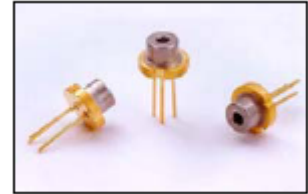




RHB510APA

TECHNICAL DATA



Blue Laser Diode

Features

- Peak Wavelength: 455 nm
- Optical Output Power: 50 mW
- Package: 5.6 mm, with Photo Diode



Electrical Connection

Pin Configuration		Bottom View								
	<p><i>m-type</i></p> <table border="1"> <thead> <tr> <th>PIN</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>LD Anode</td> </tr> <tr> <td>2</td> <td>LD Cathode, PD Cathode</td> </tr> <tr> <td>3</td> <td>PD Anode</td> </tr> </tbody> </table>	PIN	Function	1	LD Anode	2	LD Cathode, PD Cathode	3	PD Anode	
PIN	Function									
1	LD Anode									
2	LD Cathode, PD Cathode									
3	PD Anode									

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

Item	Symbol	Value	Unit
CW Output Power	P_O	80	mW
LD Reverse Voltage	V_R (LD)	5	V
PD Reverse Voltage	V_R (PD)	20	V
Operating Case Temperature	T_C	-10 ... +60	$^\circ\text{C}$
Storage Temperature	T_{stg}	-35 ... +75	$^\circ\text{C}$

Specifications ($T_C=25^\circ\text{C}$)

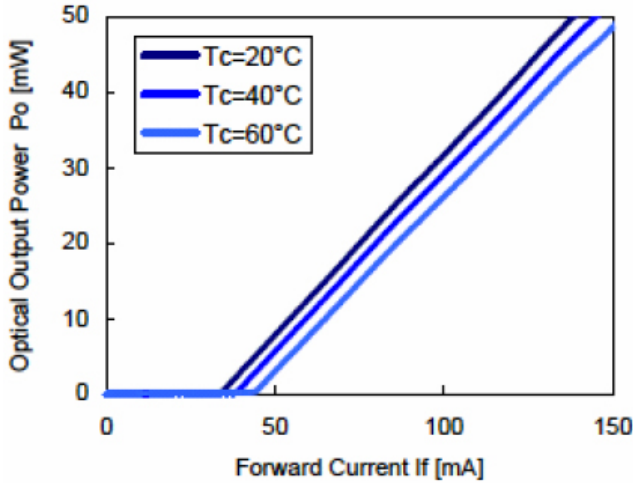
Item	Symbol	Min.	Typ.	Max.	Unit	
Optical Specifications						
CW Output Power	P_O	-	-	50	mW	
Peak Wavelength	λ_P	440	445	450	nm	
FWHM Beam Divergence	$\theta_{ }$	6.5	8.5	10.5	deg	
	θ_{\perp}	17.0	22.0	29.0	deg	
Emission Point Accuracy	Angle	$\Delta\theta_{ }$	-2.5	-	2.5	deg
		$\Delta\theta_{\perp}$	-7.0	-	7.0	deg
	Position	$\Delta X, Y, Z$	-80	-	80	μm
Electrical Specifications						
Threshold Current	I_{th}	10	35	50	mA	
Operating Current	I_{op}	80	120	160	mA	
Slope Efficiency	η	0.3	0.6	1.0	W/A	
Operating Voltage	U_{op}	4.5	5.5	6.5	V	
Monitor Current	I_m	-	-	2.0	mA	

The above specifications are for reference purpose only and subjected to change without prior notice.

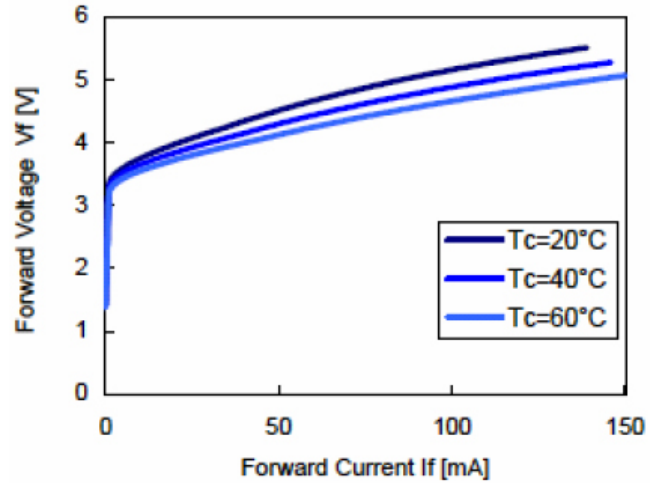


Typical Characteristics

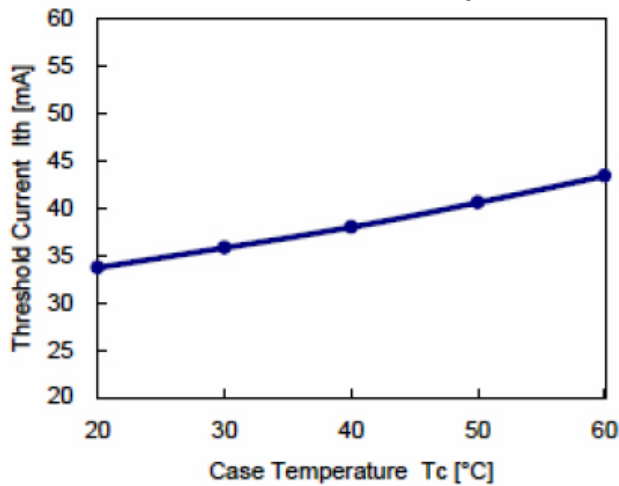
Optical Output Power vs. Forward Current



