QD LASER

# QLD0561 Series

Compact Visible Laser Module with Fiber Pigtail C00123-08 February 2025

## 1. DESCRIPTION

The QLD0561 series is a visible laser module based on the frequency doubling of NIR distributed feedback (DFB) laser. The laser is assembled into a compact flat package with fiber pigtail.

## 2. FEATURES

- 532, 561 and 594nm light source
- High fiber output power (SMF/PMF)
- Low power consumption
- Low intensity noise
- Narrow spectral linewidth
- Short pulse operation
- Small size

## 3. APPLICATIONS

- Spectroscopy
- Fluorescence microscope
- Time resolved measurement
- Interferometry

## 4. ABSOLUTE MAXIMUM RATINGS

| PARAMETER | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|
| DFB forward current | | $I_{fDFB}$ | 250 | mA |
| DFB forward voltage | | $V_{fDFB}$ | 2.5 | V |
| DFB reverse voltage | | $V_{rDFB}$ | 2 | V |
| SOA forward current | | $I_{fSOA}$ | 320 | mA |
| SOA forward voltage | | $V_{fSOA}$ | 3 | V |
| SOA reverse voltage | | $V_{rSOA}$ | 2 | V |
| Fiber output power | QLD0561-xx02 | $P_f$ | 3 | mW |
| | QLD0561-xx15 | | 20 | |
| | QLD0561-xx20 | | 25 | |
| | QLD0561-xx25 | | 30 | |
| Heater power | | $P_{ht}$ | 0.3 | W |
| Module operating temperature | | $T_{op}$ | 20 to 30 | °C |
| Storage temperature | | $T_{st}$ | -10 to 50 | °C |

## 5. OPTICAL AND ELECTRICAL CHARACTERISTICS

($T_C$ = 25°C, unless otherwise specified)

| PARAMETER | | SYMBOL | CONDITION | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| DFB operation current | | $I_{opDFB}$ | CW, $P_f$= $P_{op}$ | - | 150 | 220 | mA |
| DFB operation voltage | | $V_{opDFB}$ | CW, $P_f$= $P_{op}$ | - | 1.8 | 2.4 | V |
| SOA operation current | | $I_{opSOA}$ | CW, $P_f$= $P_{op}$ | - | 200 | 320 | mA |
| SOA operation voltage | | $V_{opSOA}$ | CW, $P_f$= $P_{op}$ | - | 1.7 | 3.0 | V |
| Heater current | | $I_{heater}$ | - | 0 | - | 100 | mA |
| Heater resistance | | $R_{heater}$ | - | - | 30 | - | Ω |
| Fiber output power | QLD0561-32xx | $P_f$ | CW | 15 | - | - | mW |
| | QLD0561-61xx | | | 15 | - | - | |
| | QLD0561-94xx | | | 2 | - | - | |
| Power consumption | | $P_c$ | CW, $P_f$= $P_{op}$ | - | 0.8 | - | W |
| Peak wavelength | QLD0561-32xx | $\lambda_p$(1) | CW, $P_f$= $P_{op}$ | 530 | 532 | 534 | nm |
| | QLD0561-61xx | | | 559 | 561 | 563 | nm |
| | QLD0561-94xx | | | 592 | 594 | 596 | nm |
| Spectral linewidth | | Δλ | CW, $P_f$= $P_{op}$ | - | - | 0.1 | nm |
| Polarization extinction ratio (2) | | PER | CW, $P_f$= $P_{op}$ | 12 | - | - | dB |
| Thermistor Resistance | | $R_{th}$ | $T_C$ = 25°C, B=3375K | 9.5 | 10 | 10.5 | kΩ |

(1) Peak wavelength tolerance of +/- 1nm is available as an option.
(2) Specification for PMF pigtail option.

## 6. PRODUCT PART NUMBER

QLD0561- [ ][ ][ ][ ] – [ ] [ ]

