



Data Sheet

Customer: _____

Part No: _____

CL-LDD56UHR-650-5mW

Sample No: _____

Description: _____

LASER DIODE

Item No: _____

Customer			
Check	Inspection	Approval	Date

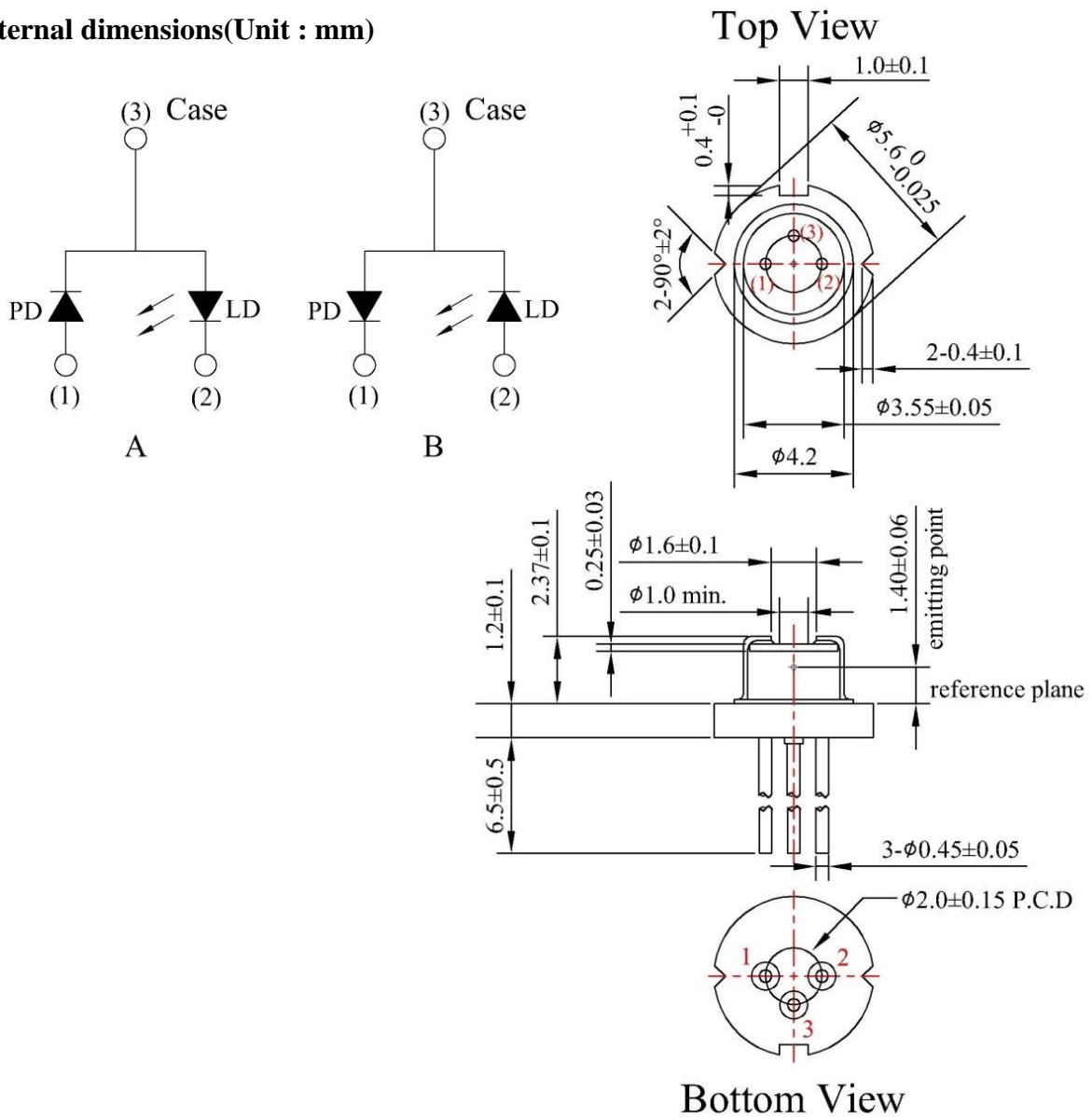
Features

1. Low operating current
2. Standard optical power output : 5mW (CW)
3. TO-56 (ϕ 5.6mm) package, with Pb-free window cap.
4. Built-in photodiode for monitoring laser diode.

