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RLT4xx-50CMG

- **Blue Laser Diode**
- **400 - 470 nm, 50 mW**
- **TO56 package, Flat Window**

RoHS COMPLIANT Pb Pb-Free

Description

RLT4xx-50MG is a series of blue laser diodes, based on InGaN quantum structures, available with peak wavelengths ranging from 400 nm to 470 nm, with a narrow peak wavelength tolerance of only +/- 2nm. It features wide operating temperature range of up to 60°C. It is an efficient radiation source for many applications like laser projection, holography, metrology, or use in the biomedical field. **RLT4xx-50CMG** comes in 5.6 mm TO-Can package **without PD.**

Maximum Rating* (T_{CASE} = 25°C)

Parameter	Symbol	Values Min.	Values Max.	Unit
Optical Output Power*[1]	P_{MAX}		100	mW
Reverse Voltage	V_R		5	V
Allowable Reverse Current	I_R		1	µA
Operating Temperature*[1]	T_{OPR}	0	+ 60	°C
Storage Temperature	T_{STG}	- 10	+ 85	°C
Soldering Temperature (max. 3s)	T_{SOL}		+ 260	°C

* operating outside these conditions may damage the device
*[1] operating at maximum ratings may influence the life time

Electro-Optical Characteristics (T_{CASE} = 20°C)

Parameter		Symbol	Values Min.	Values Typ.	Values Max.	Unit
Peak Wavelength		**λ_P**	**- 2**	**4xx**	**+ 2**	**nm**
Optical Output Power		P_O			**50**	mW
Spectral Width (FWHM)		$\Delta\lambda$		<2		nm
Polarization				TE		
Operating Voltage		V_F		5.0	5.5	V
Threshold Current		I_{th}		60	100	mA
Operating Current		I_F		110	220	mA
Slope Efficiency		CW	0.5	0.7	1.2	W/A
Beam Divergence (FWHM)	parallel	$\Theta\parallel$		7		deg.
	perpendicular	$\Theta\perp$		32		deg.
Life Time (@ 10 mW)			3000	5000		h

It is advised to operate this laser diode at room temperature of 20°C with good heat sinking.

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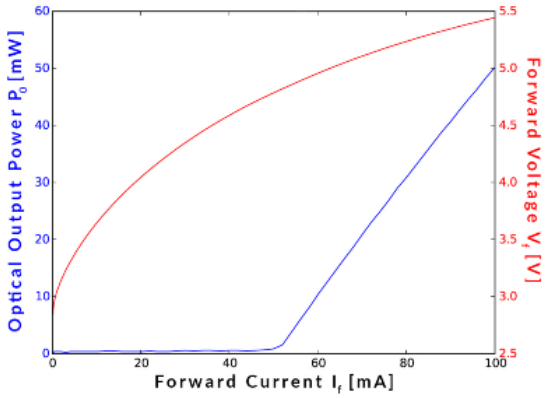
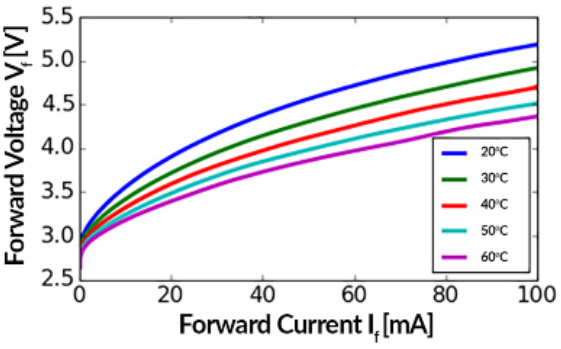
Performance Characteristics

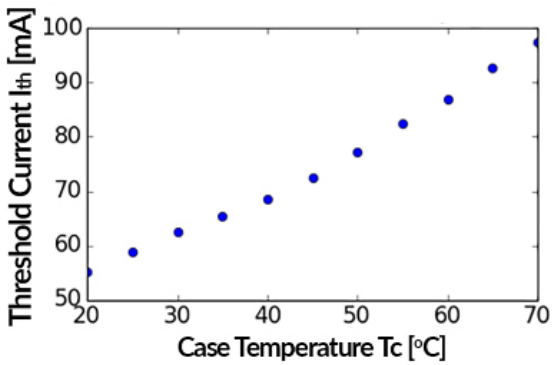
Optical Output Power vs. Current / Voltage



