

## GH04P21A2GE

## Blue violet Laser Diode

### High Power Blue violet Laser Diode

■ Features

- (1) Wavelength : 406 nm(Typ.)
- (2) Optical power output :
  - CW 105mW (Max)
  - Pulse 210mW (Max)
- (3) 5.6mm CAN package

■ Applications

- (1) Blu-ray Disc/HD DVD drive
- (2) other new application

■ Absolute Maximum Ratings

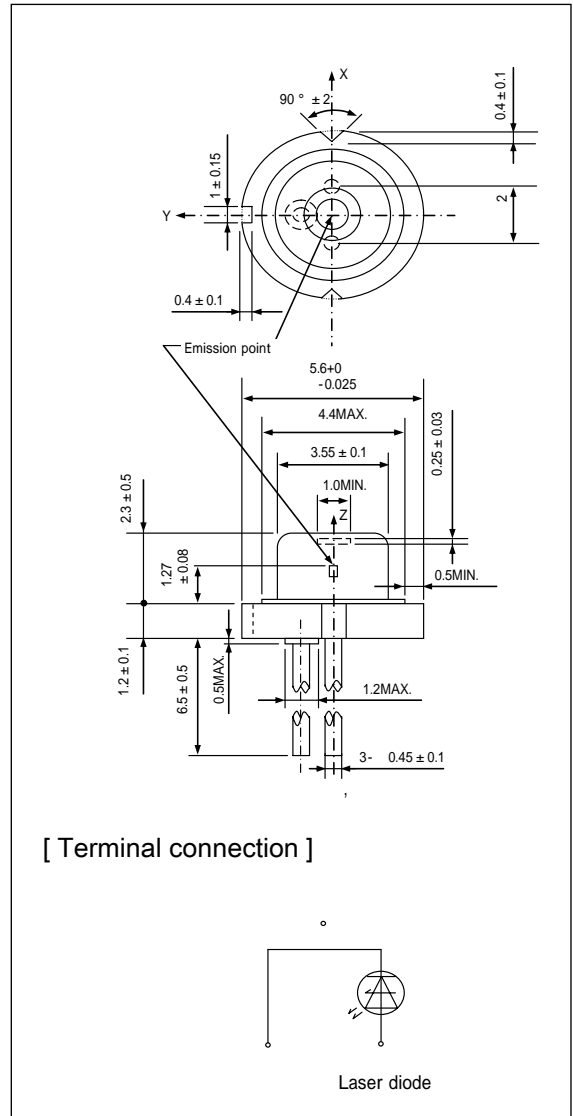
(T<sub>c</sub>=25°C<sup>※1</sup>)

Parameter	Symbol	Ratings	unit
<sup>2</sup> Optical power output(CW)	P <sub>o</sub>	105	mW
<sup>3</sup> Optical power output(Pulse)	P <sub>p</sub>	210	mW
Reverse voltage	V <sub>rl</sub>	2	V
Operatings temperature (case temp.)	CW <sup>※2</sup> T <sub>opc(c)</sub>	-10~+70	°C
	Pulse <sup>※3</sup> T <sub>opp(c)</sub>	-10~+70	°C
Storage temperature(case temp.)	T <sub>sig</sub>	-40~+85	°C
<sup>4</sup> Soldering temperature	T <sub>sld</sub>	350	°C

※1 T<sub>c</sub> : Case temperature  
 ※2 CW :Continuous Wave Operation  
 ※3 Pulse :Pulse Operation(Pulse Width 50ns Duty:50%)  
 ※4 Soldering position is 1.6mm apart from bottom edge of the case.  
 (Immersion time: 3s)

■ Outline Dimensions

(Unit : mm)



(Notice)

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## ■ Specifications

(T<sub>c</sub>=25°C<sup>※1 ※2</sup>)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	unit
Threshold current	I <sub>th</sub>	-	-	40	60	mA
Operating current	I <sub>op</sub>	P <sub>o</sub> =105mW	-	120	150	mA
Operating voltage	V <sub>op</sub>		-	5.4	6.5	V
Wavelength	λ <sub>p</sub>		400	406	413	nm
Half intensity angle ※3 ※4	Parallel	θ <sub>∥</sub>	6	9	12	°
	Perpendicular	θ <sub>⊥</sub>	16	19	22	°
Half intensity angle ※3 ※4	Parallel	θ <sub>∥</sub>	5.5	8.5	11.5	°
	Perpendicular	θ <sub>⊥</sub>	16	19	22	°
Misalignment angle ※4	Parallel	Δθ <sub>∥</sub>	-2.5	-	2.5	°
	Perpendicular	Δθ <sub>⊥</sub>	-3.0	-	3.0	°
Differential efficiency	η <sub>d</sub>	$\frac{95mW}{I(105mW)-I(10mW)}$	0.9	1.3	-	mW/mA
Kink (Pulse) ※5 ※6	K-LI	P1=42mW P2=126mW P3=210mW	-10	-	10	%

※1 T<sub>c</sub> : Case temperature

※6 Definition of Kink

※2 Initial value, Continuous Wave Operation.

