

Messrs. VERTEX ELECTRONICS TECHNOLOGY COMPANY,LTD

OPTO DEVICE SPECIFICATIONS

HL63172MG

Please return this copy with your signature to acknowledge your approval.

Signature

Date

Print Name

USHIO INC.


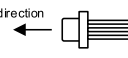


Masayoshi Takimoto

Safety Considerations

Be sure to avoid direct exposure of human eyes to high power laser beams emitted from laser diodes. Even though barely visible and/or invisible to the human eye, they can be quite harmful. In particular, avoid looking directly into a laser diode or collimated beam along its optical axis when the diode is activated. One simple way to determine the optical path is to use a phosphor plate or infrared sensitive camera.

USHIO INC. (USHIO) certifies compliance with US Safety Regulations (21 CFR Subchapter J) on laser products, as stipulated by the U.S. Department of Health and Human Services. The USHIO products shown here correspond to the category "CLASS IIIb LASER PRODUCT" in this regulation.

 <p>"VISIBLE AND/OR INVISIBLE LASER RADIATION- AVOID DIRECT EXPOSURE TO BEAM"</p> <p>PEAK POWER 500mW WAVELENGTH 380 to 880 nm</p> <p>"CLASS IIIb LASER PRODUCT"</p> <p><small>This product conforms to FDA regulations 21 CFR Chapter I, Subchapter J.</small></p>	<p>AVOID EXPOSURE: Visible and/or invisible laser radiation is emitted from glass window, laser chip mounted on top of header or bare chip. Before use, consult appropriate catalogs or manuals.</p> <p>beam direction ← </p> <p>MANUFACTURED: USHIO INC. 6-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo 100-8150, Japan</p>	<p>USER INSTRUCTIONS: This laser device in operation produces visible and/or invisible laser radiation. Be sure to avoid direct exposure of human eyes to beams emitted from laser diode. Even though they are barely visible and/or invisible to the human eye, they can be quite harmful. In particular, avoid looking directly into a laser diode or collimated beam along its optical axis when it is in operation. One simple way to determine the optical path is to use a phosphor plate or infrared sensitive camera.</p> <p>The se devices are components to be used in producing complete laser systems. They do not emit radiation unless combined by the end user with other components. Please consult appropriate catalogs or manuals in our web site for some of the possible uses of these devices.</p> <p>Because of the small size of the device, the required labels and these instructions are provided on this label rather than printed on the device.</p>
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6. Contact our sales office for any questions regarding this document or USHIO products.
7. This CAS will be invalid when USHIO has no acceptance or the order based on this CAS within a year after the date of issue on cover sheet.

Cautions

1. The laser light is harmful to human body especially to eye no matter what directly or indirectly. The laser beam shall be observed or adjusted through infrared camera or equivalent.
2. This product (without violet laser diode) contains gallium arsenide (GaAs), which may seriously endanger your health even at very low doses. Please avoid treatment which may create GaAs powder or gas, such as disassembly or performing chemical experiments, when you handle the product. When disposing of the product, please follow the laws of your country and separate it from other waste such as industrial waste and household garbage.
3. Definition of items shown in this CAS is in accordance with USHIO's web site unless otherwise specified.

HL63172MG Drawing Content

1. Description -----	1
2. Features -----	1
3. Absolute maximum ratings-----	2
4. Optical and Electrical Characteristics -----	2
5. Life time -----	3
6. Mechanical Specification -----	3
7. Mark Layout -----	4
8. Packing Specification -----	5
9. Outline -----	6

HL63172MG Specification

1. Description

The HL63172MG is 0.63 μm band AlGaInP laser diodes with a multi-quantum well (MQW) structure. It is suitable as light sources for laser levelers, laser scanners and optical equipment for measurement. This product should be supplied from Ushio to Vertex only.

2. Features

- Visible light output: 639 nm Typ
- Single transverse mode
- Optical output power: 20 mW CW
- Low operating current: 65 mA Typ
- Low operating voltage: 2.5 V Max
- Operating temperature: +50°C
- TE mode oscillation

3. Absolute maximum ratings (Tc=25±3°C, unless otherwise specified)

No.	Items	Symbols	Ratings	Unit	Note
1	Optical output power	P _o	25	mW	
2	LD reverse voltage	V _{R(LD)}	2	V	
3	PD reverse voltage	V _{R(PD)}	30	V	
4	Operating temperature	T _{opr}	-10 to +50	°C	
5	Storage temperature	T _{stg}	-40 to +85	°C	

4. Optical and Electrical Characteristics (Tc=25±3°C, unless otherwise specified)

No.	Items	Symbols	Test condition	Limit			Unit	Note
				Min.	Typ.	Max		
1	Threshold current	I _{th}	-	-	45	60	mA	
2	Operating current	I _{OP}	P _o =20mW	-	65	80	mA	
3	Operating voltage	V _{OP}	P _o =20mW	-	2.3	2.5	V	
4	Beam divergence parallel to the junction	θ//	P _o =20mW, FWHM	6	9	12	°	
5	Beam divergence perpendicular to the junction	θ⊥	P _o =20mW, FWHM	16	21	24	°	
6	Lasing wavelength	λ _P	P _o =20mW	630	639	643	nm	
7	Monitor current	I _s	P _o =20mW, V _{R(PD)} =5V	0.1	0.2	0.4	mA	

