

To: HAMAMATSU PHOTONICS (CHINA) Co., Ltd

Doc. No.: LAA2B2139

Version : Pro Forma

Date : Dec.24, 2019

HAMAMATSU PHOTONICS K.K.
PRO FORMA SPECIFICATION SHEET
(TRIAL PRODUCT)

CW Laser Diode

TYPE No. LE1451CWLD

The document contains information that is CONFIDENTIAL and proprietary to Hamamatsu Photonics K.K. It is not intended to for transmission to, or receipt by, any unauthorized persons.

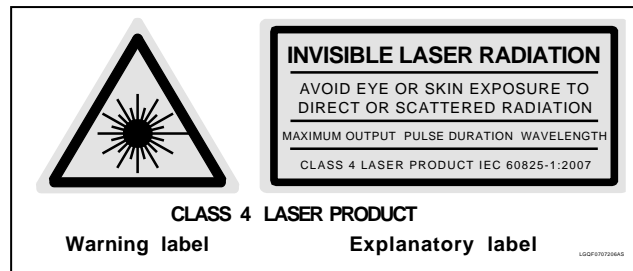
HAMAMATSU

様式-LAA-Q0060

WARNING (CLASS 4 LASER)

Invisible Laser Radiation – Avoid Eye or Skin Exposure to Direct or Scattered Radiation

- The Laser emits invisible laser radiation. The instrument which uses the LASER, operated under ordinary conditions, is classified as Class 4 according to the laser product classification code IEC 60825-1.
See IEC 60825-1 for more details concerning the above countermeasures.



WARNING

- This delivery specification is not for the purpose of guarantee the perfection of the product. When the product is used in an instrument which may damage body of lives or properties, it is dangerous to operate the instrument unless proper safety measures are taken for the probable defects of the product.

CAUTION

- This product is bare chip. Dust, expiration, fingerprints, sputum, condensation, and fracture may lead LD performance degradation. This product is incorporated into the instrument, keep the LD in an airtight container; do not expose it to the air and keep it away from contact with dust.

PRO FORMA SPECIFICATION

1. Scope of Application

These PRO FORMA specifications apply to TRIAL PRODUCTS of the laser bare chip LE1451CWLD delivered to HAMAMATSU PHOTONICS (CHINA) Co., Ltd. These specifications were decided by the evaluation results of the laser bare chip assembled on a submount and a copper heatsink(F-mount). Therefore, there is a possibility that some of the specifications may change after evaluating the trial products. And also there is a possibility that some of the specifications may change depending on a method of assembly. These devices are trial products and under development.

We have not yet made any tests for reliability assurance. Therefore, any claims based on defects nor product liability should not be discussed about these trial products. For request of repeat production, there will be a possibility of changing specifications and its type number.

2. Ratings and Characteristics(Tentative)

2-1. Absolute Maximum Ratings

Absolute maximum ratings are limiting values that must not be exceeded even momentarily.

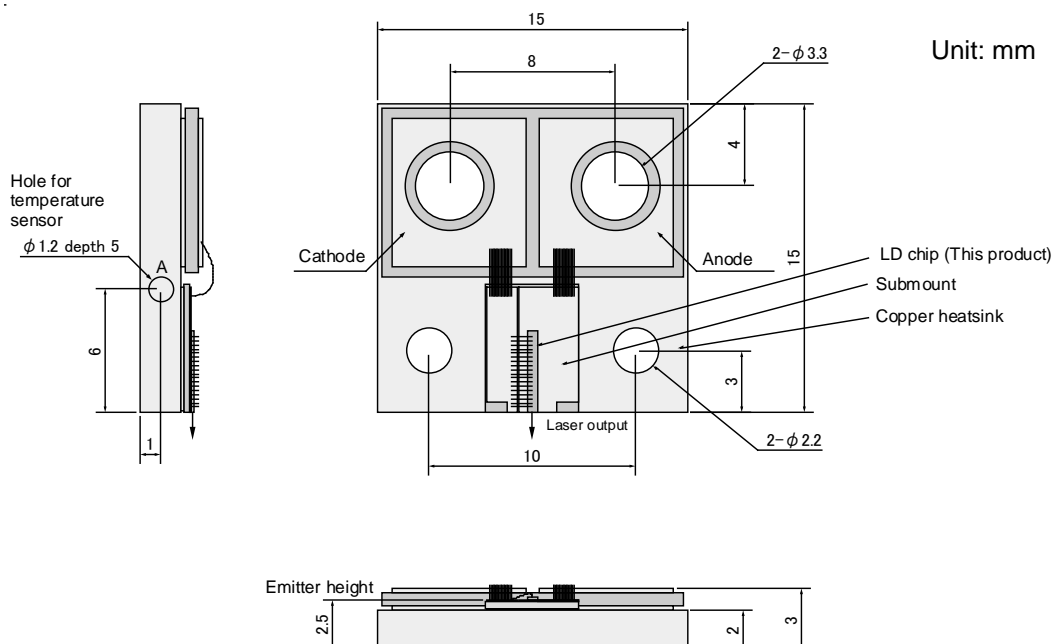
$T_{op(c)} = +25\text{ }^{\circ}\text{C}$, unless otherwise specified.

