ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
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rev 2.0 14.06.2017

LED22

- Mid-IR LED
- 2.22 µm, typ. 1 mW QCW
- TO-18, with cap
- Without window

RoHS COMPLIANT Pb-Free

Description

LED22 are fabricated from narrow band-gap GaInAsSb/AlGaAsSb-based heterostructures lattice matched to GaSb substrate. This Mid-IR LED provides a typical peak wavelength of **2.22 µm** and optical power of typ. **1 mW QCW**. It comes in TO-18 package, with a cap and without window.

Maximum Ratings

Parameter	Symbol	Values Min.	Values Max.	Unit
Operating Current, QCW mode	$I_{QCW\ max}$		250	mA
Operating Current, pulsed mode	$I_{PULSE\ max}$		2	A
Storage Temperature	I_{STR}	- 50	+ 60	°C
Operating Temperature	T_{CASE}	- 60	+ 90	°C
Lead Solder Temperature *	T_{SLD}		+ 180	°C

** must be completed within 5 seconds*

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

Parameter	Symbol	Conditions	Values Min.	Values Typ.	Values Max.	Unit
Peak Wavelength	λ_P	I_F=150mA QCW	2.20		2.29	µm
Half Width (FWHM)	$\Delta\lambda$	I_F=150mA QCW	150		250	nm
Optical Output Power, QCW *	P_O	QCW mode *	0.8	1.0		mW
Optical Output Power, pulsed *2	P_O	Pulse mode *2	7.5	9.0		mW
Operating Voltage	V_{OP}	I_F=200mA QCW	0.5		2.5	V
Switching Time	t_s	I_F=20mA CW	10		50	ns

** Repetition rate: 0.5 kHz, pulse duration: 1 ms, duty cycle: 50%, current: 200 mA*
**2 Repetition rate: 0.5 kHz, pulse duration: 20 µs, duty cycle: 1%, current: 1 A*

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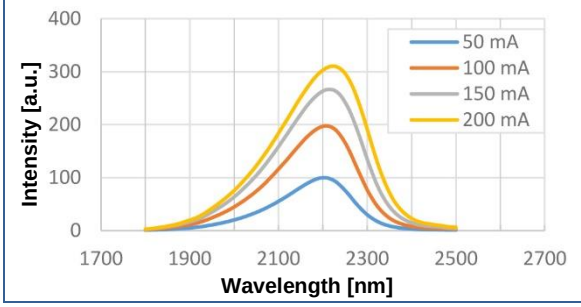
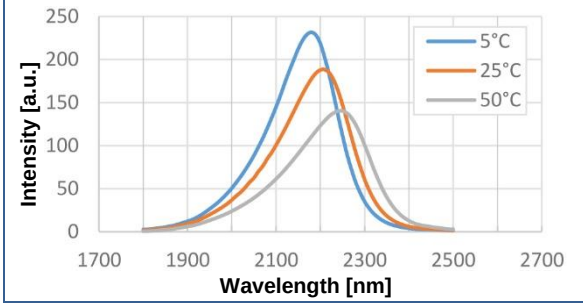
Performance Characteristics

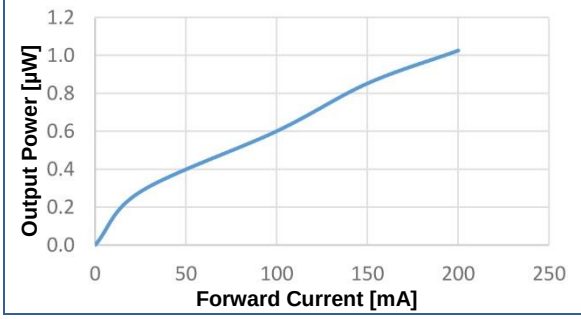
Spectra At Different Temperatures (QCW)



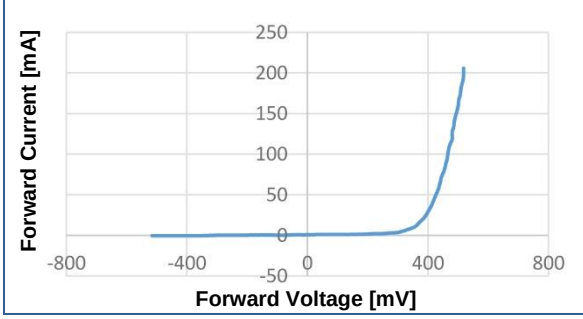
Spectra At Different Currents (QCW)