5. Life time

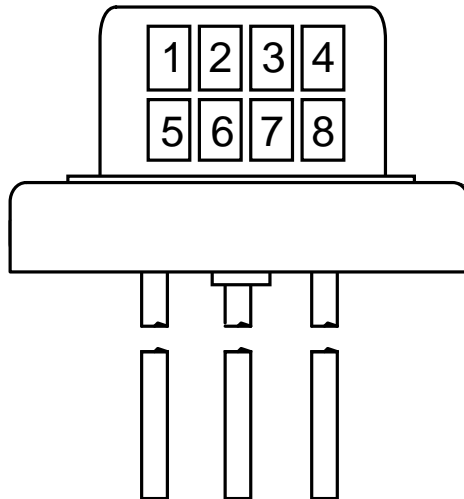
No.	Items	Symbols	Test condition	Limit			Unit	Note
				Min.	Typ.	Max		
1	Expected failure probability	F(t)	Po=20mW, Tc=50°C APC op., t=1000h	-	-	1	%	
2	Failure criteria	ΔI_o	Io increase from initial value at Tc=25°C	-	-	20	%	

6. Mechanical Specification

No.	Items	Symbols	Test condition	Limit			Unit	Note
				Min.	Typ.	Max		
	Package Dimension		See outline figure					

7. Mark layout

The marking code on the side of cap is specified by the following.



1st character: "H" (Fixed code for this product)

2nd character: "D" (Fixed code for this product)

3rd character: Year code shows the last digit of the year (ex. "3" means the year of 2013)

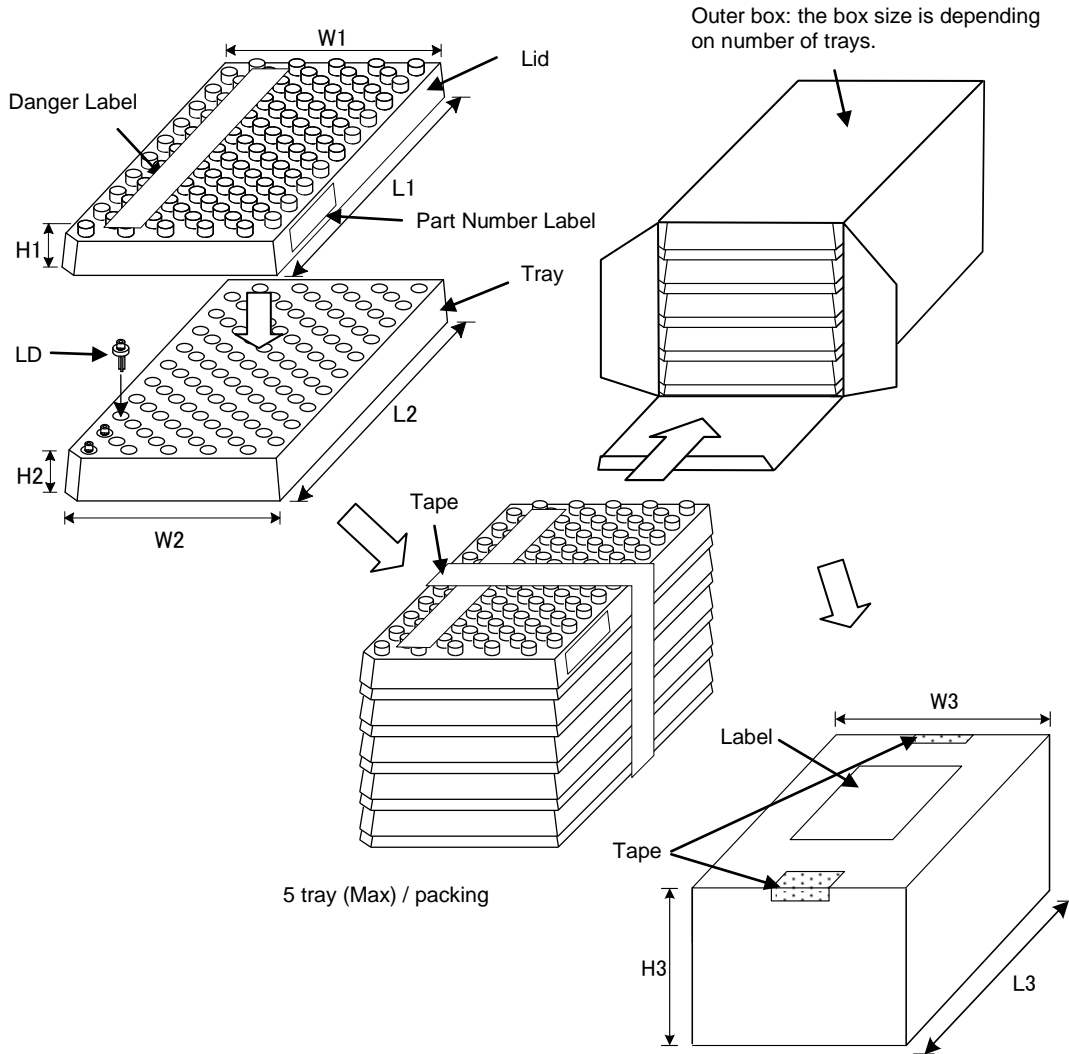
4th character: Month code shows the following table. (ex. "4" means the month of Apr)

