AlN Templates on Sapphire

Kyma AlN templates grown by PVDNC™ provide a high purity AlN buffer for subsequent GaN device epitaxy. Kyma AlN PVD based templates have several advantages over MOCVD and other PVD growth approaches which include:

- Dramatic increase in MOCVD throughput by eliminating the following steps:
  - Sapphire pre-treatment
  - Nucleation layer growth
- Higher LED brightness due to substantial dislocation density reduction
- Better repeatability as compared to 2-step GaN on sapphire direct nucleation
- PVDNC™ AlN offers significantly lower cost and superior scalability versus MOCVD AlN or GaN
- Properties such as LED brightness and uniformity further improve on patterned sapphire substrates

Orientation: c-axis (00.1) ± 0.2°
Conduction Type: Semi-insulating
Front Surface Finish (Al-face): As-grown, Epi-ready, (25nm on sapphire typical RMS <0.5 nm)
Back Surface Finish: SSP or DSP sapphire from vendor
Edge Exclusion Area: 1 mm for 2-3" & 5 mm for 4-8"

Available Sizes: 2" (50.8 mm) - 8" (200 mm)
Available Grades: Prime, Production, Research, and Rider
Available Thickness*: 25 nm (± 5%) best for MOCVD growth
**custom thickness options available 10nm-2um*

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

Other sapphire options available: Patterned sapphire substrates (PSS) (micro or nano) and double side polished
Customer supplied sapphire and other thickness options available

Kyma Technologies 8829 Midway West Road Raleigh, NC 27617 919-789-8880 sales@kymatech.com