v 2.0 01.12.2014

LED38

- Mid-IR LED
- 3.75 µm, 30 µW qCW
- TO-18, with cap
- Without window

RoHS COMPLIANT   Pb Pb-Free

Description

LED19-PR series are fabricated from narrow band-gap InAsSb/InAsSbP heterostructures lattice matched to InAs substrate. This Mid-IR LED provides a typical peak wavelength of **3.75 µm** and optical power of typ. **30 µW qCW**. It comes in TO-18 package, with cap and without window (on request).

Maximum Ratings

Parameter	Symbol	Values		Unit
		Min.	Max.	
Operating Temperature	T_{CASE}	- 200	+ 50	°C
Lead Solder Temperature *	T_{SLD}		+ 180	°C

* must be completed within 5 seconds

Photodiode Characteristics $(T_{CASE}=25°C)$

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	I_F=150mA qCW	3.70	3.75	3.84	µm
Half Width (FWHM)	$\Delta\lambda$	I_F=150mA qCW	500	600	700	µm
Optical Output Power, qCW	P_O	I_F=200mA qCW	20	30	40	µW
Optical Output Power, pulsed	P_O	I_F=1A, f=1kHz,	180	200	220	µW
Operating Voltage	V_{OP}	I_F=200mA qCW	0.5		0.8	V
Switching Time	t_s		10	20	30	ns

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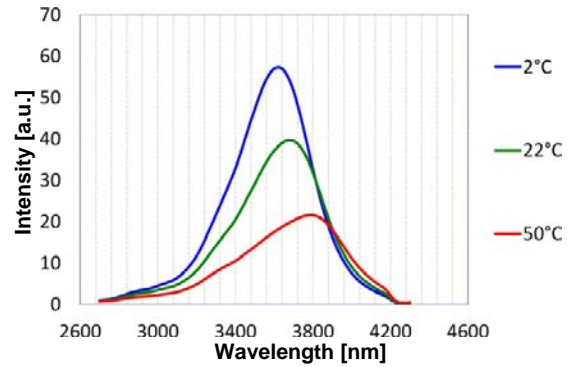TEL. +43 I 586 52 43 -0. FAX. -44   OFFICE@ROITHNER-LASER.COM
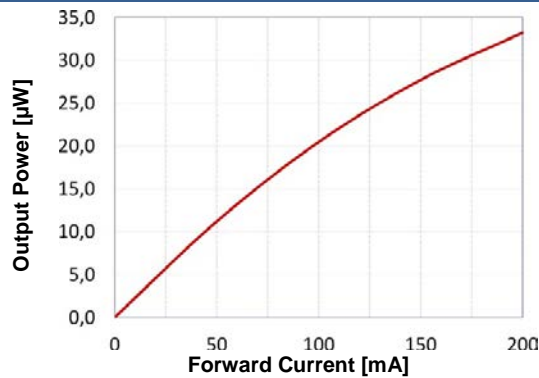
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Performance Characteristics

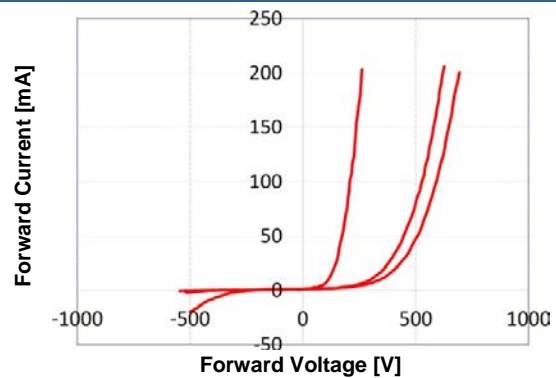**Spectra At Different Currents (qCW, T_{CASE}=25°C)**
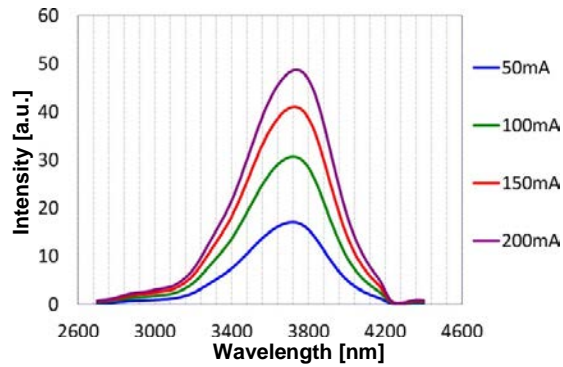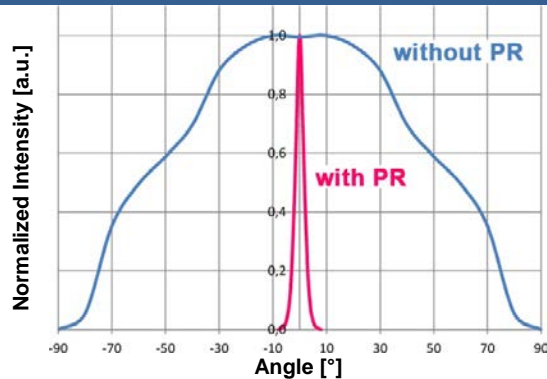

