



RLTCM – 2310D

Mid Infrared Emitting Laser Diode

Rev. 1
20081030
Certified by RB

Description

The RLTCM – 2310D are MQW laser diodes using a novel AlInGaAsSb penternary material structure with room temperature emission around 2.3µm at 10 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: 2.33µm Typ.
- Optical output power: 10.0 mW CW at 20°C
- Low Threshold 110 mA Typ
- Low Operating current 370 mA Typ
- Low Operating voltage 2.1 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	10.0	mW
LD reverse voltage	V _R	2	V
Operating temperature	T _{OP}	0 to +70	°C
Storage temperature	T _{ST}	-20 to +85	°C
PD reverse voltage	V _{PD}	2	V

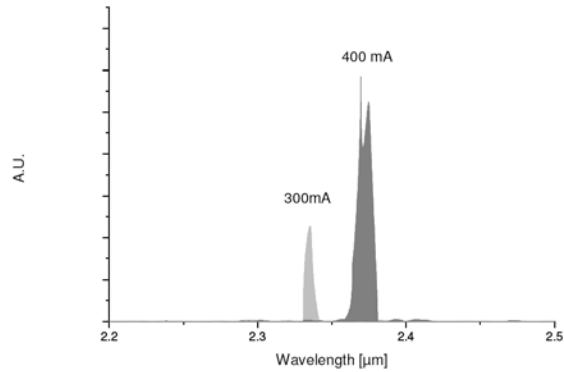
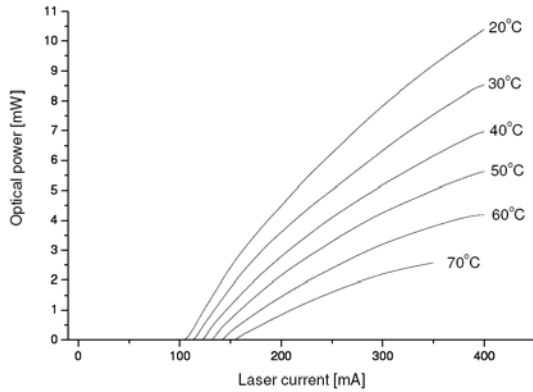
Electrical and Optical Characteristics

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	I _{TH}	90	110	130	mA	20°C
Operating current	I _{OP}	340	370	400	mA	P _O =10.0 mW, 20°C
Operating voltage	V _{OP}	1.8	2.0	2.2	V	P _O =10.0 mW, 20°C
Slope efficiency	η _S	30	45	60	mW/A	P _O =0.5 to 10.0 mW
Beam Divergence	θ _{//}		<5		deg	FWHM
	θ _⊥		<5		deg	FWHM
Lasing wavelength	λ _{OP}	2.32	2.33	2.34	µm	P _O =10.0 mW
Operating temperature	T _{OP}	0	20	70	°C	P _O >2.0 mW
Maximum output power	P _{MAX}		10.0		mW	20°C, I _{OP}
Photodiode response	I _{PD}	2.0	3.0	4.0	mA	V _{PD} =0, P _O =10.0mW



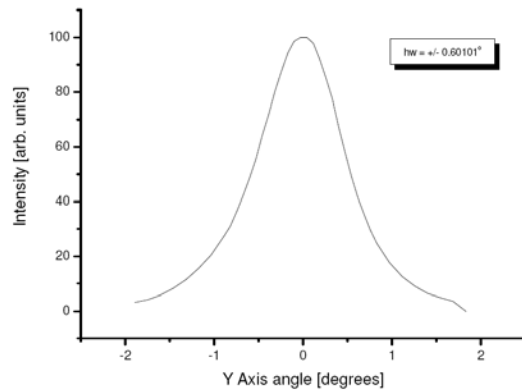
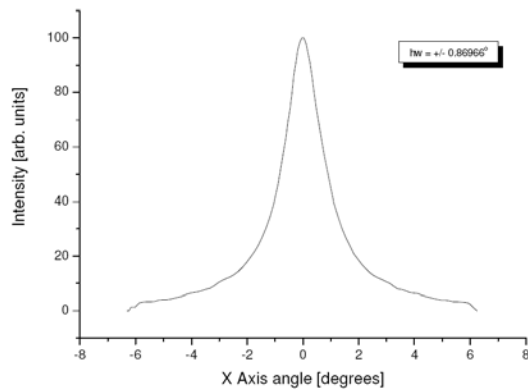
Engineering Data

Typical Laser Emission Characteristics



Optical Power vs. Laser Current

Optical Emission Spectrum vs. Laser Current



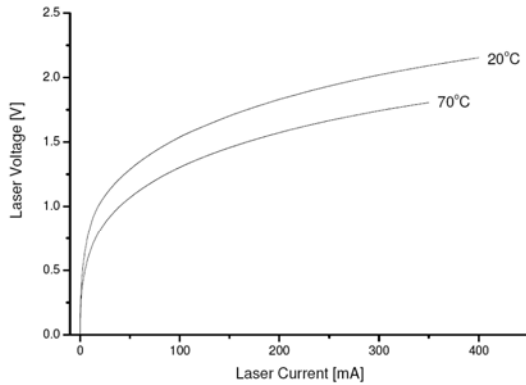
Optical Emission Far Field Fast Axis*

Optical Emission Far Field Slow Axis*

*Note: HW emission angle varies and is mode dependent

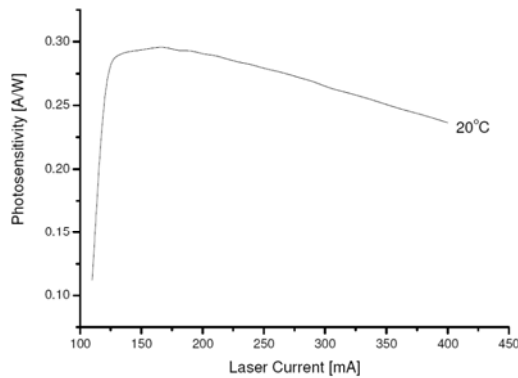


Typical Laser Electrical Characteristics

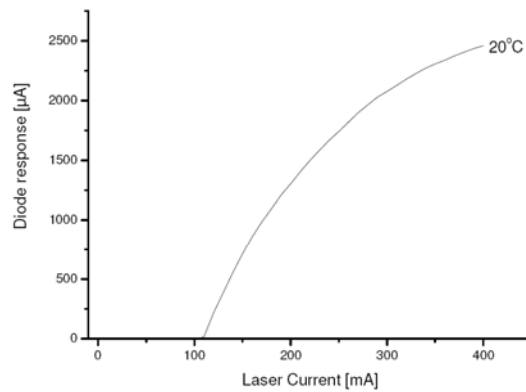


Laser Voltage vs. Current at different temperatures

Monitor Diode Characteristics



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



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



Package

