ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0, FAX. -44 OFFICE@ROITHNER-LASER.COM

v 1.1 3.07.2013

RLS4116

- Blue laser diode
- 488 nm, 60 mW, with PD and Zener Diode
- Multi transverse mode
- 5.6 mm TO package, flat window



RoHS COMPLIANT Pb-Free

Description

RLS4116 is a high quality and high reliability multi mode laser diode with emission wavelength of typically 488 nm and an optical power of 60 mW. The 5.6 mm TO package with a cap and flat window contains a built in monitor PD and Zener diode.

Maximum Ratings

Parameter	Symbol	Values		Unit
		Min.	Max.	
Optical Output Power	P_O		80	W
Allowed Reverse Current	$I_{R\ (LD)}$		85	mA
PD Reverse Voltage	$V_{R\ (PD)}$		5	V
Operating Temperature	T_{CASE}	0	+60	°C
Storage Temperature	T_{STG}	-40	+85	°C
Soldering Temperature	T_{SOLD}		250	°C

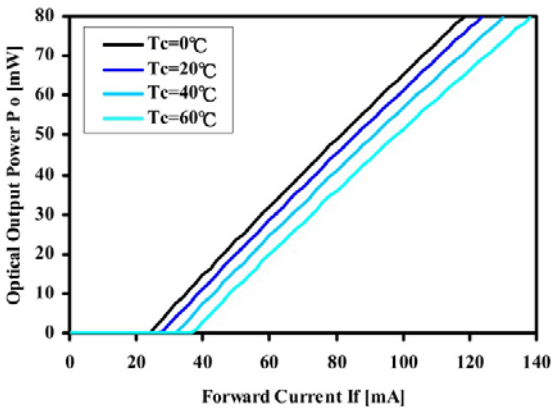
Laser Characteristics (T_{CASE} = 25°C, P_O = 60 mW)

Parameter	Symbol	Values			Unit
		Min.	Typ.	Max.	
Emission Wavelength	λ_{peak}	483	488	493	nm
Optical Output Power	P_O	-	-	60	mW
Threshold Current	I_{th}	-	30	50	mA
Operating Current	I_F	-	100	130	mA
Operating Voltage	V_F	-	5.6	6.2	V
Beam Divergence (FWHM)	$\Theta\parallel$ x $\Theta\perp$	7x20	10x23.5	13x27	deg.
Beam Pointing Accuracy	$\Delta\Theta\parallel$ x $\Delta\Theta\perp$	-2.5x-5.0	-	2.5x5.0	deg
Slope Efficiency	η	0.6	0.9	-	W/A
Monitor Current	I_M	0.2	1.0	1.8	mA

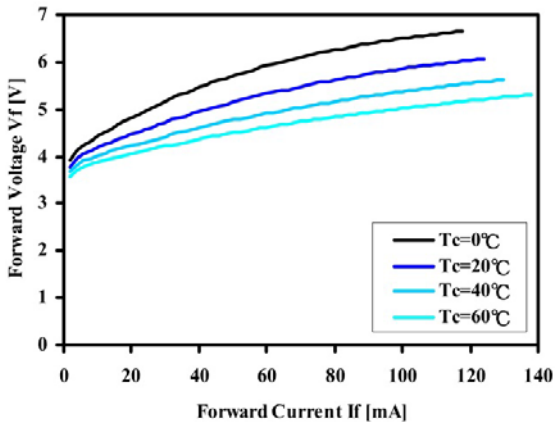
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Performance Characteristics

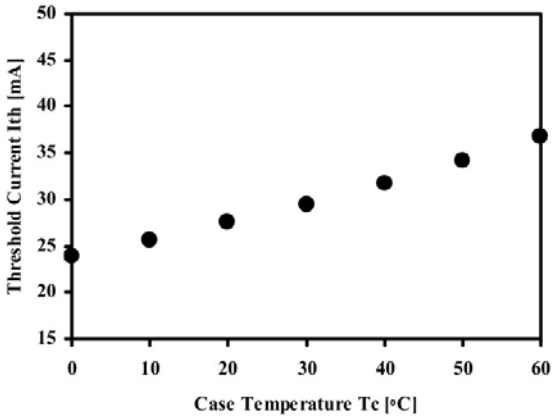
Optical Output Power vs. Forward Current



