GaN White series for LED

Free standing GaN substrates

GaN-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/unit area.

Free standing GaN wafers with high crystal quality and surface finish are available in 2-inch and 100 mm diameter single side polished. GaN crystal quality is identical for both 2-inch and 100 mm to accelerate scale-up & industrialization.

GaN White series shows the perfect combination of electrical conductivity and transparency for optimum efficiency and durability LEDs.

TYPICAL PRODUCT CHARACTERISTICS	GAN WHITE	
	2-inch	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	
Crystalline quality		
Wafer Center Miscut	0.7°	
Miscut variation across wafer	≤ 0.25°	≤ 0.5°
Average TD (cm^{-2})	~ 8×10^{6}	
Doping level		
n Carrier Concentration (cm^{-3})	2×10^{18}	
Resistivity (mΩ.cm)	≤ 20	

** Miscut and miscut range can be adjusted upon request.*

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 performances
More lumen/unit area
Higher WPE

Longer life time

Reduced form factor

Cost-effective Epi process
Thin GaN epilayer required

Cost-effective structure
GaN conductivity allows vertical device architecture

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GaN Blue series for LASER

Free standing GaN substrates

High crystal quality free standing GaN wafers is the perfect solution for the manufacturing of Laser diodes in the violet, blue, and green range. The lower defect density in the epitaxial GaN generates laser diodes with high output power and long lifetime.

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

GaN Blue series offers a unique control of the miscut distribution across the wafer to optimize Laser wavelength yields. Lumilog GaN also shows improved mechanical properties to reduce breakage during fab processing

TYPICAL PRODUCT CHARACTERISTICS	GAN BLUE 2-inch
Geometry	
Diameter (mm)	50.8
Thickness (µm)	300 *
Total Thickness Variation – TTV (µm)	≤ 25
SORI (µm)	≤ 30
|Bow| (µm)	≤ 10
Flat orientation (°)	± 0.2
Surface finish	
Ga-face Surface Finish	Epiready
Crystalline quality	
Wafer Center Miscut	0.5° **
Miscut variation across wafer	≤ 0.15°
Average TD (cm^{-2})	~ 5×10^{6}
Doping level	
n Carrier Concentration (cm^{-3})	$2x10^{18}$
Resistivity (mΩ.cm)	≤ 20

** 400 micron thickness is also available upon request*
*** Miscut and miscut range can be adjusted upon request.*

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/unit area

Longer life time

Improved color yield
Excellent miscut range

Improved processing yields
Improved mechanical resistance

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GaN Green series for Power Electronics

Free standing GaN substrates

GaN is now Green. GaN-on-GaN technology is the solution for power electronics applications requiring high power and high switching frequencies. The lower defect density in the epitaxial GaN, allows higher breakdown voltage and very high switching frequencies.

Free standing GaN wafers with high crystal quality and surface finish are available in 2-inch and 100 mm diameter single side polished. GaN crystal quality is identical for both 2-inch and 100 mm to accelerate scale-up & industrialization. The purity level of Lumilog GaN is also Silicon Fab approved.

Low resistivity combined with an excellent crystal quality make GaN Green the substrate of choice for energy efficient power devices.

TYPICAL PRODUCT CHARACTERISTICS	GAN GREEN	
	2-inch	100 mm
Geometry		
Diameter (mm)	50.8	100
Thickness (µm)	300	450
Total Thickness Variation – TTV (µm)	≤ 25	≤ 50
SORI (µm)	≤ 30	≤ 100
|Bow| (µm)	≤ 10	≤ 40
Surface finish		
Ga-face Surface Finish	Epiready	
Crystalline quality		
Wafer Center Miscut	0.5°	
Miscut variation across wafer	≤ 0.25°	≤ 0.5°
Average TD (cm^{-2})	~ 5×10^{6}	
Doping level		
n Carrier Concentration (cm^{-3})	3×10^{18}	
Resistivity (mΩ.cm)	≤ 11	

** Miscut and miscut range can be adjusted upon request.*

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/unit area
More mA/unit area

Longer life time

Reduced form factor

Cost-effective structure
GaN conductivity allows vertical device architecture

Better thermal management
High thermal conductivity of GaN

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