

QDLASER

QLD106D-64D0 series

1064 nm 400mW Pulsed DFB Laser Butterfly Package

Preliminary

C00106-03 September 2014



1. DESCRIPTION

The QLD106D-64D0 is a high power pulsed 1064-nm distributed feedback (DFB) laser for use in seeder for fiber lasers and sensing applications. The laser is assembled into a 14-pin butterfly package with an optical isolator, a monitor PD and a thermo-electric cooler.

2. FEATURES

- Single longitudinal mode operation at 1064 nm
- High peak output power of 400mW under pulsed operation
- 1-10nsec pulse width available
- Fiber-pigtailed 14-pin butterfly package with a TEC
- Optical isolator integration
- Polarization maintaining fiber integration

3. APPLICATION

- Seeder for fiber lasers
- Sensing

4. ABSOLUTE MAXIMUM RATING

| PARAMETER | SYMBOL | RATING | UNIT |
|---------------------------------------|----------------|-----------|------|
| Optical Output power (CW) | P_f | 50 | mW |
| LD Forward Current (CW) | I_F | 250 | mA |
| Peak Output power (Pulse 10nsec/1MHz) | P_{f_pulse} | 600 | mW |
| LD Peak Current (Pulse 10nsec/1MHz) | I_{F_pulse} | 2 | A |
| LD Reverse Voltage | V_{RLD} | 2 | V |
| TEC Drive Current | I_{TEC} | 2 | A |
| TEC Drive Voltage | V_{TEC} | 4.3 | V |
| Operation Temperature | T_c | 0 to 60 | °C |
| Storage Temperature | T_{stg} | -40 to 85 | °C |
| Lead Soldering Temperature (5 s) | T_{sld} | 230 | °C |

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5. OPTICAL AND ELECTRICAL CHARACTERISTICS

($T_{LD} = 25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|--|-----------------|---|-------|------|-------|---------------|
| Peak Wavelength | λ_p | CW, $P_f=40$ mW | 1059* | 1064 | 1069* | nm |
| Temperature Coefficient of λ_p | $d\lambda_p/dT$ | CW / Pulsed | - | 0.08 | - | nm/K |
| Threshold Current | I_{th} | CW / Pulsed | - | 30 | 40 | mA |
| CW Fiber Output Power | P_f | CW, $I_f=150$ mA | - | 40 | - | mW |
| CW Operation Voltage | V_{op} | CW, $P_f=40$ mW | - | 1.8 | | V |
| Pulsed Peak Output Power | P_{f_peak} | Pulsed, $I_{f_peak}=1.6$ A | 400 | 500 | - | mW |
| Pulsed Averaged Output Power | P_{f_ave} | Pulsed 2.5ns/100kHz/1.6A | 0.1 | | | mW |
| | | Pulsed 20ns/100kHz/1.6A | 0.8 | | | mW |
| Pulse Width | t_{pw} | Pulsed | 1 | | 10** | nsec |
| Duty Cycle | D.C. | Pulsed | | | 1** | % |
| Sidemode Suppression Ratio | SMSR | CW, $P_f=40$ mW | 30 | 40 | - | dB |
| | | Pulsed 2ns/100kHz | 25 | 30 | | dB |
| Polarization Extinction Ratio | PER | CW | 15 | 20 | | dB |
| Monitor PD Current | I_m | CW, $P_f=40$ mW | | 300 | | μA |
| Thermistor Resistance | R_{th} | $T_{LD} = 25^{\circ}\text{C}$, B=3900K | 9.5 | 10 | 10.5 | k Ω |

(*) Tighter wavelength tolerance is available as an option.

(**) Longer pulse width or higher duty cycle is available with proper adjustment of a peak current. Please ask QDL for more detail.

