



QLD1a61-xyyCzWtt series

1 μ m-range 10-30mW DFB Laser BFY Module under CW Operation

C00280-02 March 2024



1. DESCRIPTION

The QLD1a61-xyyCzWtt series is a 1 μ m-wavelength range distributed feedback (DFB) laser for use in seeder 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
- Fiber-pigtailed 14-pin butterfly package with a monitor PD and a TEC
- Optical isolator integration
- Polarization maintaining fiber integration
- CW operation

3. APPLICATIONS

- Seeder for fiber lasers
- Sensing

4. ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Optical Output power (CW)	P _f 30mW version	50	mW
	P _f 10mW version	30	mW
LD Forward Current (CW)	I _F 30mW version	250	mA
	I _F 10mW version	150	mA
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 (10 s)	T _{sld}	260	°C

5. OPTICAL AND ELECTRICAL CHARACTERISTICS
5-1. 10mW verison: QLD1a61-xx10CzWtt

 (T_{LD} = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Peak Wavelength	λ_p	CW, P _f =10 mW	λ_p-5 (*2)	λ_p (*1)	λ_p+5 (*2)	nm
Temperature Coefficient of λ_p	$d\lambda_p/dT$	CW	-	0.08	-	nm/K
Current Coefficient of λ_p	$d\lambda_p/dI$	CW	-	0.008	-	nm/mA
Fiber Output Power	P _f	CW	10	-	-	mW
Threshold Current	I _{th}	CW	-	15	-	mA
Operation Current	I _{op}	CW, P _f =10 mW	-	50	80	mA
Operation Voltage	V _{op}	CW, P _f =10 mW	-	1.4	1.8	V
Sidemode Suppression Ratio	SMSR	CW, P _f =10 mW	-	40	-	dB
Polarization Extinction Ratio	PER	CW	15	20		dB
Monitor PD Current	I _m	CW, P _f =10mW	10	100	1000	μA
Thermistor Resistance	R _{th}	T _{LD} = 25°C, B=3900K	9.5	10	10.5	kΩ

(*1) Available peak wavelength is from 1018 to 1122 nm and 1140-1188 nm.

(*2) Tighter wavelength tolerance of +/- 1nm and +/- 0.5nm is available as an option. Refer to product part number according to wavelength tolerance

5-2. 30mW verison: QLD1a61-xx30CzWtt

 (T_{LD} = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Peak Wavelength	λ_p	CW, P _f =30 mW	λ_p-5 (*2)	λ_p (*1)	λ_p+5 (*2)	nm
Temperature Coefficient of λ_p	$d\lambda_p/dT$	CW	-	0.08	-	nm/K
Current Coefficient of λ_p	$d\lambda_p/dI$	CW	-	0.008	-	nm/mA
Fiber Output Power	P _f	CW	30	-	-	mW
Threshold Current	I _{th}	CW	-	20	-	mA
Operation Current	I _{op}	CW, P _f =30 mW	-	150	200	mA
Operation Voltage	V _{op}	CW, P _f =30 mW	-	1.7	2.0	V
Sidemode Suppression Ratio	SMSR	CW, P _f =30 mW	-	40	-	dB
Polarization Extinction Ratio	PER	CW, P _f =30 mW	15	20		dB
Monitor PD Current	I _m	CW, P _f =30 mW	50	200	1,000	μA
Thermistor Resistance	R _{th}	T _{LD} = 25°C, B=3900 K	9.5	10	10.5	kΩ

(*1) Available peak wavelength is from 1018 to 1122 nm and 1140-1188 nm.

(*2) Tighter wavelength tolerance of +/- 1nm and +/- 0.5nm is available as an option. Refer to product part number according to wavelength tolerance

6. PRODUCT PART NUMBER

6-1 General naming rule

QLD1a61-xyyCzWtt

Symbol	Item	Condition	Parameter
a	Main wavelength range	1axx defines wavelength range in nm	a=0: 10xx nm range a=1: 11xx nm range
xx	Main wavelength range	xx defines the last two digits of the wavelength range in nm	xx=30: 1030 nm range xx=53: 1053 nm range xx=64: 1064 nm range xx=83: 1083 nm range (examples)
yy	Output power	Minimum output power	yy=10: 10 mW yy=30: 30 mW
tt	Wavelength	Detailed specification of wavelength	xx=63: 1063 nm xx=32: 1032 nm (examples)
zW	Wavelength tolerance	wavelength tolerance	none: +/-5 nm W: +/-1 nm TW: +/-0.5 nm

