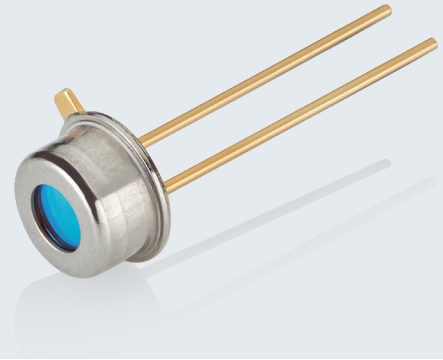


## Single Mode VCSEL 850 nm



### IMV-850-1-PL-TO46

850 nm polarization locked single mode VCSEL in TO46

## ABSOLUTE MAXIMUM RATINGS

Parameter	Max ratings	Unit	Conditions
Continuous operating current	8	mA	
Continuous reverse voltage	8	V	
PCB solder or reflow temperature	+260	°C	max. 10 seconds

Storage temperature: -20°C to +85°C

Operating temperature: +5°C to +45°C

## ELECTRO-OPTICAL CHARACTERISTICS (MEASURED IN TO46)

Parameter	Ratings			Unit	Conditions
	Min	Typ	Max		
Emission wavelength ( $\lambda_{\text{peak}}$ )	840	850	860	nm	Operating conditions
SM optical output power ( $P_{\text{SM}}$ )	0.9			mW	T = +25°C
Side mode suppression ratio (SMSR)	10			dB	T = +25°C, $P_{\text{op}} = 0.9$ mW
Optical power variation over temperature ( $P(T) - P_{\text{op}}$ )	-200		+120	μW	$I_{\text{op}}$ , T = +5 to +45°C
Beam divergence ( $\theta_{\text{FW1/e2}}$ )	+12	+17	+21	deg	T = +25°C, $P_{\text{op}} = 0.5$ mW
Accuracy of polarization direction* ( $\delta_{\text{pol}}$ )	-15		+15	deg	T = +25°C, $P_{\text{op}} = 0.2$ to 0.9 mW
Operating voltage ( $U_{\text{op}}$ )			2.3	V	Operating conditions
Operating current ( $I_{\text{op}}$ )	2.3		6	mA	T = +25°C, $P_{\text{op}} = 0.55$ mW
Threshold current ( $I_{\text{th}}$ )	1	3	5	mA	T = +25°C, $P_{\text{op}} = 0.55$ mW
Slope efficiency ( $\eta$ )	0.20	0.40	0.65	mW/mA	T = +25°C, $P_{\text{op}} = 0.2$ to 0.9 mW
Temperature coefficient of wavelength ( $\partial\lambda/\partial T$ )		0.05		nm/K	Operating conditions

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

\* Polarization direction relative to the chip.

Operating conditions:  $T_{\text{op}} = +5^\circ\text{C}$  to  $+45^\circ\text{C}$ ;  $I_{\text{op}} = \text{const.}$ , set at +25°C so that  $P_{\text{op}} = 0.55$  mW

## APPLICATIONS

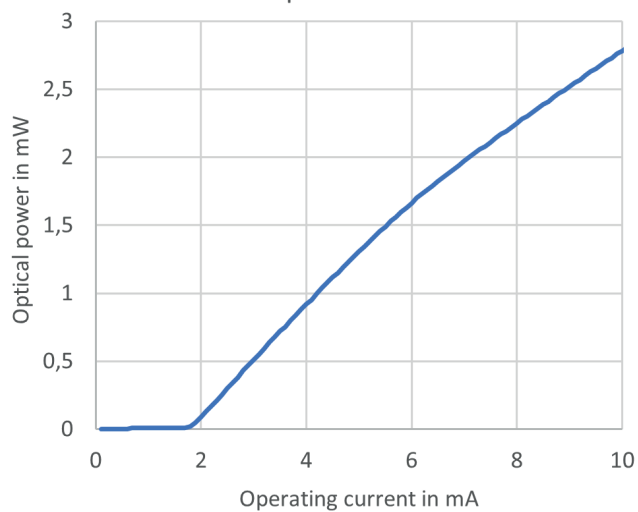
- Optical sensor applications
- Optical encoder
- 2D imaging (facial recognition)
- Industrial speed and distance sensors (LIDAR)
- Targeting