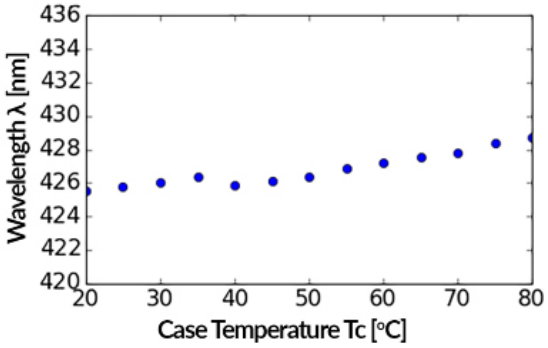
Operating Voltage vs. Operating Current



Threshold Current vs. Case Temperature



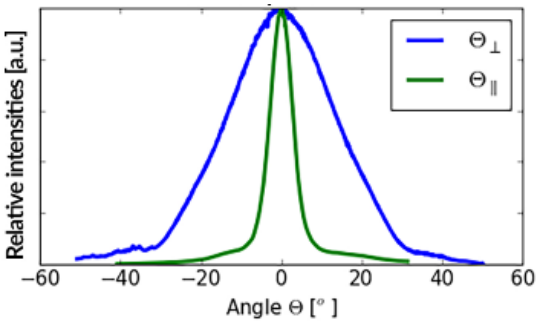
Peak Wavelength vs. Case Temperature



(sample RLT425-50CMG)

intentionally blank

Far Field Pattern



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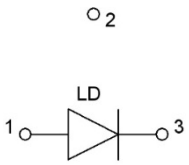
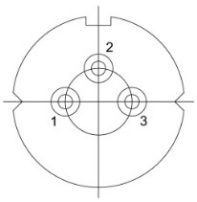
Electrical Connection

Pin Configuration

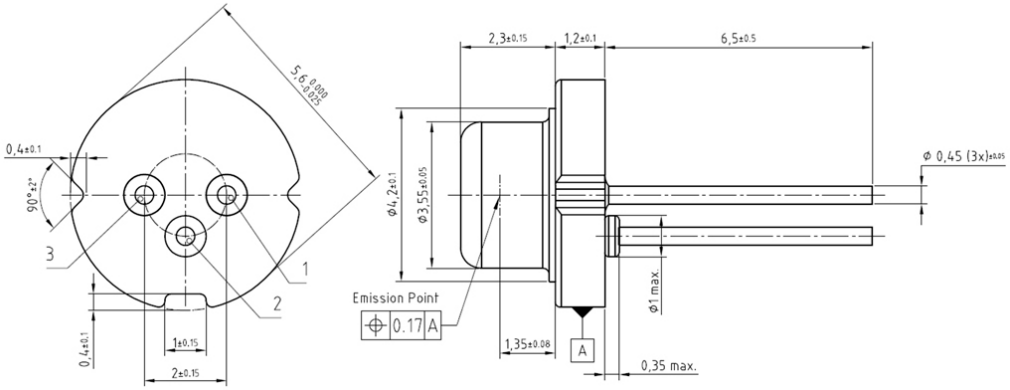
Pin #	Function
Pin 1	LD Anode
Pin 2	Case (n.c.)
Pin 3	LD Cathode



Bottom View



Outline Dimensions



All dimensions in mm

Precautions

Safety

Caution: Laser light emitted from any laser diode may be **harmful to the human eye**. Avoid looking directly into the laser diode's aperture when the diode is in operation.

Note: The use of optical lenses with this laser diode will increase eye hazard

ESD caution

Always do handle laser diodes with extreme care to **prevent electrostatic discharge**, the primary cause of unexpected diode failure. To prevent ESD related failures, it is strongly advised to always **wearing wrist straps**, and **grounding all applicable work surfaces**, when handling laser diodes

Operating Considerations

It is strongly advised to only operate this laser diode with a current source. The current of a laser diode is an exponential function of the voltage across it. **Usage of current regulated drive circuits is mandatory.** Laser diodes may be damaged by excessive drive currents or switching transients

It is advised, to operate the laser diode at the lowest temperature possible, and to never exceed maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature. **Proper heat sinking will greatly enhance stability and life time of the laser diode**

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