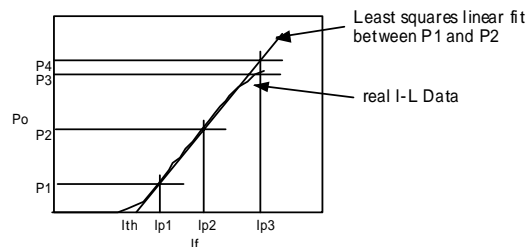
:K-LI= (P4-P3)/P3

※3 Angle of 50% peak intensity.(Full angle at half-maximum)

※4 Parallel to the junction plane.(X-Z plane)

Perpendicular to the junction plane.(Y-Z plane)

※5 Pulse :Pulse Operation(Pulse Width 50ns Duty:50%)

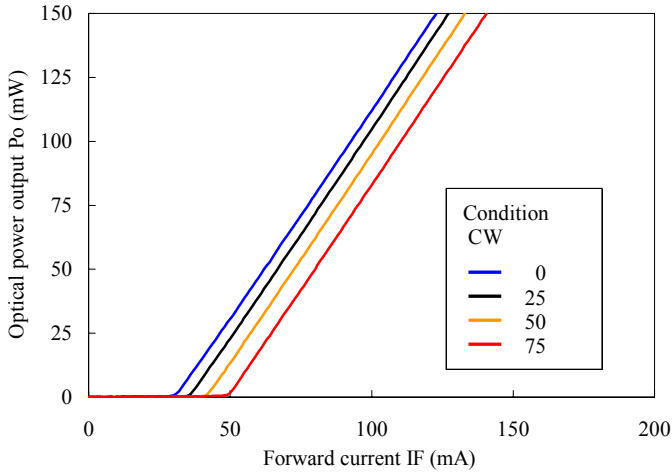


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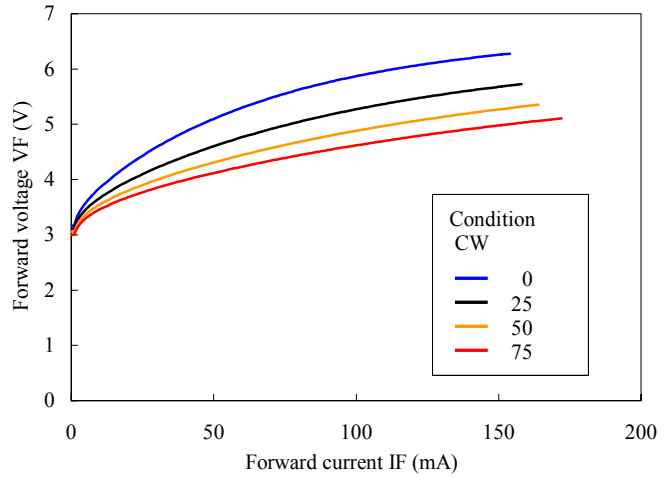
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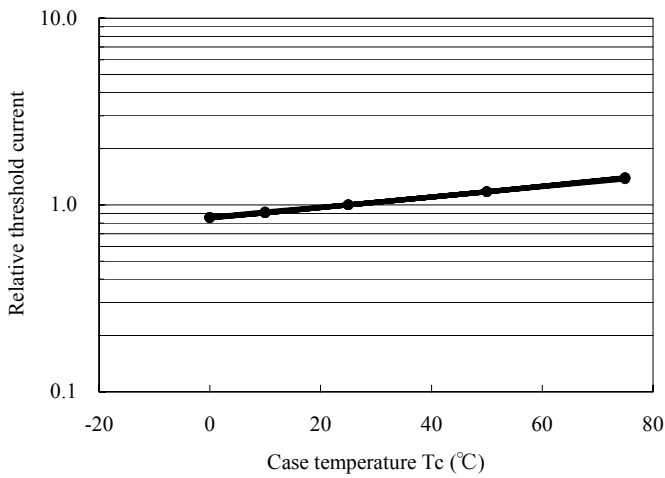
### Optical power output – Forward current



