



# QLD106L-xx50C series

1 $\mu$ m wavelength range 50 mW CW DFB Laser Butterfly Package

C00243-01 November 2020



## 1. DESCRIPTION

The QLD106L-xx50C series is a 1 $\mu$ m-wavelength range 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 a monitor PD and a thermo-electric cooler.

## 2. FEATURES

- Single longitudinal mode operation
- Fiber-pigtailed 14-pin butterfly package with a monitor PD and a TEC
- Without an optical isolator and with one polarizer
- Polarization maintaining fiber integration
- CW operation

## 3. APPLICATIONS

- Seeder for fiber lasers
- Sensing

## 4. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Optical Output power	$P_f$	60	mW
LD Forward Current	$I_F$	250	mA
LD Reverse Voltage	$V_{RLD}$	2	V
TEC Drive Current	$I_{TEC}$	2	A
TEC Drive Voltage	$V_{TEC}$	4.3	V
LD Chip Temperature	$T_{Chip}$	10 to 40	$^{\circ}C$
Operation Temperature	$T_c$	0 to 60	$^{\circ}C$
Storage Temperature	$T_{stg}$	-40 to 85	$^{\circ}C$
Lead Soldering Temperature (5 s)	$T_{sld}$	230	$^{\circ}C$

**5. OPTICAL AND ELECTRICAL CHARACTERISTICS**

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

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Peak Wavelength	$\lambda_p$	CW, $P_f=50$ mW	$\lambda_p-5$ (*2)	$\lambda_p$ (*1)	$\lambda_p+5$ (*2)	nm
Spectral Linewidth (FWHM)	$\Delta\lambda$	CW, $P_f=50$ mW	-	10(*3)	-	MHz
Temperature Coefficient of $\lambda_p$	$d\lambda_p/dT$	CW	-	0.08	-	nm/K
Current Coefficient of $\lambda_p$	$d\lambda_p/dI$	CW	-	0.008	-	nm/mA
Fiber Output Power	$P_f$	CW	50	-	-	mW
Threshold Current	$I_{th}$	CW	-	15	-	mA
Operation Current	$I_{op}$	CW, $P_f=50$ mW	-	120	-	mA
Operation Voltage	$V_{op}$	CW, $P_f=50$ mW	-	1.8	-	V
Sidemode Suppression Ratio	SMSR	CW, $P_f=50$ mW	30	40	-	dB
Polarization Extinction Ratio	PER	CW	15	20	-	dB
Monitor PD Current	$I_m$	CW, $P_f=50$ mW	50	350	1000	$\mu\text{A}$
Thermistor Resistance	$R_{th}$	$T_{LD} = 25^{\circ}\text{C}$ , B=3900K	9.5	10	10.5	$\text{k}\Omega$

(\*1) Available peak wavelength is from 1050 to 1070 nm.

(\*2) Tighter wavelength tolerance is available as an option.

(\*3) The spectral linewidth under CW operation is about 10 MHz, but QD Laser cannot guarantee the value because it strongly depends on measurement conditions including drivers for operations.

