

4 inch High Purity Semi-Insulating 4H-Silicon Carbide Substrate

Product Standard

Hebei Synlight Crystal Co., Ltd.

Add. : No. 6001, North 3rd Ring Rd., Baoding, Hebei

Tel: +86 312 3915000 Fax: +86 312 3915017

Website: www.synlight.cn E-mail: sales@synlight.cn

4 inch High Purity Semi-insulating 4H-SiC Substrate Specifications

Grade	Production Grade+	Production Grade	Research Grade	Dummy Grade
Diameter	100.0 mm + 0.0/-0.5mm			
Surface orientation	<0001> ± 0.2°			
Primary Flat Orientation	{10 $\bar{1}$ 0} ± 5.0°			
Secondary Flat Orientation	90.0°CW from the primary flat ±5°, silicon face up			
Primary Flat Length	32.5 mm ± 2.0 mm			
Secondary Flat Length	18.0 mm ± 2.0 mm			
Micropipe Density	≤ 1cm ⁻²	≤ 5 cm ⁻²	≤ 10 cm ⁻²	≤ 50 cm ⁻²
Resistivity	≥ 1E7 Ω · cm			(area75%) ≥ 1E7 Ω · cm
Thickness	500.0μm ±25.0μm or 350.0μm ± 25.0μm			
TTV	≤ 10μm			≤ 15μm
Bow	≤ 25μm			≤ 30μm
Warp	≤ 30μm		≤ 45μm	
Surface Roughness	CMP Si face Ra < 0.3 nm (10 μm × 10 μm)			CMP Si face Ra < 0.5 nm (10 μm × 10 μm)
Edge Chips/Indents by Diffuse Lighting	None permitted		Qty.2 < 1.0mm width & depth	

* Specifications are subject to change without notice.

*The other specifications can be customized according to customer's requirement.

4 inch N-type 4H-Silicon Carbide Substrate

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4 inch N-type 4H-SiC Substrate Specifications

Grade	Production Grade+	Production Grade	Research Grade	Dummy Grade
Diameter	100.0 mm + 0.0/-0.5mm			
Surface orientation	4.0° toward $\langle 11\bar{2}0 \rangle \pm 0.5^\circ$			
Primary Flat Orientation	$\{10\bar{1}0\} \pm 5.0^\circ$			
Secondary Flat Orientation	90.0°CW from the primary flat $\pm 5^\circ$, silicon face up			
Primary Flat Length	32.5 mm \pm 2.0 mm			
Secondary Flat Length	18.0 mm \pm 2.0 mm			
Micropipe Density	$\leq 1\text{cm}^{-2}$	$\leq 5\text{cm}^{-2}$	$\leq 10\text{cm}^{-2}$	$\leq 50\text{cm}^{-2}$
Resistivity	0.015-0.028 $\Omega\cdot\text{cm}$			$\leq 0.03\ \Omega\cdot\text{cm}$
Thickness	350.0 μm \pm 25.0 μm			
TTV	$\leq 10\mu\text{m}$			$\leq 15\mu\text{m}$
Bow	$\leq 25\mu\text{m}$			$\leq 30\mu\text{m}$
Warp	$\leq 30\mu\text{m}$		$\leq 45\mu\text{m}$	
Surface Roughness	CMP Si Face Ra < 0.3 nm (10 μm \times 10 μm)			CMP Si Face Ra < 0.5 nm (10 μm \times 10 μm)
Edge Chips/Indents by Diffuse Lighting	None permitted		Qty.2 < 1.0mm width & depth	

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6 inch High Purity Semi-Insulating 4H-Silicon Carbide Substrate

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6 inch High Purity Semi-insulating 4H-SiC Substrate Specifications

Grade	Production Grade+	Production Grade	Research Grade	Dummy Grade
Diameter	150.0 mm + 0.0/-0.5mm			
Surface orientation	<0001> ± 0.2°			
Primary Flat Orientation	{10 $\bar{1}$ 0} ± 5.0°			
Primary Flat Length	47.5 mm ± 2.0 mm			
Secondary Flat Length	None			
Micropipe Density	≤ 1cm ⁻²	≤ 5 cm ⁻²	≤ 10 cm ⁻²	≤ 50 cm ⁻²
Resistivity	≥ 1E7 Ω · cm			(area75%) ≥ 1E7 Ω · cm
Foreign Polytypes	0			≤15%
Thickness	500.0μm ±25.0μm or 350.0μm ± 25.0μm			
TTV	≤ 15μm			≤ 20μm
Bow	≤ 40μm			≤ 60μm
Warp	≤ 60μm			
Surface Roughness	CMP Si face Ra < 0.3 nm (10 μm × 10 μm)			CMP Si face Ra < 0.5 nm (10 μm × 10 μm)
Edge Chips/Indents by Diffuse Lighting	None permitted		Qty.2 < 1.0mm width & depth	

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6 inch N-type 4H-Silicon Carbide Substrate

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6 inch N-type 4H-SiC Substrate Specifications

Grade	Production Grade+	Production Grade	Research Grade	Dummy Grade
Diameter	150.0 mm ± 0.25 mm			
Surface orientation	4.0° toward $\langle 11\bar{2}0 \rangle \pm 0.5^\circ$			
Primary Flat Orientation	$\{10\bar{1}0\} \pm 5.0^\circ$			
Primary Flat Length	47.5 mm ± 2.0 mm			
Secondary Flat Length	None			
Micropipe Density	≤ 1cm ⁻²	≤ 5 cm ⁻²	≤ 10 cm ⁻²	≤ 50 cm ⁻²
Resistivity	0.015-0.028 Ω•cm			≤ 0.03 Ω•cm
Foreign Polytypes	0			≤15%
Thickness	350.0μm ± 25.0μm or 500.0μm ±25.0μm			
TTV	≤ 15μm			≤ 20μm
Bow	≤ 40μm			≤ 60μm
Warp	≤ 60μm			
Surface Roughness	CMP Si face Ra < 0.3 nm (10 μm × 10 μm)			CMP Si face Ra < 0.5 nm (10 μm × 10 μm)
Edge Chips/Indents by Diffuse Lighting	None permitted		Qty.2 < 1.0mm width & depth	

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