

Standard Layer Specifications

Layer Name	Description	Typical Thickness	Comment
Substrate	150mm Si substrate (111), $\pm 0.5^\circ$ 200mm Si substrate (111), $\pm 0.5^\circ$ 100mm SiC substrate	675 μ m 725 μ m 500 μ m	High resistivity substrate High resistivity substrate Semi-insulating Other substrate diameters available on request
RF Buffer	Buffer	(1.5-2) μ m	
GaN Channel	GaN	175nm	Thickness can be customized
Barrier	AlGaN (25% Al) or AlN	20nm or (4-6)nm	Thickness and composition can be customized
Cap layer	SiN	50nm (AlGaN barrier) or 10nm (AlN barrier)	GaN cap available upon request for AlGaN barrier

Characterization Specifications

Parameter	Measurement	Units	Target
AlGaN thickness AlN thickness	X-Ray	nm	20 \pm 2 (4-6) \pm 1
AlGaN Composition*	Photoluminescence	%	25 \pm 1
SiN Cap Thickness	X-Ray	nm	50 \pm 5 (for AlGaN) or 10 \pm 1 (for AlN)
Wafer Bow	Laser profilometer	μ m	\pm 50 max.

AlGaN barrier thickness and composition and cap thickness can be customized upon request

Electrical Specifications

Parameter	Measurement	Units	Target
Electron Mobility*	Hall	cm ² /V.s	> 1800 (for AlGaN, 25% Al) > 1000 (for AlN)
Sheet Charge Density*	Hall	/cm ²	> 9e12 (for AlGaN, 25% Al) > (1.5-2)e13 (for AlN)
Sheet Resistivity*	Eddy current	Ohms/sq	< 400 (for AlGaN, 25% Al) < 350 (for AlN)
Buffer resistivity*	Buffer Isolation Structure	Ohms/sq @ 1MV/cm	> 5e11

* Measurements done on a sample basis on calibration wafers