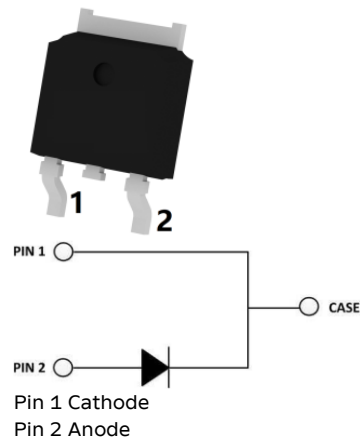


PRELIMINARY DATASHEET 规格书

SCD005DA120S22F



3th Generation 1200V/5A SiC Schottky Barrier Diode  
第三代 1200V/5A 碳化硅肖特基二极管  
Package Type: TO-252-2L



$V_{RRM} = 1200\text{ V}$   
 $I_F(135\text{ }^{\circ}\text{C}) = 10\text{ A}$   
 $V_F(25\text{ }^{\circ}\text{C}) = 1.35\text{ V}$

- 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<sup>1 2</sup>

| PARAMETER<br>参数                                   | SYMBOL<br>符号  | CONDITIONS<br>条件                                                                        | MIN<br>最小 | MAX<br>最大 | UNIT<br>单位           |
|---------------------------------------------------|---------------|-----------------------------------------------------------------------------------------|-----------|-----------|----------------------|
| Repetitive peak reverse voltage<br>重复反向峰值电压       | $V_{RRM}$     | $T_{vj} = 25\text{ }^{\circ}\text{C}$                                                   |           | 1200      | V                    |
| Surge peak reverse voltage<br>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<br>连续正向电流              | $I_F$         | $T_C = 25\text{ }^{\circ}\text{C}$                                                      |           | 22        | A                    |
|                                                   |               | $T_C = 135\text{ }^{\circ}\text{C}$                                                     |           | 10        | A                    |
|                                                   |               | $T_C = 155\text{ }^{\circ}\text{C}$                                                     |           | 5         | A                    |
| Surge non-repetitive forward current<br>非重复正向浪涌电流 | $I_{FSM}$     | $T_C = 25\text{ }^{\circ}\text{C}$ ,<br>$t_p = 10\text{ ms}$ , half sine pulse          |           | 55        | A                    |
| Repetitive peak forward current<br>重复峰值正向电流       | $I_{FRM}$     | $T_C = 25\text{ }^{\circ}\text{C}$ ,<br>$t_p = 10\text{ ms}$ , half sine wave $D = 0.1$ |           | 40        | A                    |
| Power dissipation 耗散功率                            | $P_{tot}$     |                                                                                         |           | 134       | W                    |
| $i^2t$ value 安秒平方值                                | $\int i^2 dt$ | $T_C = 25\text{ }^{\circ}\text{C}$ , $t_p = 10\text{ ms}$                               |           | 15        | $\text{A}^2\text{s}$ |
| Operation junction temperature<br>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       | $^{\circ}\text{C}$   |



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

<sup>1</sup> Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747  
<sup>1</sup> 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  
<sup>2</sup>  $T_{vj} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified / 除非另有规定,  $T_{vj} = 25\text{ }^{\circ}\text{C}$



## SiC Diode<sup>3 4</sup>

| PARAMETER<br>参数                     | SYMBOL<br>符号    | CONDITIONS<br>条件                               | MIN<br>最小 | TYP<br>典型 | MAX<br>最大 | UNIT<br>单位 |
|-------------------------------------|-----------------|------------------------------------------------|-----------|-----------|-----------|------------|
| DC blocking voltage 直流击穿电压          | V <sub>DC</sub> | I <sub>R</sub> = 100 µA                        | 1200      |           |           | V          |
| Forward voltage 正向导通压降              | V <sub>F</sub>  | I <sub>F</sub> = 5 A                           |           | 1.35      | 1.50      | V          |
|                                     |                 |                                                |           | 1.85      | 2.20      | V          |
| Reverse current 反向电流                | I <sub>R</sub>  | V <sub>R</sub> = 1200 V                        |           | 1         | 20        | µA         |
|                                     |                 |                                                |           | 3         | 80        | µA         |
| Total capacitance 总电容               | C               | f = 1 MHz                                      |           | 400       |           | pF         |
|                                     |                 |                                                |           | 27        |           | pF         |
|                                     |                 |                                                |           | 20        |           | pF         |
| Total capacitive charge 总电容电荷       | Q <sub>C</sub>  | V <sub>R</sub> = 800 V (∫C(V)dV)               |           | 28        |           | nC         |
| Capacitance stored energy<br>电容储存能量 | E <sub>C</sub>  | V <sub>R</sub> = 800 V (∫Q <sub>C</sub> (V)dV) |           | 8.2       |           | µJ         |