Applications

1. Laser pointer
2. Bar code scanner
3. Laser module
4. Medical equipment

External dimensions (Unit : mm)



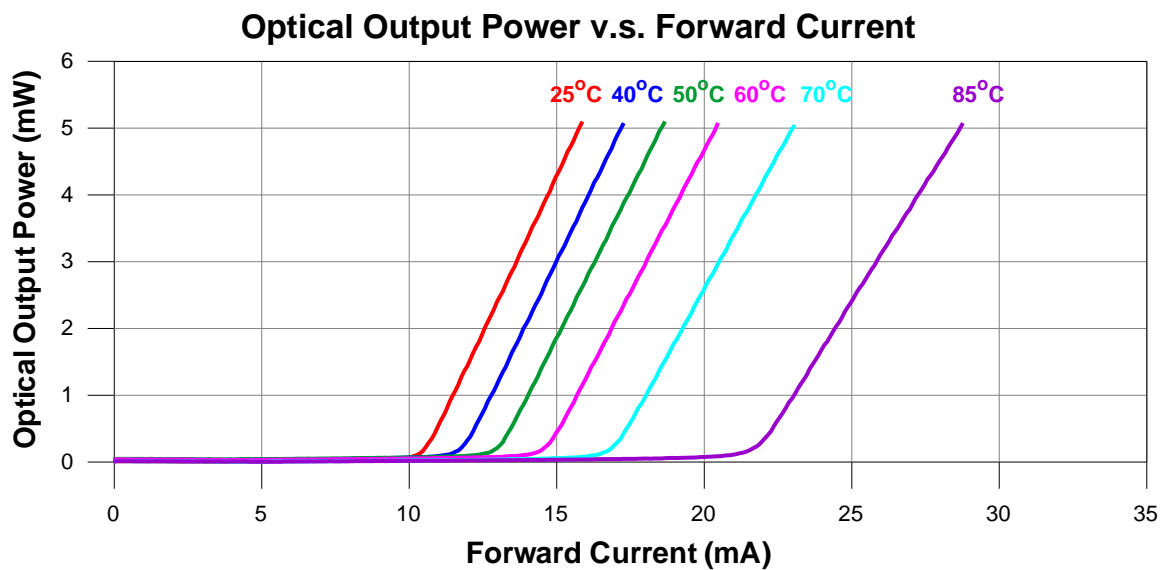
Absolute Maximum Ratings(Tc=25°C)

Parameter	Symbol	Rating	Unit
Optical Output	Po	5	mW
Reverse Voltage	Vr	2	V
Operating Temperature (Case)	Top	-10~+40	°C
Storage Temperature	Tstg	-40~+85	°C

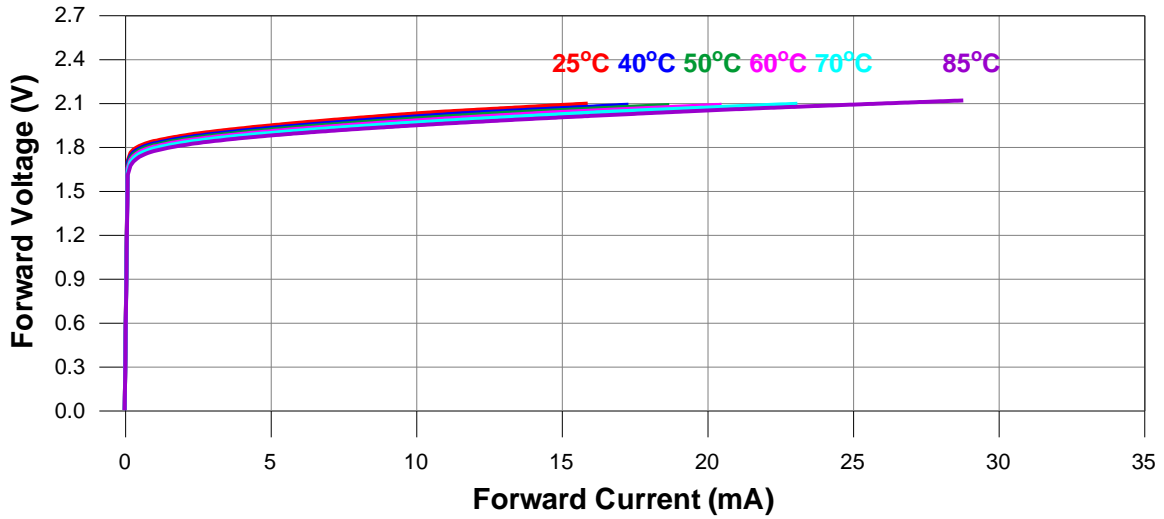
Electrical and Optical Characteristics(Tc=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	
Threshold Current	Ith	Po=5mW	-	10	13	mA	
Operating Current	Iop	Po=5mW	-	16	20	mA	
Operating Voltage	Vop	Po=5mW	-	2.1	2.3	V	
Slope Efficiency	η	Po=1.25-3.75mW	0.7	0.9	-	mW/mA	
Monitor Current	Im	Po=5mW	0.05	0.2	0.4	mA	
Beam Divergence (FWHM)	Parallel	$\theta_{//}$	Po=5mW	5	8	12	deg.
	Perpendicular	θ_{\perp}	Po=5mW	30	36	42	deg.
Lasing Wavelength	λ	Po=5mW	640	650	660	nm	