Spectra At Different Temperatures (qCW, I_F=150mA)

Output Power vs. Forward Current (qCW, T_{CASE}=25°C)

Forward Current vs. Forward Voltage (T_{CASE}=25°C)

Beam Divergence
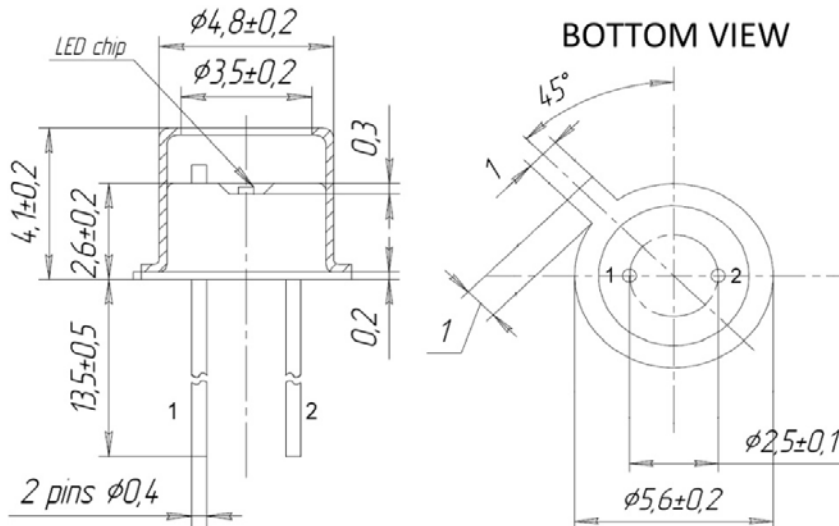
ROITHNER LASERTECHNIK GmbH
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TEL. +43 I 586 52 43 -0. FAX. -44   OFFICE@ROITHNER-LASER.COM

Outline Dimensions

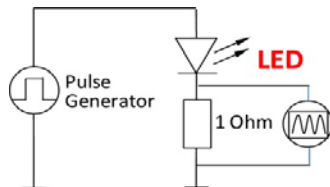| LED38		TO-18, without window

Lead	Description
PIN 1	PD Anode
PIN 2	PD Cathode

Material – kovar, finish – gold/plating

All Dimensions in mm

Operating Regime

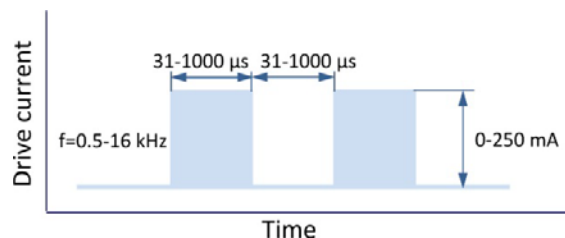| LED Basic Circuit Connection |
|---|

Suitable Drivers And Evaluation Boards

- **D-31M**
- **D-41**
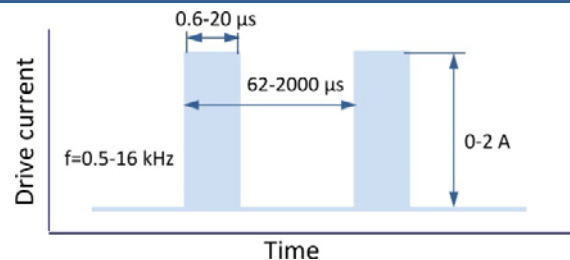- **D-51**
- **mD-1c**
- **mD-1p**

We recommend to use **Quasi Continuous Wave (qCW) mode** with duty cycle 50% or 25% to obtain maximum average optical power, and short **Pulse mode** to obtain maximum peak power.

CW (continuous wave) mode is NOT recommended!

Quasi Continuous Wave (qCW) mode

Pulse Mode

Precautions

Cautions:

- Check your connection circuits before turning on the LED.
- Mind the LED polarity: LED anode is marked with a RED dot.
- DO NOT connect the LED to the multimeter.

Soldering:

- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux
- Do not apply current to the LED until it has cooled down to room temperature after soldering

Static Electricity:

LEDs are **sensitive to electrostatic discharge (ESD)**. Precautions against ESD must be taken when handling or operating these LEDs. Surge voltage or electrostatic discharge can result in complete failure of the device.

Operation:

Do only operate LEDs with a current source.
Running these LEDs from a voltage source will result in complete failure of the device.
Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.