

## **Notification about the transfer of the semiconductor business**

The semiconductor business of Panasonic Corporation was transferred on September 1, 2020 to Nuvoton Technology Corporation (hereinafter referred to as "Nuvoton"). Accordingly, Panasonic Semiconductor Solutions Co., Ltd. became under the umbrella of the Nuvoton Group, with the new name of Nuvoton Technology Corporation Japan (hereinafter referred to as "NTCJ").

In accordance with this transfer, semiconductor products will be handled as NTCJ-made products after September 1, 2020. However, such products will be continuously sold through Panasonic Corporation.

Publisher of this Document is NTCJ.

If you would find description "Panasonic" or "Panasonic semiconductor solutions", please replace it with NTCJ.

※ Except below description page

"Request for your special attention and precautions in using the technical information and semiconductors described in this book"

**Nuvoton Technology Corporation Japan**

### Description

LNCT28PS01WW is a MOCVD fabricated 660nm and 780nm band dual wavelength laser diode with multi quantum well structure, using TO-56 CAN package to ensure versatile use.

### Features

- Dual wavelength: 661 nm (typ) and 783 nm (typ)
- High output power and temperature: 300 mW, Max+85°C (pulse) for RED  
350 mW, Max+75°C (pulse) for RED  
380 mW, Max+85°C (pulse) for IR
- Package: TO-56 CAN

### Applications

- Optical disk drive
- Sensing
- Analysis
- Measurement
- Agriculture
- Other industrial use

Package



### Absolute Maximum Ratings <sup>4)</sup>

LD	Item	Symbol	Value	Unit	Condition
RED	Output power	Po	100	mW	CW
			300	mW	pulse <sup>1)</sup>
			350	mW	pulse <sup>2)</sup>
	Reverse voltage	Vr	1.5	V	CW
	Operating case temperature	Tc	-10 to +85	°C	CW/pulse <sup>1)</sup>
IR	Output power	Po	200	mW	CW
			380	mW	pulse <sup>3)</sup>
	Reverse voltage	Vr	1.5	V	CW
		Operating case temperature	Tc	-10 to +85	°C
	Storage temperature	Tstg	-40 to +85	°C	

Note) 1) Pulse width  $\leq 40$  ns, duty  $\leq 33\%$  for RED-LD

2) Pulse width  $\leq 40$  ns, duty  $\leq 33\%$  for RED-LD, Operating case temperature condition: -10~+75°C

3) Pulse width  $\leq 100$  ns, duty  $\leq 50\%$  for IR-LD

4) These ratings are guaranteed only when RED-LD or IR-LD is turned on individually.

### Electrical and Optical Characteristics

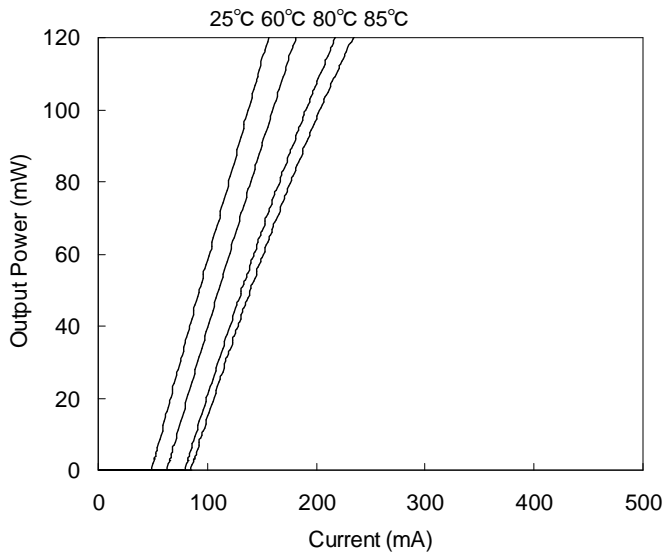
T=25°C, CW, Po=90 mW for RED-LD, 175 mW for IR-LD

