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Laser Diode

Panasonic

# LNCT28PF01WW

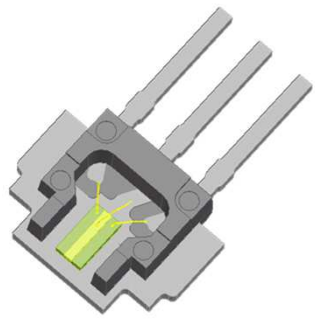
## Description

LNCT28PF01WW is a MOCVD fabricated 660nm and 780nm band dual wavelength laser diode with multi quantum well structure , adapting open type frame package to reduce the size and weight.

## Feature

- Dual wavelength: 661 nm (typ) and 783 nm (typ)
- High output power: 300 mW (pulse) for Red and 380 mW (pulse) for IR
- Package : Flat package
- Operating temperature : Max. +85°C

Package



## Application

- Optical disk drive
- Sensing
- Industrial use

## Absolute Maximum Ratings 3)

| LD | Item | Symbol | Value | Unit | Condition |
|---|---|---|---|---|---|
| RED | Output power | Po | 100 | mW | CW |
| | | | 300 | mW | pulse 1) |
| | Reverse voltage | Vr | 1.5 | V | CW |
| | Operating case temperature | Tc | –10 to +85 | °C | CW/pulse |
| IR | Output power | Po | 200 | mW | CW |
| | | | 380 | mW | pulse 2) |
| | Reverse voltage | Vr | 1.5 | V | CW |
| | Operating case temperature | Tc | –10 to +85 | °C | CW/pulse |
| | Storage temperature | Tstg | –40 to +85 | °C | |

Note) 1) Pulse width ≤ 30 ns, duty ≤ 33% for RED-LD
2) Pulse width ≤ 100 ns, duty ≤ 50% for IR-LD
3) These ratings are guaranteed only when RED-LD or IR-LD is turned on individually.

## Electrical and Optical Characteristics

T=25°C, CW, Po=90 mW for RED-LD, 175 mW for IR-LD

| LD | Item | | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|---|---|
| RED | Threshold current | | Ith | - | 50 | 80 | mA | |
| | Operating current | | Iop | - | 128 | 180 | mA | |
| | Operating voltage | | Vop | - | 2.4 | 3.0 | V | |
| | Wavelength | | λ | 656 | 661 | 665 | nm | |
| | Beam Divergence | Parallel | θh | 7.5 | - | 13.0 | deg | FWHM |
| | | Perpendicular | θv | 13.0 | - | 19.5 | deg | FWHM |
| IR | Threshold current | | Ith | - | 45 | 70 | mA | |
| | Operating current | | Iop | - | 210 | 275 | mA | |
| | Operating voltage | | Vop | - | 2.5 | 3.0 | V | |
| | Wavelength | | λ | 777 | 783 | 791 | Nm | |
| | Beam divergence | Parallel | θh | 6.0 | - | 11.5 | deg | FWHM |
| | | Perpendicular | θv | 12.0 | - | 19.0 | deg | |