## Package properties 封装特性

| PARAMETER<br>参数                                   | SYMBOL<br>符号         | CONDITIONS<br>条件 | MIN<br>最小 | TYP<br>典型 | MAX<br>最大 | UNIT<br>单位 |
|---------------------------------------------------|----------------------|------------------|-----------|-----------|-----------|------------|
| Thermal resistance from junction to case<br>结到壳热阻 | R <sub>th(j-c)</sub> |                  |           | 1.12      |           | K/W        |

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

<sup>4</sup> T<sub>vj</sub> = 25 °C, unless otherwise specified / 除非另有规定, T<sub>vj</sub> = 25 °C

## Characteristics 特性曲线

Figure 1. Forward characteristics

图 1. 正向特性

$$I_F = f(V_F)$$

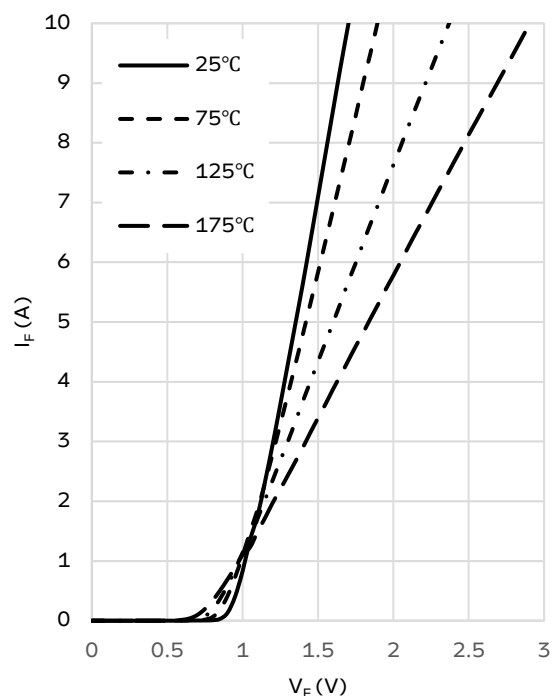


Figure 2. Reverse characteristics

图 2. 反向特性

$$I_R = f(V_R)$$

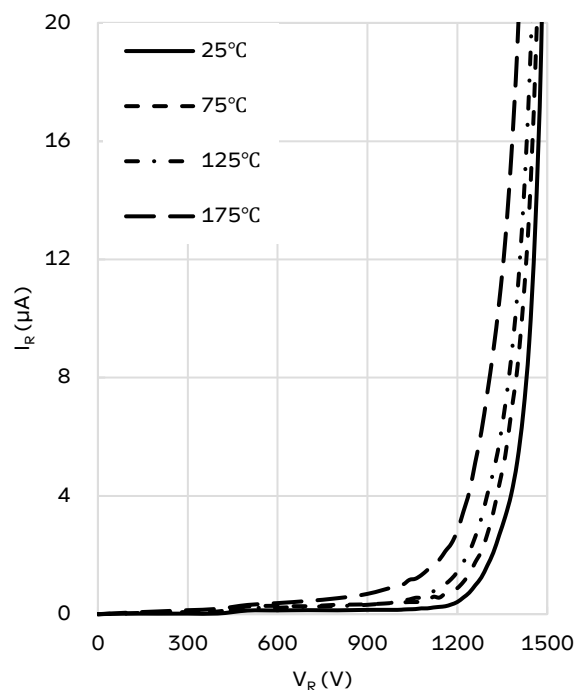


Figure 3. Current derating

图 3. 电流降额

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

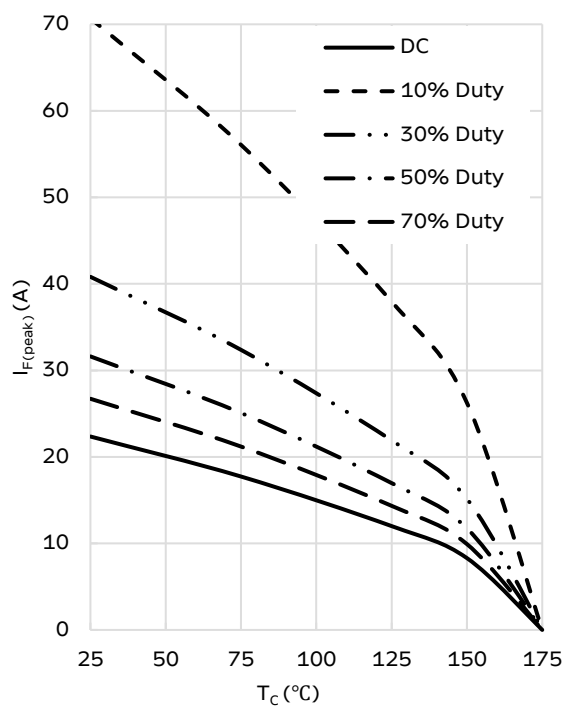
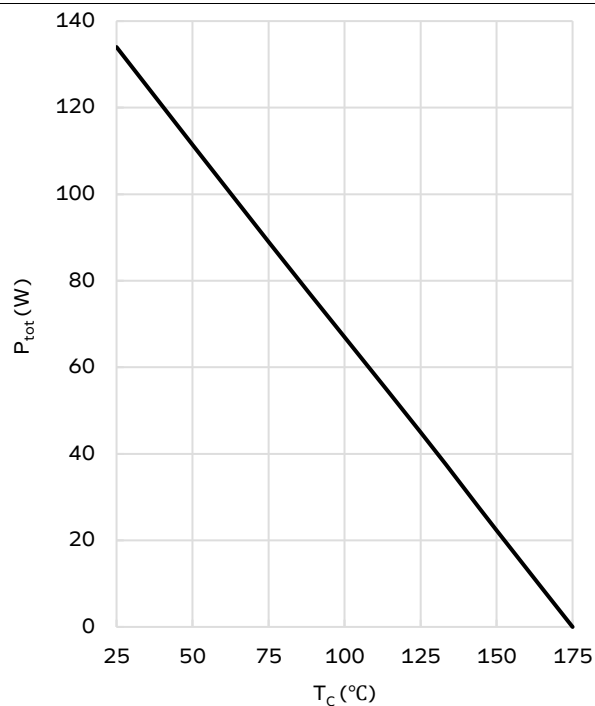


