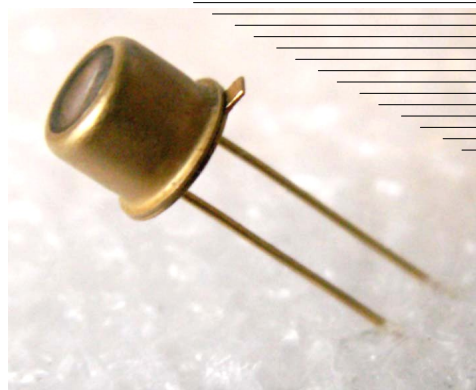


## Features

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

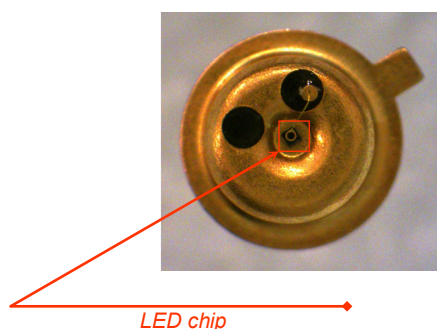


## Applications

- Measuring equipment
- Gas analysis ( $\text{CH}_4$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_3\text{H}_8$ ,  $\text{CO}$ )
- Analytical spectral devices

## Options

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



## Description

Light emitting diode **LED23** demonstrates typical maximum of emitting wavelength of  $\lambda_p = 2.35 \mu\text{m}$  ( $I = 150 \text{ mA}$ ,  $f = 0.5 \text{ KHz}$ , duty cycle: 50%).

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

LED heterostructure is grown on GaSb substrate.

Related products: **LED23** can be used in optical pair with our [PD25](#) photodiodes.

## General characteristics

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

\* 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  $\mu\text{s}$ , duty cycle: 0.1%

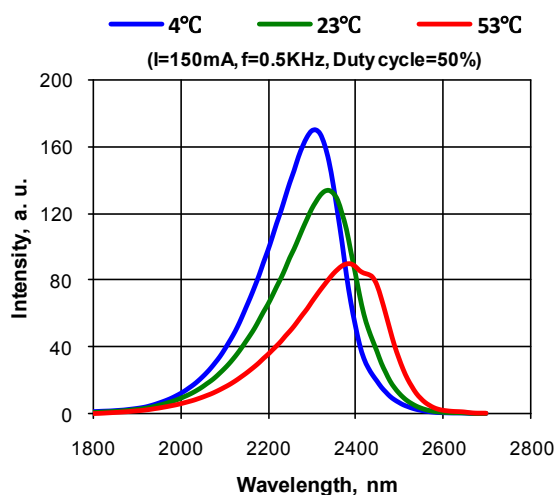
## Electrical and optical characteristics

| Parameter                | Symbol            | Condition<br>$T_a \approx +20\text{ }^\circ\text{C}$ | Min                    | Max  | Unit          |
|--------------------------|-------------------|------------------------------------------------------|------------------------|------|---------------|
| Peak emission wavelength | $\lambda_p$       | $I_F = 150\text{ mA}$                                | $\lambda_{typ} = 2.35$ |      | $\mu\text{m}$ |
|                          |                   |                                                      | 2.30                   | 2.39 |               |
| Spectral FWHM            | $\Delta\lambda$   | $I_F = 150\text{ mA}$                                | 170                    | 270  | nm            |
| Pulse optical power      | $P^*_{QCW}$       | $I_F = 200\text{ mA}$                                | 0.6                    | 1.0  | mW            |
|                          | $P^{**}_{Pulsed}$ | $I_F = 1000\text{ mA}$                               | 4.4                    | 5.5  |               |
| Forward voltage          | $V_F$             | (*)                                                  | 0.5                    | 2.5  | V             |
| Switching time           | $\tau$            |                                                      | 10                     | 30   | ns            |

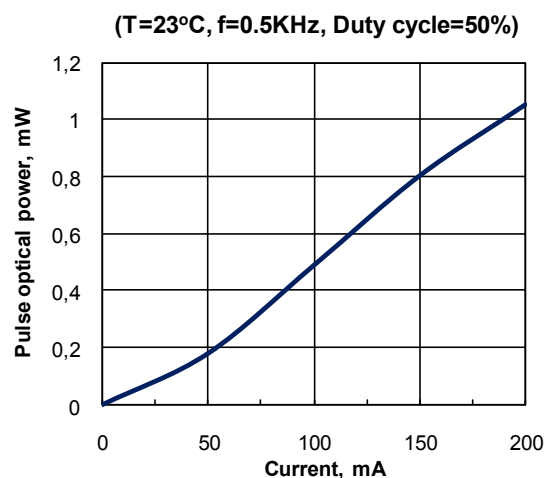
\* Quasi-CW mode: repetition rate: 0.5 kHz, pulse duration: 1 ms, duty cycle: 50%, current: 200 mA

