GaN Templates on Silicon

Kyma Gallium Nitride (GaN) templates grown by HVPE provide a high purity GaN buffer for subsequent device epitaxy. HVPE based templates have several advantages over MOCVD growth:

- Dramatic increase in MOCVD throughput by eliminating the following steps:
  - Sapphire pre-treatment
  - Nucleation layer growth
  - GaN buffer growth
- High purity source material produces higher purity epitaxy
- Lower cost in high volume due to HVPE high growth rates

Silicon Orientation: (111)
GaN Orientation: C-plane (00.1)
Conduction Type: Undoped (N-), Si-doped (N+) and Semi-Insulating
Front Surface Finish (Ga-face): As-grown
Back Surface Finish: SSP or DSP from silicon vendor
Undoped (N-) Template Resistivity: <5 Ohm-cm
Si-doped (N+) Template Resistivity: <0.02 Ohm-cm
Semi-insulating Template Resistivity: $>10^6$ Ohm-cm
Edge Exclusion Area: 1 mm for 2-3" & 5 mm for 4"

Available Sizes: 2" (50.8 mm), 3" (76.2 mm) and 4" (100 mm)
Available Grades: Production, Research and Rider
Available Thickness: 200nm up to 500 nm (± 100nm)

Grade:	Production	Research	Rider
Macro Defect Density:	$\leq$5 cm^{-2}	$\leq$10 cm^{-2}	>10 cm^{-2}
Useable Surface Area	$\geq$90%	$\geq$80%	<80%

Other silicon types and thickness options available upon request

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