rev 2.0 29.04.2015

LED23

- Mid-IR LED
- 2.35 µm, 0.8 mW qCW
- TO-18, with cap
- Without window

RoHS COMPLIANT   Pb Pb-Free

Description

LED23 series are fabricated from narrow band-gap GaInAsSb/AlGaAsSb heterostructures lattice matched to GaSb substrate. This Mid-IR LED provides a typical peak wavelength of **2.35 µm** and optical power of typ. **0.8 mW 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	2.30	2.35	2.39	µm
Half Width (FWHM)	$\Delta\lambda$	I_F=150mA qCW	170	220	270	µm
Optical Output Power, qCW	P_O	I_F=200mA qCW	0.6	0.8	1.0	mW
Optical Output Power, pulsed	P_O	I_F=1A, f=1kHz, duty cycle 0.1%	12	15	20	mW
Operating Voltage	V_{OP}	I_F=200mA qCW	0.5		2.5	V
Switching Time	t_S		10	20	30	ns

Performance Characteristics

Spectra At Different Currents
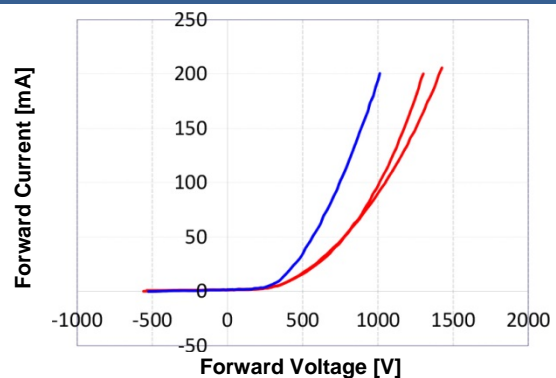### (qCW, T_{CASE}=25°C)
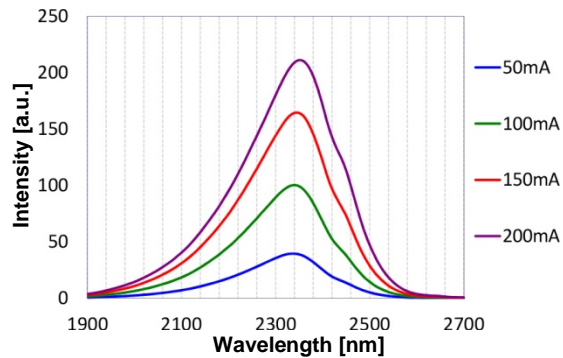
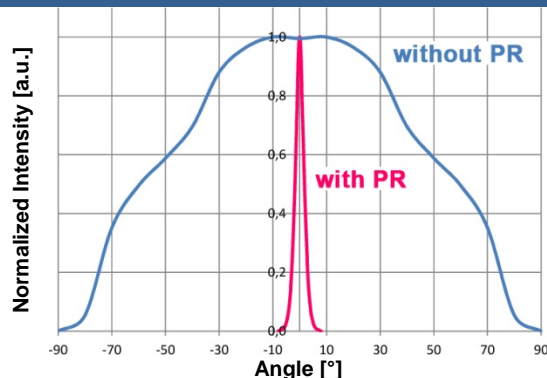### Spectra At Different Temperatures
(qCW, I_F=150mA)
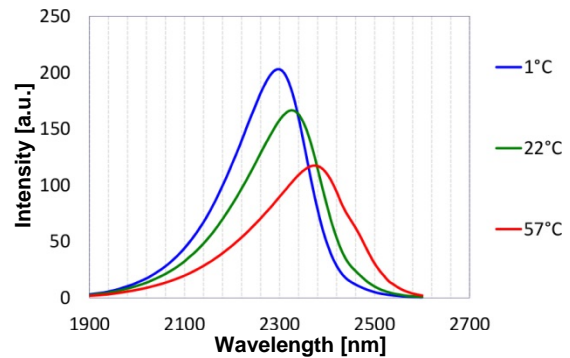
Output Power vs. Forward Current
(qCW, T_{CASE}=25°C)
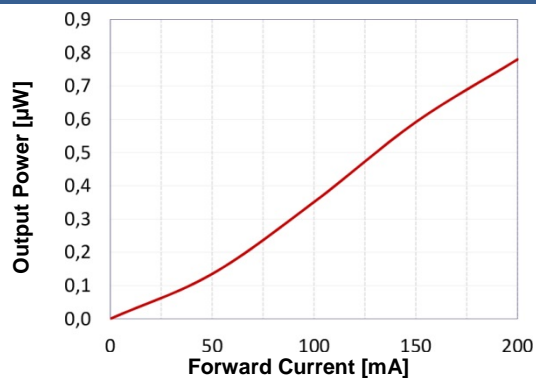
Forward Current vs. Forward Voltage
(T_{CASE}=25°C)

