



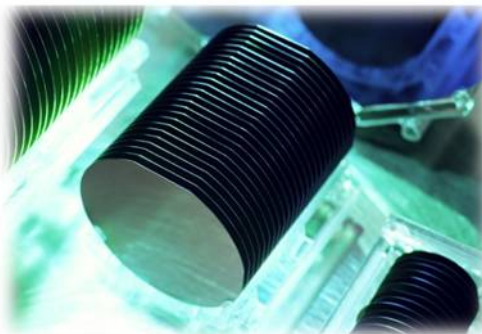
Bulk (Free Standing) Gallium Nitride (GaN)

Doped (N+)

Marco-Defect Density <math><10/cm^2</math>

Substrate Diameter N/A

Thickness 430 μ m



Bulk (Free Standing) Gallium Nitride (GaN)

refer to a thin layer of single crystalline GaN,

typically with thickness less Than 100 microns,

epitaxial grown on a foreign substrate, e.g. sapphire. Comparing with free standing GaN

substrate, GaN is only an alternative solution to device makers and its technical merit is

limited. Upon high volume and low cost production, however, GaN can replace sapphire in

LED manufacturing, enhancing up to 50% capacity of downstream MOCVD reactors.

Furthermore, GaN usually has lower dislocation density than MOCVD GaN grown on

sapphire. This is a favorable factor for UV devices as it is more sensitive to dislocation

density than blue LED does.

Bulk (Free Standing) Gallium Nitride (GaN) Specifications

| | | | |
|-------------------------------------|------------------------------------|------------------------------------|----------------------------|
| Thickness (μ m) | 430 | Substrate Diameter | N/A |
| Off-Cut Angle (Degree) | 0.2 off c-plane | GaN Line | N-type doping |
| Marcodefect Density: | <math><10/cm^2</math> | Thickness Variation ($\pm \mu$ m) | 5 |
| Carrier concentration (cm^{-3}) | $\sim 1E+18$ | Resistivity ($\Omega \cdot cm$) | 0.5 |
| FWHM of (102) XRD arcsec | <math><300</math> | Dislocation density | <math><5E+6 cm^{-2}</math> |
| Surface finishing | Epi-ready (RMS<math><0.5nm</math>) | Substrates | N/A |
| Bow (μ m) | 5 | Package (cell cassette) | Vacuum |

Free Standing GaN Marco-Defect Density <math><10/cm^2</math> Thickness 430 μ m