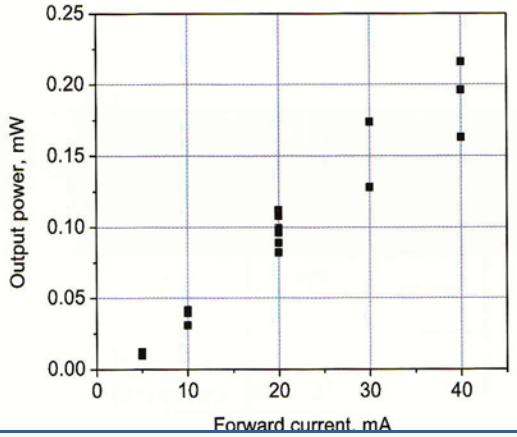
Forward Voltage vs. Forward Current



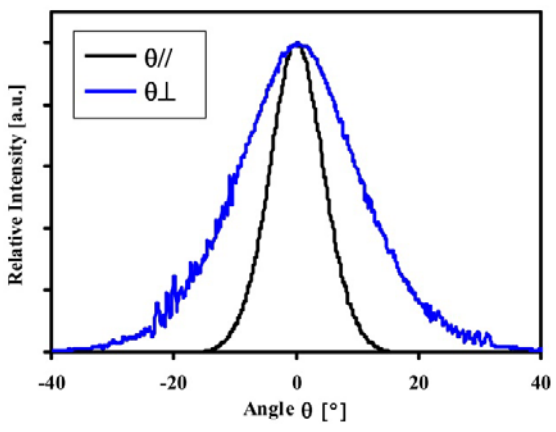
Threshold Current vs. Case Temperature



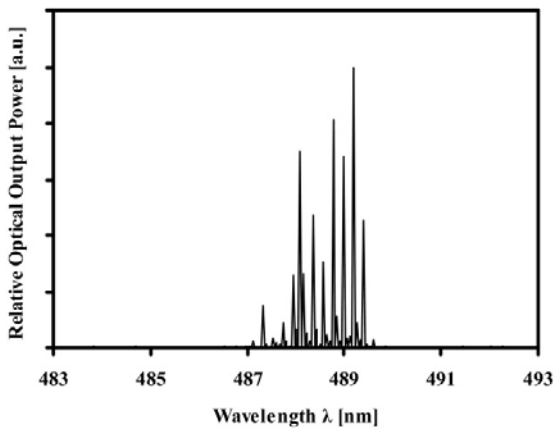
Peak Wavelength vs. Case Temperature



Far Field Pattern

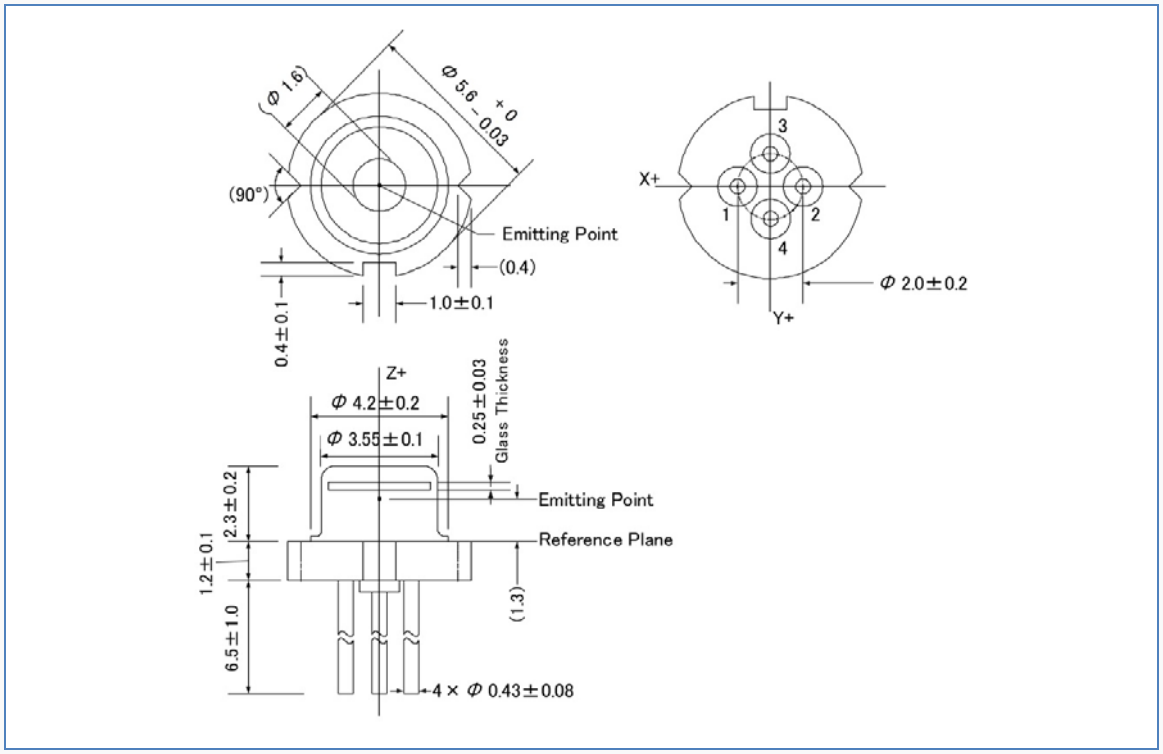


Spectrum



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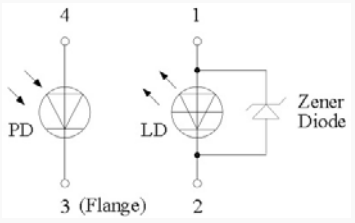
Drawing

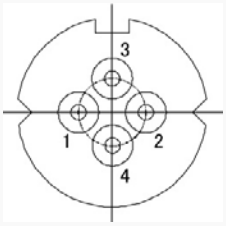


All dimensions in mm

Electrical Connection

Lead	Description
Pin 1	LD anode
Pin 2	LD cathode
Pin 3	PD cathode
Pin 3	PD anode





ESD Caution

Always do handle laser diodes with extreme caution to prevent electrostatic discharge, the primary cause of unexpected diode failure. ESD failures can be prevented by always wearing wrist straps, only using a grounding workplace, and following strict anti-static guidelines when handling the laser diode.



Safety Advice

Laser beam are extremely dangerous to human eyes. Never look at laser beam directly and/or through optical lens. When handling the LDs, wear appropriate safety glasses to prevent laser light, even any reflections from entering to the eye. **Focused laser beam through optical instruments will increase the chance of eye hazard.**



The LDs are classified in Class 3B of IEC60825-1 and 21 CFR Part 1040.10 Safety Standards. It is absolutely necessary to take overall safety measures against User's modules, equipment and systems into which these LDs are incorporated and/or integrated.

Operating Considerations

Operating the laser diode outside of its maximum ratings may cause failure or a safety hazard.
The diode may be damaged by excessive drive currents or switching transients. If the diode is operated using a power supply, it is strongly recommended to connect the diode with the output voltage set to zero. The voltage should then be increased slowly and with great caution, while at the same time carefully monitoring the laser diodes output power and drive current. The laser diode will show accelerated degradation with increased temperature, and it is therefor advised to keep the case temperature low, by means of heat sinking the device.
Confirm that electrical spike current generated by switching on and off does not exceed the maximum operating current level specified herein above as absolute max rating. Also, employ appropriate countermeasures to reduce chattering and/or overshooting in the Circuit.

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