# Data Sheet

**HL63283HD**

637nm / 1.2W (CW) / 1.5W (Pulse) 
AlGaInP Laser Diode

## Features
- Single emitter
- Optical output power: 1.2W (CW) 
  1.5W (Pulse)
- Shorter wavelength: 637nm Typ.
- High wall plug efficiency: 40% Typ.
- High heat dissipation φ9mm CAN package
- Multi transverse mode
- TM mode oscillation

## Application
- Laser Projector
- Show Laser
- Light source of optical equipments

## Outline

```
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>φ9.0 ±0.025</td>
<td></td>
</tr>
<tr>
<td>1.0±0.1</td>
<td></td>
</tr>
<tr>
<td>0.6±0.1</td>
<td></td>
</tr>
<tr>
<td>0.6±0.1</td>
<td></td>
</tr>
<tr>
<td>6.5±0.1</td>
<td></td>
</tr>
<tr>
<td>15±0.1</td>
<td></td>
</tr>
<tr>
<td>4.254±0.36</td>
<td></td>
</tr>
</tbody>
</table>
```

(unit:mm)

## Internal Circuit

```
HL63283HD
```

1. LD
2. Emitting point

```
(φ3.7)(0.65) (90°)
```

```
φ9.0 +0 -0.025
```

```
2±0.6±0.1
```

```
4.254±0.36
```

```
(0.25)
```

```
7.27±0.2
```

```
6.64±0.1
```

```
10±0.1
```

```
1±0.1
```

```
Emitting point
```

```
[LD]
```
Absolute Maximum Ratings (Tc=25°C)

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical output power Note3)</td>
<td>Po</td>
<td>1.2</td>
<td>W</td>
</tr>
<tr>
<td>Pulse optical output power Note2) Note3)</td>
<td>Po(Pulse)</td>
<td>1.5</td>
<td>W</td>
</tr>
<tr>
<td>LD reverse voltage</td>
<td>V&lt;sub&gt;(LD)&lt;/sub&gt;</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Operating temperature Note3)</td>
<td>T&lt;sub&gt;opr&lt;/sub&gt;</td>
<td>-10 ~ +45</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>T&lt;sub&gt;stg&lt;/sub&gt;</td>
<td>-40 ~ +85</td>
<td>°C</td>
</tr>
</tbody>
</table>

Note 1) Operating temperature is defined by Case temperature “Tc”. High increase in temperature of LD chip itself is expected during operation due to high current density. Thus, without proper heat dissipation, it is observed that no specific output power is achieved or it results to LD degradation. It is advised that sufficient measure of heat dissipation should be taken so that LD’s maximum operating temperature is not exceeded during actual operation.

Note 2) Pulse condition: Pulse frequency ≥ 50Hz, duty=33%

Note 3) The relation of optical output power vs operating temperature is based on Fig.1.

Optical and Electrical Characteristics (Tc=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
<th>Test Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold current</td>
<td>I&lt;sub&gt;th&lt;/sub&gt;</td>
<td>-</td>
<td>340</td>
<td>440</td>
<td>mA</td>
<td>-</td>
</tr>
<tr>
<td>Operating current</td>
<td>I&lt;sub&gt;op&lt;/sub&gt;</td>
<td>-</td>
<td>1300</td>
<td>1600</td>
<td>mA</td>
<td>Po=1.2W</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>V&lt;sub&gt;op&lt;/sub&gt;</td>
<td>-</td>
<td>2.3</td>
<td>2.7</td>
<td>V</td>
<td>Po=1.2W</td>
</tr>
<tr>
<td>Beam divergence Parallel to the junction</td>
<td>θ//</td>
<td>3</td>
<td>10</td>
<td>20</td>
<td>°</td>
<td>Po=1.2W, FWHM</td>
</tr>
<tr>
<td>Beam divergence Perpendicular to the junction</td>
<td>θ⊥</td>
<td>23</td>
<td>33</td>
<td>43</td>
<td>°</td>
<td>Po=1.2W, FWHM</td>
</tr>
<tr>
<td>Lasing Wavelength</td>
<td>λ&lt;sub&gt;p&lt;/sub&gt;</td>
<td>632</td>
<td>637</td>
<td>641</td>
<td>nm</td>
<td>Po=1.2W</td>
</tr>
</tbody>
</table>

Note 4) Designed value
Typical Characteristic Curves

Optical output power vs. Forward current

- CW
- Pulse

Pulse optical output power vs. Forward current

- Pulse
- f=50Hz
- duty=33%

Threshold current vs. Case temperature

Slope efficiency vs. Case temperature

Threshold current $I_{th}$ (mA)

Slope efficiency $\eta_s$ (mW/mA)

Lasing wavelength vs. Case temperature

Far field pattern

Relative intensity

Lasing wavelength $\lambda_p$ (nm)

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