LD	Item	Symbol	Min.	Typ.	Max.	Unit	Condition
RED	Threshold current	Ith	35	50	70	mA	
	Operating current	Iop	110	128	165	mA	
	Operating voltage	Vop	2.0	2.4	3.0	V	
	Wavelength	$\lambda$	656	661	665	nm	
	Beam Divergence	Parallel	$\theta_h$	7.5	9.0	13.0	deg
Perpendicular		$\theta_v$	13.0	15.0	19.5	deg	FWHM
IR	Threshold current	Ith	30	45	65	mA	
	Operating current	Iop	180	210	265	mA	
	Operating voltage	Vop	2.0	2.5	3.0	V	
	Wavelength	$\lambda$	777	783	791	Nm	
	Beam divergence	Parallel	$\theta_h$	6.0	8.5	11.5	deg
Perpendicular		$\theta_v$	12.0	16.0	19.0	deg	FWHM

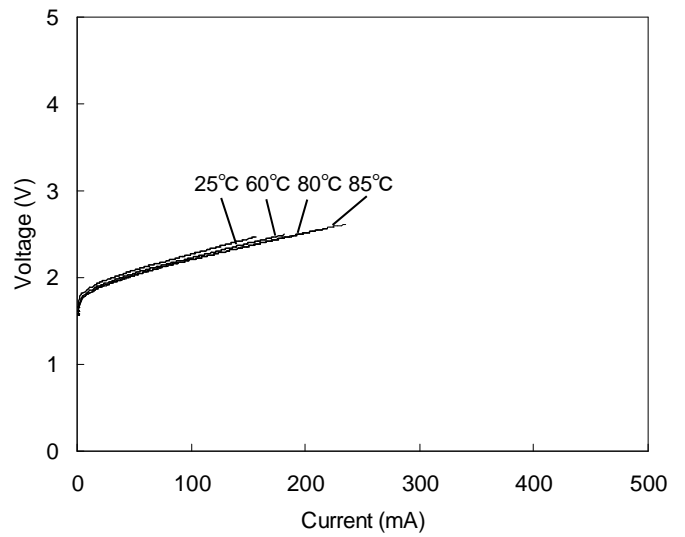
FWHM: Full width at half maximum

Typical Characteristics [RED-LD]

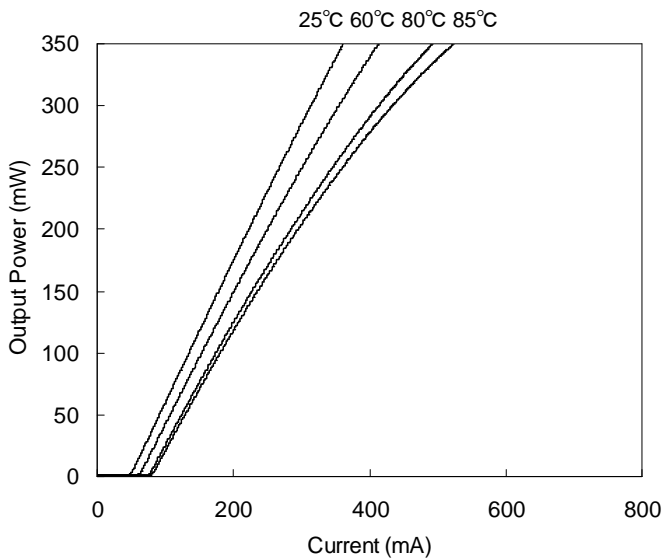
Output Power vs Current (CW)



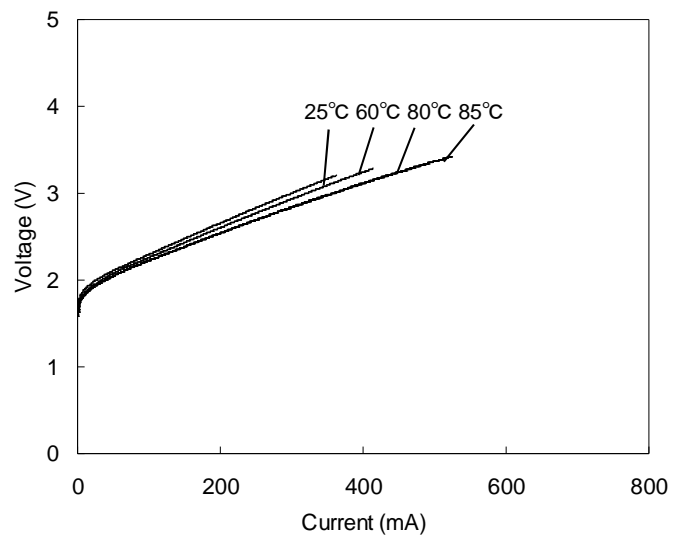
Voltage vs Current (CW)



