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# RLT390-50CMG

- Violet Radiation Source
- 390 nm ± 2nm
- 50 mW CW
- 5.6mm TO, without PD



Complies with RoHS 2002/95/WE directive

## Description

**RLT390-50CMG** is an Violet Laser Diode emitting at 390 nm with rated output power of 50 mW CW at room temperature, in standard 5.6mm TO package.

## Maximum Ratings

| Parameter | Symbol | Values | | Unit |
|---|---|---|---|---|
| | | Min. | Max. | |
| Optical Output Power | $P_O$ | | 50 | mW |
| Operating Temperature | $T_{CASE}$ | + 10 | + 30 | °C |
| Storage Temperature | $T_{STG}$ | - 40 | + 80 | °C |
| Soldering Temperature | $T_{SOLDER}$ | | 260 | °C |

## Laser Characteristics ($T_{CASE}$ = 25°C, $P_O$ = 50 mW)

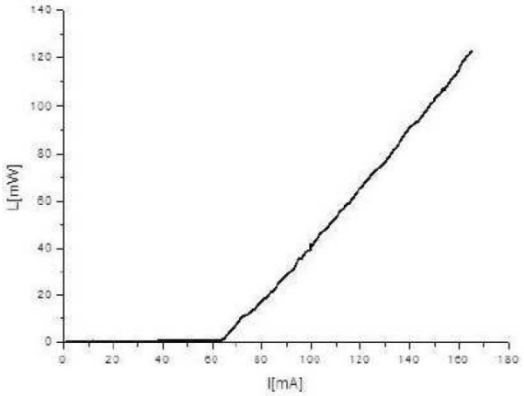
| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | |
| Emission Wavelength | $\lambda_{peak}$ | 388 | 390 | 392 | nm |
| Spectral Width | $\Delta\lambda$ | | 0.5 | 1 | nm |
| Polarization | | | TE | | |
| Threshold Current | $I_{th}$ | 40 | 70 | 100 | mA |
| Operating Current | $I_F$ | 100 | 120 | 150 | mA |
| Operating Voltage | $V_F$ | 4.8 | 5.2 | 5.9 | V |
| Beam Divergence (FWHM) | $\Theta II$ x $\Theta\perp$ | 6x15 | 10x20 | 13x25 | deg. |
| Beam Pointing Accuracy (FWHM) | $\Delta\Theta_{II}$ / $\Delta\Theta_\perp$ | 8 / 18 | - | 14 / 25 | deg. |
| Slope Efficiency | $\eta$ | 0.5 | 0.7 | 1.2 | W/A |
| Expected Life Time* | $T_L$ | | 2000 | | h |

**life time calculation based on 10mW operation*

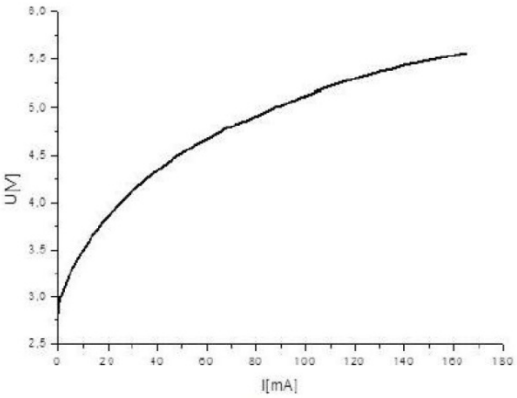
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# Performance Characteristics

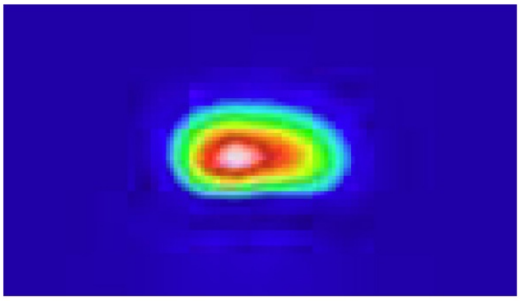
## Output Power vs. Forward Current




## Forward Voltage vs. Forward Current

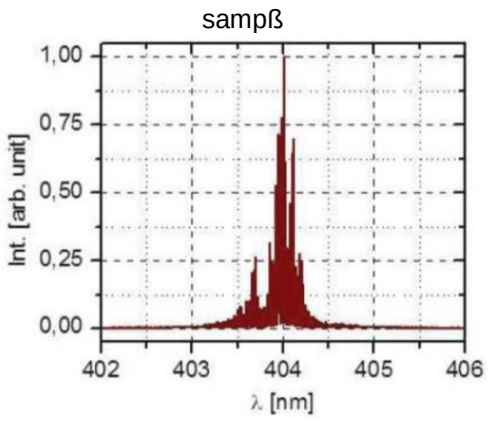



## Near Field Pattern



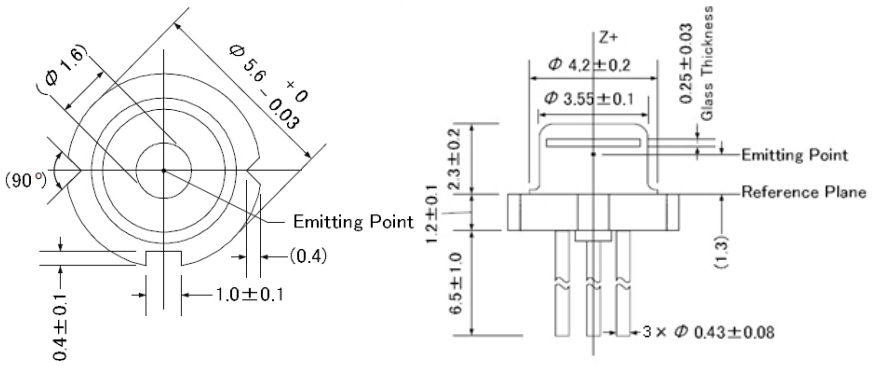
Beam diameter 1.3x2.0mm @ 20cm distance

## Spectrum




*spectrum recorded from RLT405-50CMG*

# Drawing

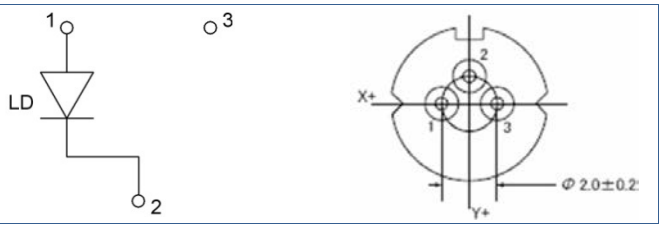



Dimensions in mm

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## Electrical Connection

| Lead | Description |
|---|---|
| Pin 1 | LD Anode |
| Pin 2 | LD Cathode |
| Pin 3 | Not connected |




View from below, dimensions in mm




## Mounting Instruction

In order to maintain lifetime and stability of the laser diode it is essential to provide efficient heat management. Heat dissipation is possible through the base plate only. For long time stable operation proper contact between laser diode base plate and heat sink is mandatory.

## Safety Advice

This laser diode emits highly concentrated ultra violet light which can be **hazardous to the human eye**. This diode is classified as **Class 3B laser product** according to **IEC 60825-1** and **21 CFR Part 1040.10 Safety Standards**. Actual laser light emitted and precautions necessary strongly depend on mode of operation.




This product is comply with 21 CFR Part 1040.10

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