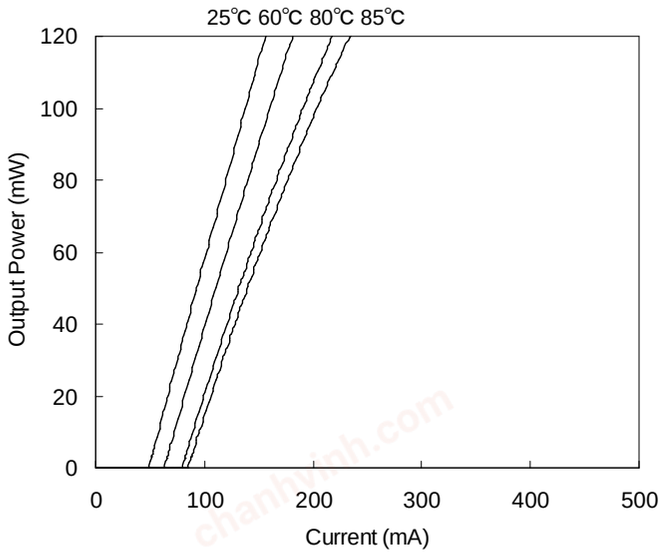
FWHM : Full width at half maximum

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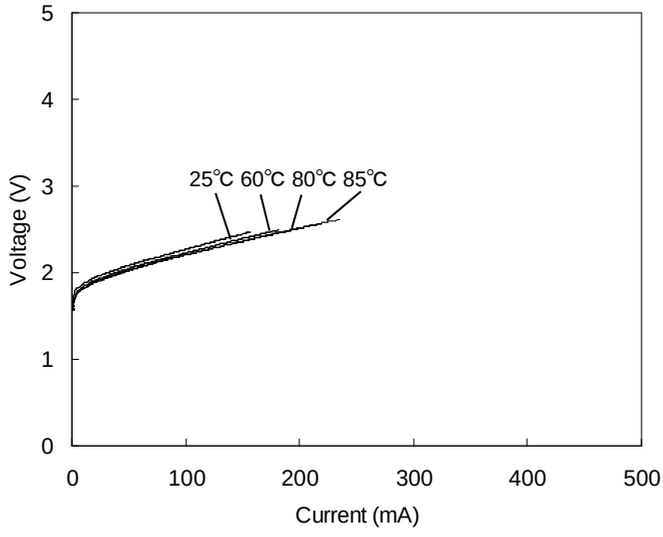


## Representative Characteristics [RED-LD]

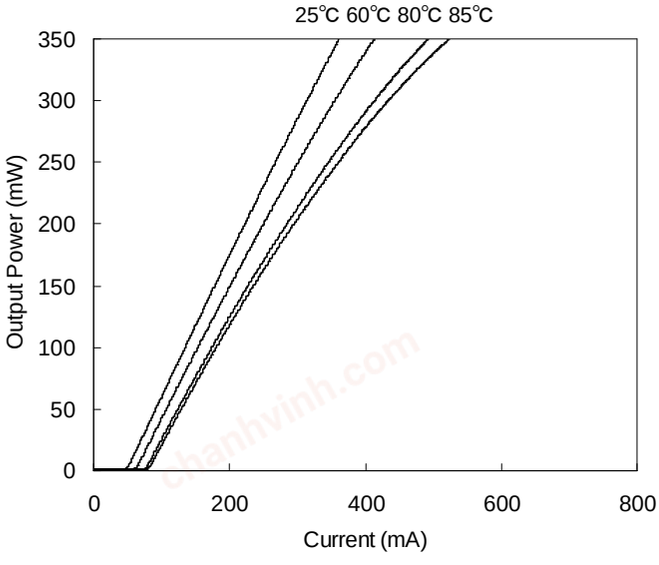
Output Power vs Current (CW)



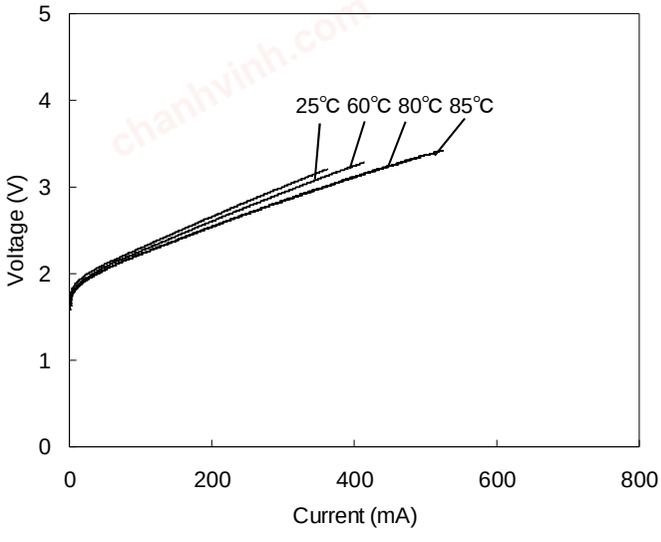

Voltage vs Current (CW)




Output Power vs Current (Pulse)




Voltage vs Current (Pulse)