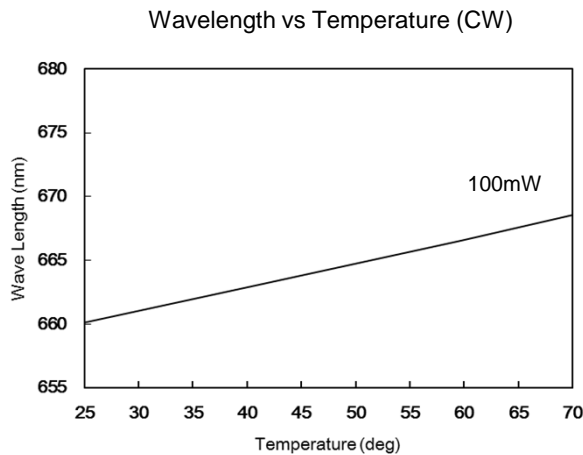
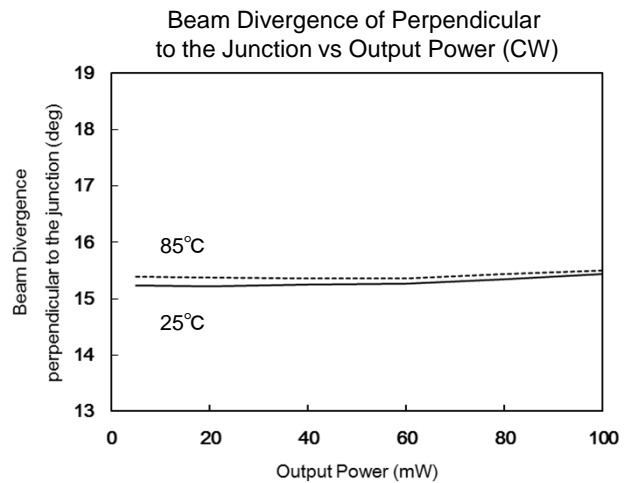
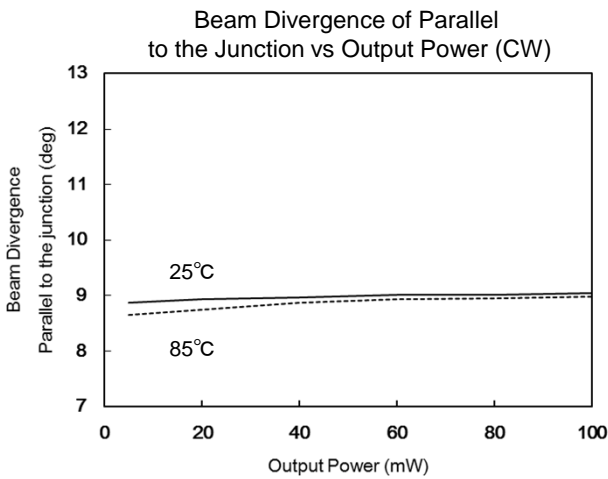
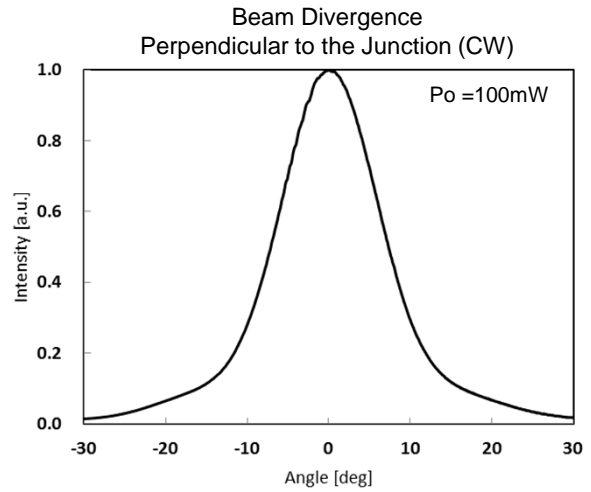
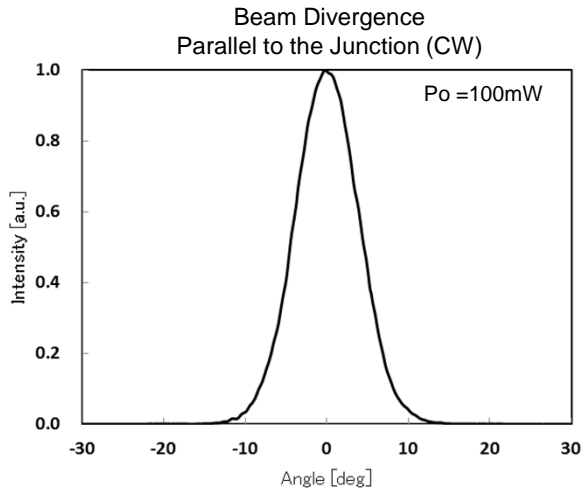
Output Power vs Current (Pulse)



