

GaN Substrates: N-

Kyma's bulk GaN substrates improve device epitaxy by reducing dislocation density by 1000x and doubling thermal conductivity when compared to other non-native substrates. GaN substrates provide an alternative to multi-step nucleation processes, allowing customers to:

- Eliminate interlayers
- Eliminate processing steps
- Improve device yield and reliability



Orientation*: c-axis (00.1) $\pm 1^\circ$

Conduction Type: N-

Resistivity: < 5 Ohm-cm

Front Surface Finish (Ga-face): Epi-ready, RMS < 0.5 nm

Back Surface Finish: Optical polish

Dislocation Density: $\leq 5 \times 10^6 / \text{cm}^2$

Edge Exclusion Area: 1 mm

TTV: < 10 μm (10 mm²), < 20 μm (18 mm²)

Bow: < 5 μm (10 mm²), < 15 μm (18 mm²)

Available Sizes: 10mm x 10mm square and 18mm x 18mm square

Available Grades: Prime, Production, Research, Rider

Available Thickness*: 475 μm ($\pm 25 \mu\text{m}$)

*Varies for rider grade

Grade:	Prime	Production	Research	Rider
Macro Defect Density:	$\leq 3 \text{ cm}^{-2}$	$\leq 5 \text{ cm}^{-2}$	$\leq 10 \text{ cm}^{-2}$	$> 10 \text{ cm}^{-2}$

Other polishing options available: N-face CMP, double-side CMP, double-side optical

Other size, thickness and offcut options available