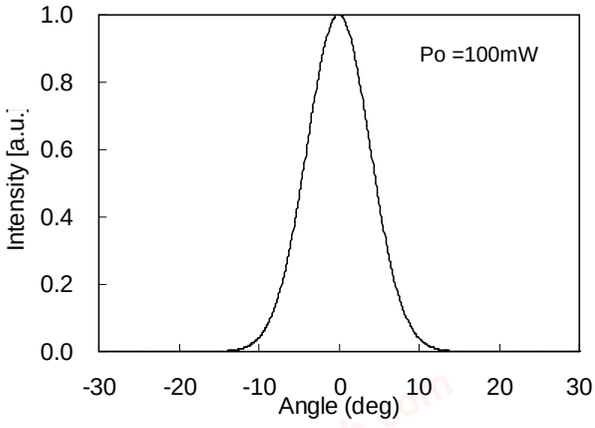


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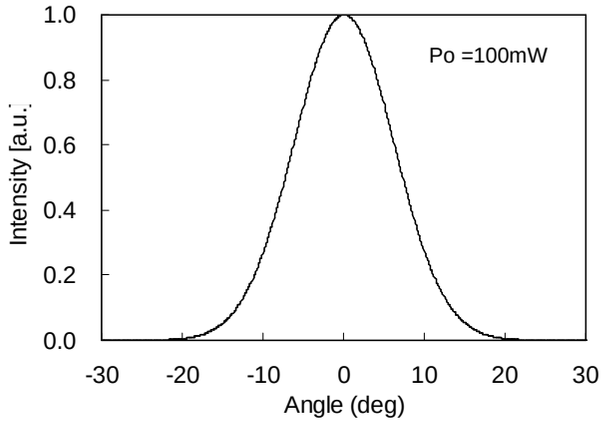


## Representative Characteristics [RED-LD]

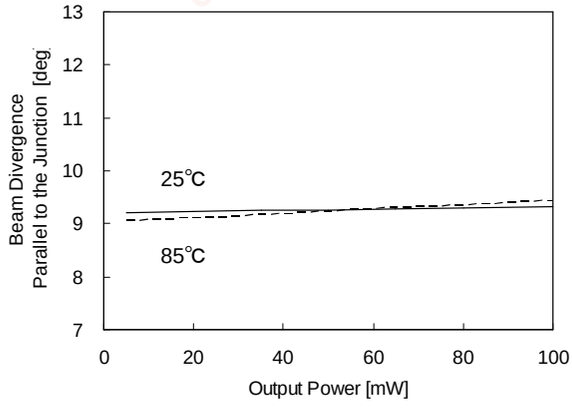
Beam Divergence
Parallel to the Junction (CW)



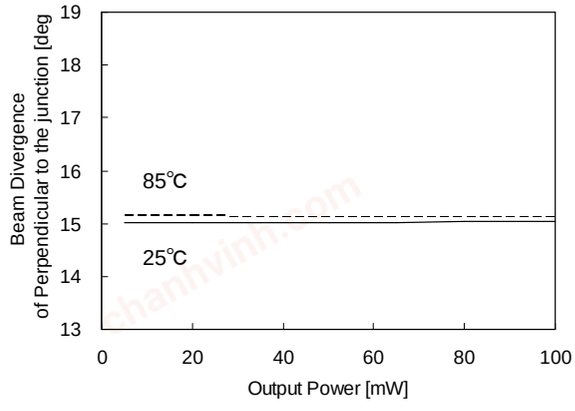

Beam Divergence
Perpendicular to the Junction (CW)



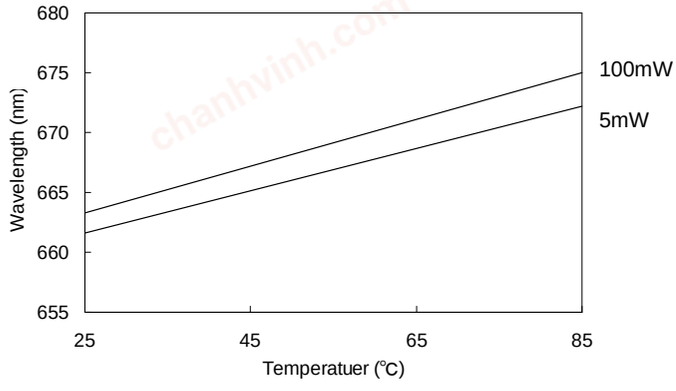

Beam Divergence of parallel
to the junction vs Output Power (CW)




