



Electro Optical Components, Inc.

5464 Skylane Boulevard, Suite D, Santa Rosa, CA 95403

Toll Free: 855-EOC-6300

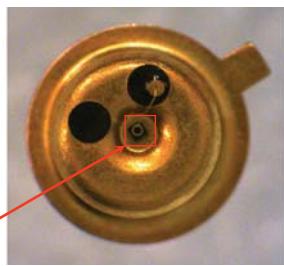
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Features

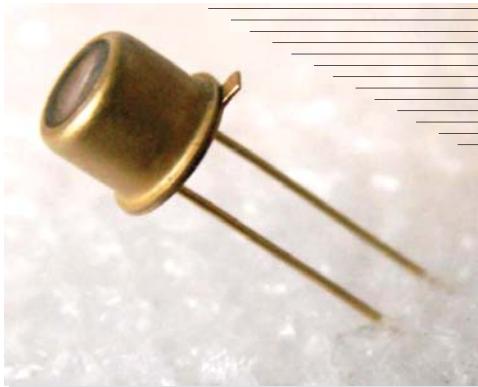
- High reliability
- Spectral Selectivity
- Easy to use in lock-in circuits



LED chip

LIGHT EMITTING DIODE LED46

4.4 - 4.7 μ m



Applications

- Measuring equipment
- Gas analysis (CO, N₂O, HCN)
- Analytical spectral devices

Options

- Power supply: [LED Driver D-31M](#)

▼ Description

Light emitting diode **LED46** demonstrates typical maximum of emitting wavelength of $\lambda_P = 4.6 \mu\text{m}$ ($I = 150 \text{ mA}$, $f = 0.5 \text{ KHz}$, duty cycle: 50%).

LED chip is mounted in a standard TO-18 package.

LED heterostructure is grown on InAs substrate.

Related products: **LED46** can be used in optical pair with our [PD48-05-WS](#) photodiodes.

General characteristics

| Package | Parameter | Symbol | Value | Unit |
|---------|---------------------------|--------------------------|-------------|------|
| TO-18 | Maximum operating current | I^*_{QCW} | 220 | mA |
| | | I^{**}_{Pulsed} | 2000 | |
| | Soldering temperature | T_s | + 230 | °C |
| | Operating temperature | T_{opr} | - 30...+ 50 | °C |
| | Storage temperature | T_{stg} | - 55...+ 60 | °C |
| | Weight | m | 0.26 | g |
| | Size | D H | 5.5 17.7 | mm |

* Quasi-CW mode: Repetition rate: 0.5 kHz, pulse duration: 1 ms, duty cycle: 50%

** Pulse mode: Repetition rate: 0.5 kHz, pulse duration: 2 μ s, duty cycle: 0.1%

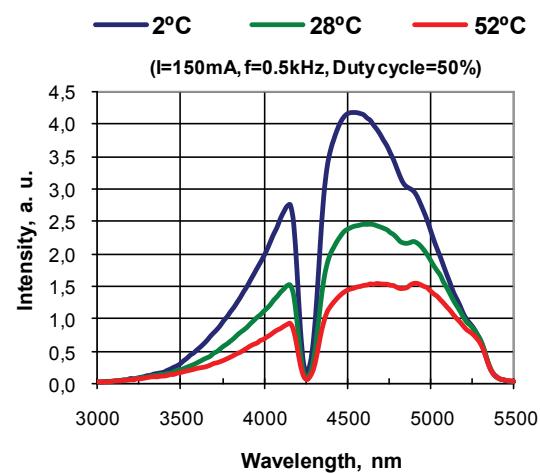
Electrical and optical characteristics

| Parameter | Symbol | Condition $T_a \approx + 20^\circ\text{C}$ | Min | Max | Unit |
|--------------------------|--------------------------|---|------------------------------|------|---------------|
| Peak emission wavelength | λ_p | $I_F = 150 \text{ mA}$ | $\lambda_{\text{typ}} = 4.6$ | | μm |
| | | | 4.4 | 4.66 | |
| Spectral FWHM | $\Delta\lambda$ | $I_F = 150 \text{ mA}$ | 800 | 1000 | nm |
| Pulse optical power | P^*_{QCW} | $I_F = 200 \text{ mA}$ | 4 | 12 | μW |
| | P^{**}_{Pulsed} | $I_F = 1000 \text{ mA}$ | 20 | 55 | |
| Forward voltage | V_F | (*) | 0.3 | 0.8 | V |
| Switching time | τ | | 10 | 30 | ns |

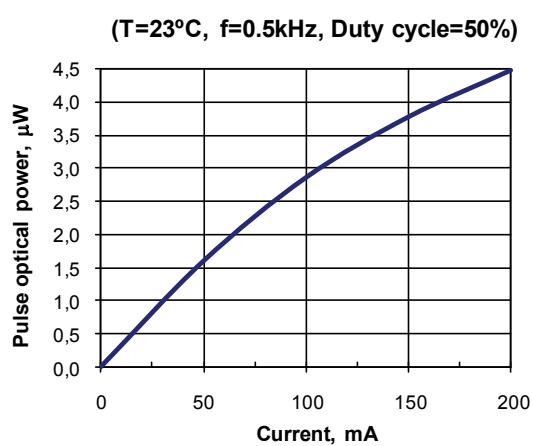
* Quasi-CW mode: repetition rate: 0.5 kHz, pulse duration: 1 ms, duty cycle: 50%, current: 200 mA

