

# Single Mode VCSEL 850 nm

## 1.5 mW



### IMV-850-2-PL-TO46

850 nm polarization locked single mode VCSEL in TO46

#### APPLICATIONS

- Optical sensor applications
- Optical encoder
- Industrial speed and distance sensors (LIDAR)
- 2D imaging (facial recognition)
- Short reach data link

#### FEATURES

- Single mode VCSEL
- Wavelength 850 nm
- Hermetically sealed
- Single transverse and longitudinal mode
- Circular beam profile, Gaussian
- Polarization locked emission
- Compact TO-46 can
- AR coated window
- Low power consumption
- High reliability
- RoHS compliant
- Made in Europe

#### ABSOLUTE MAXIMUM RATINGS

PARAMETER	MAX RATINGS	UNIT	CONDITIONS
Continuous operating current	6	mA	
Continuous reverse voltage	6	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**

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### ELECTRO-OPTICAL CHARACTERISTICS (MEASURED IN TO46)

PARAMETER	RATINGS			UNIT	CONDITIONS
	MIN	TYP	MAX		
Emission wavelength ( $\lambda_{\text{peak}}$ )	840	850	860	nm	T = +25°C
SM optical output power ( $P_{\text{SM}}$ )		1.5	2	mW	T = +25°C
Side mode suppression ratio (SMSR)	17	20		dB	T = +25°C, $P_{\text{op}} = 1.5 \text{ mW}$
Beam divergence ( $\theta_{\text{FW1/e}^2}$ )	+11	+13	+17	deg	T = +25°C, $P_{\text{op}} = 1.5 \text{ mW}$
Polarization stability			0	flips	T = +25°C
Operating voltage ( $U_{\text{op}}$ )		1.9	2.3	V	T = +25°C
Operating current ( $I_{\text{op}}$ )		3.0	4.0	mA	T = +25°C, $P_{\text{op}} = 1.5 \text{ mW}$
Threshold current ( $I_{\text{th}}$ )		1.0	2.0	mA	T = +25°C
Slope efficiency ( $\eta$ )	0.65	0.75		mW/mA	T = +25°C, $I = I_{\text{th}} + 1 \text{ mA}$

SM= single mode; FW1/e<sup>2</sup> = full width 1/e<sup>2</sup>

\* Polarization direction relative to the chip.

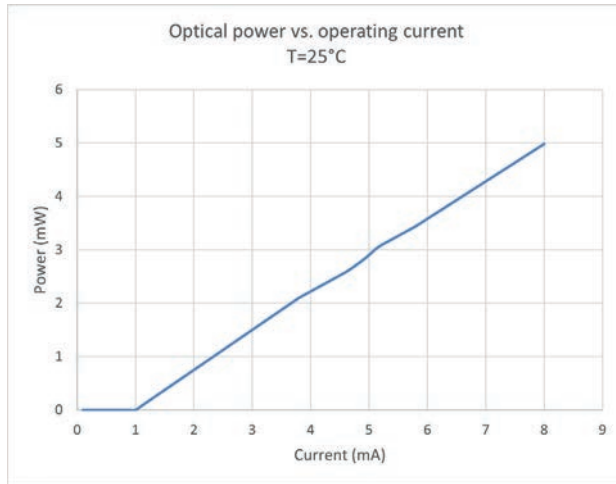
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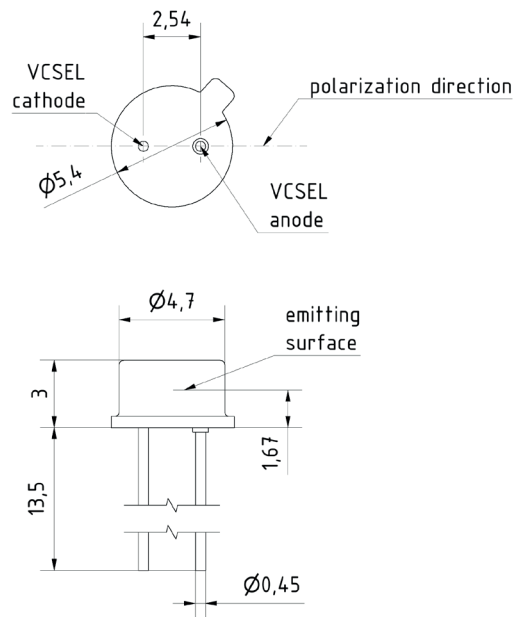
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### TYPICAL CHARACTERISTIC CURVES



### TO 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 12/2025

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