Figure 4. Power derating

图 4. 功率降额

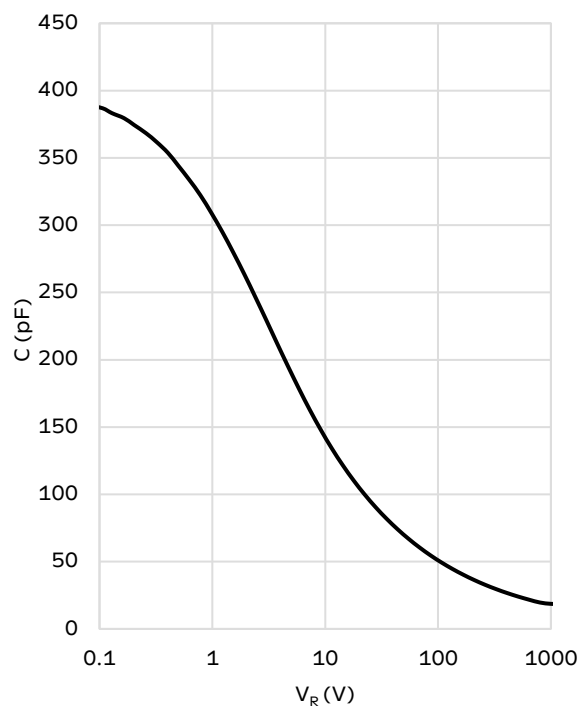
$$P_{\text{tot}} = f(T_C)$$



**Figure 5. Capacitance vs. reverse voltage**

图 5. 电容 vs 反向电压

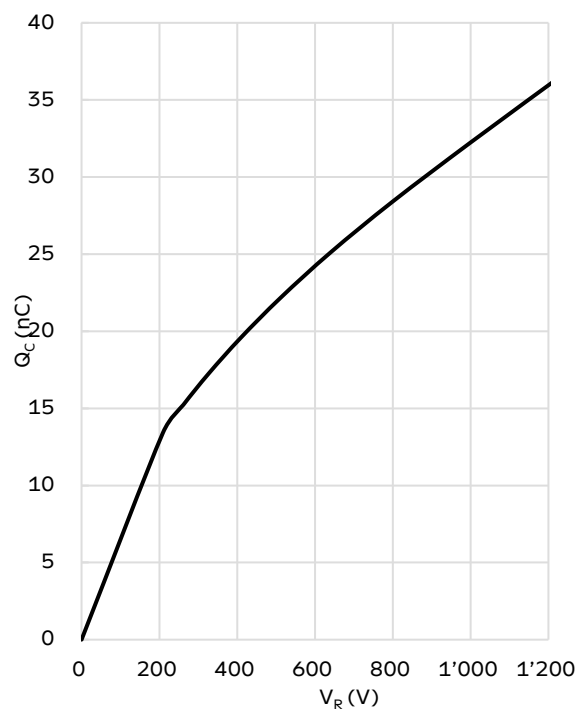
$$C = f(V_R)$$