5th to 8th character: Ushio internal management code

Table-1) the reference table for month code

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	A	B	C	D	E	F	G	H	J	K	L	M

8. Packing Specification



5.6mm ϕ LD Package Packing specification

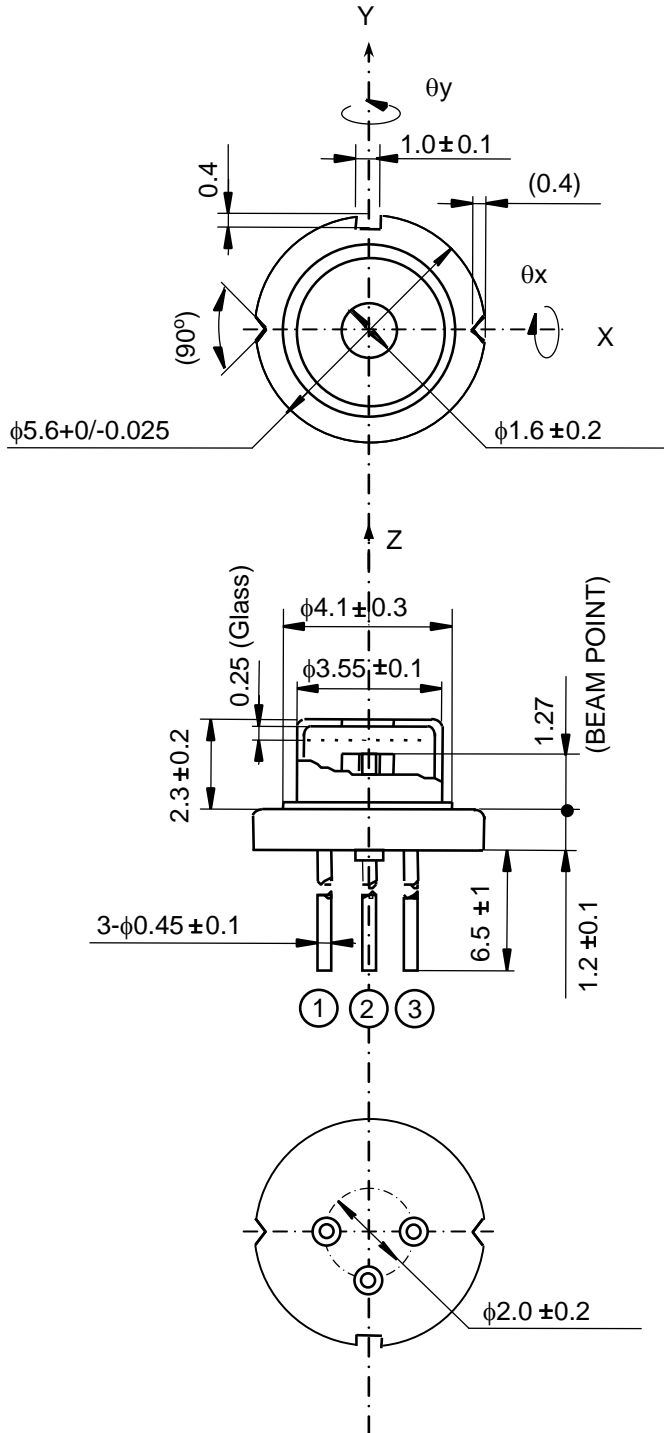
Unit (mm)

		A *1	B *1	C *1	D*1	E *1
Maximum LD quantity/ a tray		100				
Tray Size	Lid	W1xL1xH1				
	Tray	W2xL2xH2				
Maximum LD quantity (pcs)/ a box		100	200	300	400	500
Number of trays(pcs)/ a box		1	2	3	4	5
Outer box size(mm)		W3xL3xH3	70x110x20	70x110x35	70x110x49	70x110x64
Barcode Label *2		Part number, Quantity, Lot number				

*1 The outer box size is outfitted with A to E depending on number of trays.

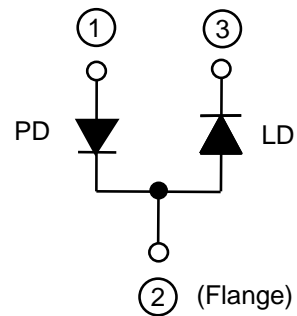
*2 The label position and format are subject to change without notice.

9. Outline



1. Mechanical dimension
Beam point (Ref. Flange Center)
 $|\Delta X|, |\Delta Y|, |\Delta Z| \leq 80\mu\text{m}$
 $|\Delta\phi_x|, |\Delta\phi_y| \leq 2^\circ$
2. Optical Beam Point 1.35 mm

Internal circuit



Units: mm