

N型M10单晶硅片产品规格书

P-Type Monocrystalline Wafer Specification



项目 (Property)	标准 (Specification)	检测方法 (Inspection Method)
材料特性		
Material Properties		
生长方式	直拉法	
Growth Method	CZ	
掺杂剂	磷	硅材料测试仪 (Silicon material tester (ASTM F43))
Dopant	Phosphorus	
表面晶像	$< 100 > \pm 3^\circ$	X射线衍射仪 (X-ray Diffraction Method (ASTM F26-1987))
侧向晶像	$< 010 > < 001 > \pm 3^\circ$	X射线衍射仪
Orientation of Pseudo Square Sides		X-ray Diffraction Method (ASTM F26-1987)
位错密度	$\leq 500 \text{ pcs/cm}^2$	择优化学腐蚀法 (Preferential Etch Techniques (ASTM F47-88))
Etch pit Density/ Dislocation Density		
切割方式	电镀金刚线切割	
Cutting Method	DW	
电学特性		
Electrical Properties		
电阻率	$0.40 \sim 1.60 / 0.60 \sim 1.80 \Omega \cdot \text{cm}$	硅材料测试仪 SSRPT (Silicon material tester (ASTM F43))
电阻率		
少子寿命	$\geq 1000 \mu\text{s}$	微波光电导衰减法 BCT-400 Semilab μ -PCD (ASTM F28-90)
少子寿命		
间隙氧含量	$\leq 6.0 \times 10^{17} \text{ atoms/cm}^3$ (Top)	傅里叶变换红外光谱仪 (FTIR (ASTM F121-83))
Oxygen Concentration [Oi]		
替位碳含量	$\leq 5.0 \times 10^{16} \text{ atoms/cm}^3$ (Bottom)	傅里叶变换红外光谱仪 (FTIR (ASTM F121-83))
Carbon Concentration [Cs]		
几何尺寸		
Geometry		
直线段的垂直度	$90^\circ \pm 0.15^\circ$	硅片自动检测设备 (Wafer Inspection System)
Angle Between Adjacent Sides		
厚度	$120 \sim 150 \mu\text{m}$ 硅片平均厚度 (Average Thickness): $+20 \mu\text{m} / -10 \mu\text{m}$	硅片自动检测设备 (Wafer Inspection System)
厚度		
总厚度变化	$\leq 20 \mu\text{m}$	硅片自动检测设备 (Wafer Inspection System)
TTV (Total Thickness Variation)		
表面质量		
Appearance		
隐裂/裂痕	无	硅片自动检测设备 (Wafer Inspection System)
Micro Cracks		
缺口	不可有	硅片自动检测设备 (Wafer Inspection System)
Chip	Not Allowed	
穿孔	不可有	硅片自动检测设备 (Wafer Inspection System)
Holes	Not Allowed	
线痕	$\leq 13 \mu\text{m}$	硅片自动检测设备 (Wafer Inspection System)
Saw Marks		
翘曲度	$\leq 40 \mu\text{m}$	硅片自动检测设备 (Wafer Inspection System)
Warp		
黑芯/黑角	无	硅片自动检测设备 (Wafer Inspection System)
硅片尺寸示意图		
Wafer Size Pattern		
边距 (Wafer Side Length) A: $182 \pm 0.25 \text{mm}$ 对角线 (Wafer Side Length) B: $247 \pm 0.25 \text{mm}$ 弧长投影 (Arc Length Projection) C: $10.62 \pm 0.7 \text{mm}$		