Beam Divergence of Perpendicular
to the junction vs Output Power (CW)




Wavelength vs Temperature (CW)

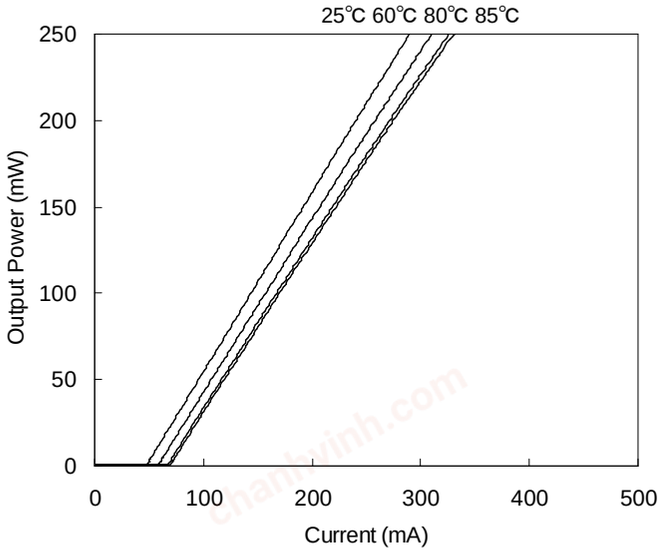


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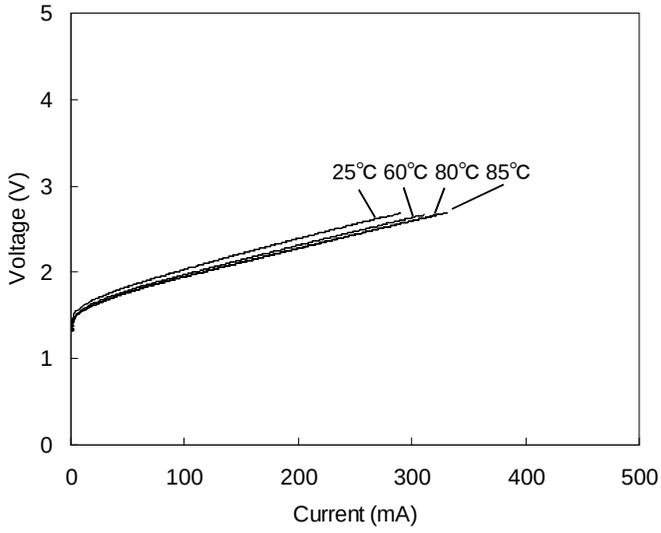


## Representative Characteristics [IR-LD]

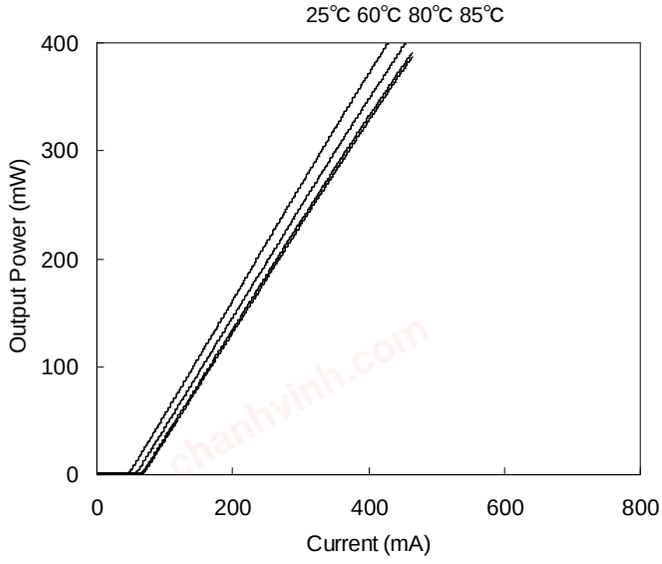
Output Power vs Current (CW)