Voltage vs Current (Pulse)

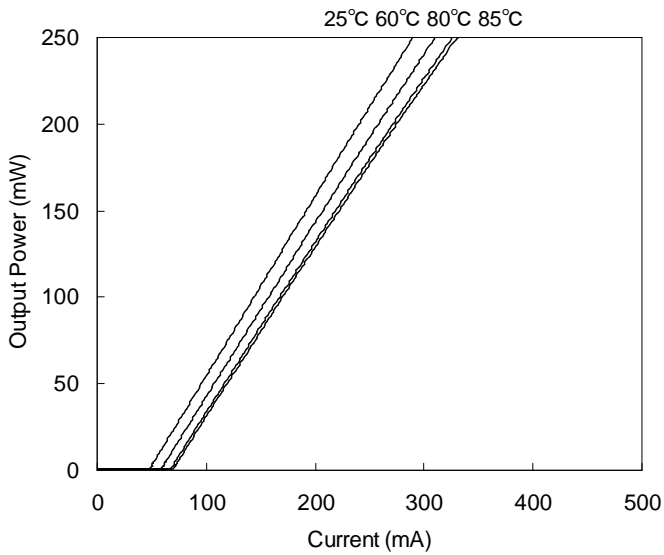


Typical Characteristics [RED-LD]

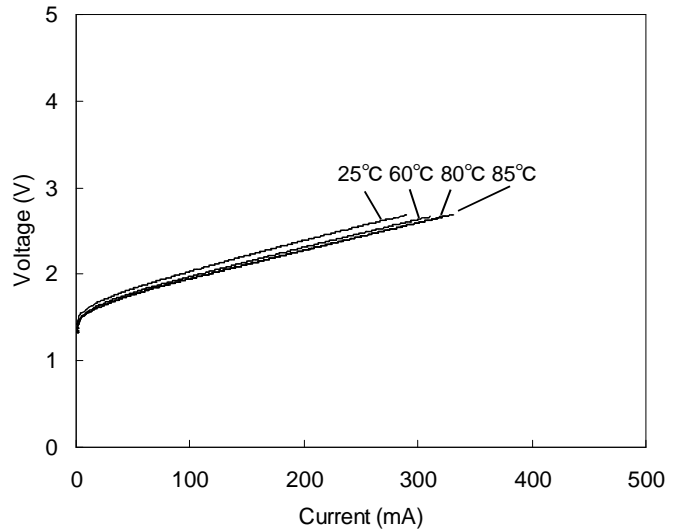


Typical Characteristics [IR-LD]

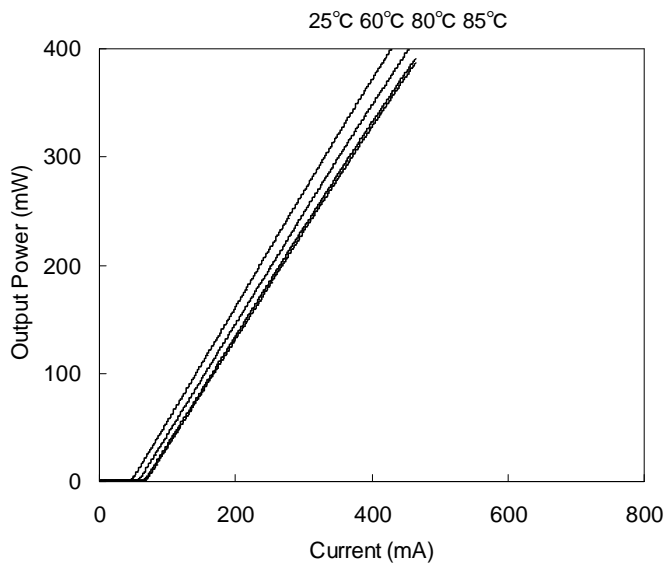
Output Power vs Current (CW)



