Laser Diode
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

Application
- Optical disk drive
- Sensing
- Industrial use

Absolute Maximum Ratings 3)

<table>
<thead>
<tr>
<th>LD</th>
<th>Item</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>Output power</td>
<td>Po</td>
<td>100</td>
<td>mW</td>
<td>CW</td>
</tr>
<tr>
<td></td>
<td>Reverse voltage</td>
<td>Vr</td>
<td>1.5</td>
<td>V</td>
<td>CW</td>
</tr>
<tr>
<td></td>
<td>Operating case temperature</td>
<td>Tc</td>
<td>−10 to +85°C</td>
<td>CW/pulse</td>
<td></td>
</tr>
<tr>
<td>IR</td>
<td>Output power</td>
<td>Po</td>
<td>300</td>
<td>mW</td>
<td>pulse 1)</td>
</tr>
<tr>
<td></td>
<td>Reverse voltage</td>
<td>Vr</td>
<td>1.5</td>
<td>V</td>
<td>CW</td>
</tr>
<tr>
<td></td>
<td>Operating case temperature</td>
<td>Tc</td>
<td>−10 to +85°C</td>
<td>CW/pulse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Storage temperature</td>
<td>Tstg</td>
<td>−40 to +85°C</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

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

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

FWHM: Full width at half maximum

Publication date: August 2013
Ver. AEK
Representative Characteristics [RED-LD]

Output Power vs Current (CW)

Voltage vs Current (CW)

Output Power vs Current (Pulse)

Voltage vs Current (Pulse)
Representative Characteristics [RED-LD]

![Graph 1: Beam Divergence Parallel to the Junction (CW)]

![Graph 2: Beam Divergence Perpendicular to the Junction (CW)]

![Graph 3: Beam Divergence of parallel to the junction vs Output Power (CW)]

![Graph 4: Beam Divergence of Perpendicular to the junction vs Output Power (CW)]

![Graph 5: Wavelength vs Temperature (CW)]
Representative Characteristics [IR-LD]

Output Power vs Current (CW)

25°C 60°C 80°C 85°C

Output Power (mW)

Current (mA)

Voltage vs Current (CW)

25°C 60°C 80°C 85°C

Voltage (V)

Current (mA)

Output Power vs Current (Pulse)

25°C 60°C 80°C 85°C

Output Power (mW)

Current (mA)

Voltage vs Current (Pulse)

25°C 60°C 80°C 85°C

Voltage (V)

Current (mA)
Representative Characteristics [IR-LD]

**Beam Divergence**
- Parallel to the Junction (CW)
  - Po = 200 mW

**Beam Divergence**
- Perpendicular to the Junction (CW)
  - Po = 200 mW

**Beam Divergence of parallel to the junction vs Output Power (CW)**
- 85°C
- 25°C

**Beam Divergence of Perpendicular to the junction vs Output Power (CW)**
- 85°C
- 25°C

**Wavelength vs Temperature (CW)**
- 200 mW
- 5 mW

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Laser Diode

LNCT28PF01WW

Ver. AEK
Packag Dimensions

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

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

1. **Packing Material**
   1.1 **Tray**
   
   **Material**: Conductive Polystyrene
   
   **Size**: 9.5 x 88 x 197
   
   **Indication**: 
   
   1.2 **Laminated Aluminum Cover**
   
   **Indication**: 
   
   1.3 **Packing Case**
   
   **Material**: Card Board Box
   
   **Size**: 472 x 113 x 217
   
   **Indication (D)**

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

**1) Indication tray**

![Label Image] (Vendor use only)

- A: LNCT28PF01WW
- B: LT48R

(Data code) LNCT28PF01WW+

![Barcode Image]

**2) Indication cover**

![Label Image] (Vendor use only)

- A: LNCT28PF01WW
- B: LT48R

(Data code) LNCT28PF01WW+

![Barcode Image]

**3) Indication packing case**

![Label Image] (Vendor use only)

- A: LNCT28PF01WW
- B: LT48R

(Data code) LNCT28PF01WW+

![Barcode Image]

**2) Packaging Quantity**

<table>
<thead>
<tr>
<th>Form</th>
<th>Quantity</th>
<th>Contents</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tray</td>
<td>n=80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laminated Aluminum Cover</td>
<td>n=480</td>
<td>Tray 7</td>
<td>Wrap The Product and The Desiccant</td>
</tr>
<tr>
<td>Packing Case</td>
<td>n=4800</td>
<td>Al Cover 10</td>
<td></td>
</tr>
</tbody>
</table>

Ver. AEK
Cautions

■ Laser class
This product is ranked in class IIb 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.

■ 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°C. It is recommended to radiate heat by putting heat sink on the package.

  Soldering temperature and time
  Temperature : Less than 360°C (FLD only)
  Time : Within 5sec (Recommend within 3sec)
Request for your special attention and precautions in using the technical information and semiconductors described in this book

(1) If any of the products or technical information described in this book is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially, those with regard to security export control, must be observed.

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