**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

$$E_C = f(V_R)$$

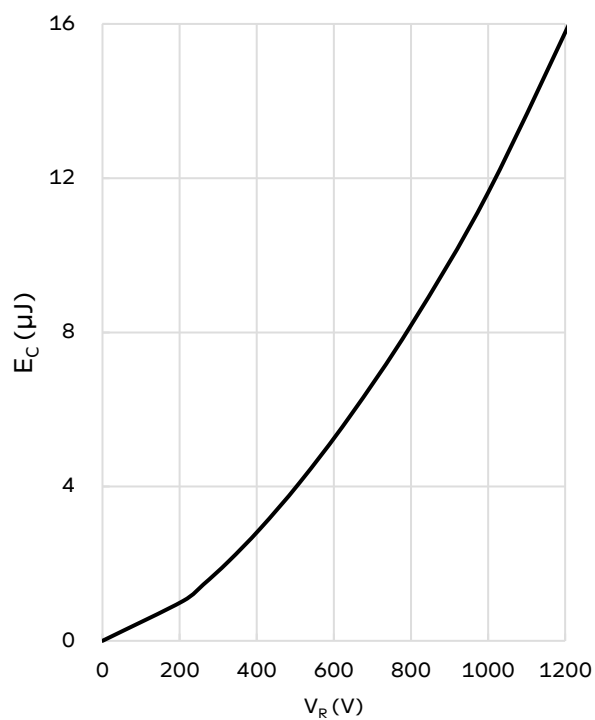
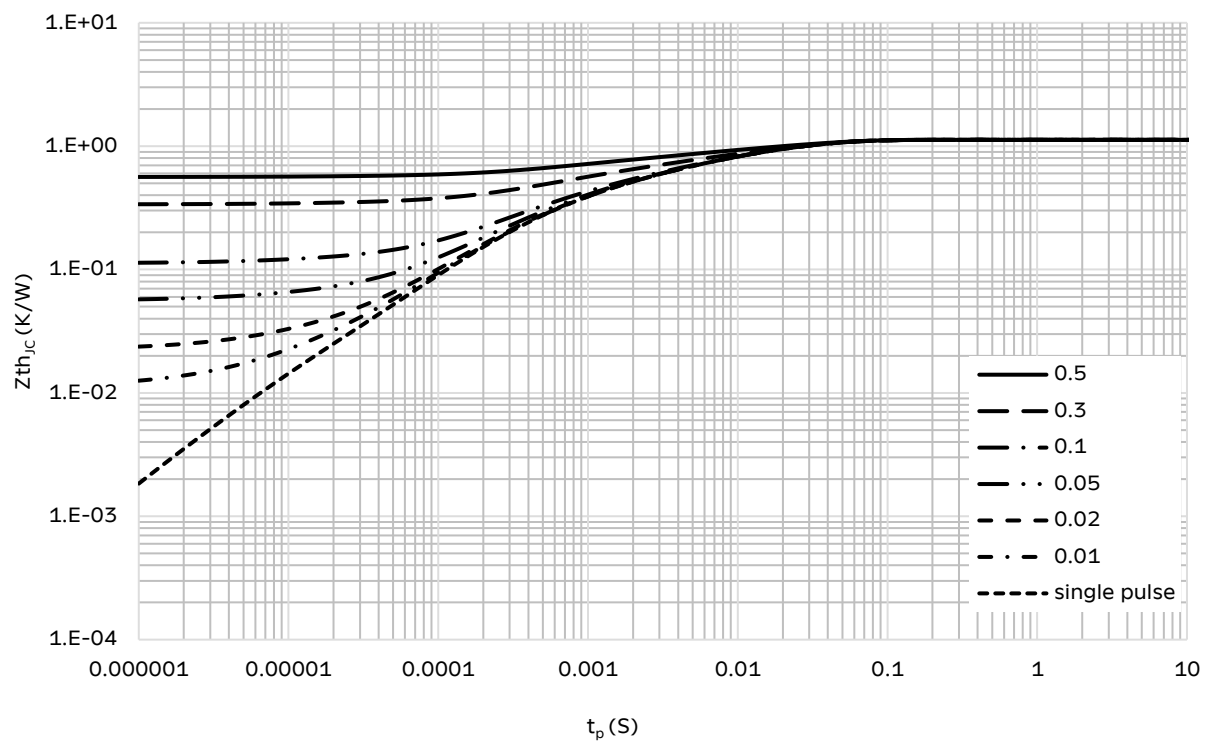


Figure 8. Transient thermal impedance (Junction - Case)