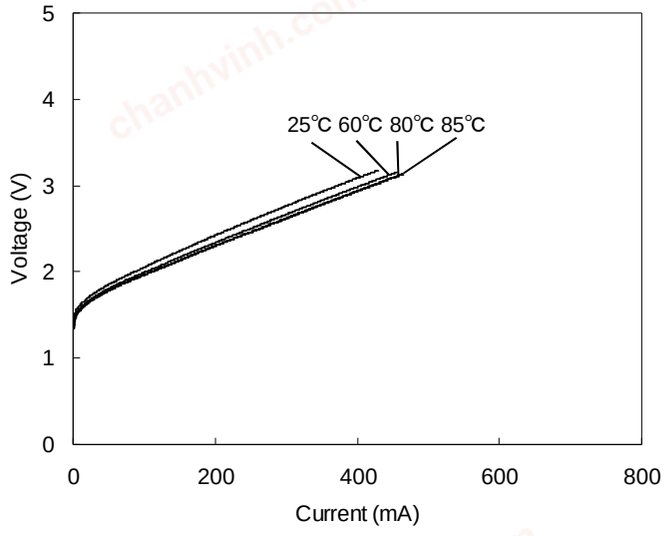

Voltage vs Current (CW)




Output Power vs Current (Pulse)




Voltage vs Current (Pulse)

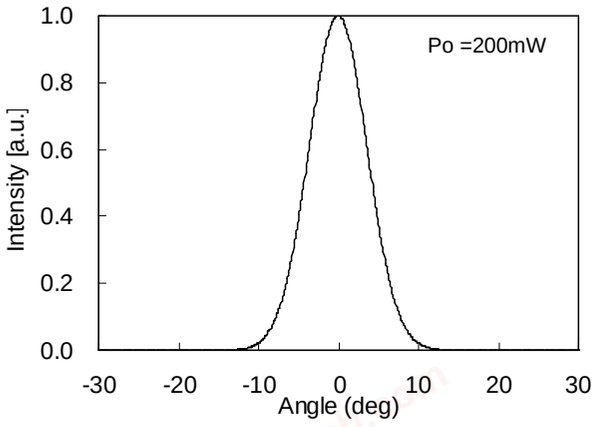


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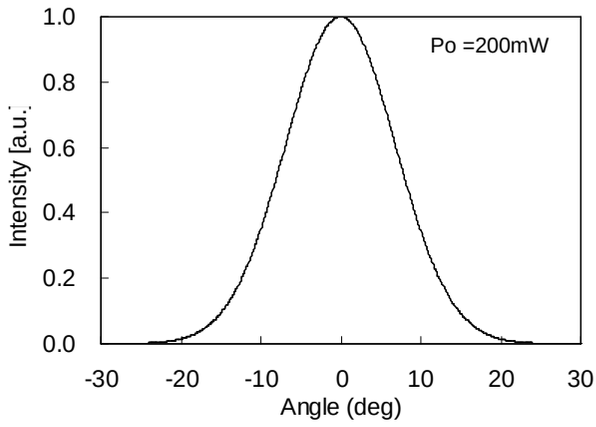


## Representative Characteristics [IR-LD]

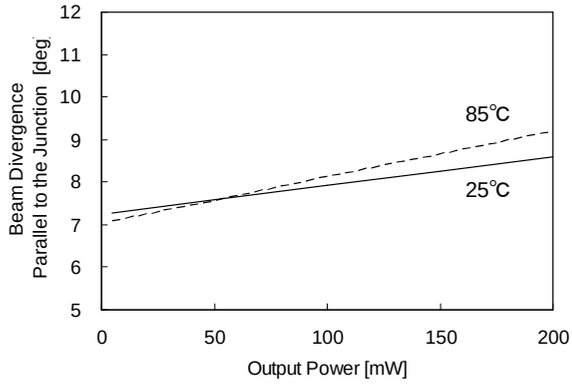
Beam Divergence
Parallel to the Junction (CW)



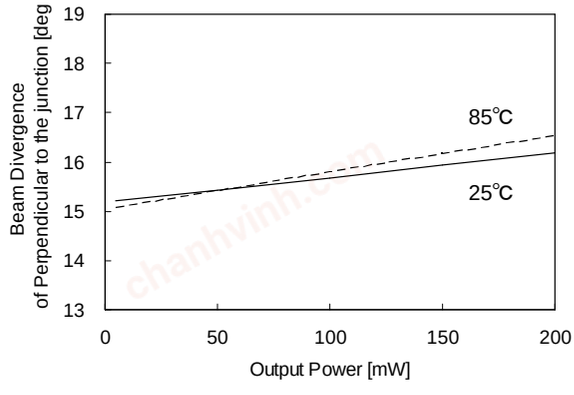

Beam Divergence
Perpendicular to the Junction (CW)



