Under development	
New product	●

GH04020B2A

Blue violet Laser Diode

Low Power Blue violet Laser Diode

■ Features

(1) Wavelength : 406 nm(Typ.)

(2) Optical power output :

CW 20mW

(3) Φ5.6mm CAN package

■ Applications

(1) Barcode scanner

(2) Laser sensor

(3) other application

■ Absolute Maximum Ratings

(Tc=25℃※1)

	Parameter		Symbol	Ratings	unit
※2	Optical power output(CW)		P_o	25	mW
	Reverse voltage	Laser	V_{rl}	2	V
		Photo diode	V_{rd}	30	V
	Operatings temperature(case temp.)		$T_{opc(c)}$	-10～+70	℃
	Storage temperature		T_{stg}	-40～+85	℃
※3	Soldering temperature		T_{sld}	350	℃

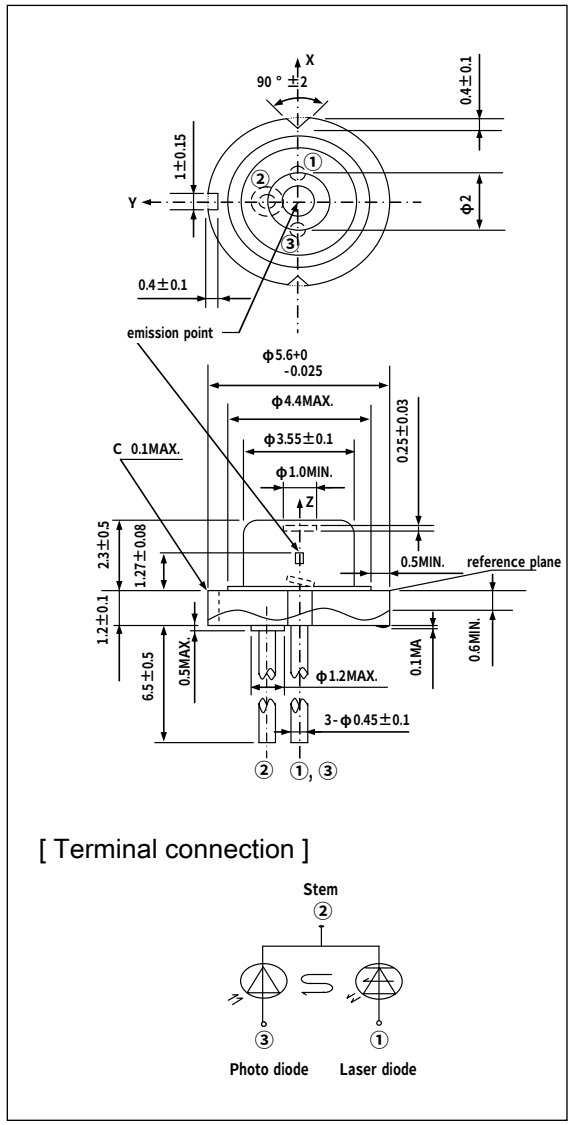
※1 T_c : Case temperature

※2 CW :Continuous Wave Operation

※3 Soldering position is 1.6mm apart from bottom edge of the case.
(Immersion time: 3s)

■ Outline Dimensions

(Unit：mm)



[Terminal connection]

■ Specifications

(Tc=25℃※1 ※2)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	unit
Threshold current		Ith	-	-	23	50	mA
Operating current		Iop	Po=20mW	-	38	60	mA
Operating voltage		Vop		-	4.9	5.8	V
Wavelength		λp		400	406	413	nm
Half intensity angle ※3 ※4	Parallel	θ ∥		6	9.5	12	°
	Perpendicular	θ⊥		15	20	24	°
Misalignment angle ※4	Parallel	Δθ ∥		-2.5	-	2.5	°
	Perpendicular	Δθ⊥		-3.0	-	3.0	°
Differential efficiency		ηd	$\frac{12mW}{I(20mW)-I(8mW)}$	0.7	1.1	1.6	mW/mA
Monitor Photo diode current		Im	Po=20mW, Vrd=5V	0.3	0.6	0.9	mA

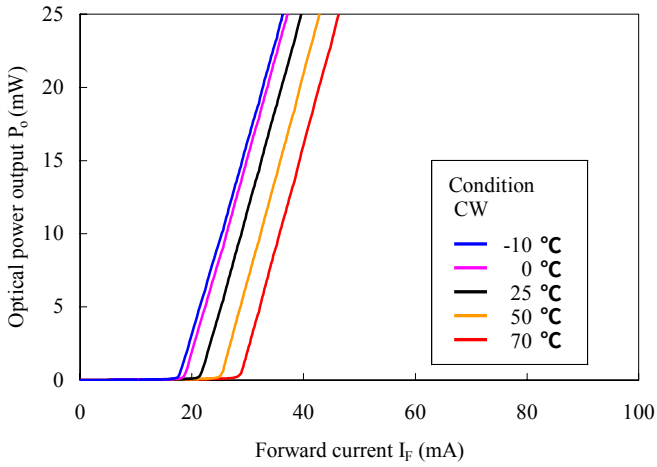
※1 T_c : Case temperature

※2 Initial value, Continuous Wave Operation. Initial value is measured by the standard Laser tester of the sharp possession.

