

## 850nm 2mW TO46 SM VCSEL Laser Diode(with TEC)



### ● Product Description

With optimized optical characteristics, the 850 nm single-mode VCSEL is an ideal choice for high-demand sensing system applications. Its innovative chip design suppresses high-order longitudinal and transverse modes, and features stable linear polarization performance.



## ● Product features

Vertical-cavity surface-emitting laser architecture ; Integrated TEC (Thermoelectric Cooler) for precise temperature control ; Low power consumption and high efficiency; TO46 metal hermetic package High-speed modulation capability

## ● Part Number

MP-VCS-850-2-TO46-SM-TEC

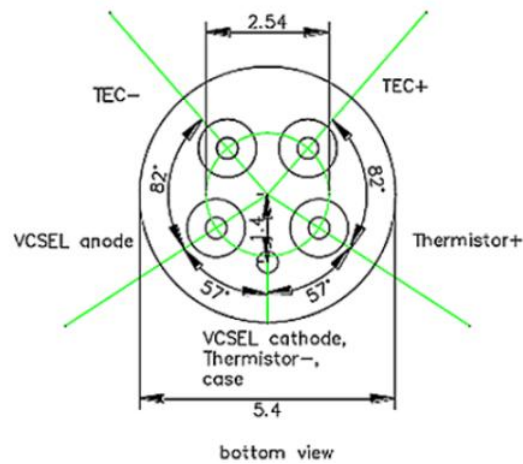
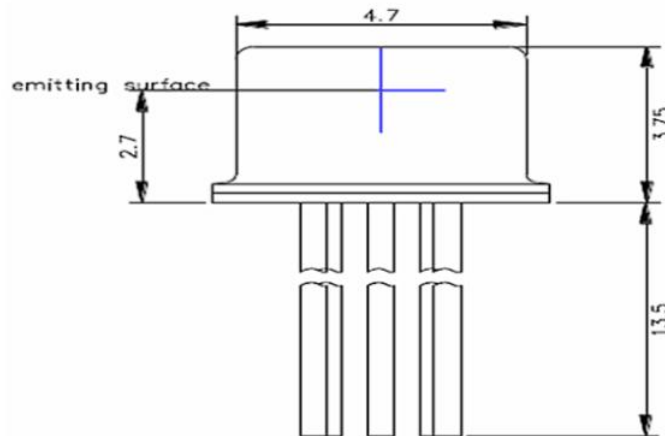
## ● Application area

High-Speed Optical Communication | Optical Fiber Sensing | 3D Sensing |  
Industrial Control | Quantum Technology

## ● Core parameters

| Center Wavelength |
|-------------------|
| 850nm             |

## ● Dimension Drawing



## ● General Parameters

Optoelectronic parameters

T=20°C unless otherwise specified

| Parameters          | symbol      | unit | Min. value | Typical values | Max. value | Note:                     |
|---------------------|-------------|------|------------|----------------|------------|---------------------------|
| Incident wavelength | $\lambda_R$ | nm   | 830        | 850            | 870        | $P_{opt.} = 2 \text{ mW}$ |



