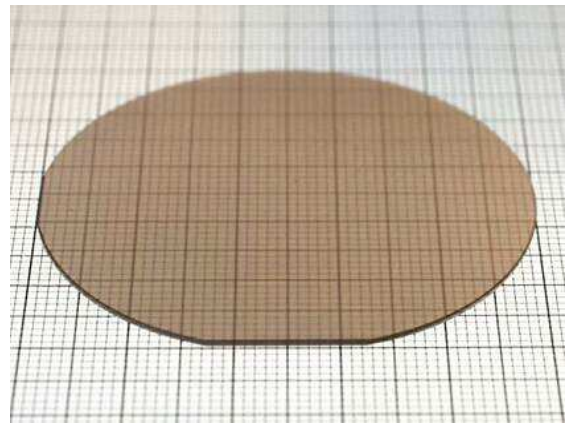


Customised epitaxy GaN structures on bulk GaN suitable for HEMTs, LDs, HB LEDs, photovoltaic cells

n-type GaN:Si epitaxial layer on bulk GaN

- Up to 8µm GaN epitaxial layer on bulk GaN;
- Electron concentration up to $5 \cdot 10^{18}/\text{cm}^3$ (at special request up to $2 \cdot 10^{19}/\text{cm}^3$);
- Small resistivity of GaN substrate;
- Resistivity – ρ within the range of $10^{-3} - 10^{-2} \Omega\text{cm}$;



GaN epitaxy on 350µm thick 2" bulk GaN

p-type GaN:Mg epitaxial layer on bulk GaN

- Up to 1.5µm GaN epitaxial layer on bulk GaN;
- Hole concentration up to $6 \cdot 10^{17}/\text{cm}^3$ (LD-grade);
- p-GaN layer resistivity $\rho \leq 1 \Omega\text{cm}$;
- A subcontact p+ layer can be provided if demanded by customers;
- Average hole mobility $\geq 10\text{cm}^2/\text{Vs}$;
- The client is encouraged to specify if the wafer should be activated or not;

semi-insulating GaN epitaxial layer on bulk GaN

- Thickness of the epitaxial GaN layer up to 4µm;
- High resistivity of GaN substrate of $10^9 - 10^{12} \Omega\text{cm}$, with high homogeneity on the surface;

we also offer:

- InGaN – multi-quantum wells for LEDs and other epi structures demanded by customers;
- customized LED structures, wavelength of 390-450nm or higher on special request.

All epi-wafers:

- Dislocation density EPD $\leq 5 \cdot 10^4/\text{cm}^2$;
- available miscut: $0.15^\circ - 0.6^\circ$ toward m-plane and/or a-plane;
- Thickness uniformity $< 5\%$;
- XRD r.c. 002 FWHM $\leq 0.1^\circ \pm 10\%$ for structures $\geq 3\mu\text{m}$ thick;

Substrate properties (n-type or Semi-Insulating)

- Wafer size 1", 2" diameter;
- Thickness of the bulk GaN substrate 350µm, C-oriented GaN;
- Bow $\leq 10\mu\text{m}$;
- Total Thickness Variation (TTV) $\leq 20\mu\text{m}$;
- FWHM of X-ray rocking curve ~ 20 arcsec;