

P型G12单晶硅片产品规格书

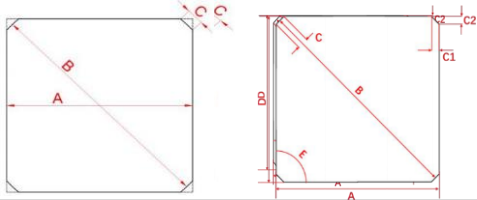
P-Type Monocrystalline Wafer Specification



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	镓	硅材料测试仪 (Silicon material tester (ASTM F43))
Dopant	Gallium	
表面晶像	$< 100 > \pm 3^{\circ}$	X射线衍射仪 (X-ray Diffraction Method (ASTM F26-1987))
Surface Orientation		
位错密度	$\leq 500\text{pcs}/\text{cm}^2$	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	$0.40 \sim 1.10 \Omega \cdot \text{cm}$	硅材料测试仪 SSRPT (Silicon material tester (ASTM F43))
Resistivity		
少子寿命	$\geq 70 \mu\text{s}$	微波光电导衰减法 BCT-400 Semilab μ -PCD (ASTM F28-90)
Minority Carrier Lifetime		
间隙氧含量	$\leq 7.5 \times 10^{17} \text{atoms}/\text{cm}^3$ (Top)	傅里叶变换红外光谱仪 (FTIR (ASTM F121-83))
Oxygen Concentration [Oi]		
替位碳含量	$\leq 5.0 \times 10^{16} \text{atoms}/\text{cm}^3$ (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)
Thickness		
总厚度变化	$\leq 30 \mu\text{m}$	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	$\leq 10 \mu\text{m}$	硅片自动检测设备 (Wafer Inspection System)
Saw Marks		
翘曲度	$\leq 50 \mu\text{m}$	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: $210 \pm 0.25\text{mm}$
对角线 (Wafer Side Length) B: $295 \pm 0.25\text{mm}$
弧长投影 (Arc Length Projection)
C: $1.99 \pm 0.7\text{mm}$