



830nm 300mW Laser Diode, TO-56 (5.6mm) Package

LD830A300C16

Data Sheet

Features

- 830nm Infrared laser diode
- Optical output power: 300mW CW
- Operating temperature: +60°C
- Small perpendicular divergence angle
- Built-in photodiode for monitoring laser diode
- Package: TO-56 (dia. 5.6mm)

Applications

- Motion sensor
- 3D depth sensor
- Infrared illumination
- Industry
- Phototherapy

Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

PARAMETER	SYMBOL	RATING	UNIT
Optical output power	P_O	300	mW
Reverse voltage (LD)	V_{RL}	2	V
Reverse voltage (PD)	V_{RD}	30	V
Operating temperature	T_{op}	-10 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$

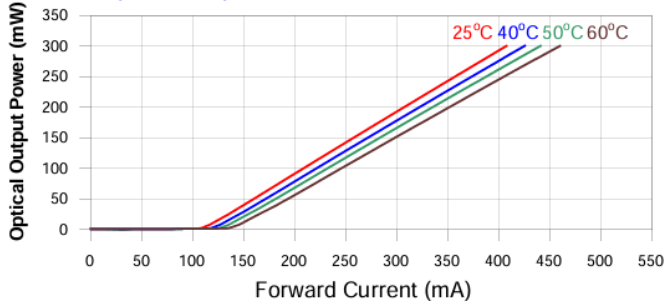
Electrical and Optical Characteristics ($T_c = 25^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS	
Lasing wavelength	λ_p	820	830	840	nm	$P_O = 300\text{mW}$	
Threshold current	I_{th}	-	115	130	mA	-	
Operating current	I_{op}	-	410	450	mA	$P_O = 300\text{mW}$	
Slope efficiency	η	-	1.0	-	mW/mA	$P_O = 75\text{-}225\text{mW}$	
Operating voltage	V_{op}	-	1.8	1.95	V	$P_O = 300\text{mW}$	
Monitor current	I_m	0.1	0.4	1	mA	$P_O = 300\text{mW}, V_{RD} = 5\text{V}$	
Beam divergence (FWHM)	Parallel	$\Theta_{//}$	-	9	14	deg	$P_O = 300\text{mW}$
	Perpendicular	Θ_{\perp}	-	18	23	deg	$P_O = 300\text{mW}$

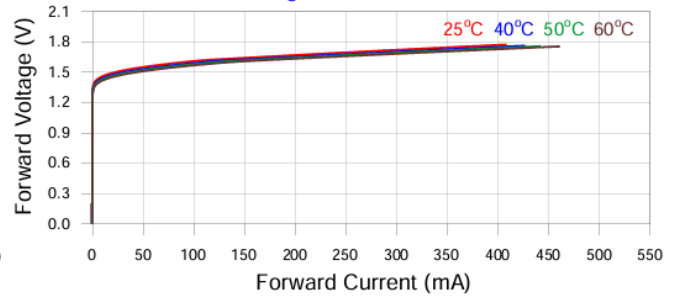
Note: $\Theta_{//}$ and Θ_{\perp} are defined as the angle within which the intensity is 50% of the peak value.

Typical Characteristics

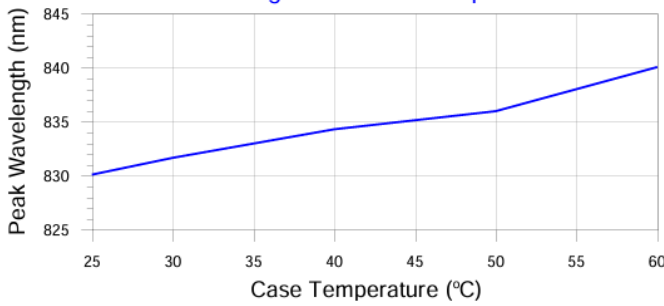
Optical Output Power v.s. Forward Current