## FEATURES

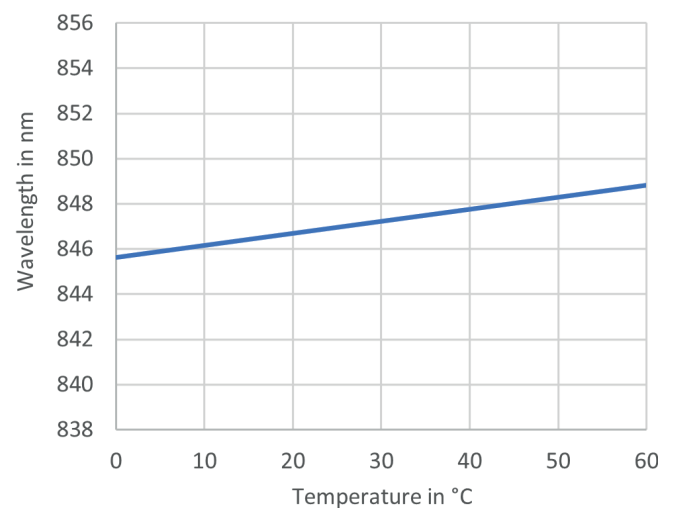
- Single mode VCSEL
- VCSEL chip by **COHERENT**
- Wavelength 850 nm
- Optical power 0,9 mW
- Single transverse and longitudinal mode
- Gaussian beam profile
- Polarization stable emission
- Compact TO-46 can
- Low power consumption
- High reliability
- RoHS compliant
- Made in Europe

## TYPICAL CHARACTERISTIC CURVES

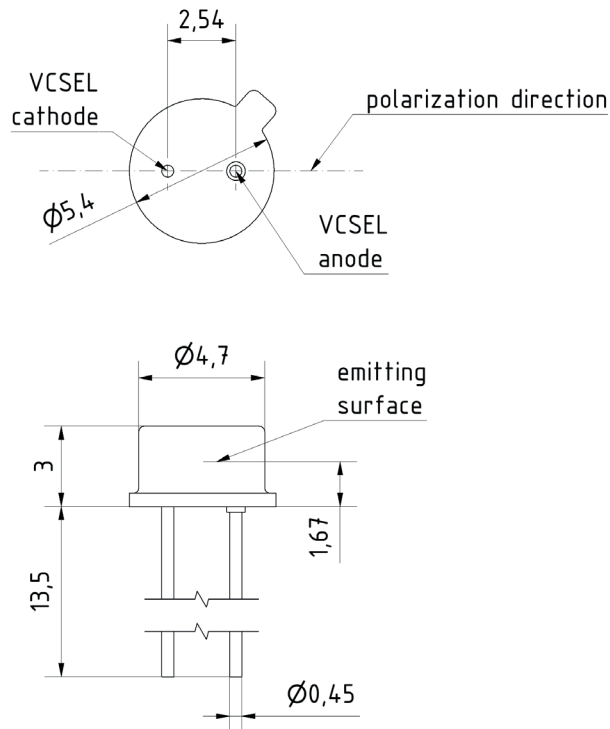
Optical power vs. operating current  
temperature 25 °C



Wavelength vs. temperature



## DIMENSIONS



Placement accuracy  $\pm 150\mu\text{m}$  VCSEL eye to centre of TO cap.  
Placement accuracy  $\pm 60\mu\text{m}$  VCSEL eye to centre of TO header.

## NOTES

Compliant with RoHS-requirements (2011/65/EU from June 8, 2011).

The above product specifications are typical values and subject to change without notice.

Release 07/2023