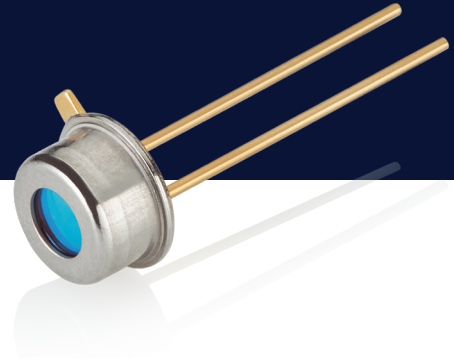


Single Mode VCSEL 850 nm



IMV-850-1-PL-TO46

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)
- 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

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

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Single Mode VCSEL 850 nm

ELECTRO-OPTICAL CHARACTERISTICS (MEASURED IN TO46)

| 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, $P_{op} = 0.9$ mW |
| Optical power variation over temperature ($P(T) - P_{op}$) | -200 | | +120 | μ W | I_{op} , T = +5 to +45°C |
| Beam divergence (θ_{FW1/e^2}) | +12 | +17 | +21 | deg | T = +25°C, $P_{op} = 0.5$ mW |
| Accuracy of polarization direction* (δ_{pol}) | -15 | | +15 | deg | T = +25°C, $P_{op} = 0.2$ to 0.9 mW |
| Operating voltage (U_{op}) | | | 2.3 | V | Operating conditions |
| Operating current (I_{op}) | 2.3 | | 6 | mA | T = +25°C, $P_{op} = 0.55$ mW |
| Threshold current (I_{th}) | 1 | 3 | 5 | mA | T = +25°C, $P_{op} = 0.55$ mW |
| Slope efficiency (η) | 0.20 | 0.40 | 0.65 | mW/mA | T = +25°C, $P_{op} = 0.2$ to 0.9 mW |
| Temperature coefficient of wavelength ($\partial\lambda/\partial T$) | | 0.05 | | nm/K | Operating conditions |

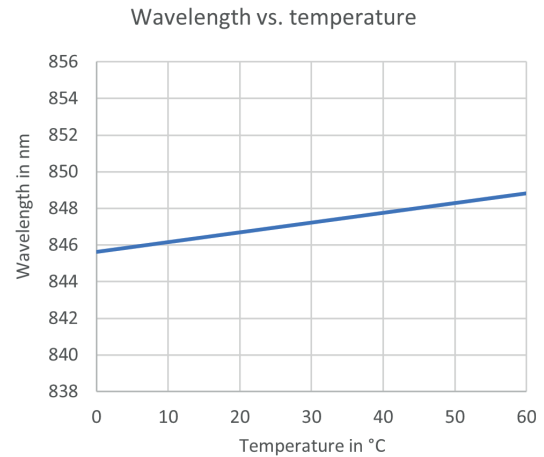
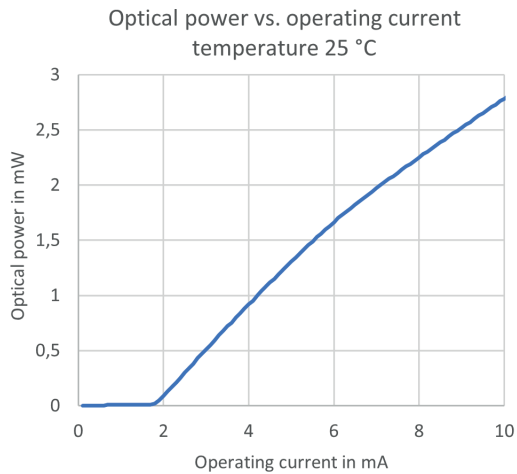
SM= single mode; $FW1/e^2$ = full width 1/e²

* Polarization direction relative to the chip.

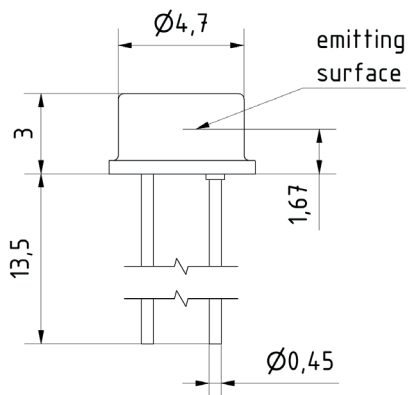
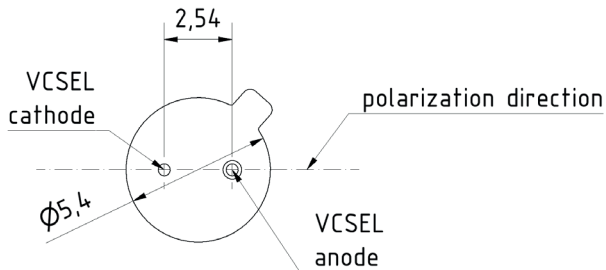
Operating conditions: $T_{op} = +5^\circ\text{C}$ to $+45^\circ\text{C}$; $I_{op} = \text{const.}$, set at $+25^\circ\text{C}$ so that $P_{op} = 0.55$ mW

Single Mode VCSEL 850 nm

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 10/2024

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**WE LOOK
 FORWARD**
 to solving your
 challenge