6. PRODUCT PART NUMBER

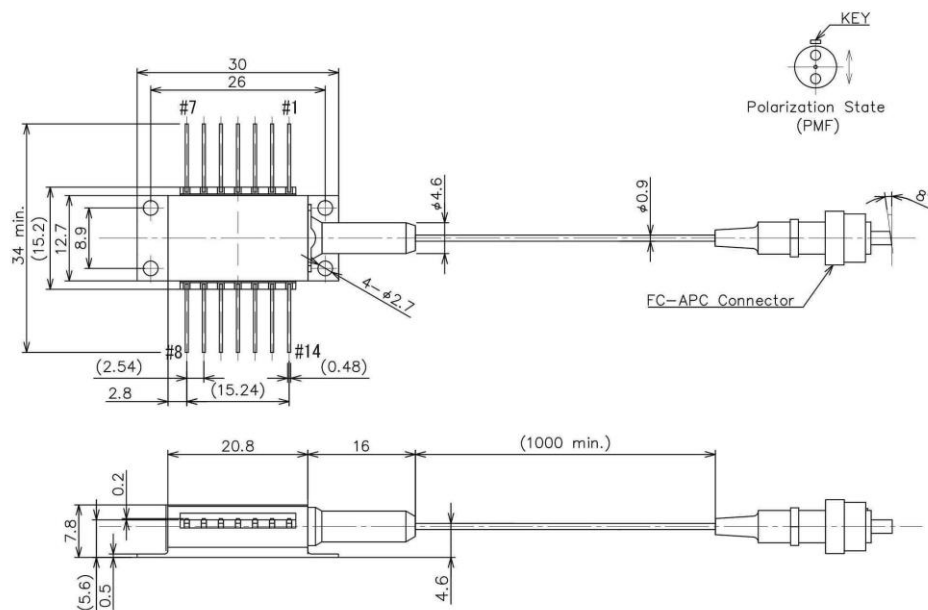
| Part Number | Fiber Type | Fiber Diameter | Connector |
|-----------------|--------------------------------|----------------|-----------|
| QDL106D-64D0 | Polarization maintaining fiber | 900um | FC/APC |
| QLD106D-64D0-11 | | 250um | Ferrule |

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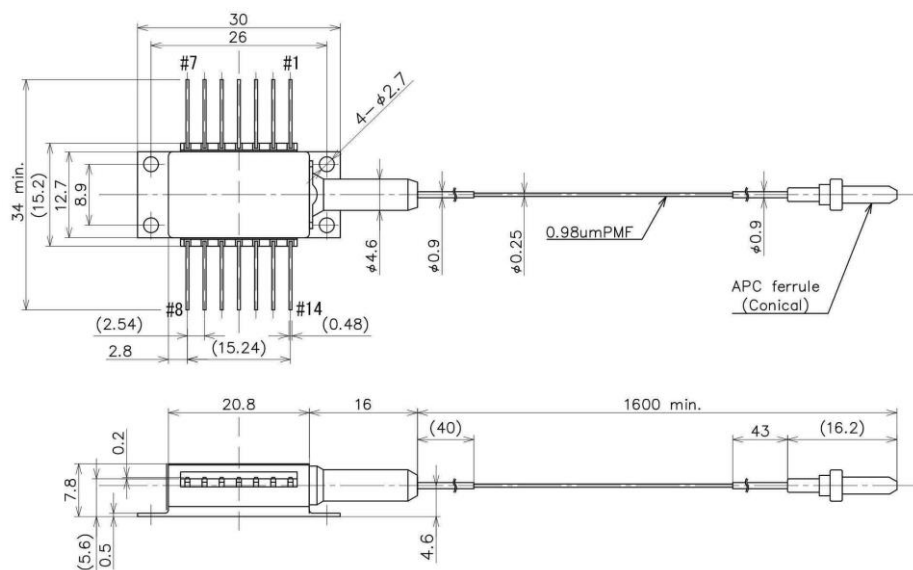
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7. OUTLINE DRAWING



(a) 900um fiber diameter and FC/APC connector type (QLD106D-64D0)



(b) 250um fiber diameter and ferrule type (QLD106D-64D0-11)

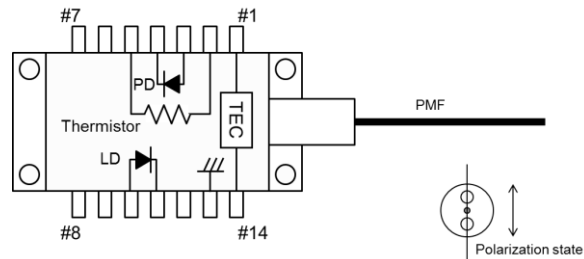
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8. PIN CONFIGURATION

| No. | Description | No. | Description |
|-----|-------------|-----|---------------|
| 1 | TEC (+) | 8 | NC |
| 2 | Thermistor | 9 | NC |
| 3 | PD Anode | 10 | Laser Anode |
| 4 | PD Cathode | 11 | Laser Cathode |
| 5 | Thermistor | 12 | NC |
| 6 | NC | 13 | Case Ground |
| 7 | NC | 14 | TEC (-) |



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.

• RoHS

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

DANGER

INVISIBLE LASER RADIATION
AVOID DIRECTION EXPOSURE TO BEAM

MAXIMUM OUTPUT 1 W
WAVELENGTH 1000~1200 nm
CLASS IV LASER PRODUCT

LASER DIODE

AVOID EXPOSURE-Invisible Laser Radiation is emitted from this aperture.

This product complies with 21 CFR Part 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No.50, dated June 24, 2007

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