1. DESCRIPTION
The QLF083x series is an 830 nm quantum well laser device designed for high output power application. The laser diode is mounted into a TO-56 header including a monitor PD and hermetic sealed with a flat glass cap.

2. FEATURES
- 830 nm FP-LD
- Φ5.6mm TO-CAN package
- High output power of 210 mW and high slope efficiency
- Lateral single mode
- Including monitor PD
- Two types of pin assignments: Anode common type (QLF083A)/cathode common type (QLF083D)

3. APPLICATIONS
- Particle inspections
- Measuring instruments

4. ABSOLUTE MAXIMUM RATING
(CW operation, T_c = 25°C, unless otherwise specified)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>RATING</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical output power (CW)</td>
<td>P_o</td>
<td>220</td>
<td>mW</td>
</tr>
<tr>
<td>LD reverse voltage</td>
<td>V_RLD</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>PD reverse voltage</td>
<td>V_RPD</td>
<td>30</td>
<td>V</td>
</tr>
<tr>
<td>Operation temperature</td>
<td>T_c</td>
<td>-10 to 70</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>T_stg</td>
<td>-40 to 85</td>
<td>°C</td>
</tr>
</tbody>
</table>

Distributed by

Ohmstrasse 4  85716 Unterschleissheim  Germany
Tel.: +49 89 / 3214120  Fax: +49 89 / 32141211
www.imm-photonics.de  sales@imm-photonics.de
## 5. OPTICAL AND ELECTRICAL CHARACTERISTICS

(T_c = 25°C, unless otherwise specified)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>TEST CONDITION</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold current</td>
<td>I_{th}</td>
<td>CW</td>
<td>-</td>
<td>38</td>
<td>50</td>
<td>mA</td>
</tr>
<tr>
<td>Operation current</td>
<td>I_{op}</td>
<td>CW, P_o=210 mW</td>
<td>-</td>
<td>225</td>
<td>255</td>
<td>mA</td>
</tr>
<tr>
<td>Operation voltage</td>
<td>V_{op}</td>
<td>CW, P_o=210 mW</td>
<td>-</td>
<td>2.3</td>
<td>2.5</td>
<td>V</td>
</tr>
<tr>
<td>Slope efficiency</td>
<td>η</td>
<td>CW, P_o=5 - 210 mW</td>
<td>0.7</td>
<td>1.1</td>
<td>-</td>
<td>W/A</td>
</tr>
<tr>
<td>Monitor current</td>
<td>I_{in}</td>
<td>CW, P_o=210 mW, V_{RD}=5 V</td>
<td>100</td>
<td>410</td>
<td>600</td>
<td>µA</td>
</tr>
<tr>
<td>Peak wavelength</td>
<td>λ_{p}</td>
<td>CW, P_o=210 mW</td>
<td>815</td>
<td>830</td>
<td>845</td>
<td>nm</td>
</tr>
<tr>
<td>Far filed pattern horizontal</td>
<td>θ_h</td>
<td>CW, P_o=210 mW</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>deg.</td>
</tr>
<tr>
<td>Far filed pattern Vertical</td>
<td>θ_v</td>
<td>CW, P_o=210 mW</td>
<td>14</td>
<td>18</td>
<td>22</td>
<td>deg.</td>
</tr>
<tr>
<td>Beam angle Horizontal</td>
<td>Δθ_h</td>
<td>CW, P_o=210 mW</td>
<td>-3</td>
<td>-</td>
<td>3</td>
<td>deg.</td>
</tr>
<tr>
<td>Beam angle Vertical</td>
<td>Δθ_v</td>
<td>CW, P_o=210 mW</td>
<td>-3</td>
<td>-</td>
<td>3</td>
<td>deg.</td>
</tr>
</tbody>
</table>

### Diagrams

1. Threshold current vs. temperature
2. Operation current vs. temperature
3. Slope efficiency vs. temperature
4. Peak wavelength vs. temperature
5. Monitor current vs. temperature
6. Far field pattern horizontal vs. temperature
7. Far field pattern vertical vs. temperature
8. Beam angle horizontal vs. temperature
9. Beam angle vertical vs. temperature

Distributed by

imm photonics

Ohmstrasse 4 85716 Unterschleissheim Germany  
Tel.: +49 89 / 3214120  Fax: +49 89 / 32141211  
www.imm-photonics.de  
sales@imm-photonics.de
6. Outline Drawing

7. Notice

- Safety Information
  This product is classified as Class 3B laser product, and complies with 21 CFR Part 1040.10. Please do not take a look at laser lighting in operations since laser devices may cause troubles to human eyes. Please do not eat, burn, break and make chemical process of the products since they contain GaAs material.

- Handling products
  Semiconductor lasers are easily damaged by external stress such as excess temperature and ESD. Please pay attention to handling products, and use within range of maximum ratings. QD Laser takes no responsibility for any failure or unusual operation resulting from improper handling, or unusual physical or electrical stress.

- RoHS
  This product conforms to RoHS compliance related EU Directive 2011/65/EU.

QD Laser, Inc.
Contact: info@qdlaser.com  http://www.qdlaser.com
Copyright 2015-2016 All Rights Reserved by QD Laser, Inc.
Keihin Bldg. 1F 1-1 Minamiwatarida-cho, Kawasaki-ku, Kawasaki, Kanagawa Zip 210-0855 Japan
All company or product names mentioned herein are trademarks or registered trademarks of their respective owners. Information provided in this data sheet is accurate at time of publication and is subject to change without advance notice.