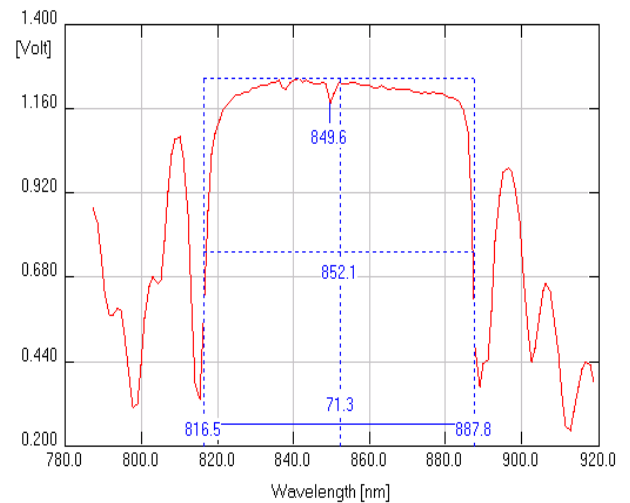
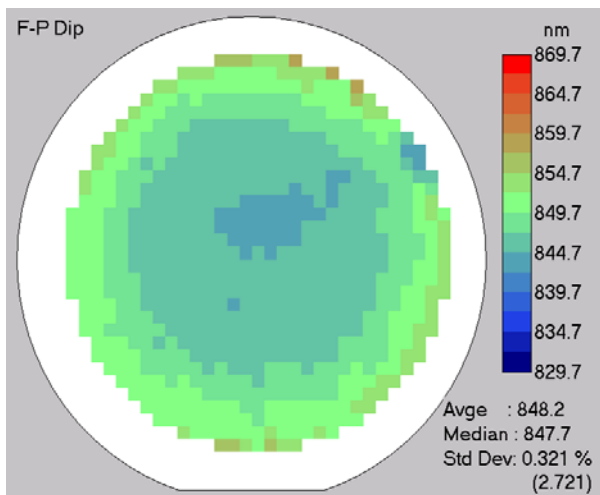


850nm VCSEL Epiwafer

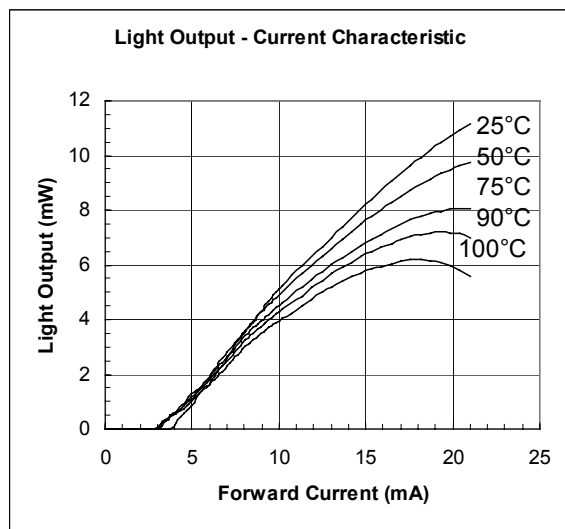
Part Number: VG1A-1000

850 nm VCSEL epi structure produced using state of the art MOCVD reactor. We achieved excellent uniformity and reproducibility. Run to run wavelength reproducibility is within +/- 5nm. 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: VG1A-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
DBR	.	High Index Al _x Ga _{1-x} As $x=0.15\sim 0.2$ Low Index Al _x Ga _{1-x} As $x=0.9\sim 0.99$
Doping Level 1.Cap layer 2.P-DBR 3.N-DBR	ECV $>1 \times 10^{19} \text{cm}^{-3}$ $1 \sim 5 \times 10^{18} \text{cm}^{-3}$ $1 \sim 4 \times 10^{18} \text{cm}^{-3}$	Specification $\pm 30\%$ Si for n-type , C for p-type
Defect density	300cm^{-2}	Smooth surface

Device Performance (for 18-20 μm implant 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		35	50	@ 10 mA
Reverse Voltage	V_{r}	V			-5	@ -10 μA
Slope Efficiency	η	W/A	0.2	0.35	0.5	@ 10 mA