

## 4英寸高纯半绝缘型碳化硅衬底规格 100mm HPSI-Type SiC Substrate Specification

参数 Parameter	单位 Unit	具体规格 Specification Value			备注 Remark
等级 Grade		Production+ Grade	Research Grade	Dummy Grade	
直径 Diameter	mm	100+0/-0.2		100+0/-0.5	
厚度 Thickness	μm	500±15		500±25	
晶型 Polytype		4H-SiC			
表面取向 Surface Orientation		<0001>±0.2°		<0001>±0.5°	
(0004)面半高宽FWHM	arcsec	≤50 arcsec	≤60 arcsec	N/A	
电阻率 Resistivity	Ω·cm	≥1E9	≥1E8	≥1E5	
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	32.5mm±1.5mm		32.5mm±2mm	
次定位边长度 Secondary Flat Length		18.0mm±1.5mm		18.0mm±2mm	
局部厚度偏差 LTV-Max	μm	≤2	≤3	≤5	10mm*10mm
总厚度偏差 TTV	μm	≤7	≤8	≤15	
弯曲度 BOW	μm	0±15	0±20	0±30	
翘曲度 Warp	μm	≤25	≤30	≤45	
微管密度 Micropipe Density	cm <sup>-2</sup>	≤0.1	≤0.5	≤5	
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

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等级 Grade		Production+ Grade	Research Grade	Dummy Grade	
背面划痕 Back Scratch by high intensity light		None	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<100	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.					