



## RLTCM – 2307D

Mid Infrared Emitting Laser Diode

Rev.  
20081114  
Certified by RB

### Description

The RLTCM – 2307D are MQW laser diodes using a novel AlInGaAsSb penternary material structure with room temperature emission around 2.3µm at 7.5 mW optical power. The lasers are suitable as a Mid-IR optical source for thermal imaging calibration, night vision non-visible applications, hydrocarbon gas detection, alcohol liquid measurement and a range of other uses.

### Features

- Mid-Infrared output: 2.35µm Typ.
- Optical output power: 7.5 mW CW at 20°C
- Low Threshold 120 mA Typ
- Low Operating current 310 mA Typ
- Low Operating voltage 2.0 V Typ
- Operating temperature: +20°C
- Integrated photodiode
- Long lifetime: >50000 device-hours at 20°C

### Maximum rating

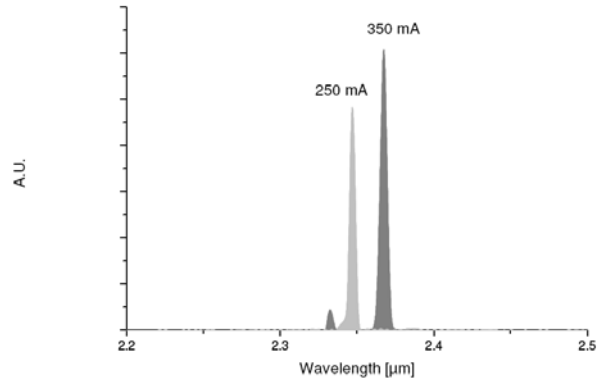
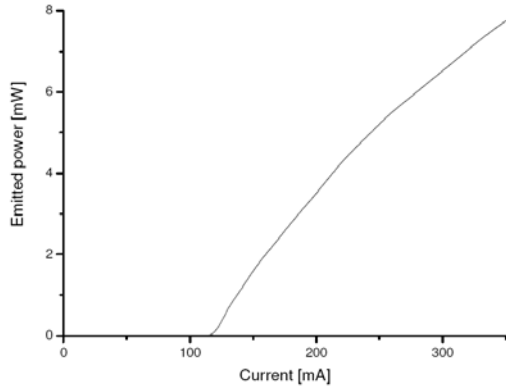
Item	Symbol	Rating	Unit
Optical output power	P <sub>O</sub>	7.5	mW
LD reverse voltage	V <sub>R</sub>	2	V
Operating temperature	T <sub>OP</sub>	0 to +50	°C
Storage temperature	T <sub>ST</sub>	-20 to +85	°C
PD reverse voltage	V <sub>PD</sub>	0 to 2	V

### Electrical and Optical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	I <sub>TH</sub>	100	120	140	mA	20°C
Operating current	I <sub>OP</sub>	280	310	340	mA	P <sub>O</sub> =7.5 mW, 20°C
Operating voltage	V <sub>OP</sub>	1.9	2.1	2.2	V	P <sub>O</sub> =7.5 mW, 20°C
Slope efficiency	η <sub>S</sub>	30	45	60	mW/A	P <sub>O</sub> =0.5 to 7.5 mW
Beam Divergence	θ <sub>//</sub>		<5		deg	FWHM
	θ <sub>⊥</sub>		<5		deg	FWHM
Lasing wavelength	λ <sub>OP</sub>	2.32	2.35	2.38	µm	P <sub>O</sub> =7.5 mW
Operating temperature	T <sub>OP</sub>	0	20	70	°C	P <sub>O</sub> >1.0 mW
Maximum output power	P <sub>MAX</sub>	7.5	8.0	9.0	mW	20°C, I <sub>OP</sub>
Photo responsivity	R <sub>E</sub>	0,2	0,3	0,4	A/W	V <sub>PD</sub> =0, P <sub>O</sub> =7.5mW

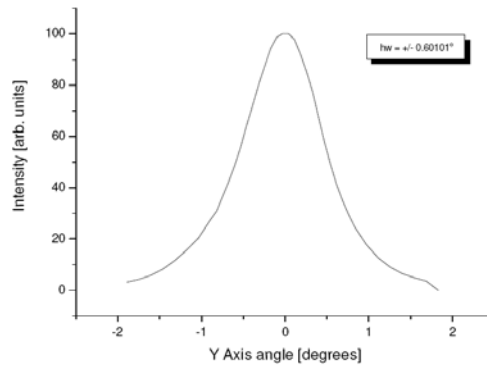
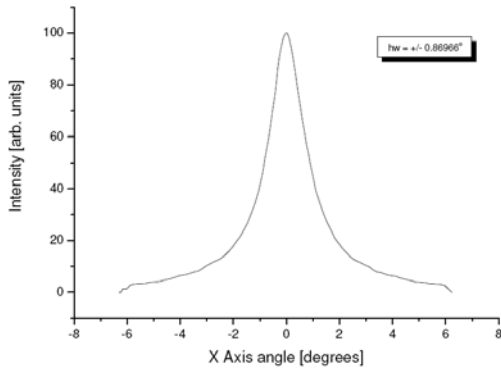