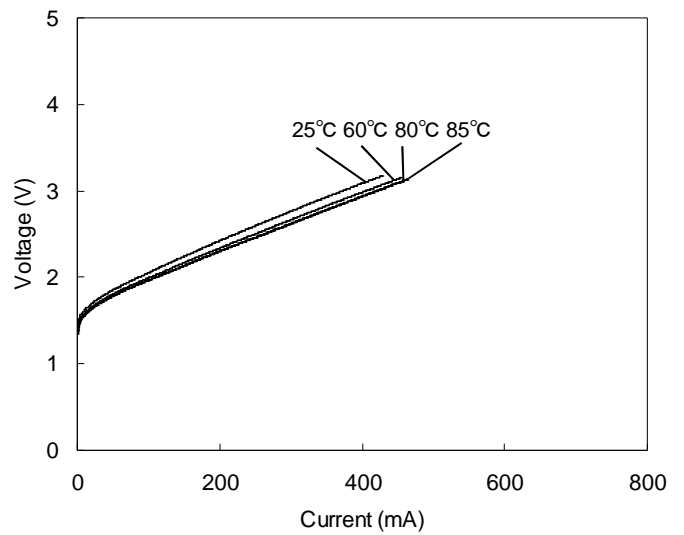
Voltage vs Current (CW)



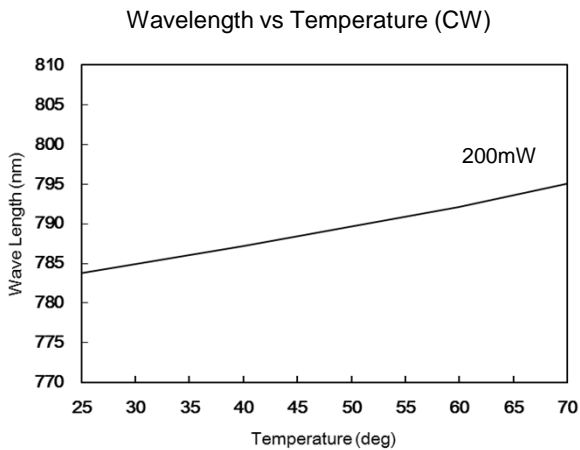
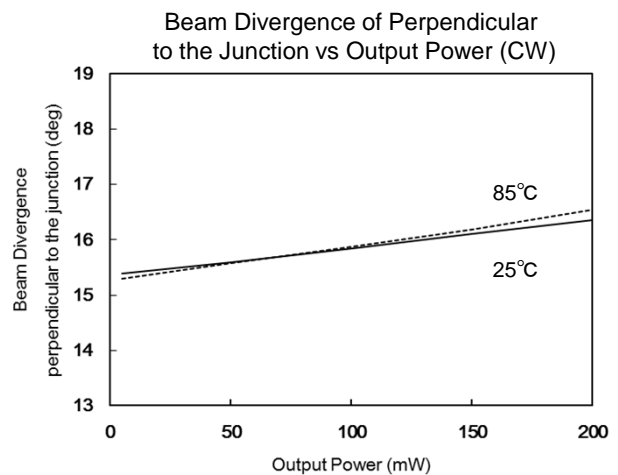
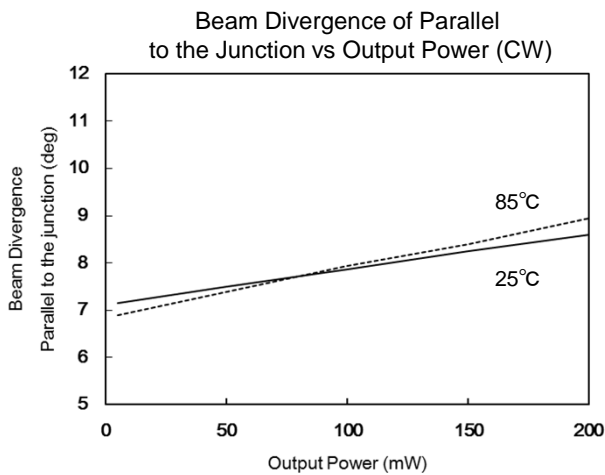
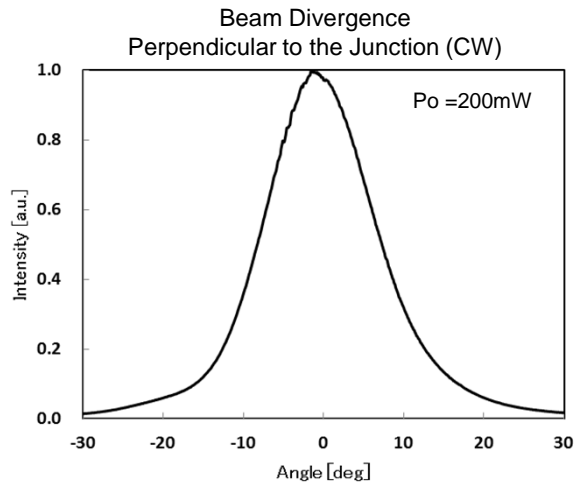
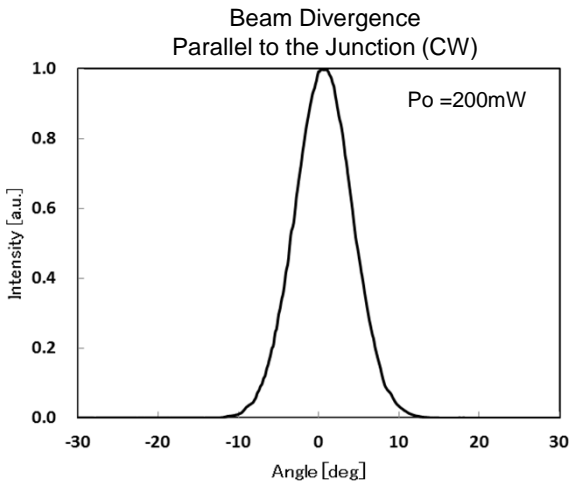
Output Power vs Current (Pulse)



