



GaN-based layers specifications

GaN layer on 2-inch sapphire substrate

Thickness uniformity ⁽¹⁾	Unintentional carrier concentration. (cm ⁻³)	n-doping limit (cm ⁻³)	p-doping limit (cm ⁻³)	Carrier mobility at n=1*10 ¹⁷ (cm ² /V*s)	Carrier conc. uniformity ⁽¹⁾	Dislocation density (cm ⁻²)	XRD [004] reflex halfwidth (arcsec)
±3%	- n-type 5*10 ¹⁶	4*10 ¹⁸	4*10 ¹⁷	450	±15%	10 ⁸	190
- SI							

⁽¹⁾ within 90% of the wafer radius

AlGaIn/GaN layer on 2-inch sapphire substrate

Al_{0.4}Ga_{0.6}In/GaN layer on 2-inch sapphire substrate

Thickness uniformity ⁽¹⁾	Composition uniformity ⁽¹⁾	Unintentional carrier concentration. (cm ⁻³)	n-doping limit (cm ⁻³)	Carrier mobility at n=2*10 ¹⁸ (cm ² /V*s)	Carrier conc. uniformity ⁽¹⁾	Dislocation density (cm ⁻²)	XRD [004] reflex halfwidth (arcsec)
±2%	N/A	- n-type 6*10 ¹⁶	2*10 ¹⁸	54	±15%	10 ⁹	200
- SI							

⁽¹⁾ within 90% of the wafer radius

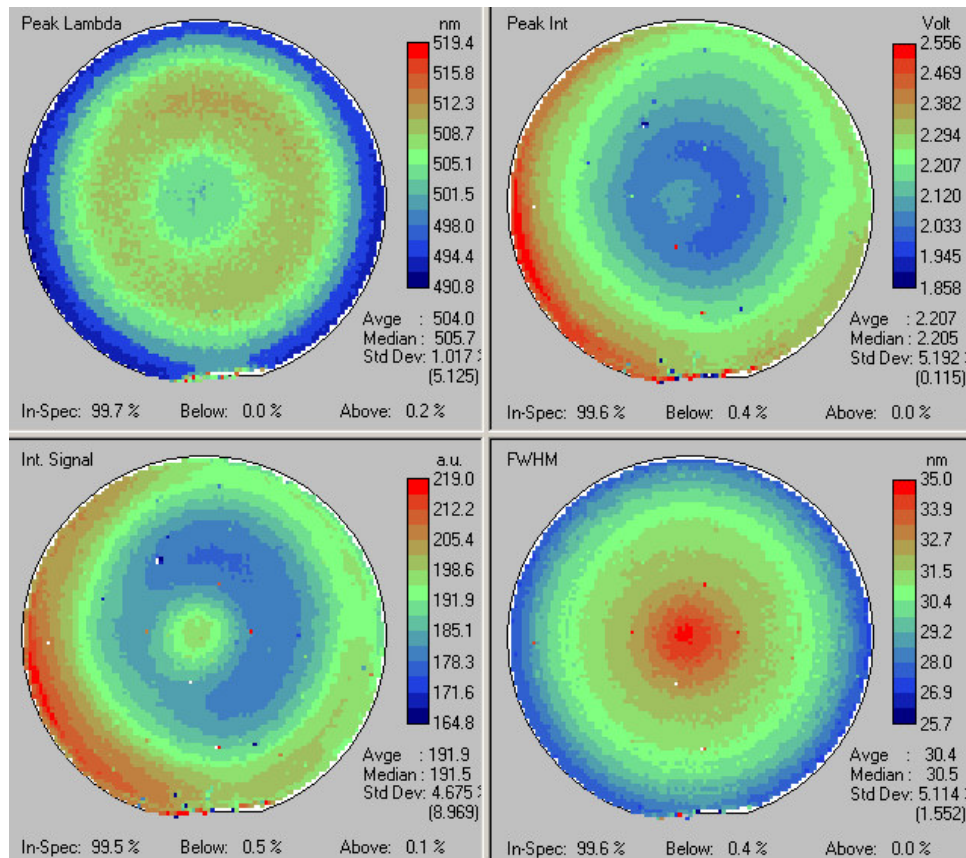
GaN/InGaN/GaN strained QW layer on 2-inch sapphire substrate

- GaN/In_{0.26}Ga_{0.74}N/GaN 2.5nm MQW ($\lambda=500\text{nm}$) on 2-inch sapphire substrate

Thickness uniformity ⁽¹⁾	Composition uniformity ⁽¹⁾	Photoluminescence wavelength uniformity ⁽¹⁾
N/A	0.26-0.28	$\pm 5\text{nm}$

⁽¹⁾ within 90% of the wafer radius

- GaN/In_{0.26}Ga_{0.74}N/GaN 2.5nm SQW ($\lambda=500\text{nm}$) has lower photoluminescence uniformity: $\pm 1\text{nm}$ within 90% of wafer radius.



Photoluminescence map of GaN/InGaN/GaN MQW ($\lambda=505\text{nm}$) on 2-inch sapphire substrate.



Other GaN-based layers:

- InAlGaN/GaN/sapphire (InAlGaN/GaN typically lattice-matched)

Epi-Lab.com
www.Epi-Lab.com

Wolczynska Str. 133
01-919 Warsaw, Poland
Tel: (+48) 22 8353041 ext.465
Fax: (+48) 22 8645496
E-mail: Epi-Lab@Epi-Lab.com