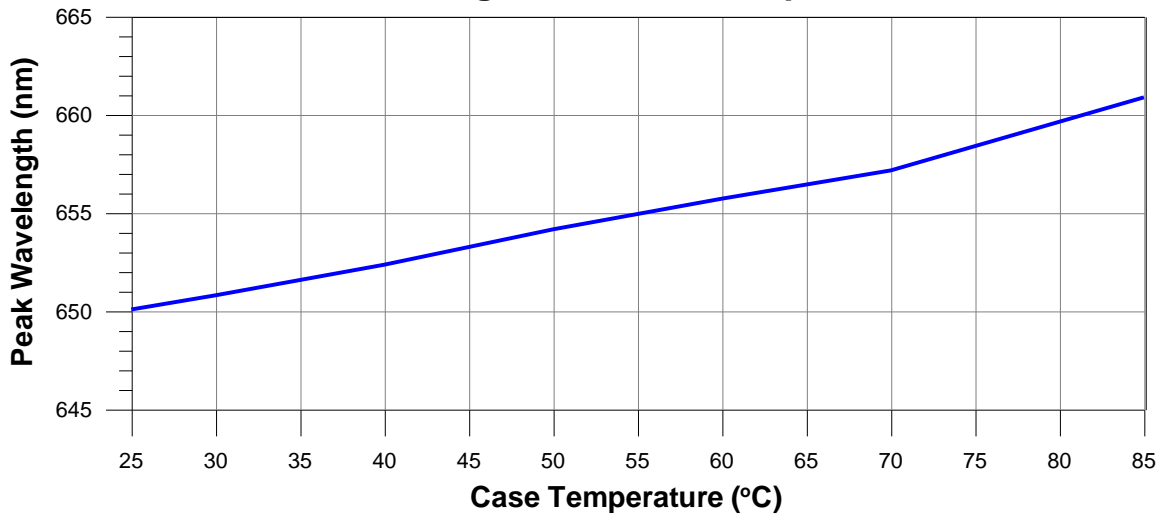
© $\theta_{//}$ and θ_{\perp} are defined as the angle within which the intensity is 50% of the peak value.

