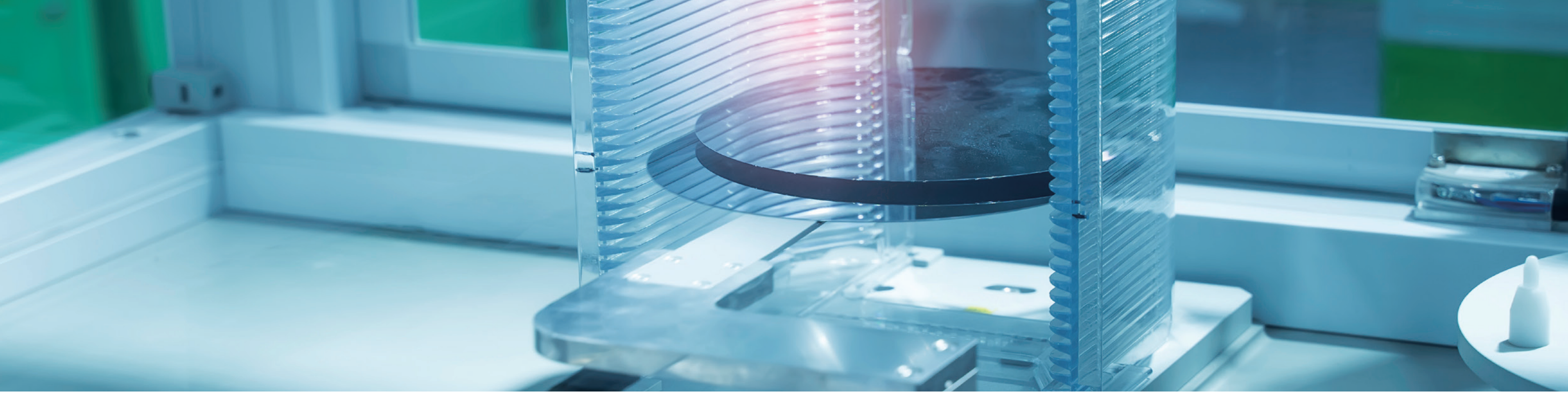

4 INCH SEMI-INSULATING SIC Substrate Specification

Grade	Zero MPD Production Grade (Z Grade)	Dummy Grade (D Grade)
Diameter	99.5 mm ~ 100.0 mm	99.5 mm ~ 100.0 mm
Poly-type	4H	4H
Thickness	500 μm ± 15 μm	500 μm ± 25 μm
Wafer Orientation	On axis : <0001> ± 0.5°	On axis : <0001> ± 0.5°
Micropipe	≤ 1 cm^{-2}	≤ 15 cm^{-2}
Resistivity	≥ 1E10 Ω·cm	≥1 E5 Ω·cm
Primary Flat Orientation	{10-10} ± 5.0°	{10-10} ± 5.0°
Primary Flat Length	32.5 mm ± 2.0 mm	32.5 mm ± 2.0 mm
Secondary Flat Length	18.0 mm ± 2.0 mm	18.0 mm ± 2.0 mm
Secondary Flat Orientation	Silicon face up: 90° CW. from Prime flat ± 5.0°	Silicon face up: 90° CW. from Prime flat ± 5.0°
Edge Exclusion	3 mm	3 mm
LTV / TTV / Bow / Warp	≤ 2.5 μm / ≤ 5 μm / ≤ 15 μm / ≤ 30 μm	≤ 10 μm / ≤ 15 μm / ≤ 25 μm / ≤ 40 μm
Roughness	Polish Ra ≤ 1 nm	Polish Ra ≤ 1 nm
	CMP Ra ≤ 0.2 nm	CMP Ra ≤ 0.2 nm
Edge Cracks By High Intensity Light	—	Cumulative length ≤ 10 mm single length ≤ 2 mm
Hex Plates By High Intensity Light	Cumulative area ≤ 0.05%	Cumulative area ≤ 0.1%
Polytype Areas By High Intensity Light	—	Cumulative area ≤ 3%
Visual Carbon Inclusions	Cumulative area ≤ 0.05%	Cumulative area ≤ 3%
Silicon Surface Scratches By High Intensity Light	—	Cumulative length ≤1 × wafer diameter
Edge Chips High By Intensity Light	None permitted ≥ 0.2 mm width and depth	5 allowed, ≤ 1 mm each
Silicon Surface Contamination By High Intensity	—	—
Packaging	Multi-wafer Cassette Or Single Wafer Container	Multi-wafer Cassette Or Single Wafer Container

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