

Single mode VCSEL 850 nm with photodiode

IMV-850-1-PL-TO46 with photodiode

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

| Parameter | Ratings | | | Unit | Conditions |
|--|---------|------|------|-------|--|
| | Min | Typ | Max | | |
| Emission wavelength (λ_{peak}) | 840 | 850 | 860 | nm | Operating conditions |
| SM optical output power (P_{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_{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* (δ_{pol}) | -15 | | +15 | deg | T = +25°C, $P_{\text{op}} = 0.2$ to 0.9 mW |
| Operating voltage (U_{op}) | | | 2.3 | V | Operating conditions |
| Operating current (I_{op}) | 2.3 | | 6 | mA | T = +25°C, $P_{\text{op}} = 0.55$ mW |
| Threshold current (I_{th}) | 1 | 3 | 5 | mA | T = +25°C, $P_{\text{op}} = 0.55$ mW |
| Slope efficiency (η) | 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.

$I_{\text{Photodiode}}$: min. 32 μA, typ. 41 μA; Conditions: $P_{\text{opt}} = 1$ mW

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

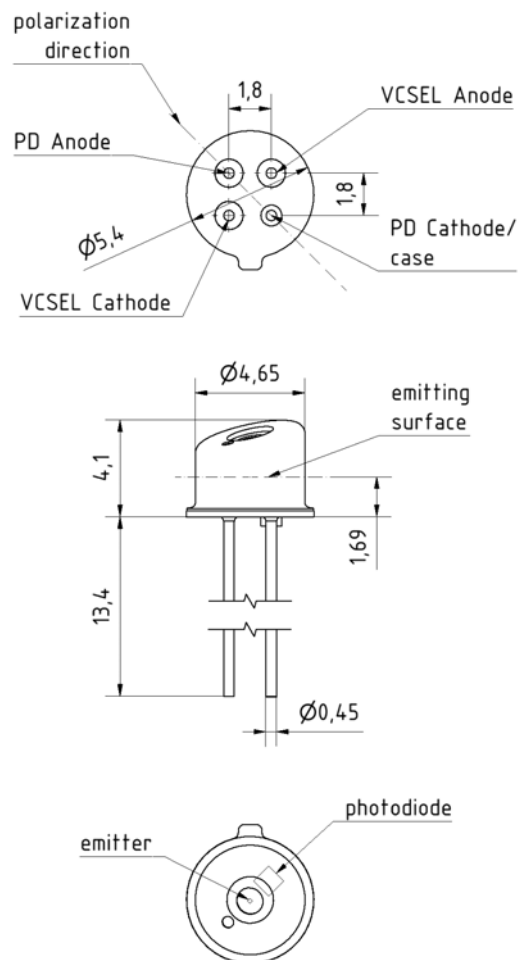
APPLICATIONS

- 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
- Circular beam profile, Gaussian
- Polarization locked emission
- Compact TO-46 can, with integrated photodiode
- Low power consumption
- High reliability
- RoHS compliant
- Made in Europe

TO DIMENSIONS



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 08/2023