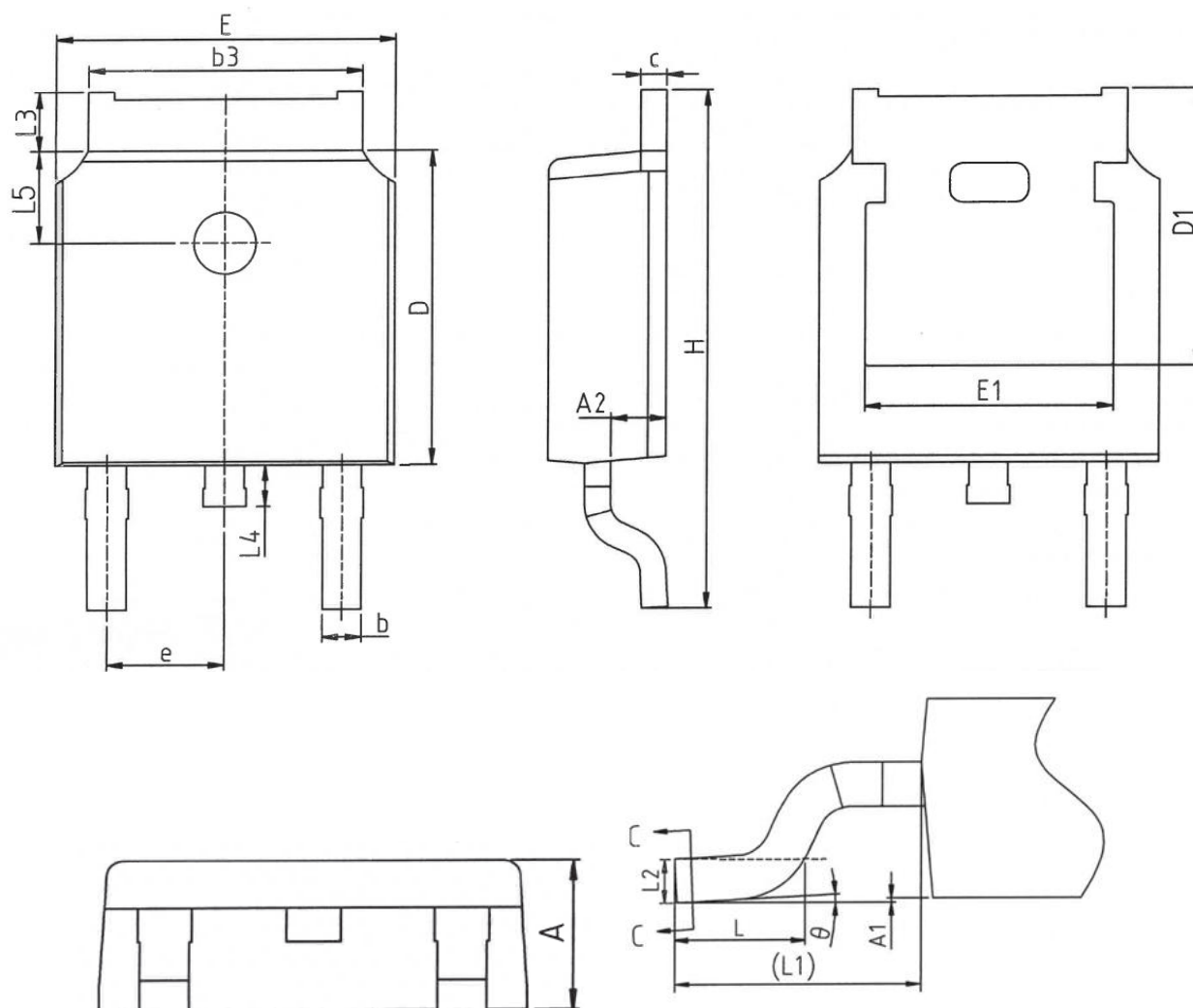
图 8. 瞬态热阻

$$Z_{th,jc} = f(t_p)$$



## Outline drawing 外形图

Marking SCDS22F005DA120



| Sym-<br>bol | Dimensions In Mil-<br>limeters |      |
|-------------|--------------------------------|------|
|             | Min.                           | Max. |
| A           | 2.20                           | 2.38 |
| A1          | 0.00                           | 0.12 |
| A2          | 0.97                           | 1.17 |
| b           | 0.68                           | 0.90 |
| b3          | 5.20                           | 5.46 |
| c           | 0.43                           | 0.61 |
| D           | 5.98                           | 6.22 |
| D1          | TYP 5.30                       |      |
| E           | 6.40                           | 6.73 |
| E1          | 4.63                           | -    |

| Sym-<br>bol | Dimensions In Mil-<br>limeters |       |
|-------------|--------------------------------|-------|
|             | Min.                           | Max.  |
| e           | 2.286 BSC                      |       |
| H           | 9.40                           | 10.50 |
| L           | 1.38                           | 1.75  |
| L1          | TYP 2.90                       |       |
| L2          | 0.51 BSC                       |       |
| L3          | 0.88                           | 1.28  |
| L4          | 0.50                           | 1.00  |
| L5          | 1.65                           | 1.95  |
| θ           | 0°                             | 8°    |

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<br>选项          |                      | ARTICLE NUMBER<br>商品编号 |
|-----------------------|----------------------|------------------------|
| Qualification grade   | Industrial (F)       | SCD005DA120S22F        |
| Packaging Method 包装方式 | Tape and reel (_P10) | SCD005DA120S22F _P10   |

## Revision History 修订历史

| Release 发布 | Version 版本 | Description 描述              |
|------------|------------|-----------------------------|
| 2026-07-27 | v1.0       | Preliminary Datasheet 初始规格书 |