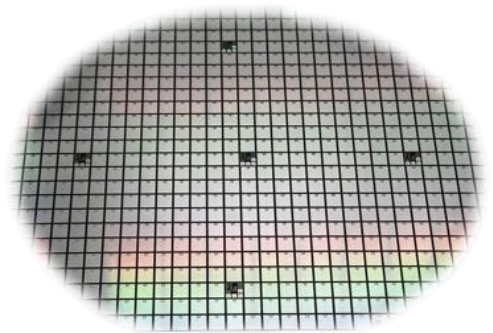


TARGET DATASHEET 规格书

SCS0030C230m23

M23 SiC power MOSFET, 5.0 mm x 5.0 mm

M23 碳化硅功率 MOSFET, 5.0 mm x 5.0mm



$V_{DS} = 2300\text{ V}$

$R_{DS(on)} = 30\text{ m}\Omega$

- positive temperature coefficient
正温度系数
- easy paralleling
易并联

Maximum ratings¹ 最大额定值

PARAMETER 参数	SYMBOL 符号	TEST CONDITIONS 测试条件	MIN 最小值	MAX 最大值	UNIT 单位
Drain-source voltage 漏源电压	V_{DSmax}	$V_{GS} = 0\text{ V}$, $T_{vj} \geq 25^\circ\text{C}$		2300	V
Continuos DC drain current 连续直流漏电流	I_D	$V_{GS} = 18\text{ V}$, $T_{vj} = 25^\circ\text{C}$		80	A
Peak drain current 漏极和源极峰值电流	I_{DM}	Pulse width t_p limited by T_{jmax}		160	A
Gate-source voltage (DC) 栅源电压 (静态)	V_{GSS}		-8	22	V
Gate-source surge voltage 栅源浪涌电压	$V_{GS\ surge}$	$t_p \leq 300\text{ ns}$, $D < 1\%$	-10	25	V
DC reverse drain current 直流反向漏极电流	I_S	$V_{GS} = -5\text{ V}$, $T_c = 25^\circ\text{C}$,		80	A
Peak reverse drain current 峰值反向漏极电流	I_{SM}	$V_{GS} = 0\text{ V}$, limited by T_{jmax}		160	A
Junction operating temperature 运行结温	$T_{vj(op)}$		-55	175	$^\circ\text{C}$

¹ Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747-8

¹ 根据标准 IEC 60747-8 要求，最大额定值表示超过该限值可能会对器件造成损坏



MOSFET²

Recommended values 推荐值

PARAMETER 参数	SYMBOL 符号	CONDITIONS 条件	VALUE 价值	UNIT 单位
Gate-source turn-on voltage 栅源导通电压	$V_{GS(on)}$		18	V
Gate-source turn-off voltage 栅源关断电压	$V_{GS(off)}$		-5	V

Characteristic values 特征值

PARAMETER 参数	SYMBOL 符号	CONDITIONS 条件	MIN 最小	TYP 典型	MAX 最大	UNIT 单位
Drain-source breakdown voltage 漏极-源极击穿电压	$V_{(BR)DSS}$	$V_{GS} \leq 0 \text{ V}$, $I_D = 250 \text{ } \mu\text{A}$, $T_{vj} = 25^\circ\text{C}$	2300			V
Drain-source on-state resistance ³ 静态漏极-源极导通电阻	$R_{DS(on)}$	$I_D = 80 \text{ A}$, $V_{GS} = 18 \text{ V}$		$T_{vj} = 25^\circ\text{C}$	30	$\text{m}\Omega$
				$T_{vj} = 175^\circ\text{C}$	85	$\text{m}\Omega$
Drain leakage current 漏源漏电流	I_{DSS}	$V_{DS} = 2300 \text{ V}$, $V_{GS} = 0 \text{ V}$		$T_{vj} = 25^\circ\text{C}$	1	μA
				$T_{vj} = 175^\circ\text{C}$	5	μA
Gate leakage current 栅极漏电流	I_{GSS}	$V_{GS} = +22 / -8 \text{ V}$, $V_{DS} = 0 \text{ V}$, $T_{vj} = 25^\circ\text{C}$	-50		50	nA
Gate-source threshold voltage 栅极-源极阈值电压	$V_{GS(th)}$	$I_D = 5 \text{ mA}$, $V_{DS} = V_{GS}$	2.5	$T_{vj} = 25^\circ\text{C}$	3	3.5
				$T_{vj} = 175^\circ\text{C}$	tbid	V
Input capacitance 输入电容	C_{iss}	$V_{DS} = 1500 \text{ V}$, $V_{GS} = 0 \text{ V}$, $f = 100 \text{ kHz}$, $V_{AC} = 25 \text{ mV}$		54.5		nF
Output capacitance 输出电容	C_{oss}	$T_{vj} = 25^\circ\text{C}$		180		pF
Reverse transfer capacitance 反向传输电容	C_{rss}			15		pF
Internal gate resistor 栅极内阻	R_{Gint}	$f = 1 \text{ MHz}$, $T_{vj} = 25^\circ\text{C}$		2.5		Ω
Total gate charge 栅极电荷量	Q_G	$I_D = 80 \text{ A}$, $V_{DS} = 150 \text{ V}$, $V_{GS} = -5 \text{ V} \dots 18 \text{ V}$		200		nC

