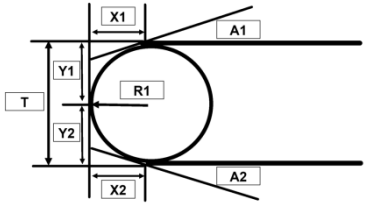


8 英寸 N 型 4H-SiC 衬底标准

8 inch N-type SiC substrate specification

等级 Grade	工业级 Production Grade			测试级 Dummy Grade
	V-MOS	MOS	SBD	
Diameter 直径	200.0 ± 0.25 mm			
Thickness 厚度	500.0 ± 25 μm 或 350.0 ± 25 μm			
Dopant 掺杂剂	Nitrogen			
Surface Orientation 晶向	4 °toward<11-20> ± 0.25°			4 °toward<11-20> ± 0.5°
Notch Depth Notch 深度	1 ~ 1.25mm			
Notch Orientation Notch 方向	Along [1-100] ± 2°			
Orthogonal misorientation 正交偏角	± 2°		± 5°	
Edge profile 倒角	 <p>Angle A1/A2(°): 25±5 (Thickness: 350.0±25μm) Angle A1/A2(°): 30±5 (Thickness: 500.0±25μm) Length X1/X2(μm): 180±60</p>			
Micropipe Density 微管密度	≤ 0.1 /cm ²	≤ 0.1 /cm ²	≤ 0.1 /cm ²	≤ 5 /cm ²
TSD 螺位错密度	≤ 10 /cm ²	≤ 10 /cm ²	≤ 50 /cm ²	NA
BPD 基平面位错密度	≤ 500 /cm ²	≤ 500 /cm ²	≤ 1000 /cm ²	NA
TED 刃位错密度	≤ 2500 /cm ²	≤ 3000 /cm ²	≤ 4000 /cm ²	NA
EPD 总位错密度	≤ 3000 /cm ²	≤ 3500 /cm ²	≤ 5000 /cm ²	NA

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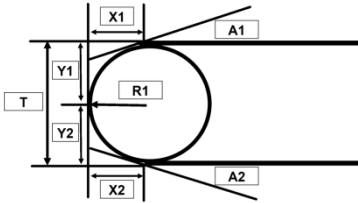
Guangzhou Summit Crystal Semiconductor Co., Ltd

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Resistivity (all) 电阻率 (所有点)	0.015~0.025 $\Omega \cdot \text{cm}$			0.014~0.028 $\Omega \cdot \text{cm}$
TTV 总厚度变化	$\leq 5 \mu\text{m}$	$\leq 5 \mu\text{m}$	$\leq 5 \mu\text{m}$	$\leq 10 \mu\text{m}$
Bow (absolute value) 弯曲度	$\leq 15 \mu\text{m}$	$\leq 15 \mu\text{m}$	$\leq 25 \mu\text{m}$	$\leq 35 \mu\text{m}$
Warp 翘曲度	$\leq 20 \mu\text{m}$	$\leq 25 \mu\text{m}$	$\leq 35 \mu\text{m}$	$\leq 45 \mu\text{m}$
LTV (max, 10mm×10mm) 局部厚度变化	$\leq 2 \mu\text{m}$	$\leq 2 \mu\text{m}$	$\leq 2 \mu\text{m}$	NA
Surface Finish 表面抛光	Double side polished, Si epi-face CMP, C face optical polish			
Surface Metal Contamination 表面金属污染物	$\leq 5\text{E}+10 \text{ atoms/cm}^2$			$\leq 1\text{E}+11$ atoms/cm^2
Surface Roughness 表面粗糙度	CMP Si Face Ra $\leq 0.12 \text{ nm}$			
Edge Chips 崩边	None permitted	None permitted	None permitted	Edge Chips of 0.5mm or less is allowed
Laser marking 打标	Backside			
Polytype Area by polarized light 偏振光检测多型	None permitted	None permitted	None permitted	Cumulative area<30%
Carbon Inclusion 碳包裹体占比	$\leq 0.1\%$	$\leq 0.1\%$	$\leq 0.2\%$	NA
Cracks by high-intensity light 强光灯检测裂纹	None permitted			
Scratches by high-intensity light 强光灯检测划痕	None permitted			
Area Contamination by high- intensity light 强光灯检测污染物	None permitted			
Packaging 包装	Multi-wafer cassette or Single wafer container Inner packing: vacuum, outer packing: no damage, no air leakage			

6 英寸 N 型 4H-SiC 衬底标准

6 inch N-type SiC substrate specification

等级 Grade	工业级 Production Grade		研究级 Research Grade	测试级 Dummy Grade
	MOS	SBD		
Diameter 直径	150.0 ±0.25 mm			
Thickness 厚度	350.0 ±25.0 μm			
Dopant 掺杂	Nitrogen			
Surface Orientation 晶向	4 °toward<11-20>± 0.25°			4 °toward<11-20>± 0.5°
Primary Flat Orientation 主定位边方向	<11-20>±1.0°			<11-20>±5.0°
Primary Flat Length 主定位边长度	47.5±1.5 mm			
Edge profile 倒角	 <p>Angle A1/A2(°): 25±5 Length X1/X2(μm): 180±60</p>			
Micropipe Density 微管密度	≤ 0.1 /cm ²	≤ 0.2 /cm ²	≤ 1 /cm ²	≤ 5 /cm ²
TSD 螺位错密度	≤50 /cm ²	≤200 /cm ²	≤1000 /cm ²	NA
BPD 基平面为位错密度	≤800 /cm ²	≤1500 /cm ²	≤3000 /cm ²	NA
TED 刃位错密度	≤4000 /cm ²	≤5000 /cm ²	≤7000 /cm ²	NA
EPD 总位错密度	≤4800 /cm ²	≤6700 /cm ²	≤10000 /cm ²	NA

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Carbon Inclusion 碳包裹体占比	≤0.1%	≤0.2%	≤0.5%	NA
Resistivity (all) 电阻率（所有点）	0.015 ~ 0.025 Ω·cm			0.014 ~ 0.028 Ω·cm
TTV 总厚度变化	≤ 5 μm	≤ 5 μm	≤ 5 μm	≤ 10 μm
Bow (absolute value) 弯曲度	≤ 15 μm	≤ 20 μm	≤ 35 μm	≤ 45 μm
Warp 翘曲度	≤ 25 μm	≤ 30 μm	≤ 40 μm	≤ 60 μm
LTV (max, 10mm×10mm) 局部厚度波动	≤ 2 μm	≤ 2 μm	≤ 3 μm	NA
Surface Finish 表面抛光	Double side polish, Si epi-face CMP, C face optical polish			
Metal Contamination 表面金属	≤ 5E+10 atoms/cm ²			
Roughness 粗糙度	CMP Si Face Ra≤ 0.12 nm and C Face Ra≤ 0.2 nm			
Edge Chips (No EE) 崩边	None permitted			
Laser marking 打标	Backside			
Polytype Area by polarized light 多型	None permitted			Cumulative area ≤ 10%
Cracks by high-intensity light 强光灯检测裂纹	None permitted			
Scratches by high-intensity light 强光灯检测划痕	None permitted			
Area Contamination by high-intensity light 强光灯检测污染物	None permitted			
Packaging 包装	Multi-wafer cassette or Single wafer container Inner packing: vacuum, outer packing: no damage, no air leakage			