\*\* Pulse mode: repetition rate: 0.5 kHz, pulse duration: 2  $\mu\text{s}$ , duty cycle: 0.1%, current: 1 A

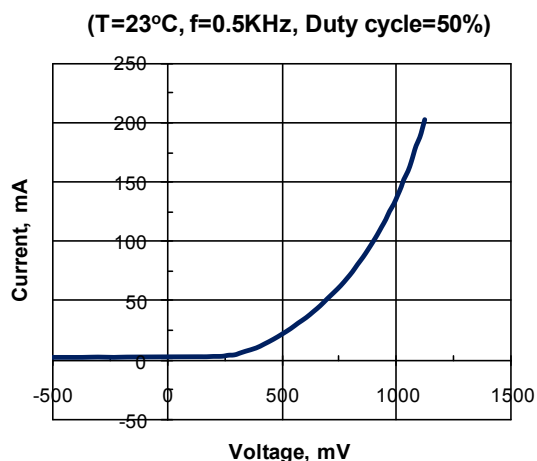
## Electroluminescence spectra



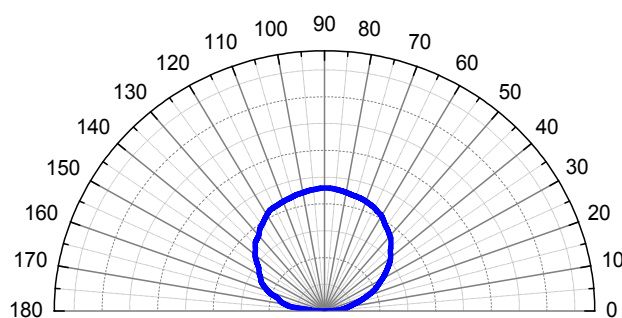
## Pulse optical power vs. current



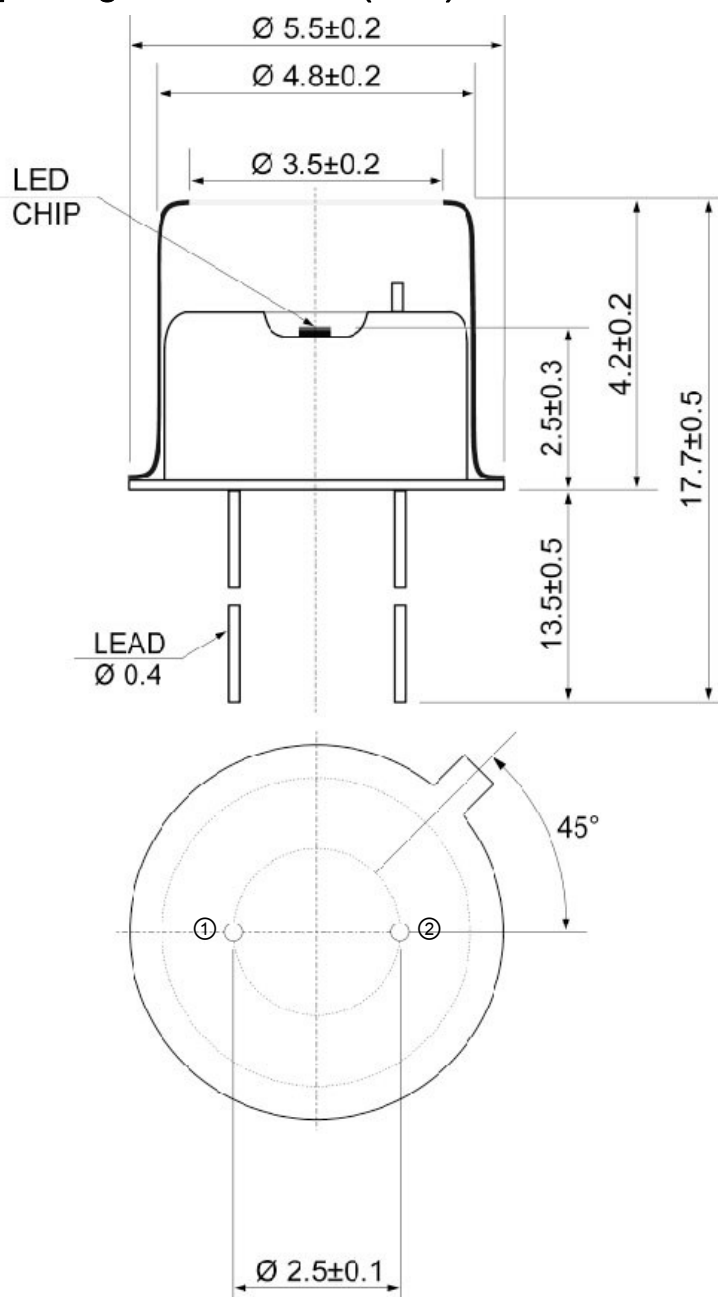
## Current vs. voltage



## Field pattern



TO-18 package dimensions (mm)



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

\* **Attention:** Pin polarity can be changed.