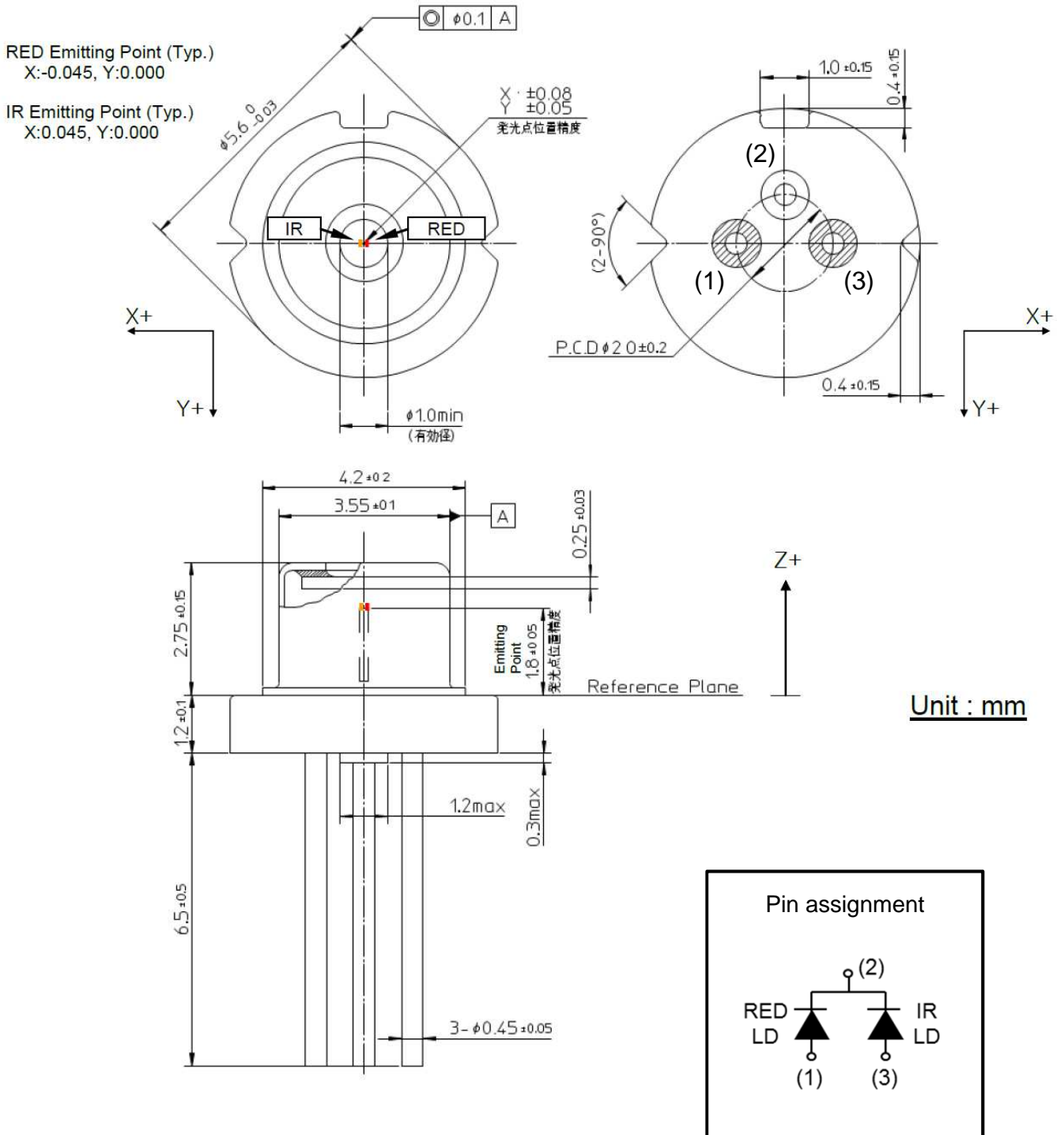
Voltage vs Current (Pulse)