Typical characteristic curves


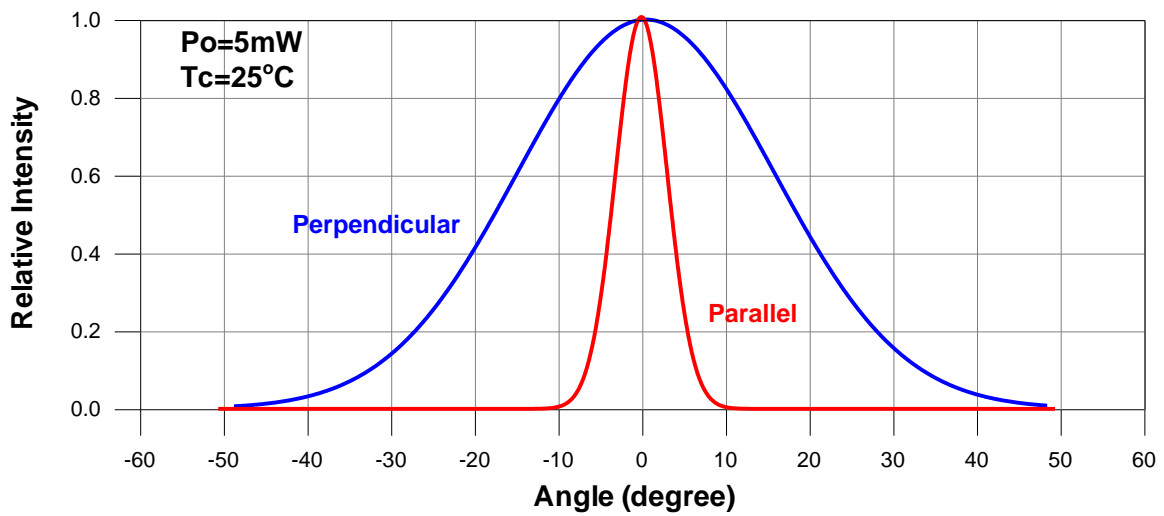
Forward Voltage v.s. Forward Current



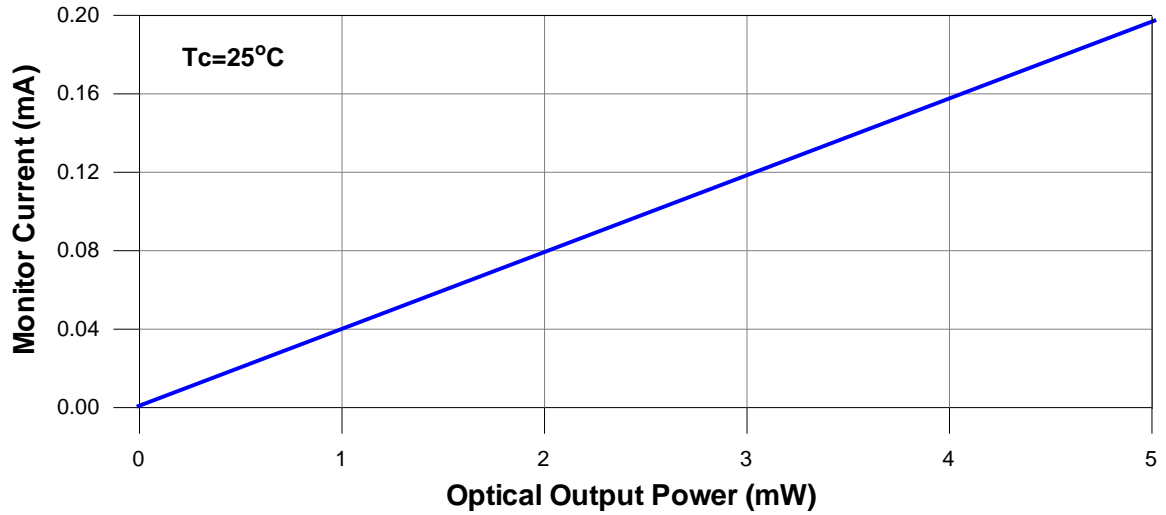
Peak Wavelength v.s. Case Temperature



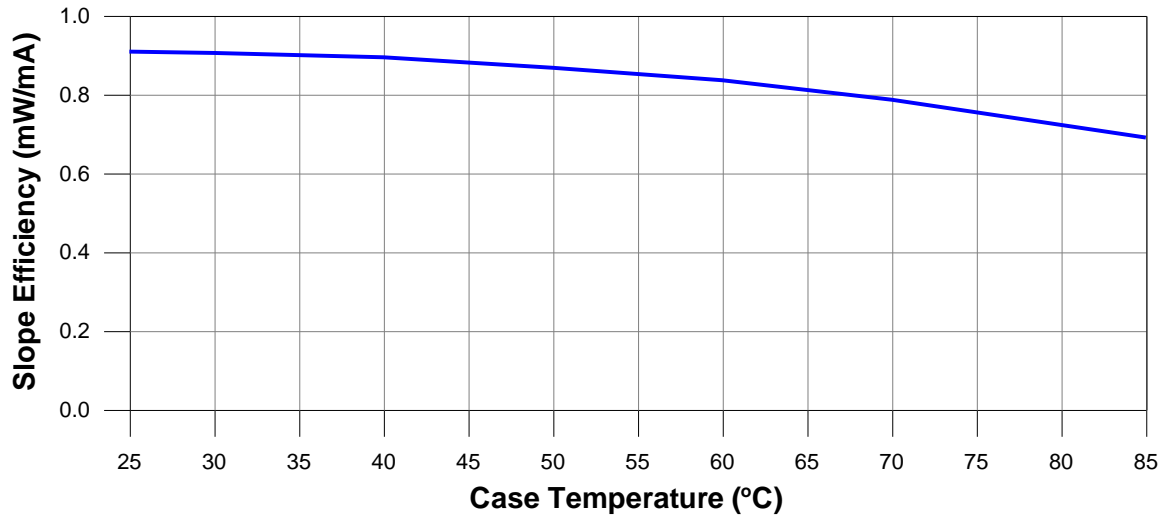
Far-Field Pattern



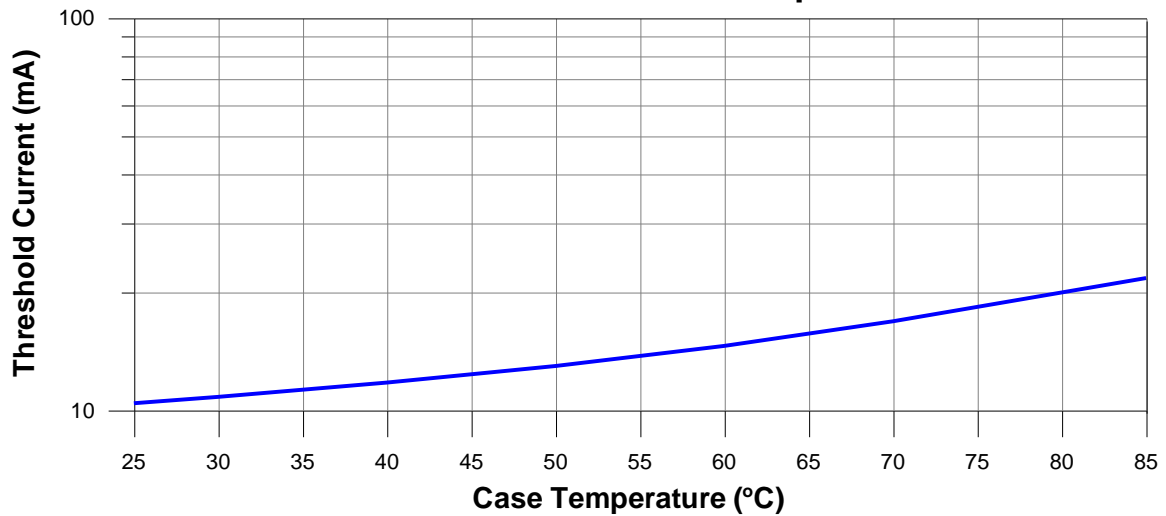
Monitor Current v.s. Optical Output Power



Slope Efficiency v.s. Case Temperature



Threshold Current v.s. Case Temperature



■ Precautions

QUALITY ASSURANCE

After any processing of laser chip or laser diode TO-CAN (LD) by the customer, the performance, yield and reliability of the product, in which the chip or LD is applied, are subject to change due to customer's handling, assembly, testing, and processing. Because laser chip and LD are strongly affected by environmental conditions, physical stress, and chemical stresses imposed by customer that are not in Ciellight control and hence no guarantee on the characteristics and the reliability at all after the shipment. Also, Ciellight does not have any responsibility for field failures in a customer product. When attaching a heat sink to laser chip or LD, be careful not to apply excessive force to the device in the process. **SAFETY**

PRECAUTIONS

Although Ciellight keeps improving quality and reliability of its laser chip and laser diode TO-CAN (LD), semiconductor devices in general can malfunction or fail due to their intrinsic characteristics. Hence, it is required that the customer's products are designed with full regard to safety by incorporating the redundancy, fire prevention, error prevention so that any problems or error with Ciellight laser chip or LD does not cause any accidents resulting in injury, death, fire, property damage, economic damage, or environmental damage. In case customer wants to use Ciellight laser chip or LD in the systems requiring high safety, customer is requested to confirm safety of entire systems with customer's own testing. **SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.**

The information provided by Ciellight, including but not limited to technical specifications, recommendations, and application notes relating to laser chip or laser diode TO-CAN (LD) is believed to be reliable and accurate and is subject to change without notice. Ciellight reserves the right to change its assembly, test, design, form, specification, control, or function without notice.