## Typical Laser Characteristics



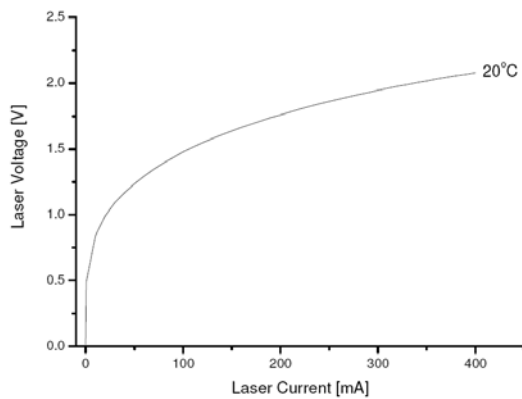
## Optical Power vs. Laser Current

## Optical Emission Spectrum vs. Laser Current \*



## Optical Emission Far Field Fast Axis\*

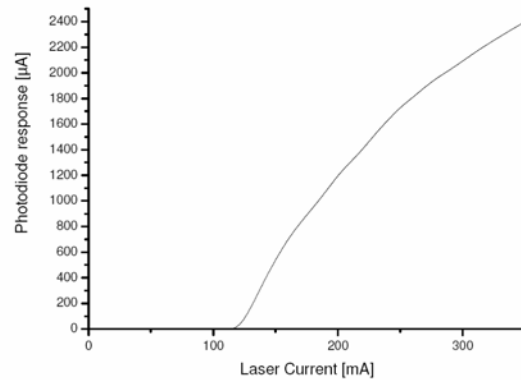
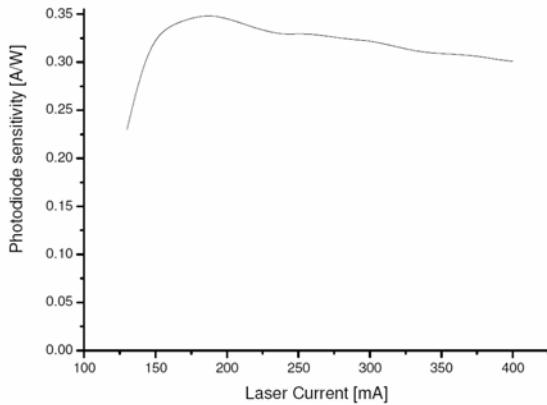
## Optical Emission Far Field Slow Axis\*



## Laser Voltage vs. Current at different temperatures



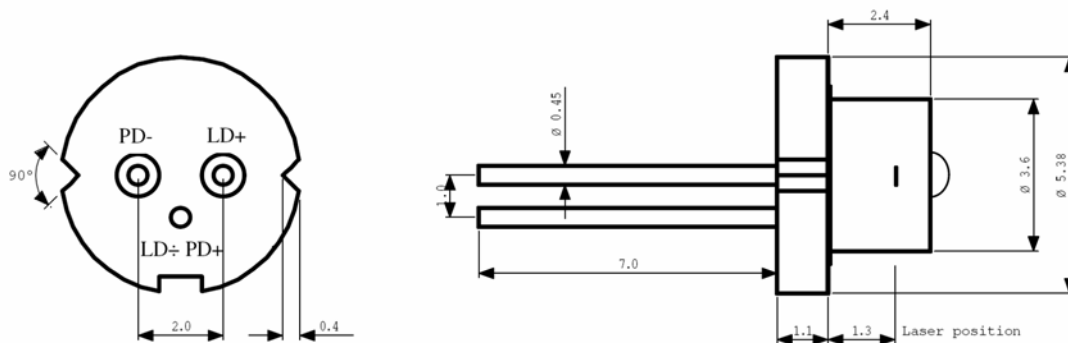
## Typical Monitor Diode Characteristics



Monitor Diode Sensitivity vs. Laser Current [ $V_{PD}=0$  V]

Monitor Diode Response vs. Laser Current [ $V_{PD}=0$  V]

## Package



The laser comes in a TO56 package with 1.5mm glass lens. Appropriate heat sinking of the holder must be ensured.