Typical Characteristics [IR-LD]



### Package Dimensions



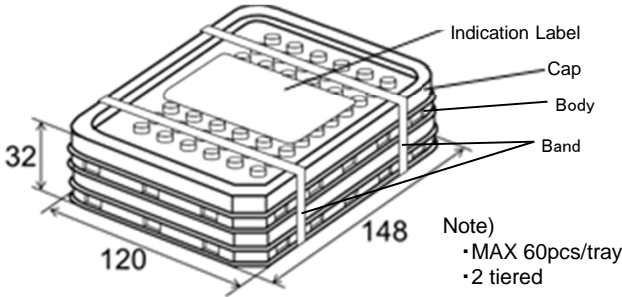
Note)  
 1. X-Y tolerance of lead is specified on the package bottom plane.

### Packing Specifications

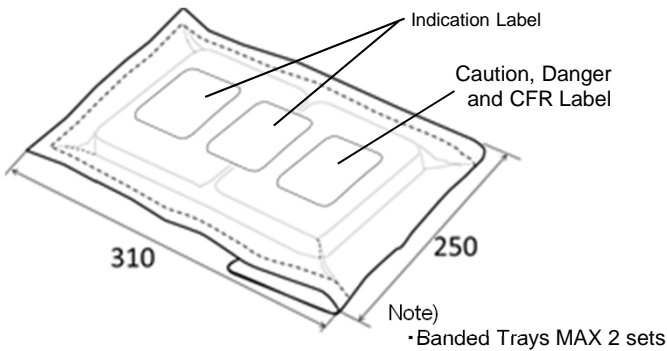
1 Packing Material

1.1 Tray

Material: PS Conductive (Black)

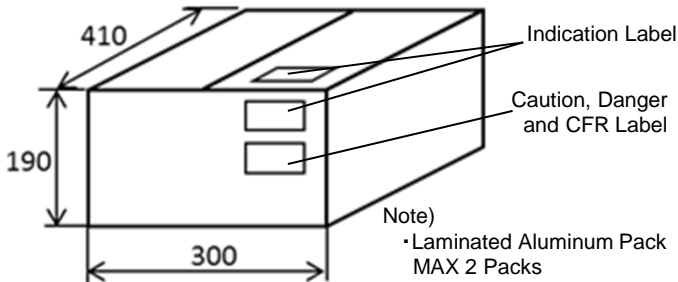


1.2 Laminated Aluminum Pack



1.3 Packing Case

Material: Corrugated fiber board

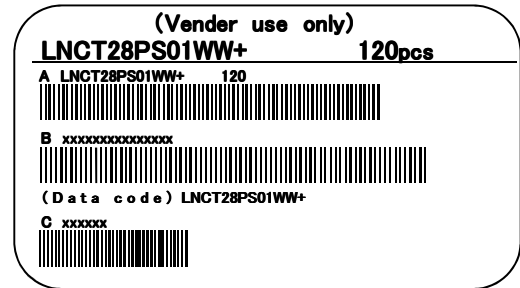


※As for label indication except ①(Order person part number), ②(Order person part number and Quantity), ③(Serial number and Corporate code), and ④(Quantity), the information only for our process control. Therefore, revision might be done for improvement without notice.

