8” GaN-on-Si Epitaxial Specification

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Items		Specification	Typical	Metrology
Total thickness (µm)	Mean	1~5.5	5.5	EpiTT in-situ reflectance
	σ/avg	≤ 5%	1.5%	EpiTT in-situ reflectance
P-GaN thickness (nm)	Mean	5~150	100	XRR
	σ/avg	≤ 6%	2.5%	XRR
AlGaN barrier thickness (nm)	Mean	10~30	15	XRR
	σ/avg	≤ 6%	2%	XRR
Barrier Al (%)	Mean	10~30	22	PL(monitor wafer)
	σ/avg	≤ 6%	1%	PL(monitor wafer)
GaN FWHM (arcsec)	002	≤800	680	XRD
	102	≤1500	1300	XRD
Warp (um)		≤100	60	ADE 9500
Crack @ Radius 0~97mm (3mm EE)		Free	Free	Spot Light, Inspection by Eye
Particle (Size>0.5µm)		≤3000	<1000	KLA 6220
Peeling		Free	Free	Spot Light, Inspection by Eye
Rougness (Ra, nm)	pGaN surface	≤1	0.5	AFM
2DEG Density (cm^{-2})		≥5E+12	5E+12	Hall(monitor wafer)
2DEG Mobility (cm^2/Vs)		≥1500	1600	Hall(monitor wafer)
SIMS	Mg conc. (cm^{-3})	≥1E+19	2E+19	SIMS(monitor wafer)