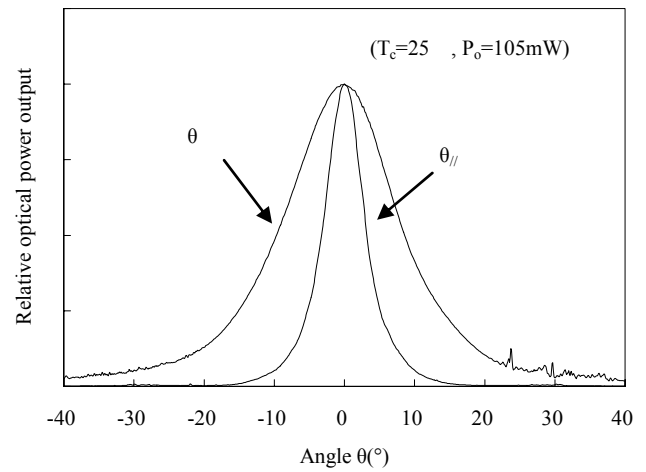
### Forward voltage – Forward current



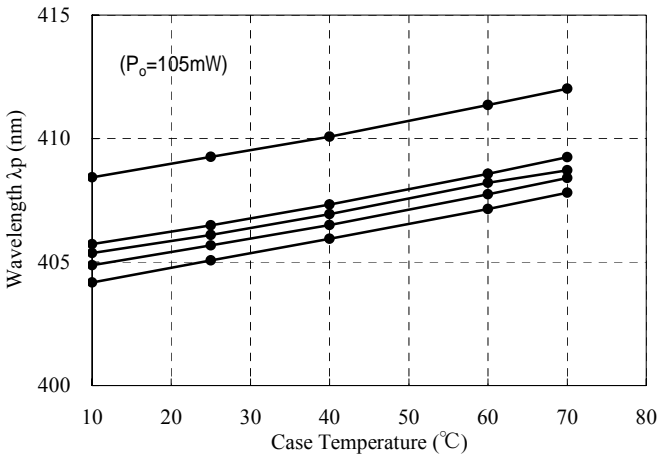
### Case temperature dependence of threshold current



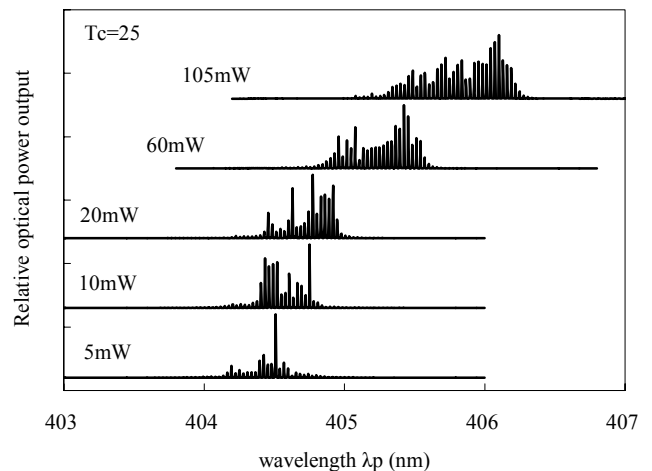
### Far field pattern (FFP)



### Case temperature dependence of wavelength



### Optical power dependence of Lasing spectrum



Note) Characteristics shown in diagrams are typical values.(not assurance value)

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### (Precautions)

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* OA equipment	* Audio visual equipment	* Home appliance
* Telecommunication equipment (Terminal)	* Measuring equipment	
* Tooling machines	* Computers	

If the use of the product in the above application areas is for equipment listed in paragraphs (2) or (3), please be sure to observe the precautions given in those respective paragraphs.

- (2) Appropriate measures, such as fail-safe design and redundant design considering the safety design of the overall system and equipment, should be taken to ensure reliability and safety when this product is used for equipment which demands high reliability and safety in function and precision, such as ;

* Transportation control and safety equipment (aircraft, train, automobile etc.)
* Traffic signals    * Gas leakage sensor breakers    * Rescue and security equipment
* Other safety equipment

- (3) Please do not use this product for equipment which require extremely high reliability and safety in function and precision, such as ;

* Space equipment	* Telecommunication equipment (for trunk lines)
* Nuclear power control equipment	* Medical equipment

- (4) Please contact and consult with a Sharp sales representative if there are any questions regarding interpretation of the above three paragraphs.

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