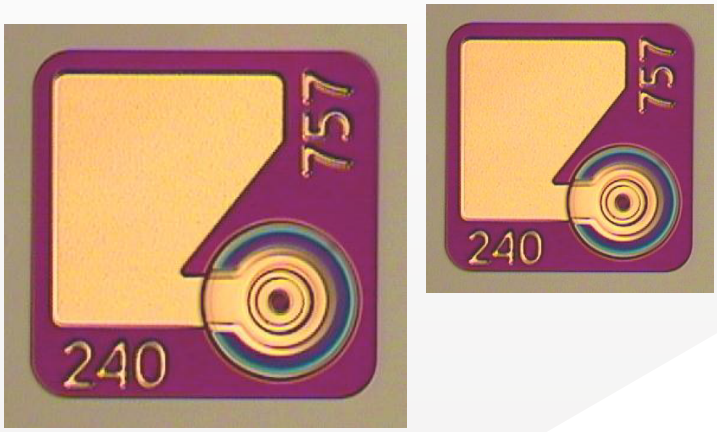
II-VI



APA8501010001

850nm Polarization Locked Single Mode VCSEL Chip

Features:

- Single transverse and longitudinal mode
- Polarization stable emission
- Low power consumption
- High reliability
- Gaussian beam profile
- Backside cathode and topside anode configuration
- RoHS compliant

850nm Polarization Locked Single Mode VCSEL Chip

Electro-Optical Characteristics

Operating conditions: T_{op}= 5° - 45°C; I_{op}=const., set at 25°C so that P_{op}=0.55mW

Parameter	Symbol	Ratings			Unit	Conditions
		Min	Typ	Max		
Threshold Current	I_{th}	1	3	5	mA	T = 25°C
Slope Efficiency	η	0.20	0.40	0.65	mW/mA	T = 25°C, I = I_{th}+1mA
Operating Current	I_{op}	2.3		6	mA	T = 25°C, P_{op}=0.55mW
Operating Voltage	U_{op}			2.3	V	Operating conditions
Differential Resistance	R_d	20		90	Ω	T = 25°C, P_{op}=0.55mW
SM Optical Output Power	P_{SM}	0.9			mW	T = 25°C
Side Mode Suppression Ratio	SMSR	10			dB	T = 25°C, P_{op}=0.9mW
Accuracy of Polarization Direction *	δ_{pol}	-15		+15	deg	T = 25°C, P_{op}=0.2...0.9mW
Emission Wavelength	λ_{peak}	840	850	860	nm	Operating conditions
Beam Divergence	$\theta_{FW1/e2}$	13	17	21	deg	T = 25°C, P_{op}=0.5mW
Optical power variation over temperature	P(T) – P_{op}	-200		+120	µW	I_{op}, T=5...45°C

SM= single mode; FW1/e2 = full width 1/e2

* Polarization direction relative to the chip: see chip layout in section "Chip Dimensions"

Absolute Maximum Ratings

Parameter	Max Rating	Unit	Condition
Continuous Operating Current	8	mA	
Continuous Reverse Voltage	8	V	
PCB solder or reflow temperature	260	°C	max 10 seconds

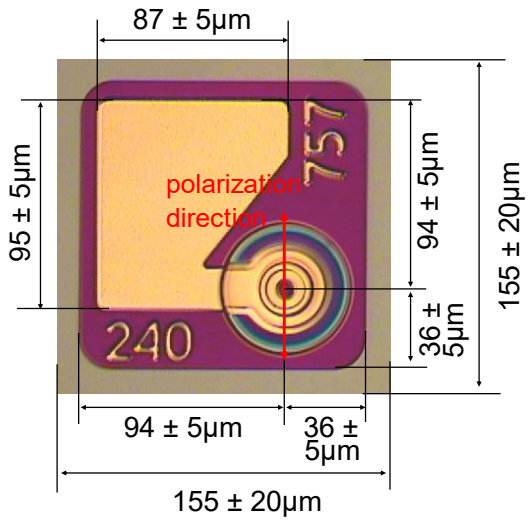
850nm Polarization Locked Single Mode VCSEL Chip

Packaging and Supply

- Sawn wafer on adhesive tape
- Wafer map files describing positions of good dice

Chip Dimensions

Parameter	Min	Typ	Max	Unit
Chip width	135	155	175	µm
Chip length	135	155	175	µm
Chip thickness	135	150	165	µm



Chip thickness: 150 ± 15 µm

850nm Polarization Locked Single Mode VCSEL Chip

RoHS Compliance

II-VI is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

Ordering Information

Product Code	Description
APA8501010001	850nm Polarization Locked SM VCSEL Chip

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by II-VI before they become applicable to any particular order or contract. In accordance with the II-VI policy of continuous improvement specifications may change without notice. Further details are available from any II-VI sales representative.

Safety Labels