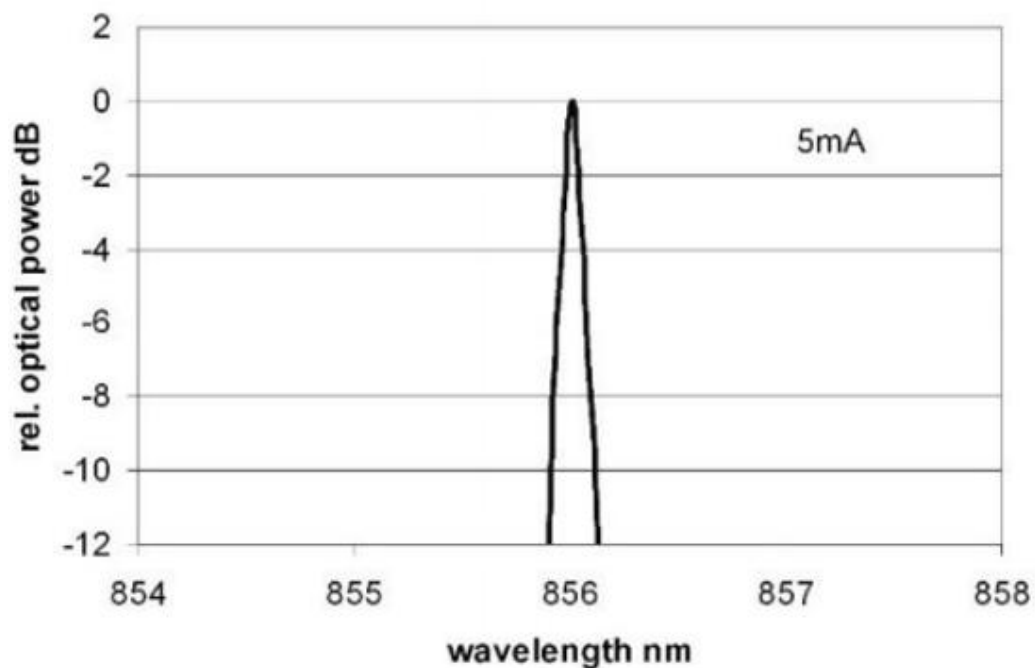
|   |           |          |       |      |     |  |
|---|-----------|----------|-------|------|-----|--|
| Threshold current                         | $I_{TH}$  | mA       |       |      | 2   |  |
| Laser current                             | $I_{OP}$  | mA       |       |      | 6   | $P_{opt.} = 2 \text{ mW}$                            |
| Laser voltage                             | $U_{OP}$  | V        |       |      | 2.6 | $P_{opt.} = 2 \text{ mW}$                            |
| Slope efficiency                          | $\eta_s$  | W/A      | 0.5   |      | 1   |  |
| Output power                              | $P_{opt}$ | mW       | 2     | 2.5  |     | $I_{OP} = 6 \text{ mA}$                              |
| Differential series resistors             | $R_s$     | $\Omega$ | 50    | 200  |     | $P_{opt.} = 2 \text{ mW}$                            |
| Beam divergence angle                     | $\theta$  | $^\circ$ | 10    | 20   |     | $P_{opt.} = 2 \text{ mW}$ ,<br>full width<br>$1/e^2$ |
| Edge mold suppression ratio               | SMSR      | dB       | 10    |      |     | $P_{opt.} = 2 \text{ mW}$                            |
| ESD damage threshold                      |           | V        | 2000* |      |     | Mannequin  |
| Wavelength temperature tuning coefficient |           | nm/K     |       | 0.06 |     |  |

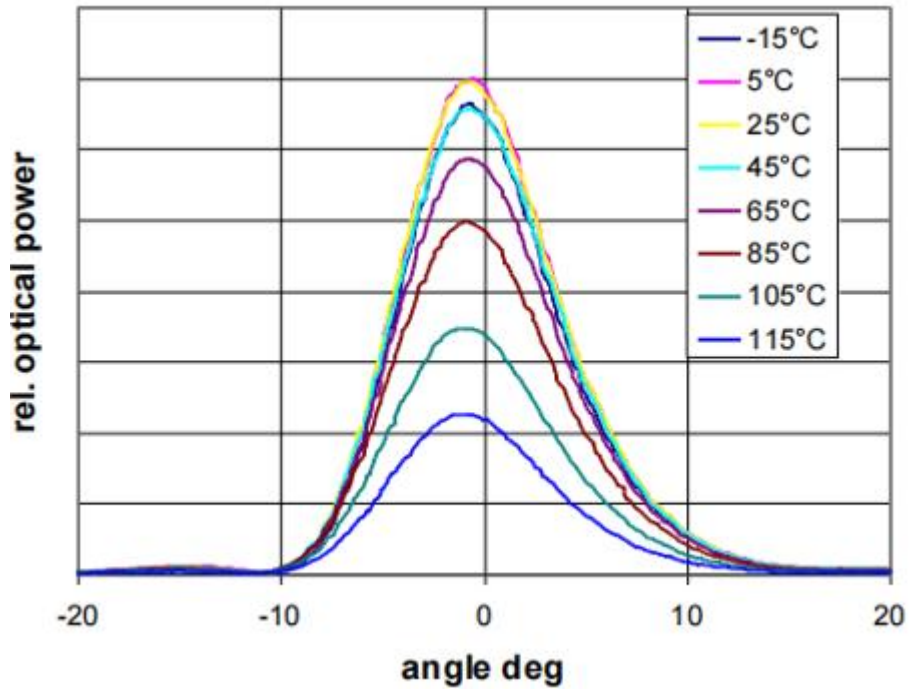
\*TO package for integrated z-diode

## Absolute maximum

| Parameters                       | Indicators   |
|----------------------------------|--------------|
| Storage temperature              | -40 to 125°C |
| Operating temperature            | -40 to 85°C  |
| Electricity consumption          | 20 mW        |
| Continuous forward laser current | 8 mA         |
| Continuous reverse current       | 10 mA        |
| Welding temperature              | 330°C        |

## Spectral characteristics





### Power curve