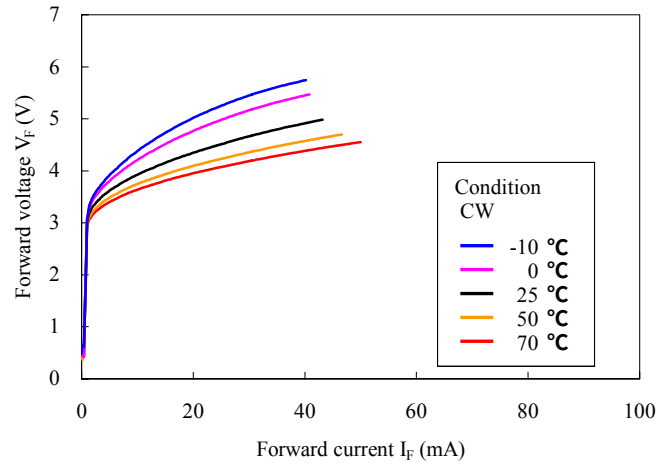
※3 Angle of 50% peak intensity.(Full angle at half-maximum)

※4 Paralel to the junction plane.(X-Z plane)
Perpendicular to the junction plane.(Y-Z plane)

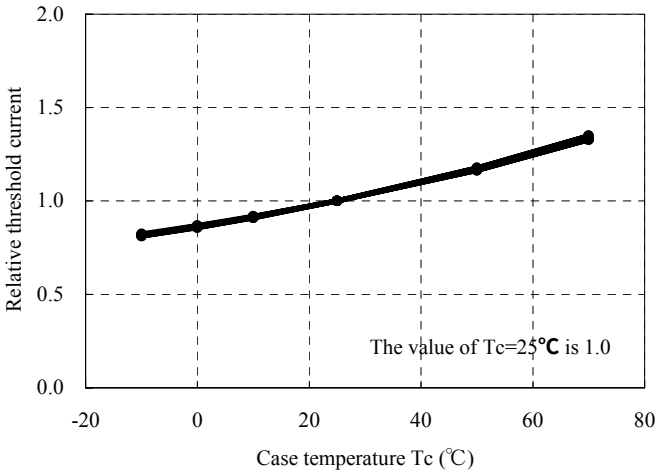
■ Optical power output – Forward current



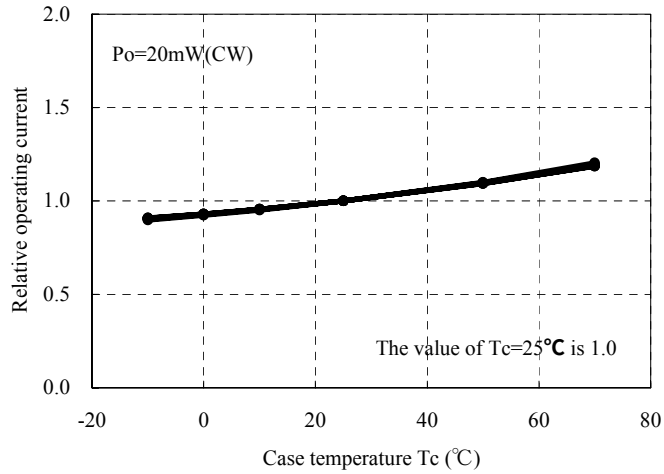
■ Forward voltage – Forward current



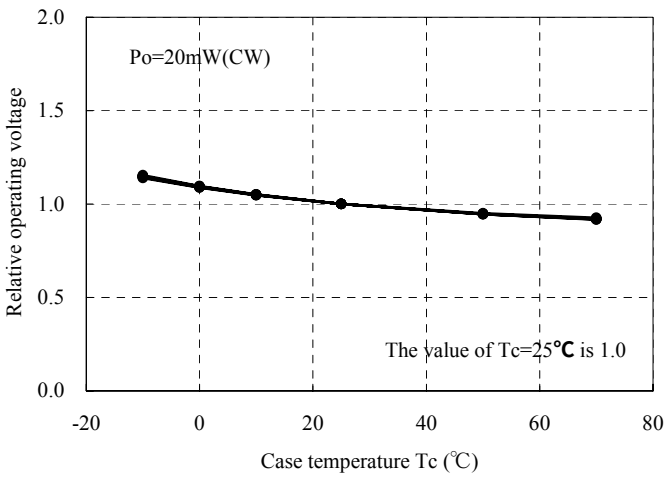
■ Case temperature dependence of threshold current(Ith)