Characteristic	Symbol	Rating	Unit
Radiant Output Power	Φ_e	15	W
Forward current	I_f	16	A
Reverse voltage	V_r	2	V
Operating temperature ^{NOTE}	$T_{op(c)}$	+15 to +50	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-40 to +80	$^{\circ}\text{C}$

NOTE The temperature of F-mount when the laser bare chip in mounted onto our F-mount.

In other words, the temperature having been measured with a temperature sensor which is inserted into Hole A in the reference illustration.

<Reference illustration>



Page 2	Type No.	Doc. No.
Pro Forma	LE1451CWLD	LAA2B2139

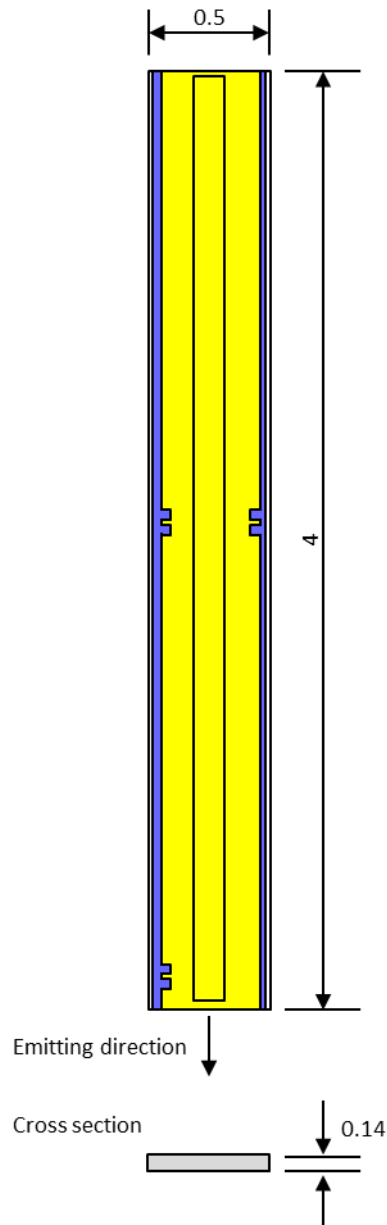
2-2. Electrical and Optical Characteristics ($T_{op(e)} = 25\text{ }^{\circ}\text{C}$)

Characteristic		Symbol	Condition	Min.	Typ.	Max.	Unit
Lasing threshold current		I_{th}	—	—	0.6	0.9	A
Operating current		I_{op}	$\Phi_e = 14\text{ W}$	—	14	15.5	A
Operating voltage		V_{op}	$\Phi_e = 14\text{ W}$	—	1.8	2	V
Central emission wavelength		λ_c	$\Phi_e = 14\text{ W}$	905	915	925	nm
Spectral radiation half bandwidth		$\Delta\lambda$	$\Phi_e = 14\text{ W}$ FWHM	—	4	6	nm
Beam spread angle	Horizontal	$\theta_{//}$	$\Phi_e = 14\text{ W}$ FWHM	—	9	12	° (degree)
	Vertical	θ_{\perp}		—	26	30	
Emitting width		W	Design value	—	95	—	μm

Dimensional Outline

P-side top view

Unit : mm



※ The light emitting direction is displayed on the packing case.

Page 4	Type No. LE1451CWLD	Doc. No. LAA2B2139
Pro Forma		

3. Delivery method

This product is delivered in a laser bare chip. This product is put into GELPAK

4. Warranty

This product is laser bare chip. So, we guarantee the quality till just delivering the product to a customer. Do not use these trial products for the customer's product to be shipped to any third parties.

5. Handling Precautions

●Handling the laser bare chip

When handling the laser bare chip, dust, expiration, fingerprints, sputum, condensation, and fracture may lead laser bare chip performance degradation. The following countermeasures should be taken:

- Keep the laser bare chip in an airtight container; do not expose it to the air and keep it away from contact with dust. The air in the container should be kept dry (humidity: less than 40 %).
- Handle the laser bare chip in a clean room and keep it away from expiration, fingerprints, sputum, and solvents until the installation in the airtight container is completed.
- Do not touch or drop the laser bare chip. Do not clean the laser bare chip in any method.

●Protection against Electrostatic Discharges

The laser bare chip is an Electrostatic-Discharge Sensitive (ESDS) device that may be damaged or deteriorated by electrostatic discharges. When handling the laser bare chip, ensure the following measures are taken:

- The conductive sheet which is electrically grounded through 1 MΩ resistor should be laid on all work tables and floors of the work area.
- Operators should wear wrist straps and conductive fingerstalls grounded through 1 MΩ resistor.
- Remove the laser bare chip from GELPAK under the ionizer.