

## 6英寸导电型碳化硅衬底规格

### 150mm N-Type SiC Substrate Specification

参数Parameter	单位Unit	具体规格Specification Value					备注Remark
等级Grade		Production Grade for MOS1	Production Grade for MOS2	Production Grade for SBD	Research Grade	Dummy Grade	
直径 Diameter	mm	150±0.2				150±0.5	
厚度 Thickness	μm	350±25				350±40	
晶型 Polytype		4H-SiC					
表面取向 Surface Orientation		4.0° toward <11 $\bar{2}0$ >±0.2°		4.0° toward <11 $\bar{2}0$ >±0.5°		N/A	
掺杂 Dopant		Nitrogen					
电阻率 Resistivity	Ω·cm	0.017~0.025		0.015~0.028	0.01~0.030	N/A	
主定位方向 Primary Flat orientation		{10 $\bar{1}0$ }±1.0°		{10 $\bar{1}0$ }±5.0°		N/A	
主定位边长度 Primary Flat Length	mm	47.5±1.5		47.5±2.5		N/A	
次定位边长度 Secondary Flat Length		None					
局部厚度偏差 LTV-Max	μm	≤2	≤2	≤3	≤3	≤5	10mm*10mm
总厚度偏差 TTV	μm	≤5	≤5	≤8	≤10	≤10	
弯曲度 BOW	μm	0±15	0±15	0±20	0±25	0±30	
翘曲度 Warp	μm	≤20	≤30	≤30	≤35	≤60	
微管密度 Micropipe Density	cm <sup>-2</sup>	≤0.1	≤0.1	≤0.2	≤0.5	≤1	
刃位错 TED	cm <sup>-2</sup>	<2000	<3500	<6000	<8000	<10000	KOH etching
基面位错 BPD	cm <sup>-2</sup>	<400	<600	<1000	<2000	<3000	KOH etching
螺位错 TSD	cm <sup>-2</sup>	<30	<100	<500	<1000	<3000	KOH etching
层错 BSF/SF	% area	<1%			<5%	N/A	2m*2m grid

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		Production Grade for MOS1	Production Grade for MOS2	Production Grade for SBD	Research Grade	Dummy Grade	
等级Grade							
表面金属污染 Metal Contamination	atoms/cm <sup>2</sup>	<1E11			<1E12		K/Ca/Ti/V/Cr/Mn /Fe/Ni/Cu/Zn/Al/ Na/Hg
背面划痕 Back Scratch by high intensity light		None			N/A		By high-intensity Light unaided eye
表面粗糙度 Surface Roughness	nm	C-face:mirror polished,Ra<3.0					AFM@5μm*5μm
		Si-face: CMP,Ra<0.2					
多型 Foreign Polytypes*		None			Only allowed within 3mm edge exclusion area	Only allowed within 5mm edge exclusion area	
多晶 Polycrystal*		None			Only allowed within 3mm edge exclusion area	Only allowed within 5mm edge exclusion area	
空洞 Hex Plates by High Intensity Light*		None			Only allowed within 3mm edge exclusion area	Only allowed within 5mm edge exclusion area	By high-intensity light unaided eye
针孔 Pinholes	number	None			1 allowed	N/A	
裂纹 Cracks*	number	None			Only allowed within 3mm edge exclusion area	Only allowed within 3mm edge exclusion area	
崩边 EdgeChips	number	None			2 allowed,<1.0mm width & depth		
Si 面划痕 Scratch on Si face	mm	Cumulative scratch length <50	Cumulative scratch length <75	Cumulative scratch length <100	Cumulative scratch length <150	Cumulative scratch length <250	CS8520 or SiCA88
沾污 Stain (both faces)		None					
*Defects limits apply to entire wafer surface including the edge exclusion area. Product with other specifications can be customized.							