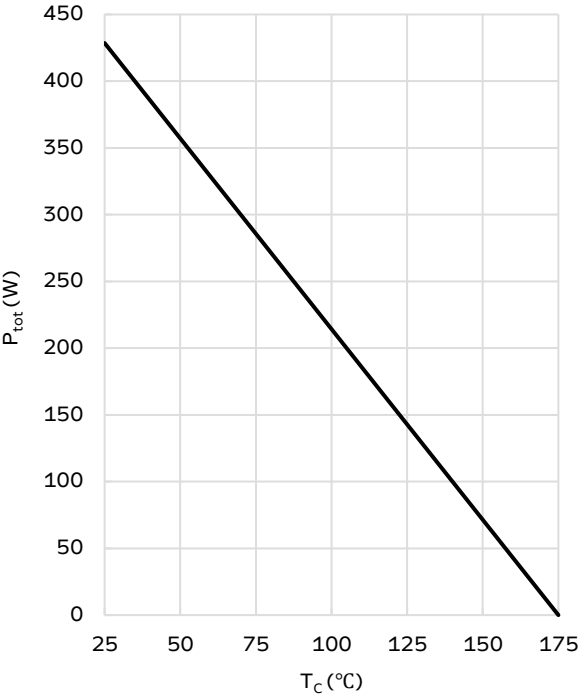


Figure 5. Capacitance vs. reverse voltage
图 5. 电容 vs 反向电压
$C = f(V_R)$

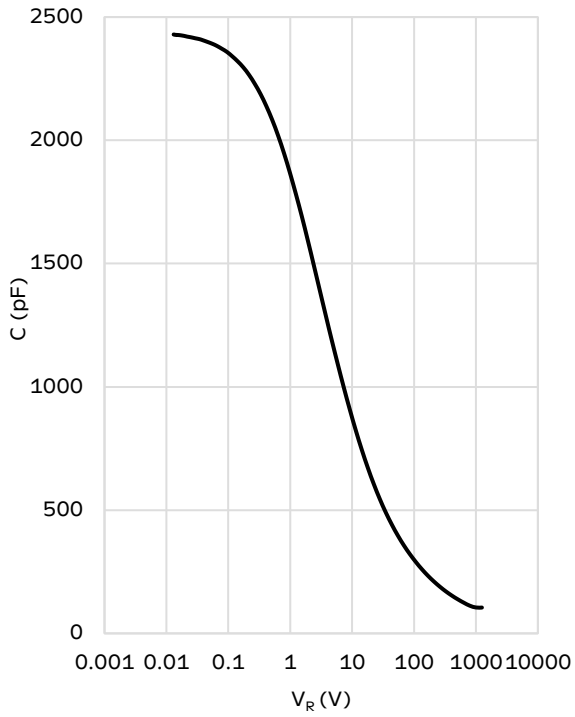


Figure 6. Total capacitance charge vs. reverse voltage
图 6. 总电容电荷 vs 反向电压
$Q_C = f(V_R)$