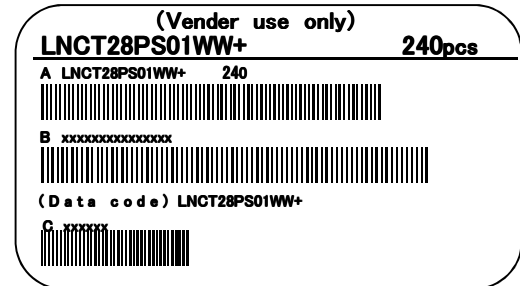
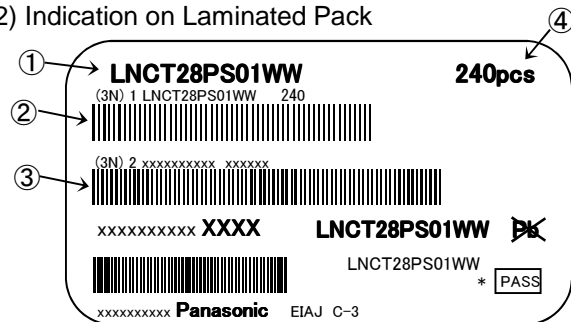
### 2 Packaging Quantity

Form	Quantity	Contents
Tray	n=60	--
Laminated Aluminum Pack	n=240	Tray: 4
Packing Case	n=240 to 1920	Aluminum Pack: 1 to 8

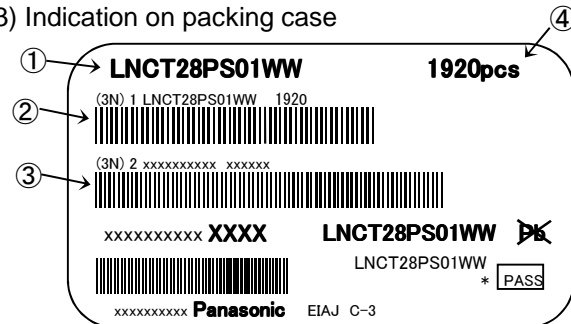
### 1) Indication on Top Tray



### 2) Indication on Laminated Pack



### 3) Indication on packing case





## Warning

### ■ Laser class

This product is ranked "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

### ■ TO-56 CAN packaged laser diode

This product uses a TO-56 CAN package to ensure versatile use.

### ■ Prevention of Electrostatic discharge (ESD) and surge stress

Semiconductor laser diode is a device sensitive to ESD and surge, so that sufficient cautions are needed. If electrostatic discharge is applied to a laser diode, intensive light emission may occur instantaneously, leading to the potential for catastrophic damage in the laser diode or degradation of the laser diode in a short time.

Therefore, taking all possible measures against ESD and surge for usage of CAN packaged laser diode is strongly requested.

### ■ Heat sink design

As case temperature becomes higher, the life of semiconductor laser diode becomes shorter. So appropriate heat dissipation design is required. Especially it is effective to make a thermal connection to the highly thermally conductive heat sink at the base plate of a TO56 package.

### ■ Precautions for soldering

Excess heating to laser diode package during soldering may affect eutectic solder and/or laser diode itself. Soldering must be done as quickly as possible with controlling the heating temperature. Lead(terminal) soldering with appropriate cooling time is strongly recommended. Also, soldering position of lead(terminal) is recommended to be more than 2mm away from the package body.

- Soldering temperature: below 350°C
- Heating period: within 3 s
- Soldering position: 2mm away from the package body



# Caution for Safety



**DANGER**

Do not touch or look into the laser beam directly.

The laser beam may cause injury to the eye or skin, or loss of eyesight.

## Request for your special attention and precautions in using the technical information and semiconductors described in this book

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Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.
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