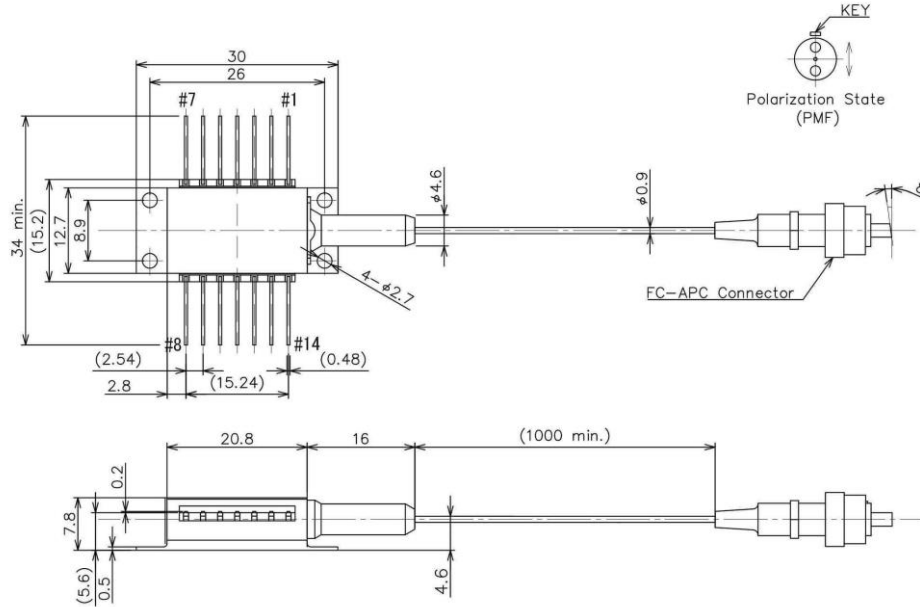
6-2 Connector type

Part Number	Fiber Type	Fiber Diameter	Connector
QLD1a61-xyyCzWtt	Polarization maintaining fiber	900um	FC/APC
QLD1a61-xyyCzWtt11		250um	Ferrule/APC

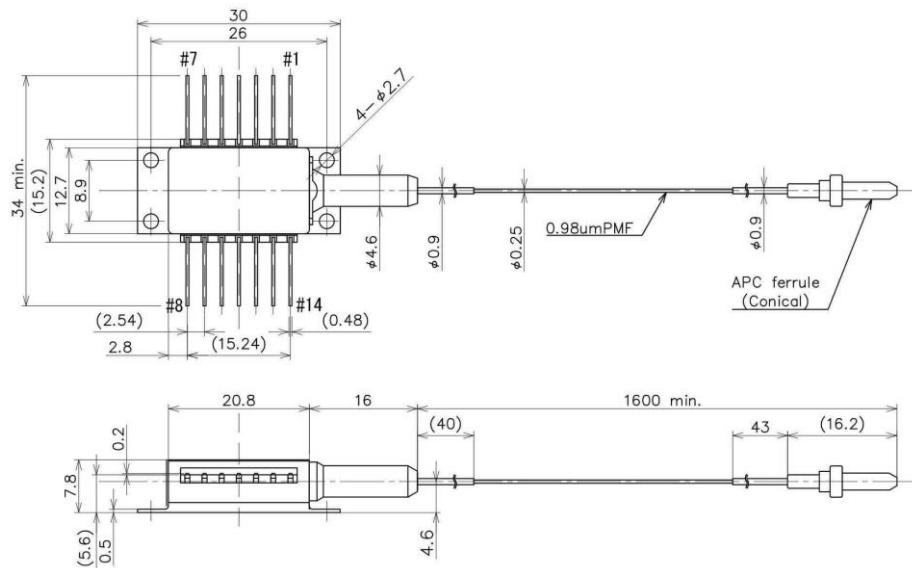
6-3 Examples of product part number

Examples of product name	
Part Number	Peak Wavelength (nm)
QLD1061-6410CW60	1060nm +/-1nm, 10mW 900um Fiber
QLD1061-3030CTW3211	1032nm +/-0.5nm, 30mW 250um Fiber
QLD1161-2230CW2211	1122nm +/-1nm, 30mW 250um Fiber
QLD1061-8330C	1083nm +/-5nm, 30mW 900um Fiber

7. OUTLINE DRAWING



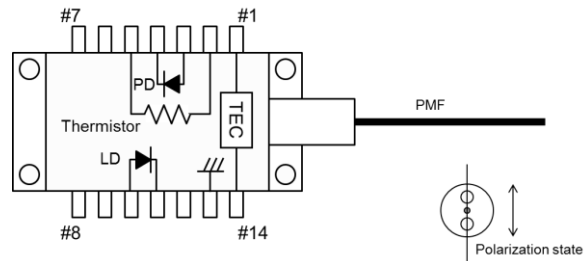
(a) 900um fiber diameter and FC/APC connector type (QLD1a61-xyyCzWtt)



(b) 250um fiber diameter and ferrule type (QLD1a61-xyyCzWtt11)

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


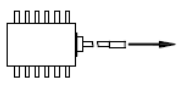

Semiconductor lasers are easily damaged by external stress such as excess temperature and ESD.

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>LASER DIODE</p> 
 <p>INVISIBLE LASER RADIATION AVOID DIRECTION EXPOSURE TO BEAM</p> <p>MAXIMUM OUTPUT 300 mW WAVELENGTH 1000~1200 nm CLASS 3B LASER PRODUCT</p>	<p>AVOID EXPOSURE-Invisible Laser Radiation is emitted from this aperture.</p>
<p>This product complies with 21 CFR Part 1040.10</p> <p>QD Laser, Inc.</p> <p>1-1 Minamiwataridacho, Kawasaki-ku, Kawasaki, Kanagawa, 210-0855 Japan</p>	

QD Laser, Inc.

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