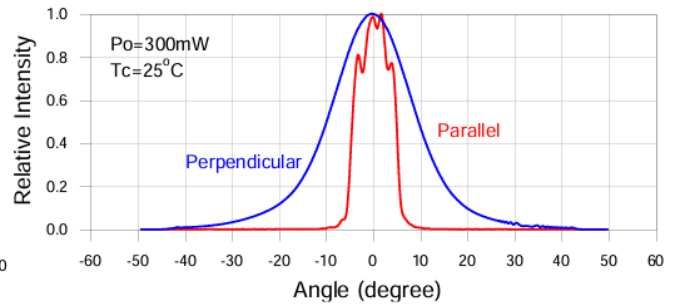
Forward Voltage v.s. Forward Current



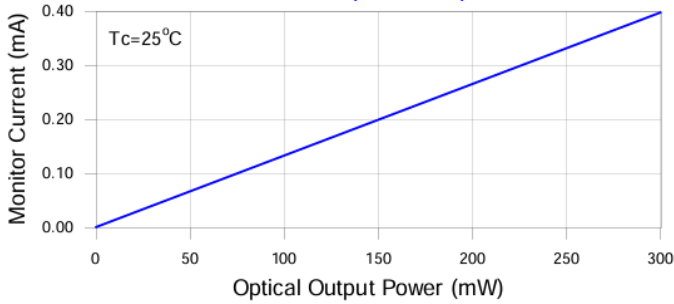
Peak Wavelength v.s. Case Temperature



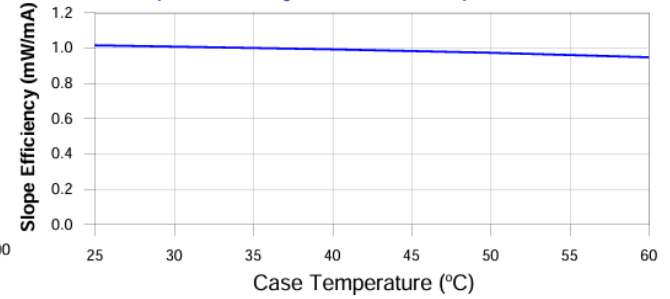
Far-Field Pattern



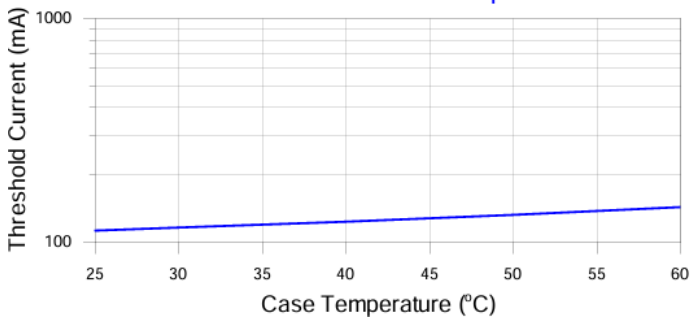
Monitor Current v.s. Optical Output Power



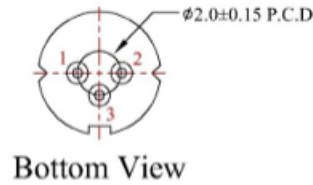
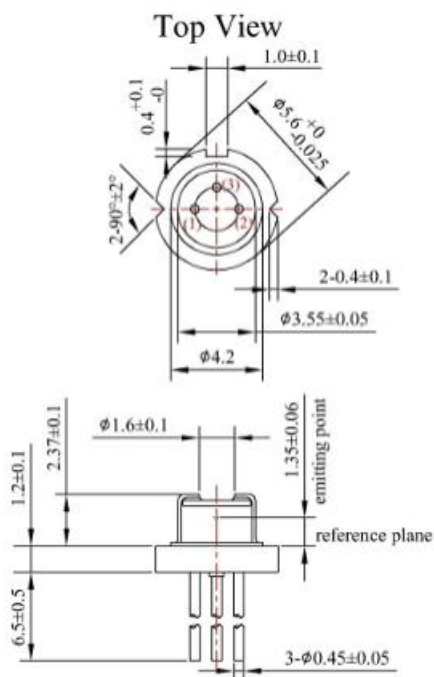
Slope Efficiency v.s. Case Temperature



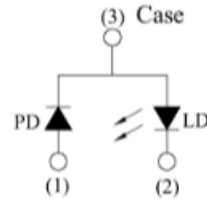
Threshold Current v.s. Case Temperature



Mechanical Outline (unit: mm)



PIN CONFIGURATION



Additional Notes

- Do not operate the device above maximum ratings. Doing so may cause unexpected and permanent damage to the device.
- Take precautions to avoid electrostatic discharge and/or momentary power spikes. A change in the characteristics of the laser or premature failure may result.
- Proper heat sinking of the device assures stability and lifetime. Always ensure that maximum operating temperatures are not exceeded.
- Observing visible or invisible laser beams with human eye directly, or indirectly, can cause permanent damage. Use a camera to observe the laser.
- No laser device should be used in any application or situation where life or property is at risk in the event of device failure.
- Specifications are subject to change without notice. Ensure that you have the latest specification by contacting us prior to purchase or use of the product.