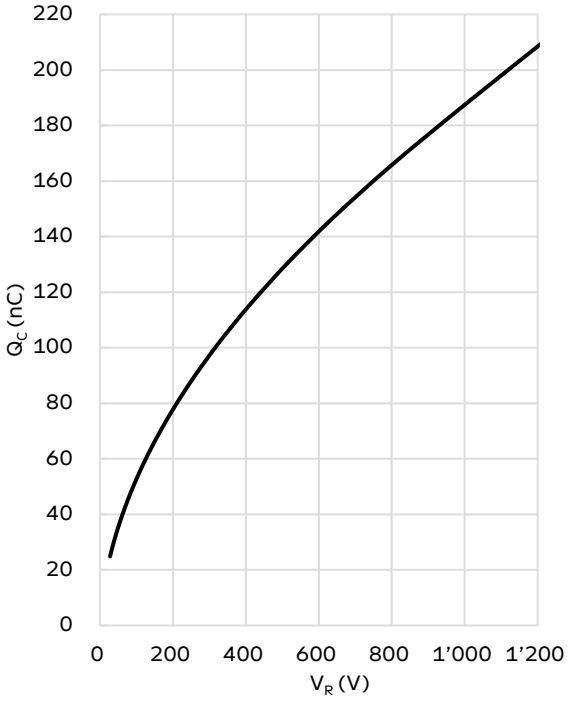


Figure 7. Capacitance stored energy
图 7. 电容储存能量
$E_C = f(V_R)$

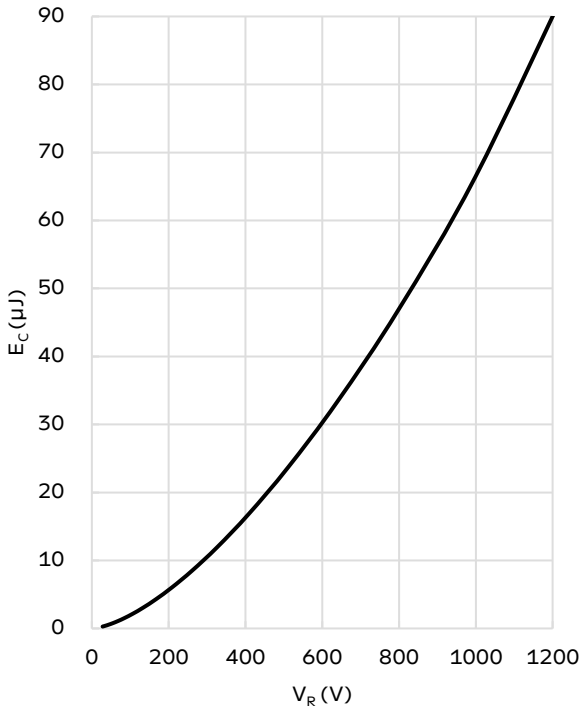
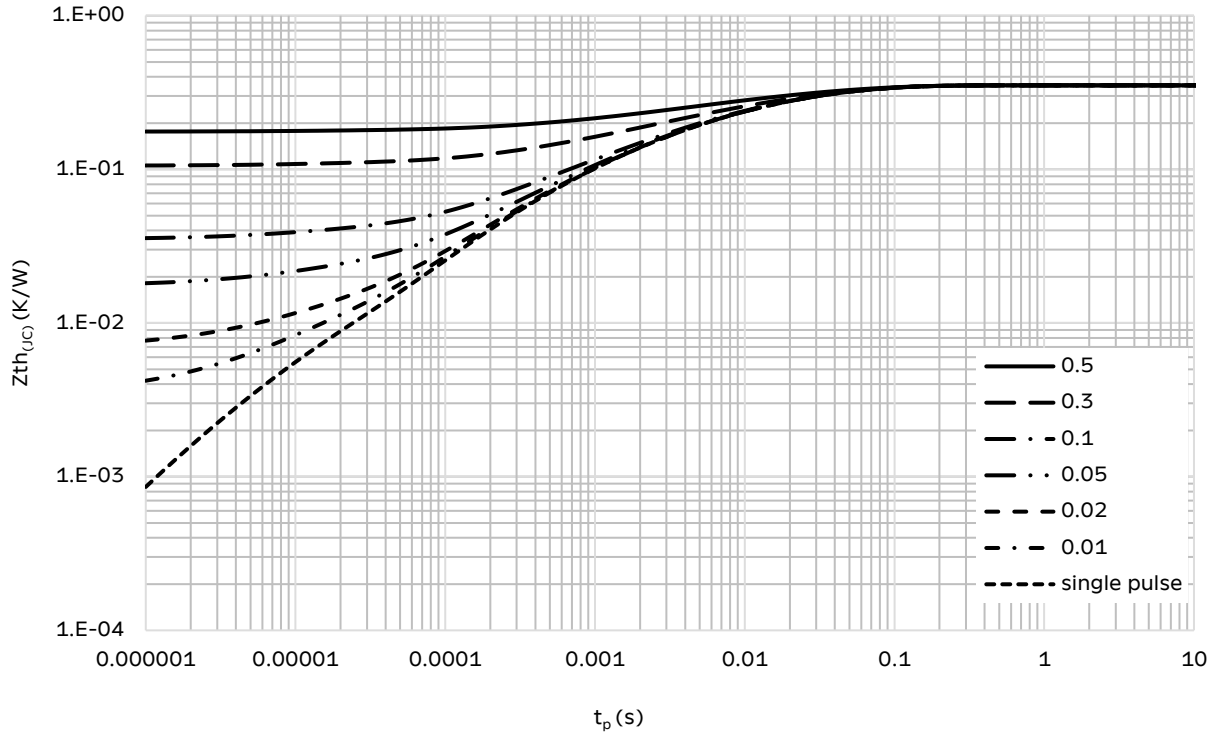
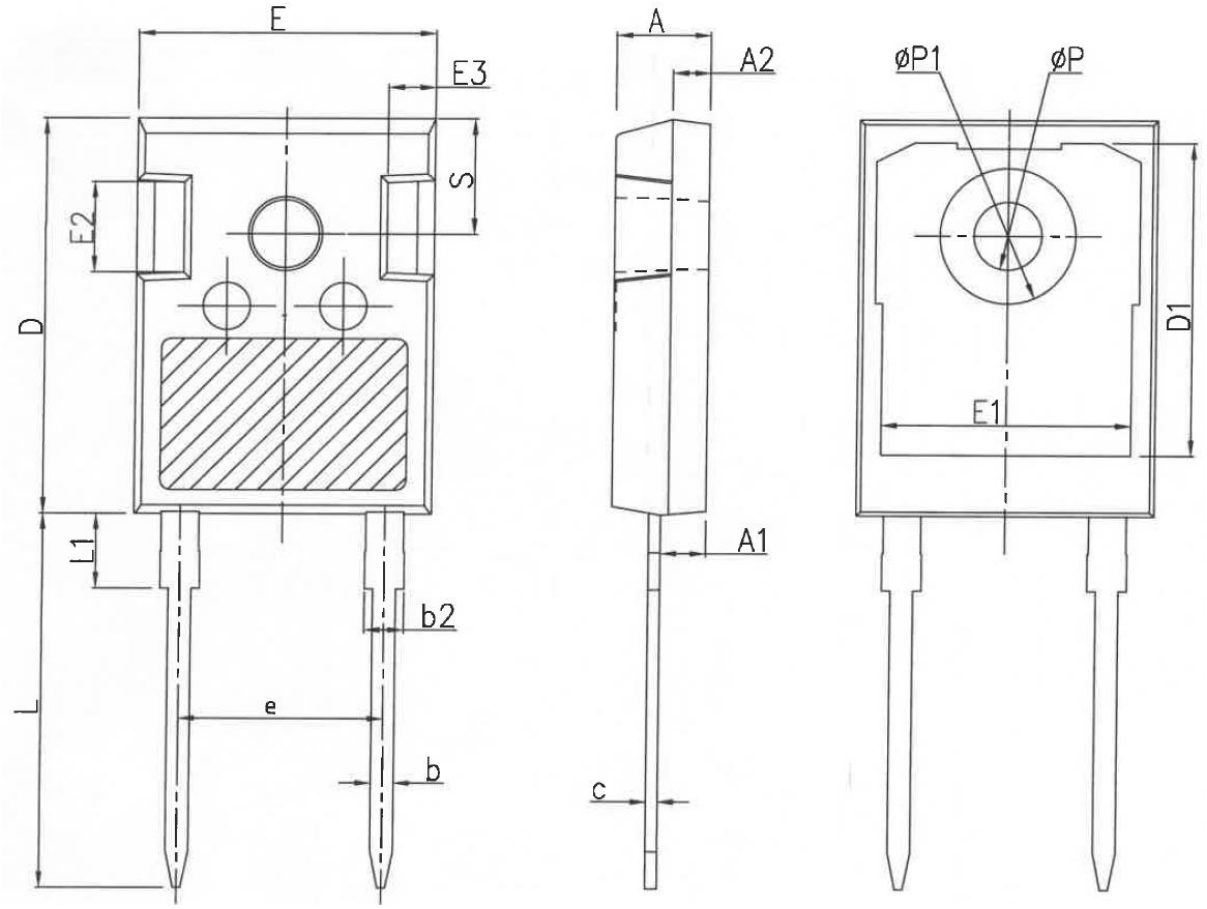


Figure 8. Transient thermal impedance (Junction - Case)
图 8. 瞬态热阻
$Z_{th(jc)} = f(t_p)$



Outline drawing 外形图

Marking SCDS24F040HA120



Sym-bol	Dimensions In Mil-limeters	
	Min.	Max.
A	4.80	5.20
A1	2.21	2.59
A2	1.85	2.15
b	1.11	1.36
b2	1.91	2.21
c	0.51	0.75
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.00	13.60
E2	4.80	5.20
E3	2.30	2.70
e	10.88 BSC	
L	19.62	20.22

Sym-bol	Dimensions In Mil-limeters	
	Min.	Max.
L1	-	4.30
ΦP	3.40	3.80
ΦP1	-	7.30
S	6.15 BSC	

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

This product has been designed and qualified for Industrial 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)	SCD040HA120S24**F**
Packaging Method 包装方式	Tube (_P20)	SCD040HA120S24**F_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
2026-09-29	v2.0	Final Datasheet 正式版规格书