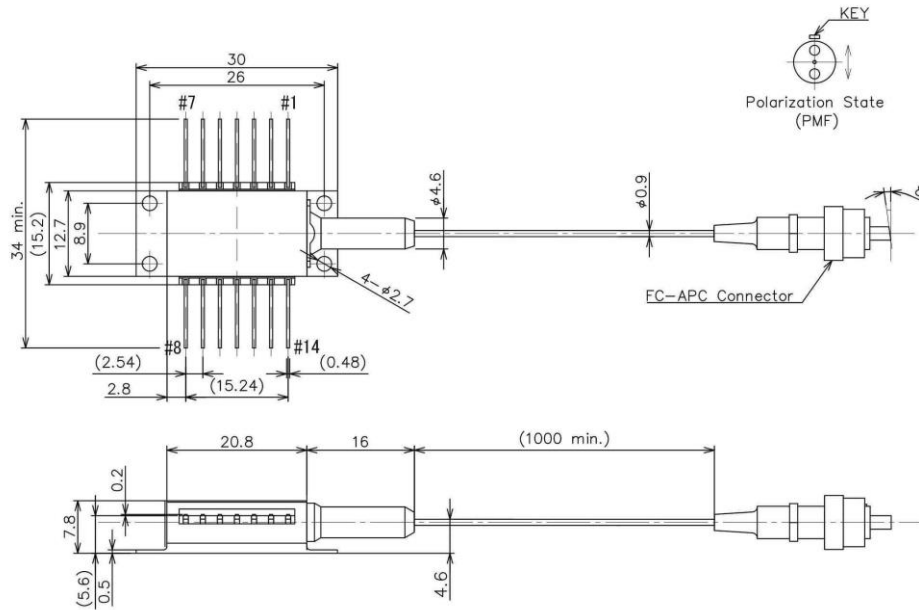
**6. PRODUCT PART NUMBER**

Part Number	Fiber Type	Fiber Diameter	Connector
QLD106L-xx50C	Polarization maintaining fiber	900 $\mu\text{m}$	FC/APC
QLD106L-xx50C-11		250 $\mu\text{m}$	Ferrule

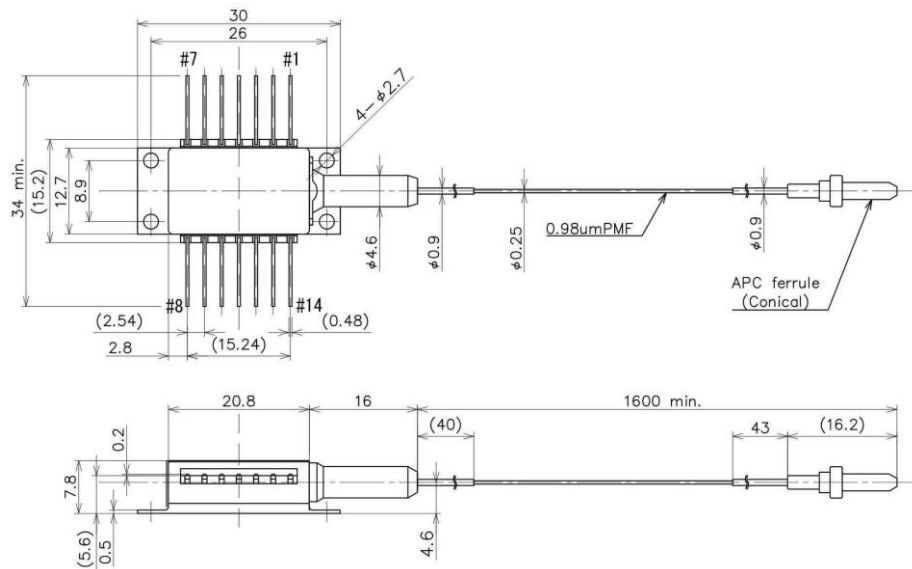
Examples of product name

Peak Wavelength (nm)	Part Number
1050	QLD106L-5050
1064	QLD106L-6450
1070	QLD106L-7050

7. OUTLINE DRAWING



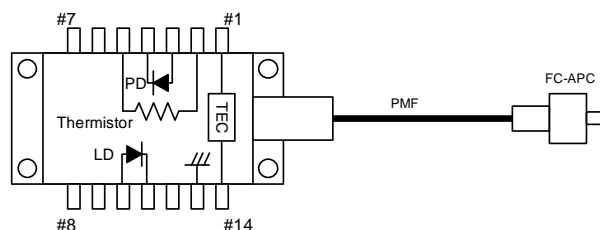
(a) 900µm fiber diameter and FC/APC connector type (QLD106L-xx50C)



(b) 250µm fiber diameter and ferrule type (QLD106L-xx50C-11)

## 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


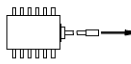
Semiconductor lasers are easily damaged by external stress such as excess temperature and ESD.

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 Directive (EU) 2015/863.

 <p><b>DANGER</b></p>	<p><b>LASER DIODE</b></p> 
<p><b>INVISIBLE LASER RADIATION</b> AVOID DIRECTION EXPOSURE TO BEAM</p> <p>MAXIMUM OUTPUT    300 mW WAVELENGTH        1064 nm CLASS 3B LASER PRODUCT</p>	<p><b>AVOID EXPOSURE—Invisible Laser Radiation is emitted from this aperture.</b></p>
<p>This product complies with 21 CFR Part 1040.10</p> <p><b>QD Laser, Inc.</b></p> <p>1-1 Minamiwataridacho, Kawasaki-ku, Kawasaki, Kanagawa, 210-0855 Japan</p>	

**QD Laser, Inc.**

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