Beam Divergence

Outline Dimensions

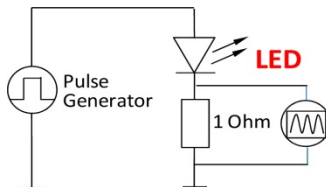| LED23	TO-18, without window
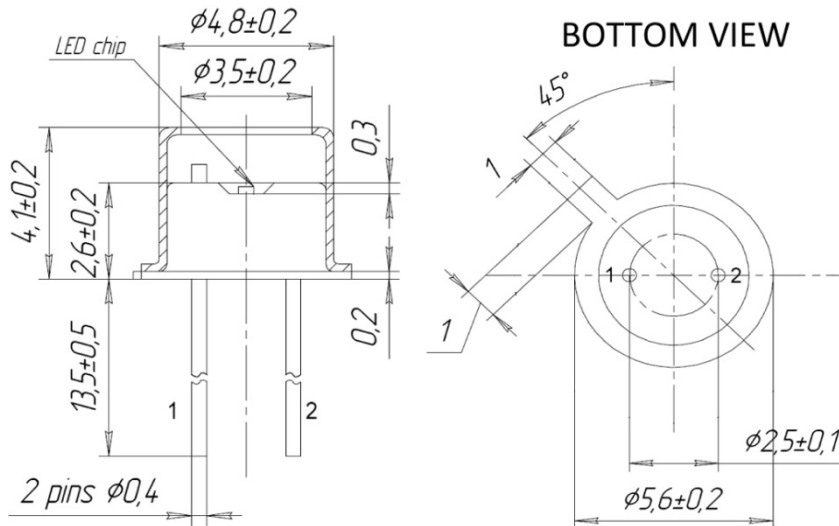
Lead	Description
PIN 1	LD Anode
PIN 2	LD Cathode

Material – kovar, finish – gold/plating

All Dimensions in mm

Operating Regime
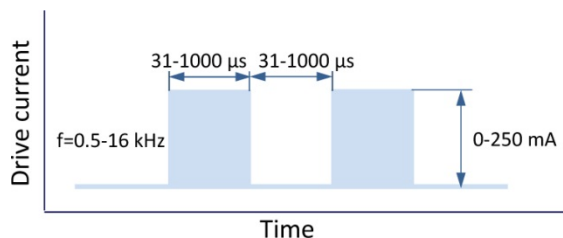
LED Basic Circuit Connection	Suitable Drivers And Evaluation Boards

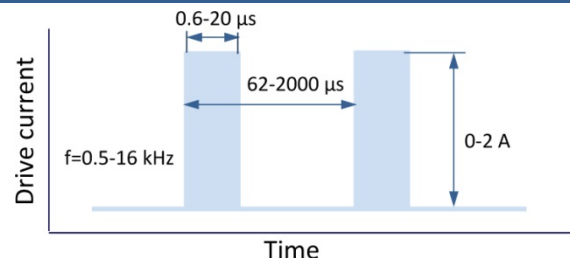- **D-31M**
- **D-41**
- **D-51**
- **mD-1c**
- **mD-1p**

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.