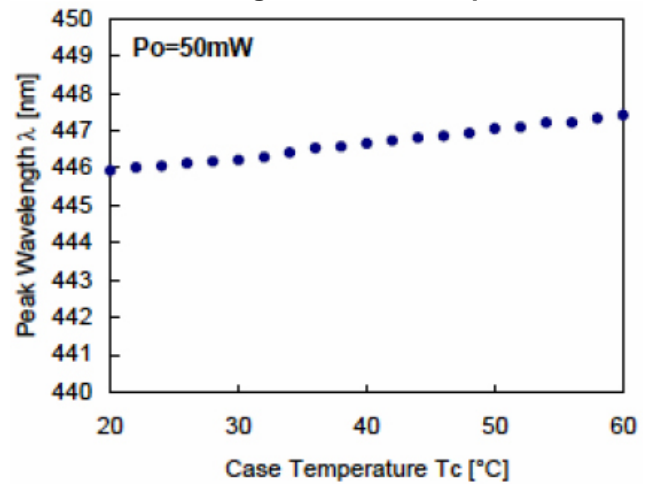
Forward Voltage vs. Forward Current



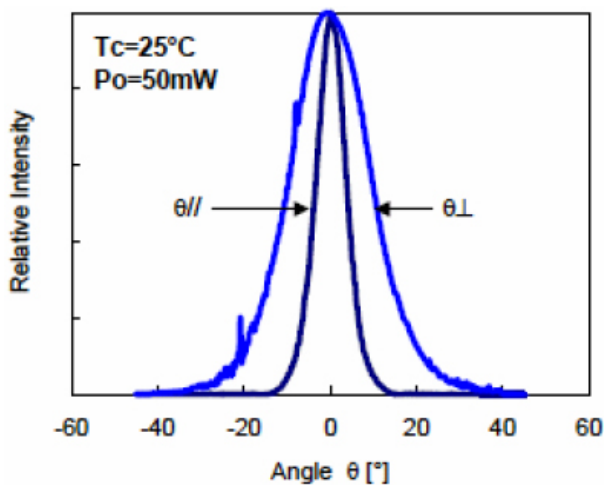
Threshold Current vs. Case Temperature



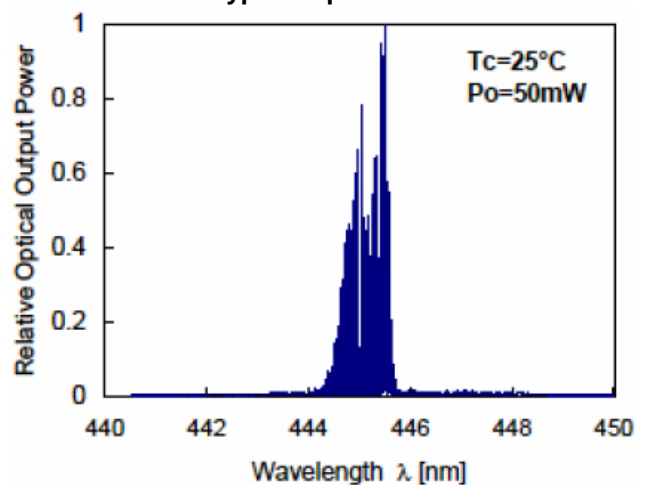
Peak Wavelength vs. Case Temperature



Far Field Pattern



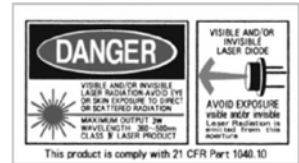
Typical Spectrum





Safety of Laser light

- Laser Light can damage the human eyes and skin. Do not expose the eye or skin directly to any laser light 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.
- These 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 this LDs are incorporated and/or integrated.



Cautions

1. Operating methode

- This LD shall change its forward voltage requirement and optical output power according to temperature change. Also, the LD will require more operation current to maintain same output power as it degrades. In order to maintain output power, use of APC (Automatic Power Control) is recommended. Which use monitor feedback to adjust the operation current.
- Confirm that electrical spike current generated by switching on and off does not exceed the maximum operating current level specified herein above as absolute maximum rating. Also, employ appropriate countermeasures to reduce chattering and/or overshooting in the circuit.

2. Static Electricity

- Static electricity or electrical surges will reduce and degrade the reliability of the LDs. It is recommended to use a wrist strap or anti-electrostatic glove when handling the Product.

3. Absolute Maximum Rating

- Active layer of LDs shall have high current density and generate high electric field during its operation. In order to prevent excessive damage, the LD must be operated strictly below absolute maximum rating.