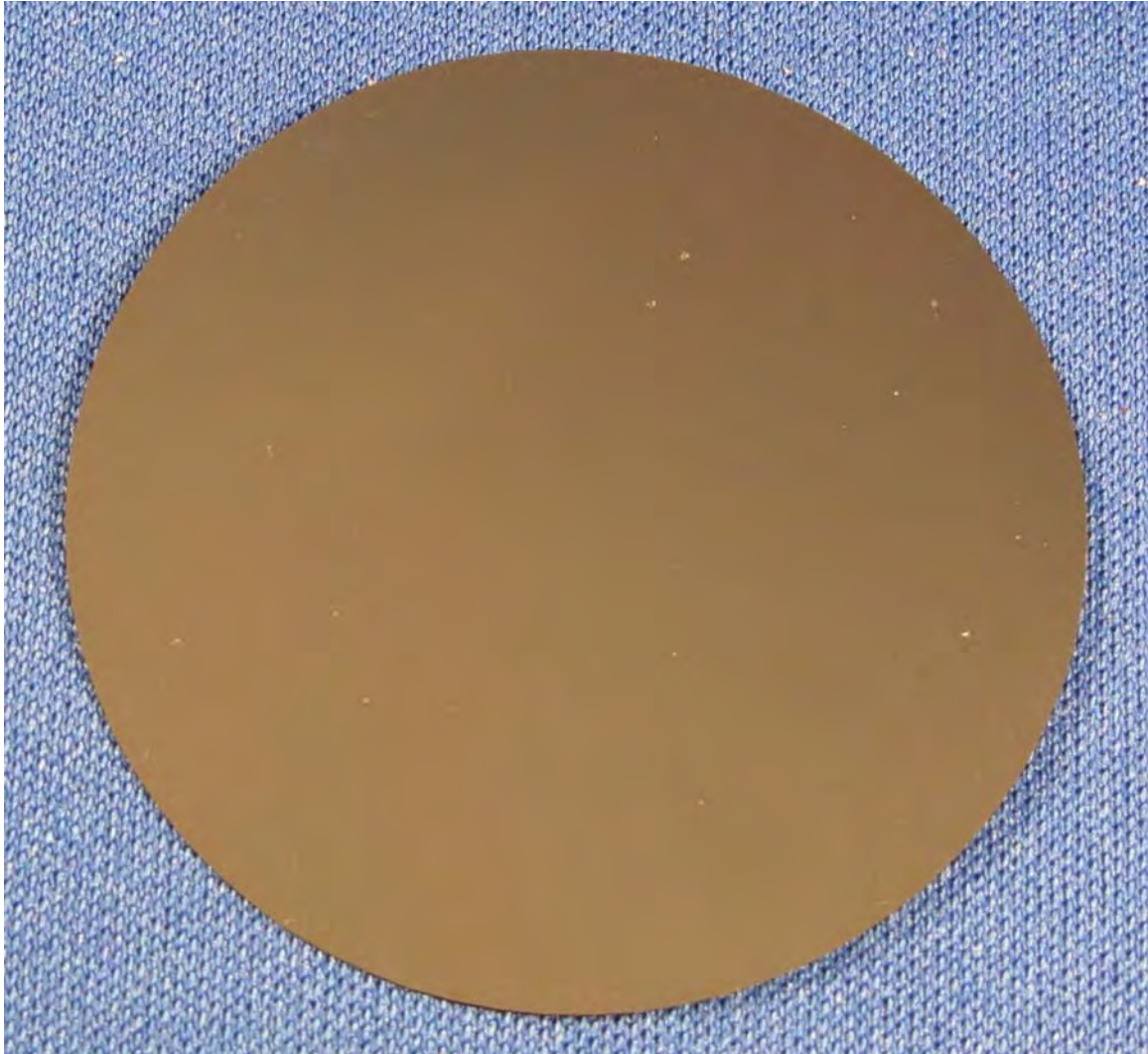


DATASHEET

Wafer ID: 0255B

Gallium Nitride HEMT-on-Diamond Wafer



Optical Wafer Image (48 mm diameter)