a b c d

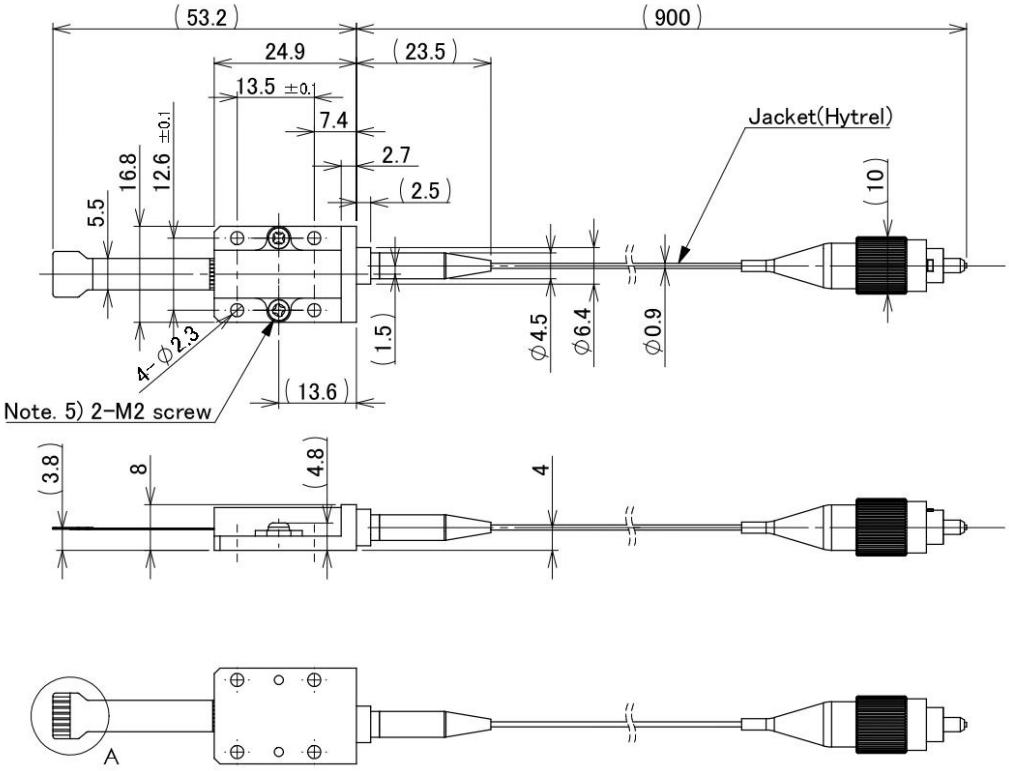
(d) Fiber Type:
- 3- SMF 245um coating
- 4- PMF 245um coating
- 6- SMF of Nufern S405XP
- 7- PMF of Nufern PM-S405-XP

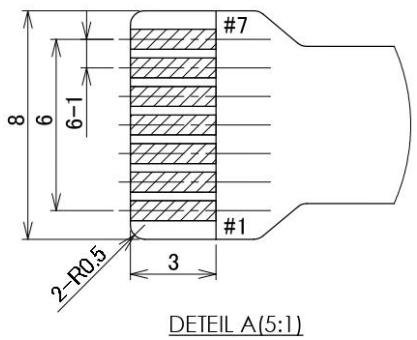
(a) Wavelength:
- 32-532nm
- 61-561nm
- 94-594nm

(b) Output power:
- 02- 2mW
- 15- 15mW
- 20- 20mW
- 25- 25mW

(c) Connector Type:
- 2- FC/PC
- 3- FC/APC

## 7. OUTLINE DRAWING AND PIN CONFIGURATION

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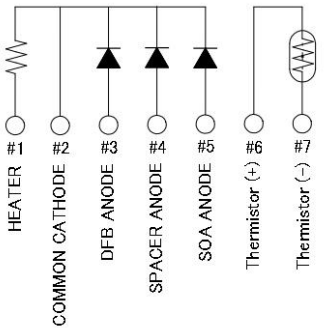
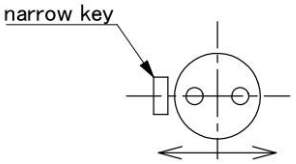



Notes.

1.All dimensions are in millimeters
2.Tolerance +/− 0.2mm, unless otherwise specified
3.Recommended FPC−connector: JST 07FM−1.0
4.Recommended screw torque: 4 x 0.1 N.m
5.Do not remove 2−M2 screw
6.The polarized direction of PMF is cf. right figre




Polarization State
(PMF)

## 8. SETUP AND OPTICAL POWER ADJUSTMENT PROCEDURE

- Setup

Introduce individual current sourses for DFB and SOA with common cathode. Spacer anode pin shoud be left open for normal operation. If required, introduce the other current sourse for heater pin. Thermistor pins can be used for temperature monitoring of the module.

- Optical power adjustment

With measuring optical power,

(1) Adjust DFB (and Heater) current so that the optical power becomes the maximum.
(2) Adjust SOA current to obtain the required power within the maximum rating.
(3) If needed, repeat the procedure of (1) to (2).

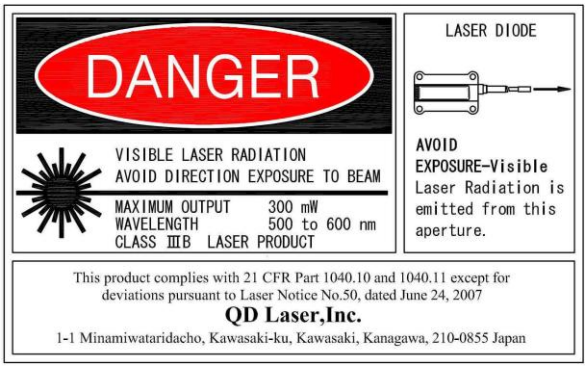
## 9. NOTICE

- 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.

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