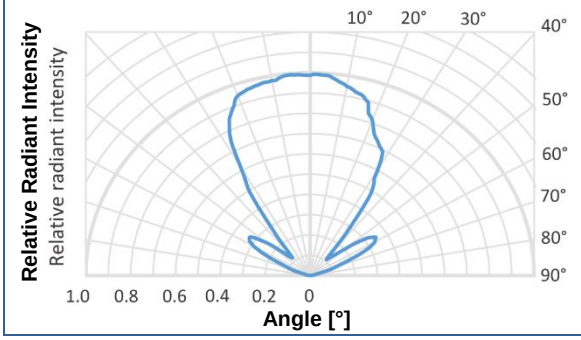
Power Characteristics



Typ. Current-Voltage Characteristics (QCW)



Radiant Characteritics (far-field pattern)



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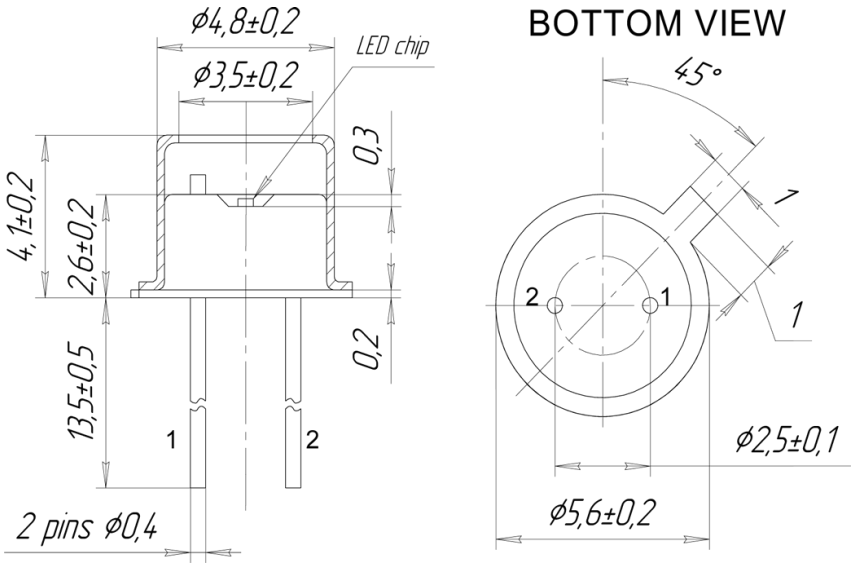
Outline Dimensions

LED22	TO-18, without window



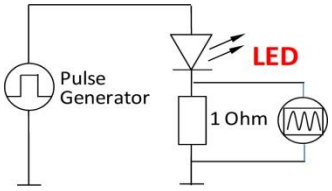
Lead	Description
PIN 1	LED Cathode
PIN 2	LED Anode (red dot)

Material – kovar, finish – gold/plating

All Dimensions in mm

Operating Regime

LED Basic Circuit Connection



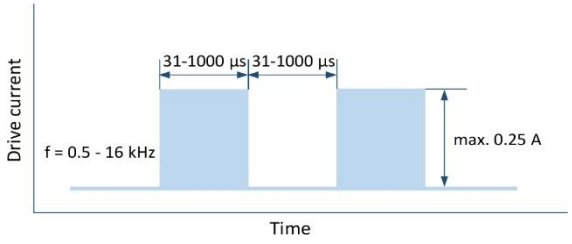
Suitable Drivers And Evaluation Boards

- **D-31M**
- **PCB-driver-41**
- **PCB-driver-51**
- **PCB-mdriver-QCW or PCB-mdriver-P**

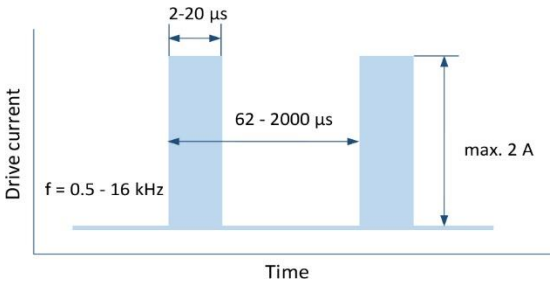
We recommend to use **Quasi Continuous Wave (QCW) mode** with duty cycle 50% or 25% to obtain maximum average optical power and **Pulse mode** to obtain maximum peak power.

CW (continues 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. Reverse Voltage applying is forbidden!
- DO NOT connect the LED to the multimeter.
- Control the current applied to the LED in order not to exceed the maximum allowable values.

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.