Epi structure: Layer	Thickness	Composition
4	10 Å	GaN
3	200 Å	$\text{Al}_{0.25}\text{Ga}_{0.75}\text{N}$
2	1500 nm	GaN buffer
1	2300 nm	Transition layer
0	0.1mm	Diamond

Optical Microscope images (5X)



Microscope Image (5X Objective) – Center



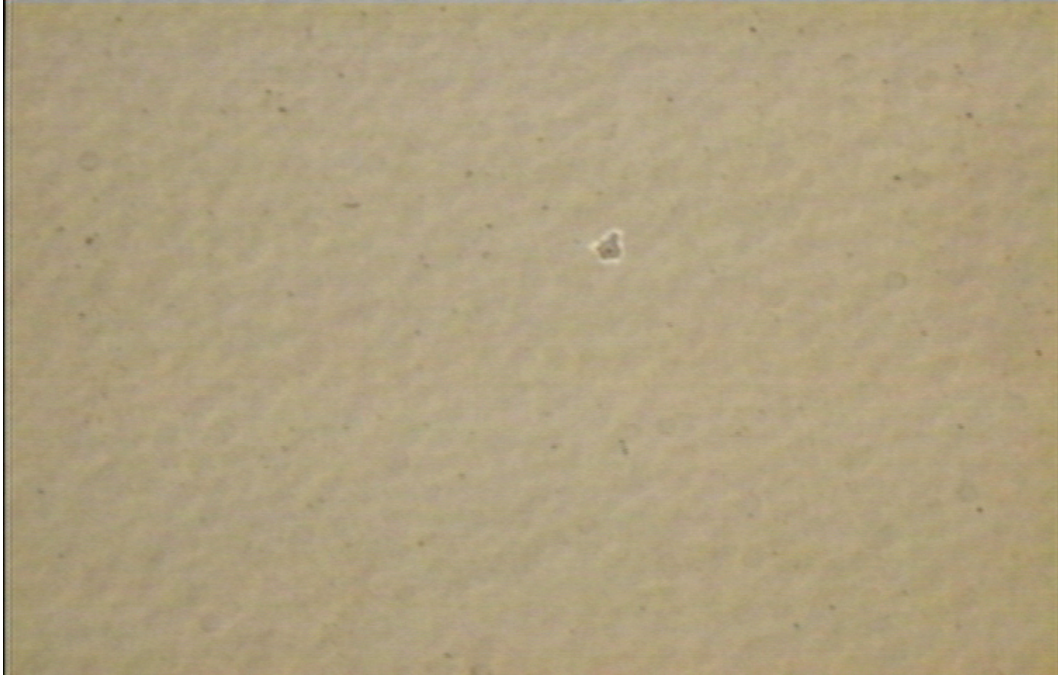
Microscope Image (5X Objective) – Left



Microscope Image (5X Objective) – Right



Microscope Image (5X Objective) – Top



Microscope Image (5X Objective) – Bottom

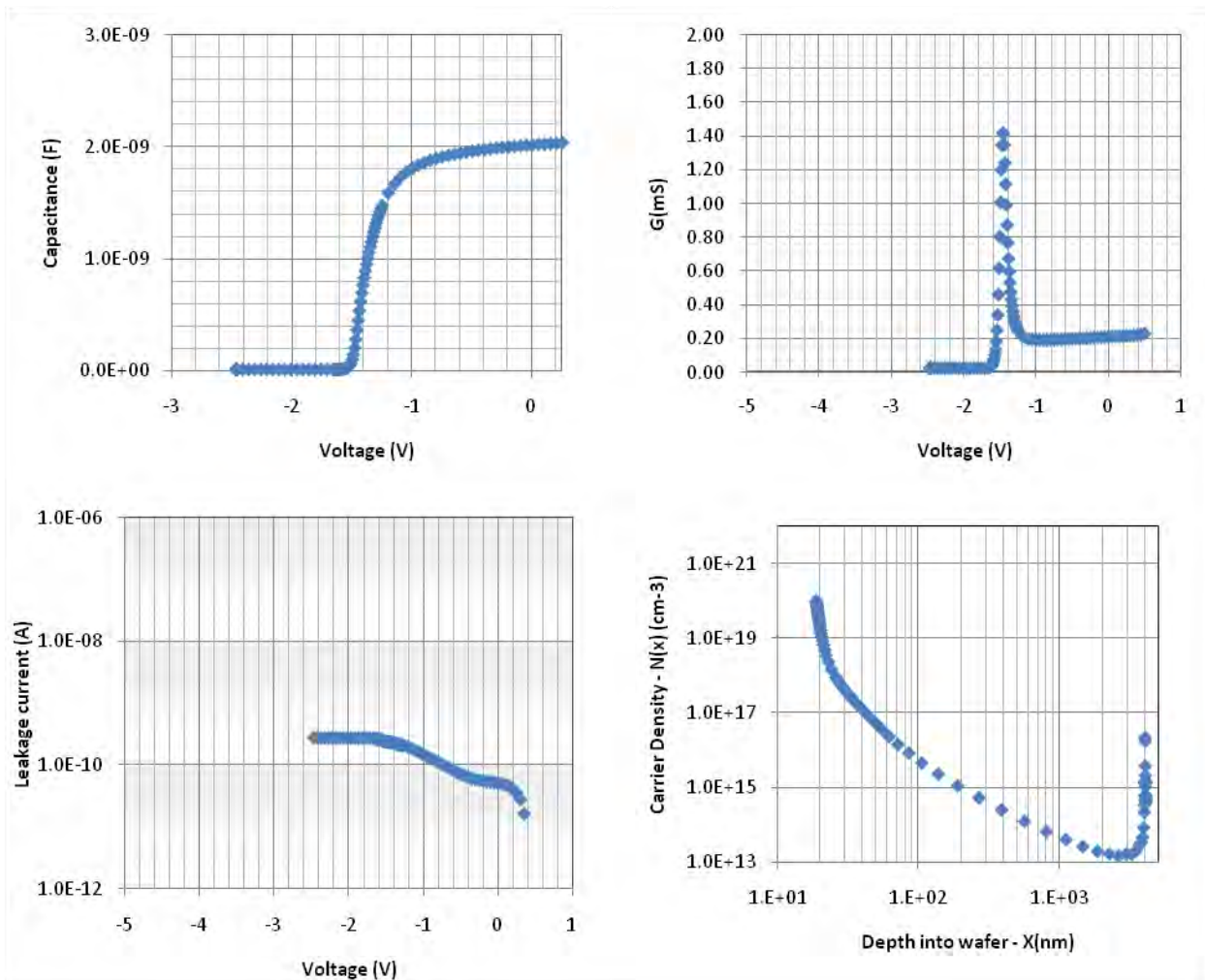
(Space intentionally left blank)

Selected Measured Properties

Metric	Units	Min	Max	Average
Leighton (with SiN cap)*	Ohm/sq			438
Wafer Diameter	mm			48
Threshold Voltage	V			1.55
Wafer Thickness	μm			92.1
Wafer Weight	g			0.5898
Free-Standing Wafer Bow	mm		0.5+	
Diamond Thermal Conductivity	W/m-K	800	900	
Silicon Carrier Included				no

* Delivered without SiN Cap layer

CV Measurements via Hg-Probe



GaN Surface Roughness*

MEASUREMENT POSITION	R _q (Angstrom)
Center	150
Edge 1	193 **
Edge 2	130
Edge 3	83
Edge 4	177 **
Average	146

*Roughness values measured with KLA Tencor ASIQ tool with maximum resolution of 80 Angstroms.

