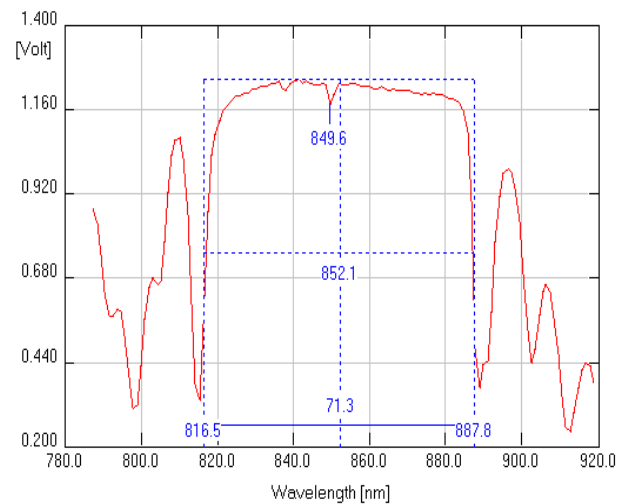
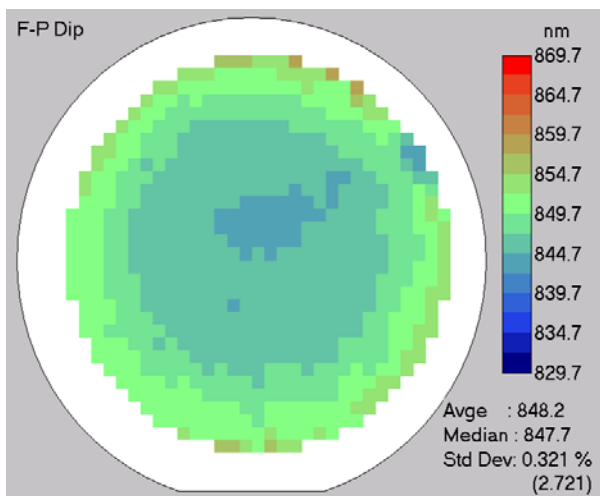


850 nm Oxide VCSEL Epiwafer

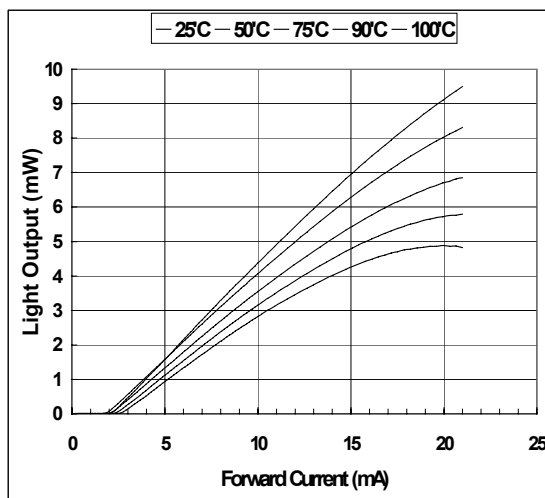
Part Number: VG1B-1000

LuxNet's 850 nm oxide VCSEL epi structure was produced using a state-of-the-art MOCVD reactor. We achieved excellent uniformity and reproducibility. Run to run wavelength reproducibility is within ± 5 nm. Thickness uniformity within a 3" wafer with 5mm edge exclusion is $< 1\%$.

Characterization



VCSEL device Results



Features:

- Excellent uniformity
- GaAs triple quantum wells
- Si & C dopant
- (100) ± 6 degrees substrate
- Proven reliability data
- Custom structures available by features

Part Number: VG1B-1000

Epi Specifications:

SB Center Wavelength	840~860 nm	Uniformity $\pm 5.0\text{nm}$ (5 mm exclusion of 3" wafer)
F-P Dip Wavelength	840~860 nm	Uniformity $\pm 5.0\text{nm}$ (5 mm exclusion of 3" wafer)
PL Wavelength	827~833 nm	Uniformity $\pm 2.0\text{nm}$ (5 mm exclusion of 3" wafer)
Active layer	.	GaAs/ AlGaAs triple MQW
Oxide layer	.	AlxGa1-xAs x=0.97
DBR	.	High Index AlxGa1-xAs x=0.15~0.2 Low Index AlxGa1-xAs x=0.9~0.99
Doping Level 1.Cap layer 2.P-DBR 3.N-DBR	ECV >1x10 ¹⁹ cm ⁻³ 1~5 x10 ¹⁸ cm ⁻³ 1~4 x10 ¹⁸ cm ⁻³	Specification $\pm 30\%$ Si for n-type , C for p-type
Defect density	300cm ⁻²	Smooth surface

Device Performance (for 16 μm oxide size)

Parameter	Symbol	Unit	Min.	Typ.	Max.	Test Condition
Threshold Current	I_{th}	mA		3	6	
Threshold Voltage	V_{th}	V		1.7	2.0	@ I_{th}
Forward Voltage	V_f	V		2.0	2.3	@ 10 mA
Differential Resistance	R_s	Ω		45	65	@ 10 mA
Reverse Voltage	V_r	V			-5	@ -10 μA
Slope Efficiency	η	W/A	0.2	0.5	0.7	@ 10 mA