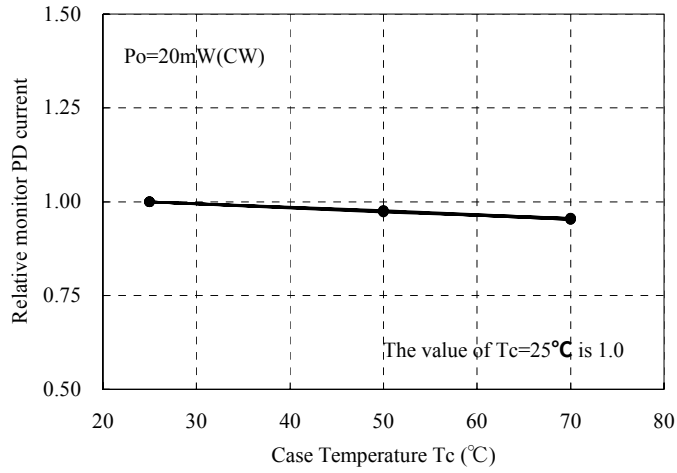
■ Case temperature dependence of operating current(Iop)



■ Case temperature dependence of operating voltage(Vop)

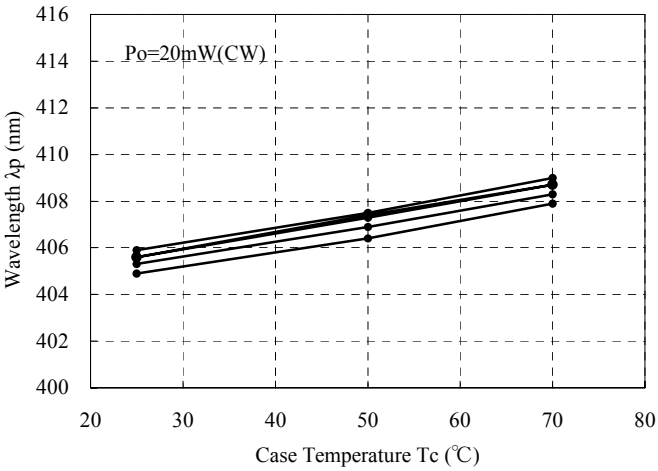


■ Case temperature dependence of monitor PD current(Im)

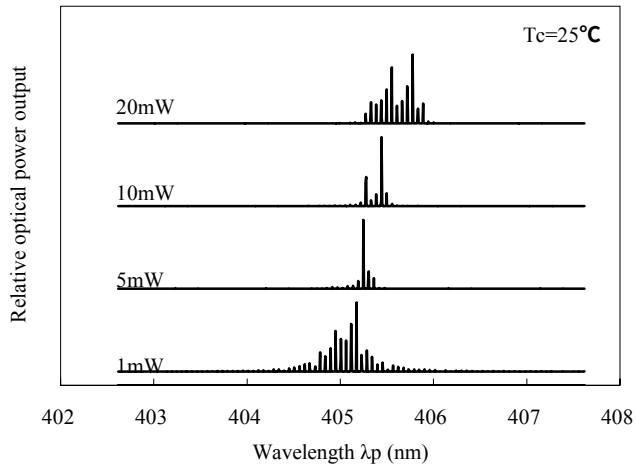


Note) Characteristics shown in diagrams are typical values.(not assurance value)

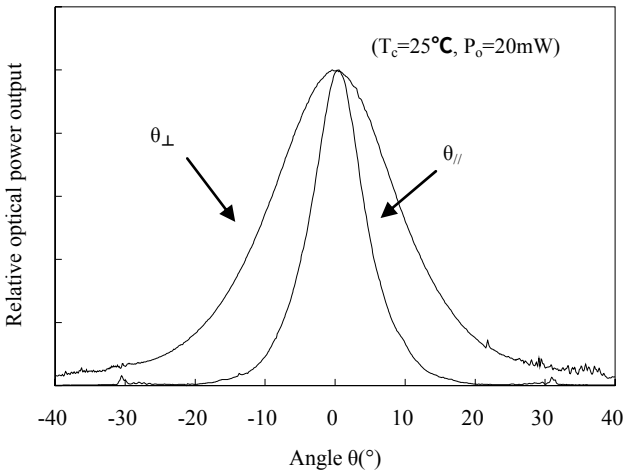
■ Case temperature dependence of wavelength



■ Optical power dependence of Lasing spectrum



■ Far field pattern (FFP)



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

■ CAUTION

1. These technical sheets include materials protected under the copyright of Sharp Corporation ("Sharp"). Please do not reproduce or cause anyone to reproduce them without Sharp's consent.
2. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these technical sheets, as well as the precautions mentioned below. Sharp assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these technical sheets, and the precautions mentioned below.

   (Precautions)

   (1) This products is designed for use in the following application areas;

   [* 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.

3. Please contact and consult with a Sharp sales representative for any questions about this product.

(Notice)
・In the absence of confirmation by device specification sheets. SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.
・Specifications are subject to change without notice for improvement.