** Denotes roughness figures that exceed the targeted specification of 150Angstroms.

Defect Index

The epitaxy has several defects a few examples are shown below.



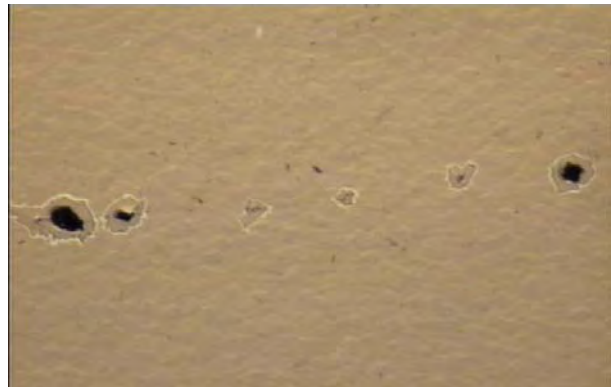
Defects Area #1



Defects Area #2

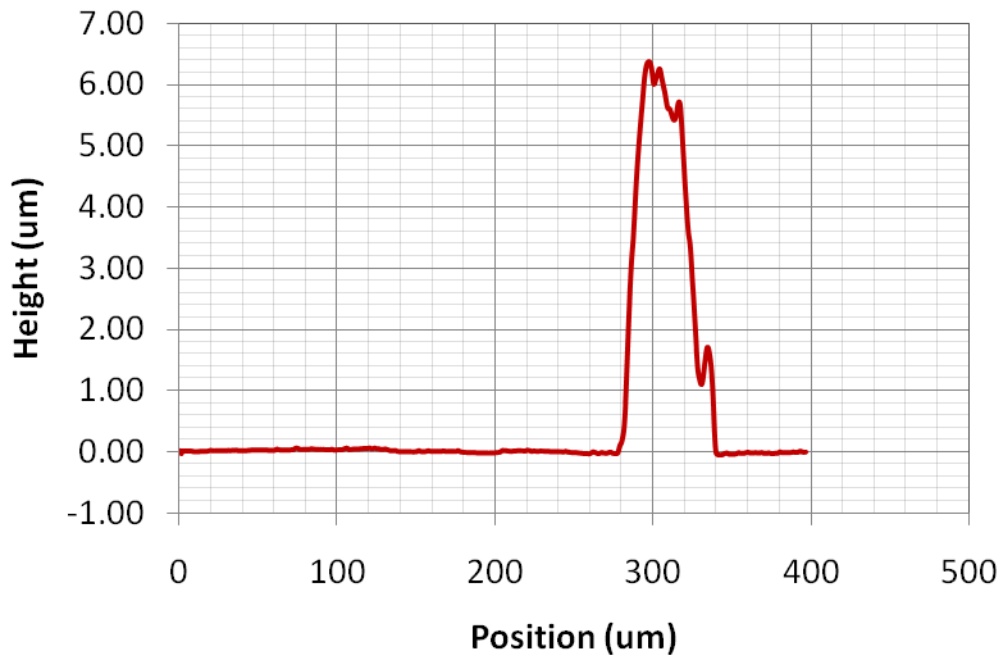


Defects Area #3

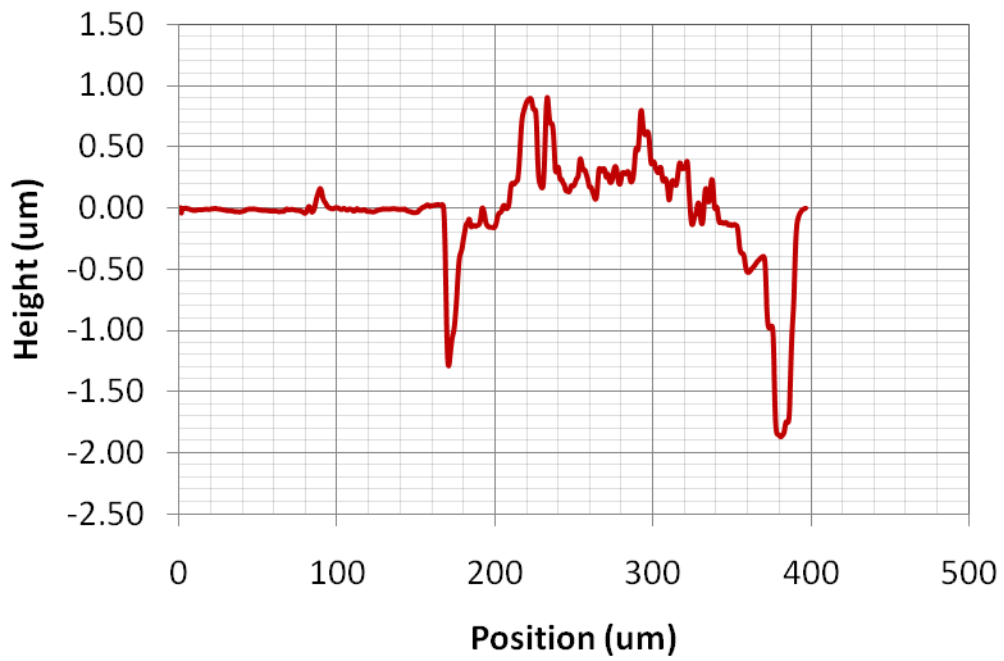


Defects Area #4

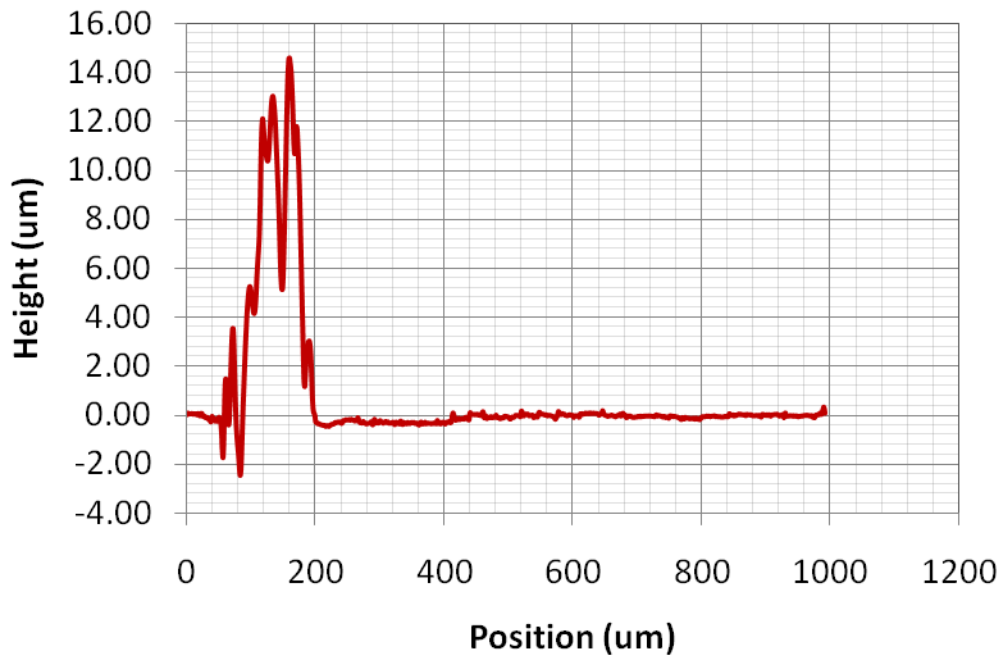
Defect Area 1



Defect Area 2



Defect Area 3



Defect Area 4

