



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

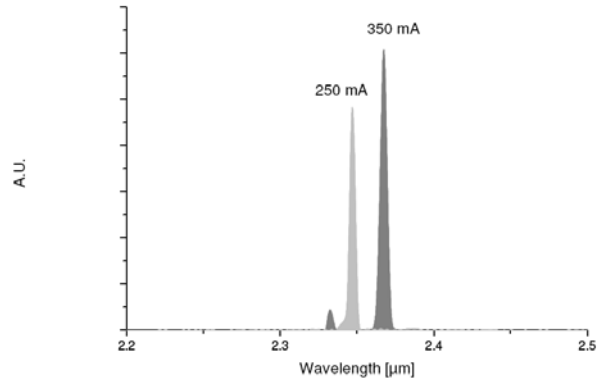
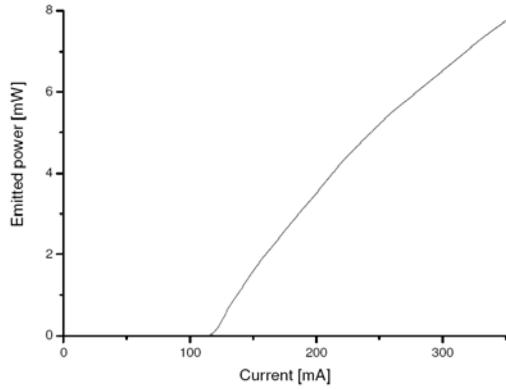
Item	Symbol	Rating	Unit
Optical output power	P _O	7.5	mW
LD reverse voltage	V _R	2	V
Operating temperature	T _{OP}	0 to +50	°C
Storage temperature	T _{ST}	-20 to +85	°C
PD reverse voltage	V _{PD}	0 to 2	V

Electrical and Optical Characteristics

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

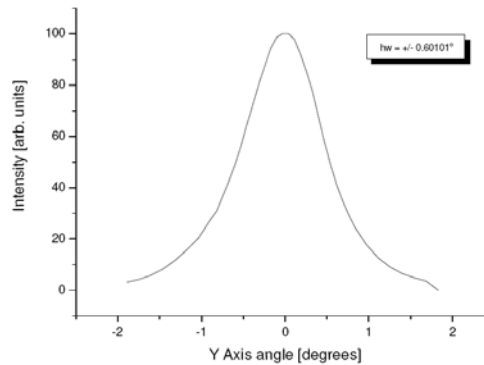
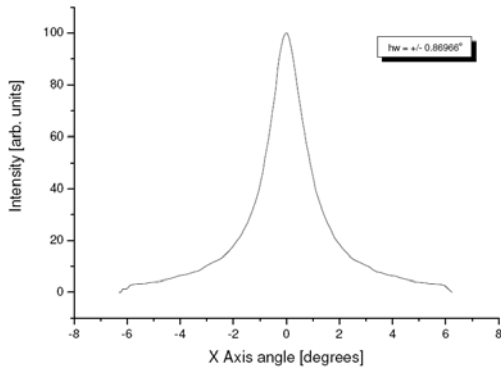


Typical Laser Characteristics



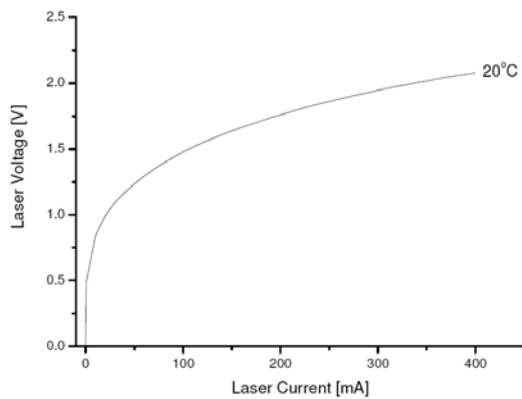
Optical Power vs. Laser Current

Optical Emission Spectrum vs. Laser Current *



Optical Emission Far Field Fast Axis*

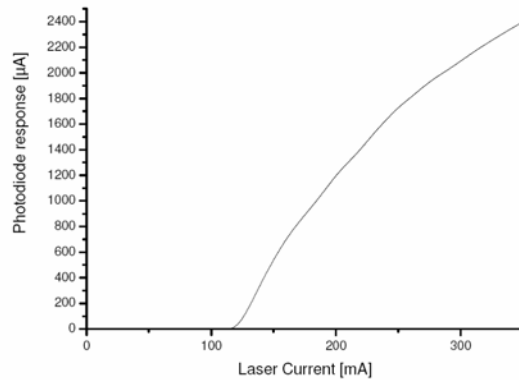
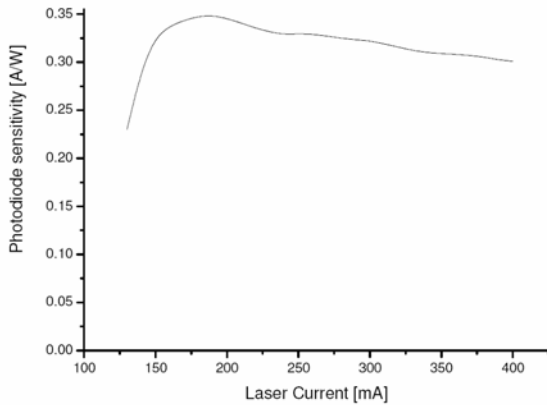
Optical Emission Far Field Slow Axis*



Laser Voltage vs. Current at different temperatures



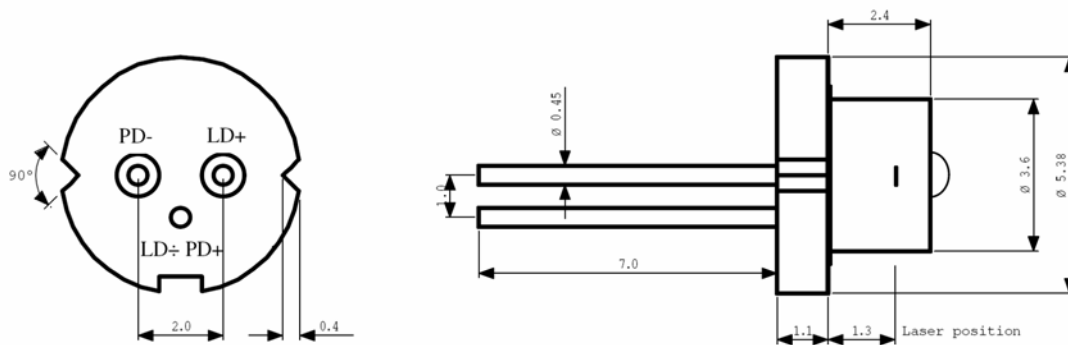
Typical Monitor Diode Characteristics



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

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

Package



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