

850nm Polarization Locked Single Mode VCSEL in TO-46

Features:

- Single transverse and longitudinal mode
- Polarization stable emission
- Low power consumption
- Gaussian beam profile
- High reliability
- RoHS compliant 

Applications:

- Laser mouse
- Optical sensor applications
- Optical encoder



Oclaro's single mode VCSELs are designed to meet stringent specifications for a broad range of optical sensing applications. This product offers polarization stable single mode emission with a symmetrical Gaussian beam profile and output powers of typically 1mW. Bias currents range from 3 to 6mA.

Electro – Optical Characteristics

Operating conditions: $T_{op}=5^{\circ} - 45^{\circ}\text{C}$; $I_{op}=\text{const.}$, set at 25°C so that $P_{op}=0.7\text{mW}$

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Threshold current	I_{th}	$T=25^{\circ}\text{C}$	1	2.5	5	mA
Slope efficiency	η	$T=25^{\circ}\text{C}$, $I=I_{th} + 1\text{mA}$	0.15	0.35	0.55	mW/mA
Operating current	I_{op}	$T=25^{\circ}\text{C}$, $P_{op}=0.7\text{mW}$	2		7	mA
Operating voltage	U_{op}	Operating conditions			2.3	V
Single mode optical output power	P_{SM}	$T=25^{\circ}\text{C}$	0.8			mW
Side mode suppression ratio	SMSR	$T=25^{\circ}\text{C}$, $P_{op}\leq 0.8\text{mW}$	10			dB
Emission wavelength	λ	Operating conditions	840	850	860	nm
Beam divergence	Θ	Full width $1/e^2$, $T=25^{\circ}\text{C}$, $P_{op}=0.7\text{mW}$	13	17	21	$^{\circ}$
Differential resistance	R_{diff}	$P_{op}=0.7\text{mW}$	20		90	Ω
Optical power variation over temperature	$P(T)-P_{op}$	$I=I_{op}$, $T=5..45^{\circ}\text{C}$	-200		+200	μW

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

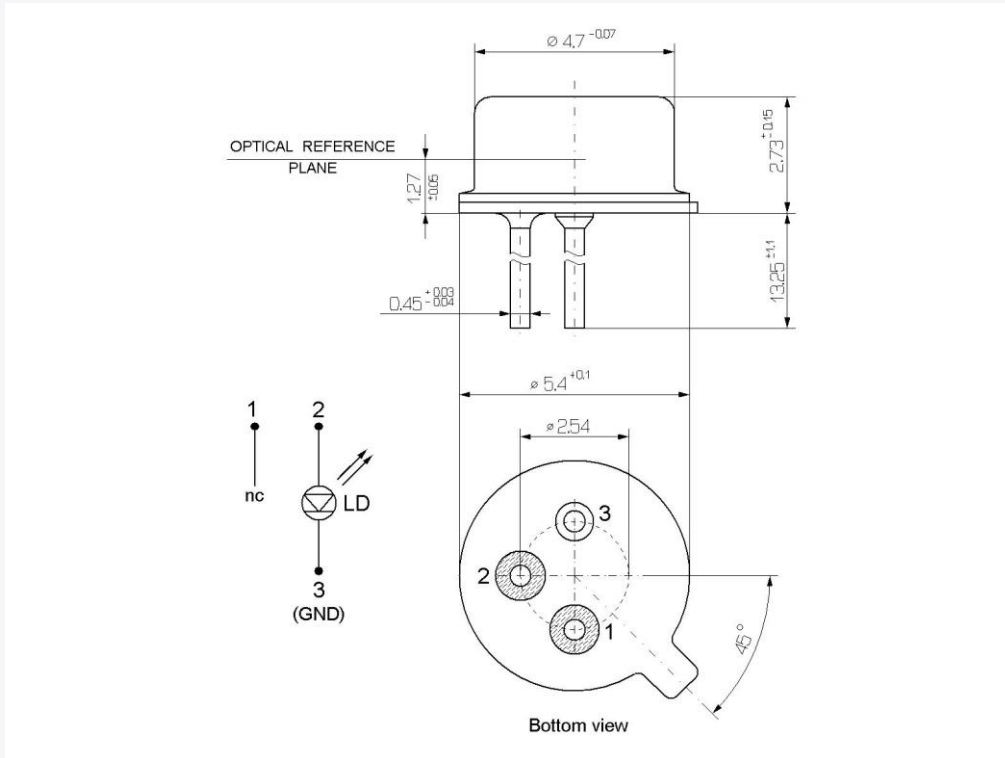
Polarization

- Laser operates with stable linear polarization
- No polarization flips in the operating range

Absolute Maximum Ratings

Parameter	Min	Max	Unit	Condition
Continuous operating current		8	mA	
Continuous reverse voltage		8	V	

Package Outline and Electrical Connections



Unless otherwise specified all dimensions are in millimeters

RoHS Compliance



Oclaro 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
APA8101013512	850nm polarization locked SM VCSEL chip in TO-46

Contact Information

www.oclaro.com

Important Notice

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



Caution - use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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