

Free standing GaN substrates

Free standing GaN substrates for Optoelectronics

LED-on-GaN technology is the perfect solution for lighting applications requiring high current density and directionality. The lower defect density in the epitaxial LED-on-GaN reduces droop, allows higher brightness and efficacy at very high current density, and provides more lumen/\$.

Free standing GaN wafers with high crystal quality and surface finish are available in 2-inch and 100 mm diameter single side polished.

Saint-Gobain Lumilog combines decades of expertise in the field of crystal growth and finishing to design high quality GaN substrates for Opto- and Microelectronic applications.

TYPICAL PRODUCT CHARACTERISTICS

	FS GaN 2-inch	FS GaN 100 mm
Geometry		
Diameter (mm)	50.8	100
Thickness (µm)	300	500
Total Thickness Variation – TTV (µm)	≤ 25	≤ 50
SORI (µm)	≤ 30	≤ 100
Bow (µm)	≤ 10	≤ 40
Surface finish		
Ga-face Surface Finish	Epiready	Epiready
Crystalline quality		
Wafer Center Miscal	0.6° ±0.3	0.6° ±0.3
XRD (0002) FWHM (arcsec)	≤ 130	≤ 130
Average TD (cm ⁻²)	≤ 10 ⁷	≤ 10 ⁷
Doping level		
n Carrier Concentration (cm ⁻³)	1-3x10 ¹⁸	1-3x10 ¹⁸
Resistivity (mΩ.cm)	≤ 30	≤ 30

Typical Packaging

Single wafer shipping box (polypropylene)
Double-bagged, vacuum-sealed in class-1000 cleanroom environment
Ready to go directly in cleanroom



KEY BENEFITS

- Higher output power**
More lumen/mm²
- Longer life time**
- Reduced LED form factor**
- Cost-effective Epi process**
Thin GaN epilayer required
- Cost-effective LED structure**
GaN conductivity allows vertical device architecture

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