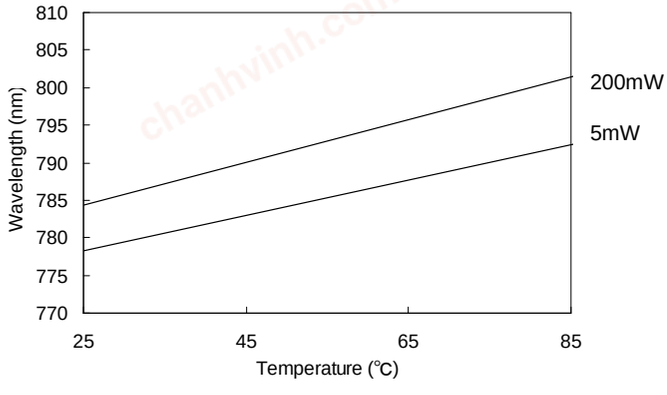

Beam Divergence of parallel
to the junction vs Output Power (CW)




Beam Divergence of Perpendicular
to the junction vs Output Power (CW)




Wavelength vs Temperature (CW)

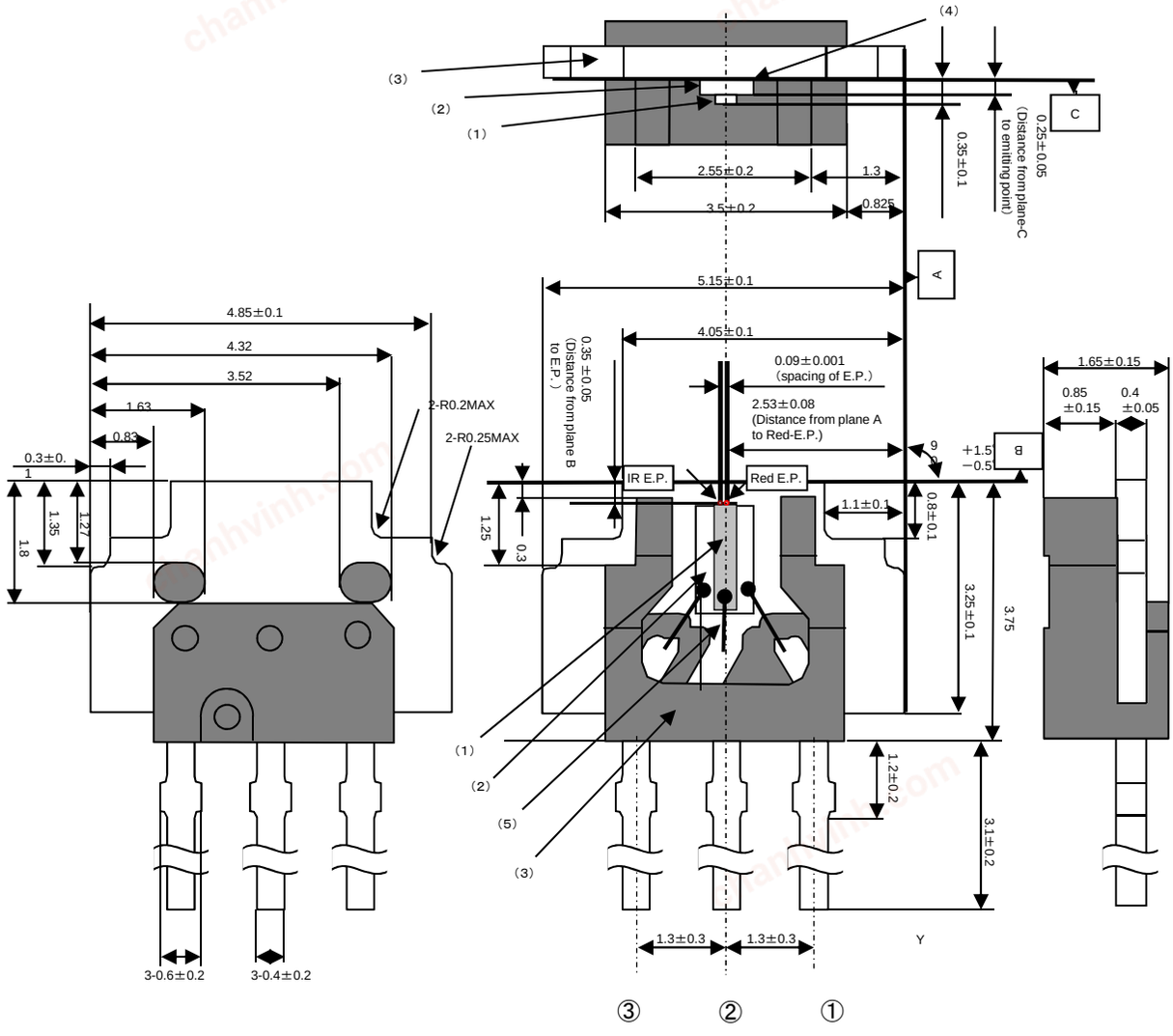


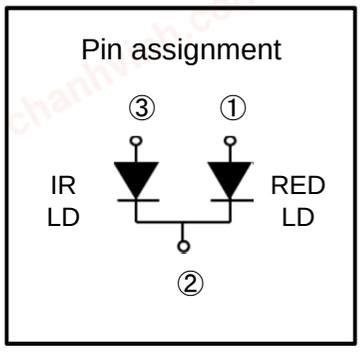
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Package Dimensions

Unit: mm




(1) LD Chip
(2) Submount
(3) Package
(4) Ag Paste
(5) Au Wire

- E.P. = Emitting point
- General corner R is 0.25mm

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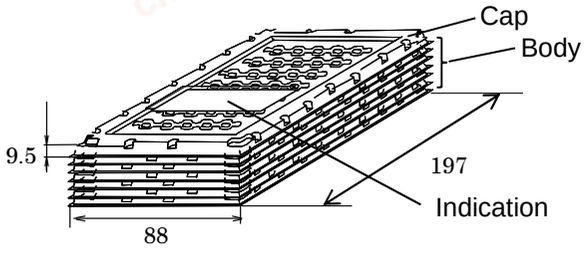


