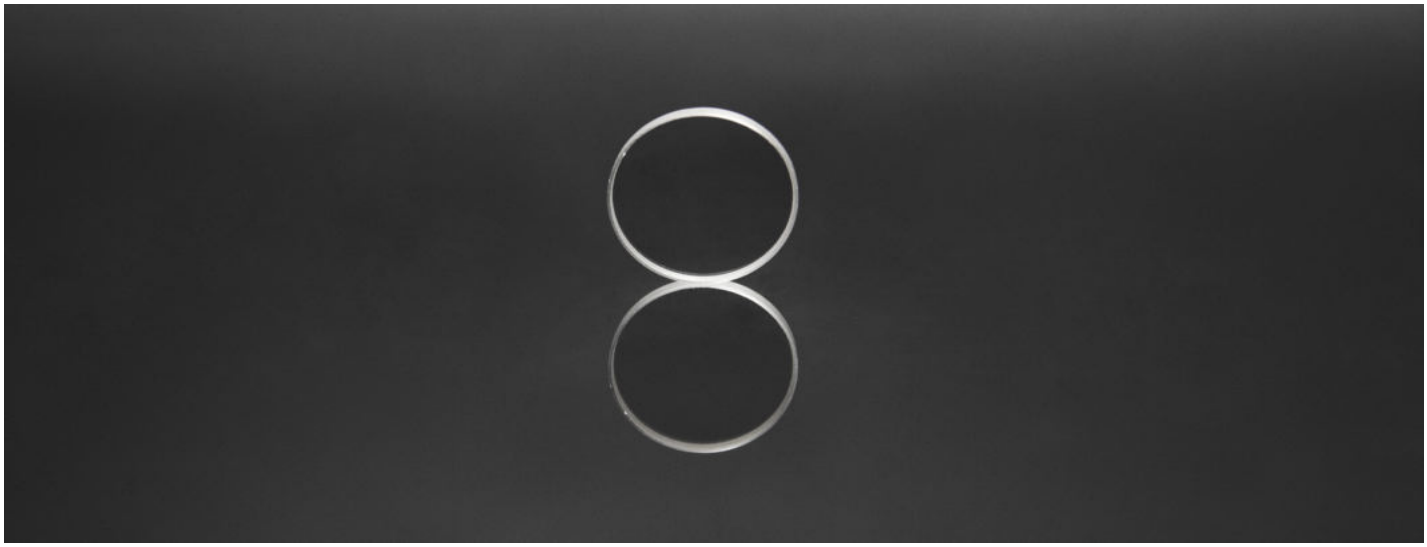
GaN

Gallium Nitride (GaN) Crystal Substrate



DESCRIPTION

Gallium nitride (GaN) single crystal is a wide-bandgap semiconductor material. Gallium nitrid has broad application prospects in optoelectronic devices, it used as an insulating layer for Ga-based semiconductor materials, and as an ultraviolet filter.
It has application prospects in the fields of ultraviolet detectors, gas sensors, light-emitting diodes (LEDs) and. Expecially, Gallium nitride substrates are matched in lattice constant and thermal expansion properties for epitaxial growth of doped GaN layers needed for fabrication of GaN-based devices. This eliminates stress and defects induced by growing GaN epi-layers on non-nitride substrates such as sapphire or silicon carbide, which increase device fabrication complexity and cost and compromise device performance.

FEATURE

- Wide-bandgap
- Good thermal stability
- Low dislocation density

APPLICATION

- High brightness LEDs
- UV or blue Laser Diodes
- High power High frequency transistors

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GaN

PARAMETER

Physical Properties

GaN Properties	
Refractive Index	2.67
Density	6.095 g/cm^3
Thermal Conductivity	1.3-2.3W/(cm·K)
Debye Temperature	600K
Linear Thermal Expansion Coeff.	Along a0: 5.59x10^{-6} K^{-1}/ Along c0: 7.75x10^{-6} K^{-1}
Lattice Parameter	a0 = 0.3189 nm/ c0 = 0.5185 nm
Density	6.095 g·cm^{-3}
Crystal structure	Wurtzite
Band gap	3.4eV

Main Specification

Size	2inch	4inch
Conduction Type	n-Type	
Carrier Concentration(cm^{-3})	≧1×10^{18}	≧1×10^{18}
Mobility(cm^2/V·sec)	≧80	≧80
Diameter(nm)	50.0±0.5	100.0±0.5
Thickness(μm)	400±30	400±50
Orientation	(0001)±1.0°	(0001)±1.0°
Surface Finish	P/LE	
TTV(μm)	≦20	≦20
Warp(μm)	≦30	≦50
Package	Individual Container	