² Characteristic values according to IEC 60747-8

³ Given at chip level

**Characteristic values (continued) 特征值（续）**

PARAMETER 参数	SYMBOL 符号	CONDITIONS 条件	MIN 最小	TYP 典型	MAX 最大	UNIT 单位
Turn-on switching energy 开通损耗	E _{on}	V _{CC} = 1500 V, I _D = 80 A, V _{GS} = -5 / +15 V, L _S = 30 nH	T _{vj} = 25 °C			mJ
			T _{vj} = 175 °C	16.1		mJ
Turn-off switching energy 关断损耗	E _{off}	V _{CC} = 1500 V, I _D = 80 A, V _{GS} = -5 / +15 V, L _S = 30 nH	T _{vj} = 25 °C			mJ
			T _{vj} = 175 °C	7.8		mJ

Body Diode (MOSFET)⁴

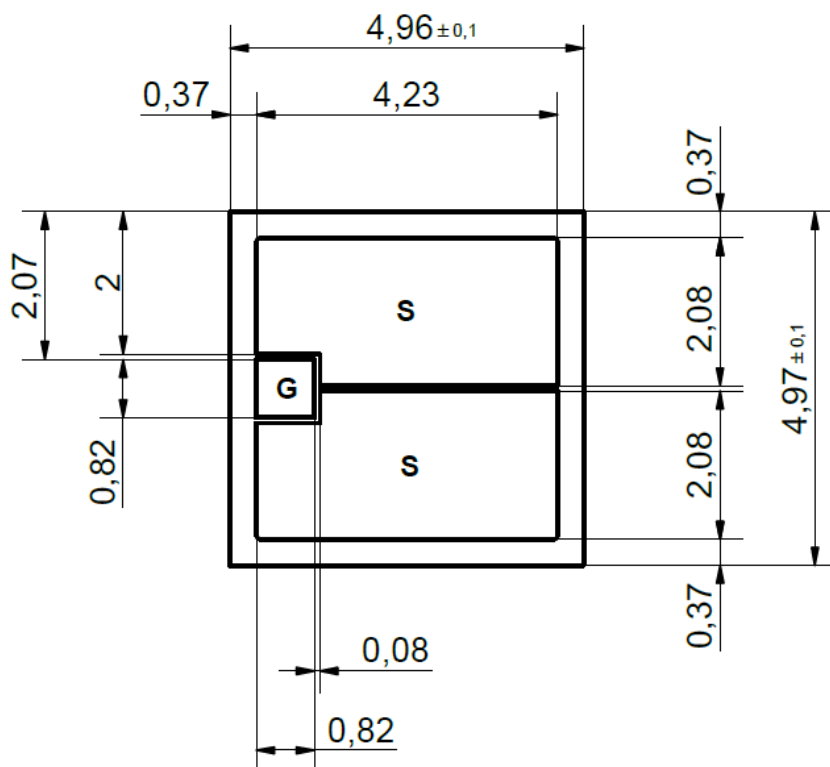
PARAMETER 参数	SYMBOL 符号	CONDITIONS 工作条件	MIN 最小值	TYP 典型	MAX 最大值	UNIT 单位
Drain-source reverse voltage ⁵ 漏源反向电压	V _{SD}	V _{GS} = -5 V, I _S = 80 A	T _{vj} = 25 °C	5.5		V
			T _{vj} = 175 °C	5		V

Mechanical properties⁶ 机械特性

PARAMETER 参数	UNIT 单位
Die size 芯片面积	(4.96 ± 0.01) x (4.97 ± 0.01) mm ²
Gate pad size 栅极焊盘尺寸	0.8 x 0.8 mm ²
Thickness 厚度	150 ± 5 μm
Wafer diameter 晶圆直径	150 mm
Maximum chips per wafer 每片晶圆的最大芯片数	556 pcs
Frontside passivation 正面钝化层	Polyimide
Frontside metal (pads) 正面金属（衬垫）	Ti:TiN:AlCu, 100:100:4000 nm
Backside metal 背面金属	Ti:Ni:Ag, 300:400:1200 nm

⁴ Characteristic values according to IEC 60747-8⁵ Given at chip level

Chip drawing 芯片图



This is an electrostatic sensitive device.
此为静电敏感器件。

Ordering Information 订购信息

OPTION 选项		ARTICLE NUMBER 商品编号
Frontside metal (gate and source pads) 正面金属 (栅极和源极焊盘)	AlCu (_F00)	SCS0030C230m23_F00
Packaging Method 包装方式	Sawn on tape (_O10)	SCS0030C230m23_XXX_O10
	Wafer unsawn (_O20)	SCS0030C230m23_XXX_O20
	Waffle pack (_O30)	SCS0030C230m23_XXX_O30