## Packing Specifications

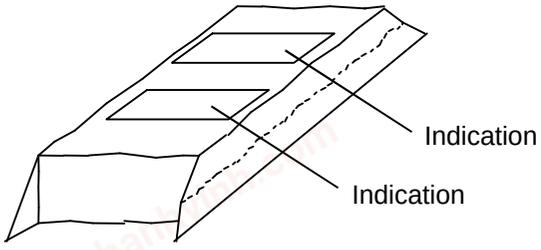
### 1 Packing Material

#### 1.1 Tray

Material：Conductive Polystyrene

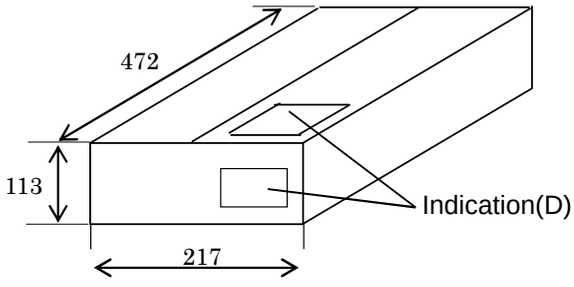



#### 1.2 Laminated Aluminum Cover



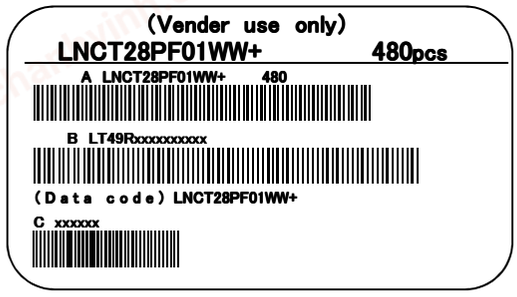

#### 1.3 Packing Case

Material: Card Board Box

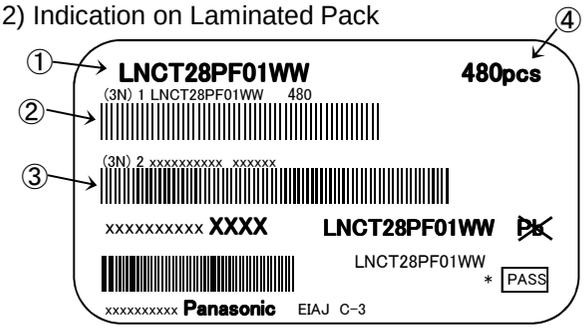


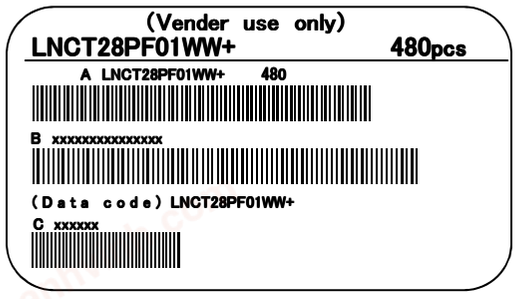

※As for label indication except ①(Order person part number),②(Order person part number and Quantity),③(Serial number and Corporate code),④(Quantity),the information only for our process control, therefore please note that revision without notice might be done due to improvement etc.

1) Indication on Top Tray

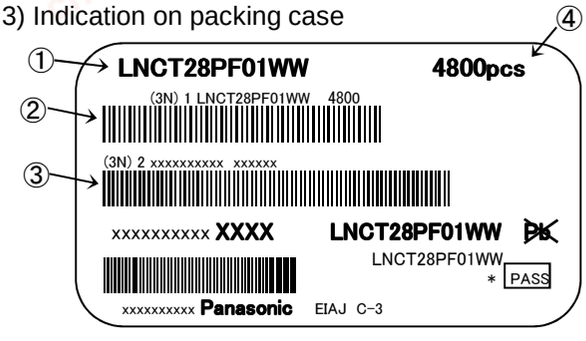



2) Indication on Laminated Pack




3) Indication on packing case




### 2 Packaging Quantity

| Form | Quantity | Contents | Note |
|---|---|---|---|
| Tray | n=80 | -- | -- |
| Laminated Aluminum Cover | n=480 | Tray: 7（Body + Cap） | Wrap The Product and The Desiccant |
| Packing Case | n=4800 | Aluminum Pack 10 | -- |

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## Warning

■ Laser class
This product is ranked in class IIIb laser according to IEC60825-1 and JIS standard 6802 “Laser Product Emission Safety Standards”, so that safety protection is necessary when laser beam is radiated.

## Cautions

■ Flat package laser diode (FLD)
This product is adopting open type plastic package for the reduction of size and weight, so please take care of dust and touching laser diode with tweezers.

■ Prevention of Electrostatic discharge (ESD) and surge stress
Semiconductor laser diode is sensitive device to ESD and surge, so that sufficient cautions are needed. If electric pulses that may cause emission are inputted, the laser itself will be damaged by light intensity and will bring the laser diode degradation in a short time. Therefore, taking all possible measures against ESD and surge for FLD usage is strongly requested.

■ Heat sink design
If case temperature becomes higher, the life of semiconductor laser diode becomes shorter. So it is important that design for heat radiation is appropriated. Especially it is effective to make the heat radiation from metal moiety of the package back side, locating under the submount and laser diode.

■ Precaution at soldering
When soldering, please give attention to the mechanical stress and the temperature because of using Ag paste. Temperature of die-pad portion should be less than 200℃. It is recommended to radiate heat by putting heat sink on the package.

・Soldering temperature and time
・Temperature : Less than 360°C（FLD only）
Less than 380°C（FLD with holder for heat radiation）
・Time : Within 5sec (Recommend within 3sec)

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# ⚠ Caution for Safety

| | |
|---|---|
| ⚠DANGER | Do not touch or look into the laser beam directly.<br>The laser beam may cause injury to the eye or skin, or loss of eyesight. |

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(6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. We do not guarantee quality for disassembled products or the product re-mounted after removing from the mounting board.
When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.

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