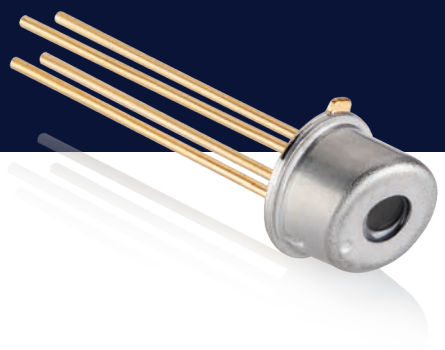
IMM photonics

Single Mode VCSEL 850 nm
with Photodiode, 1.5 mW



IMV-850-2-PL-TO46 with photodiode
850 nm polarization locked single mode VCSEL in TO46

APPLICATIONS
- Optical sensor applications
- Optical encoder
- 2D imaging (facial recognition)
- Industrial speed and distance sensors (LIDAR)
- 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, with integrated photodiode
- 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

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

SM= single mode; FW1/e^2 = full width 1/e^2
* Polarization direction relative to the chip.

$I_{Photodiode}$: typ. 65 µA; Conditions: P_{opt} = 1.5 mW

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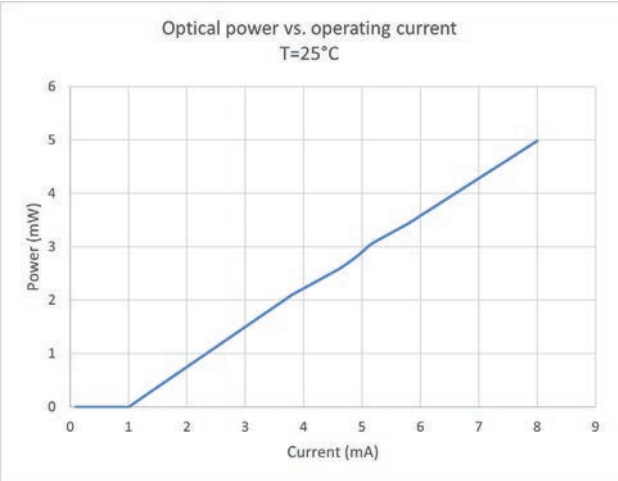
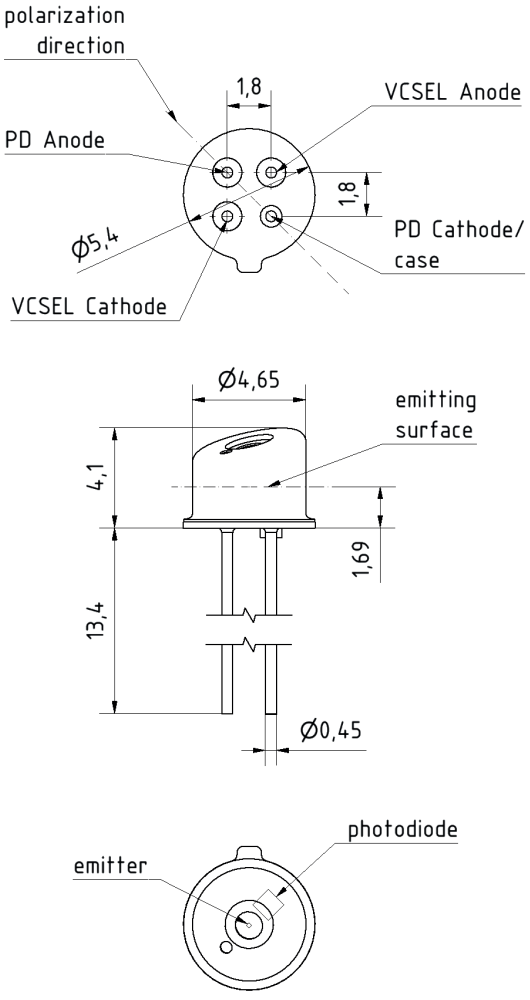
TYPICAL CHARACTERISTIC CURVES



TO DIMENSIONS



Placement accuracy ±150 µm VCSEL eye to centre of TO cap.
Placement accuracy ±60 µm 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

WE LOOK FORWARD
to solving your challenge

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