** Pulse mode: repetition rate: 0.5 kHz, pulse duration: 2 μ s, duty cycle: 0.1%, current: 1 A

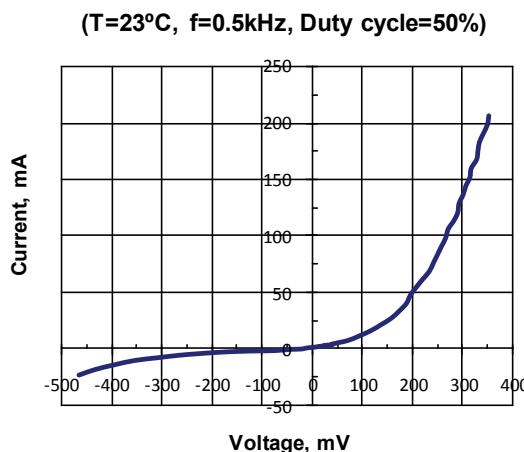
Electroluminescence spectra



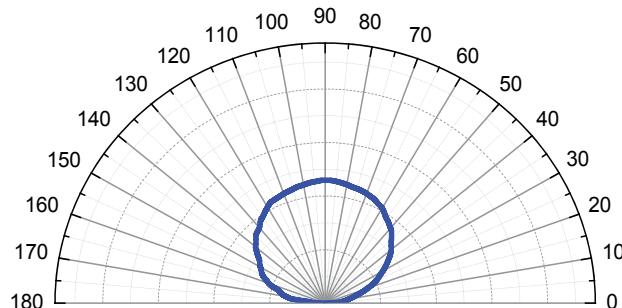
Pulse optical power vs. current



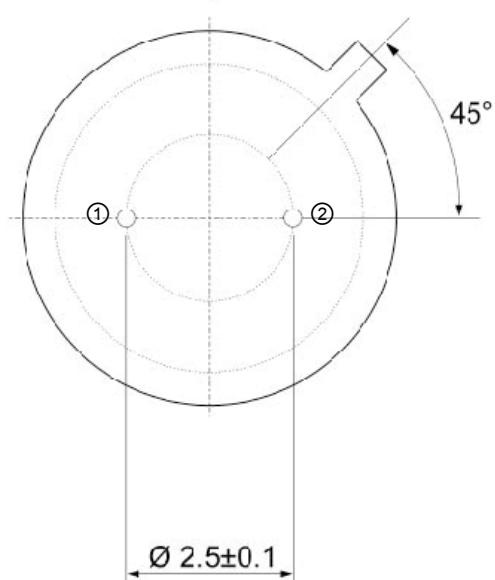
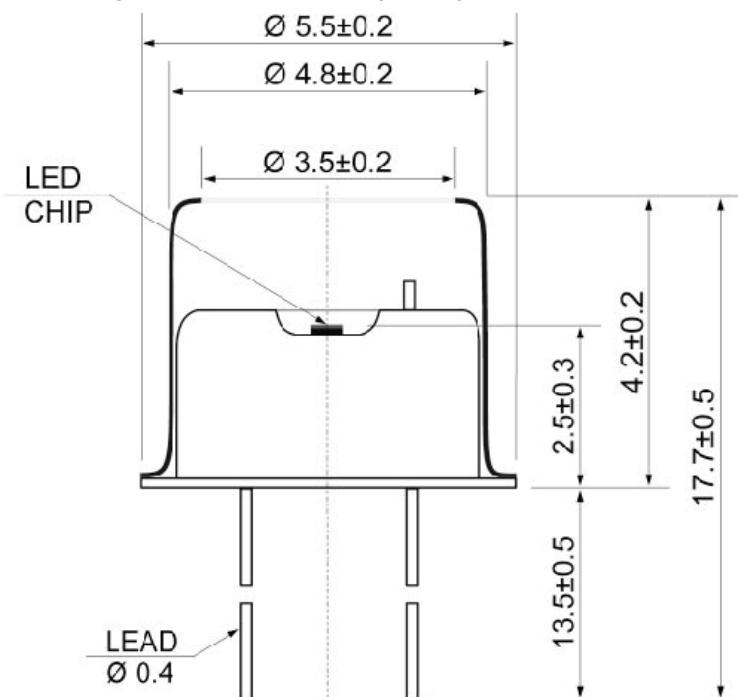
▼ Current vs. voltage



▼ Field pattern



▼ TO-18 package dimensions (mm)



| Pin | Description |
|---------------------|------------------|
| ① Common to case | Diode (cathode)* |
| ② | Diode (anode)* |

* Attention: Pin polarity can be changed.