QD LASER

QLD1a6L-xx50C series

1 μm wavelength range 50 mW CW DFB Laser Butterfly Package C00243-02 March 2025

1. DESCRIPTION

The QLD1a6L-xx50C series is a 1 μm-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	°C
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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Telephone: +44 (0) 1225 780400 | Email: info@aptechnologies.co.uk

5. OPTICAL AND ELECTRICAL CHARACTERISTICS

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

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Peak Wavelength	λ_p	CW, P_f =50 mW	λ_p-5 (*2)	λ_p(*1)	λ_p+5 (*2)	nm
Spectral Linewidth (FWHM)	$\Delta\lambda$	CW, P_f =50 mW	-	2(*3)	-	MHz
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	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	Im	CW, P_f =50 mW	50	350	1000	μA
Thermistor Resistance	Rth	T_{LD} = 25°C, B=3900K	9.5	10	10.5	kΩ

(*1) Available peak wavelength is from 1018 to 1122 nm and 1140 to 1188 nm.
(*2) Tighter wavelength tolerance of +/- 1 nm and +/- 0.5 nm is available as an option. Refer to product part number according to wavelength tolerance.
(*3) QD Laser, Inc. does not guarantee the linewidth of an individual diode.

6. PRODUCT PART NUMBER

Part Number	Fiber Type	Fiber Diameter	Connector
QLD1a6L-xx50C	Polarization maintaining fiber	900 μm	FC/APC
QLD1a6L-xx50C-11		250 μm	Ferrule

Examples of prodcut name

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

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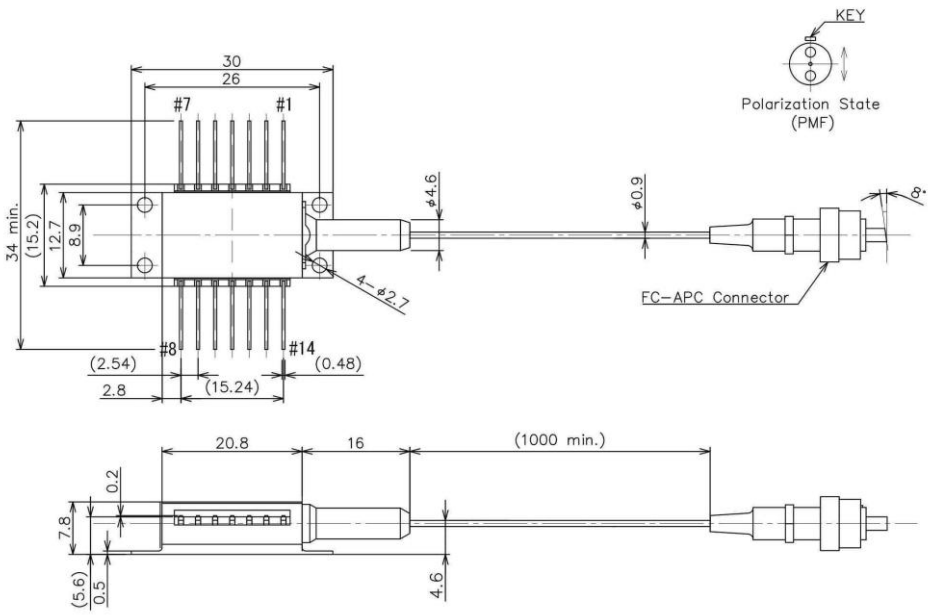
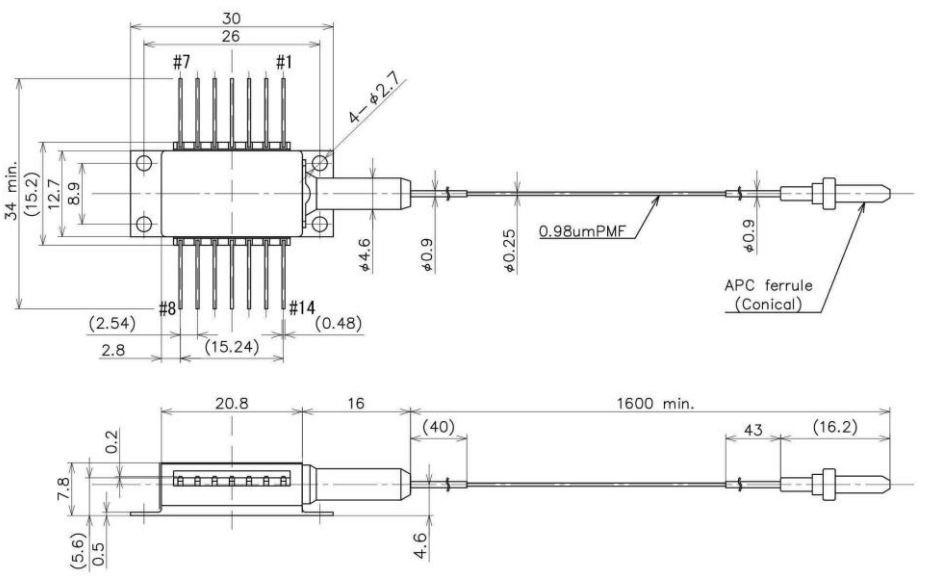
7. OUTLINE DRAWING



(a) 900 μm fiber diameter and FC/APC connector type (QLD1a6L-xx50C)



(b) 250 μm fiber diameter and ferrule type (QLD1a6L-xx50C-11)

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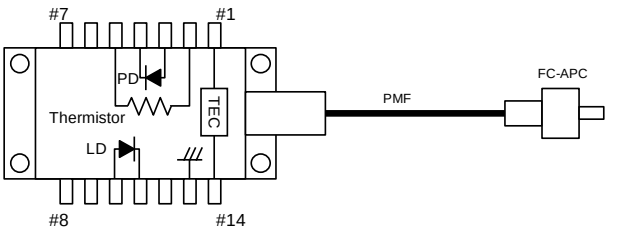
8. PIN CONFIGURATION

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

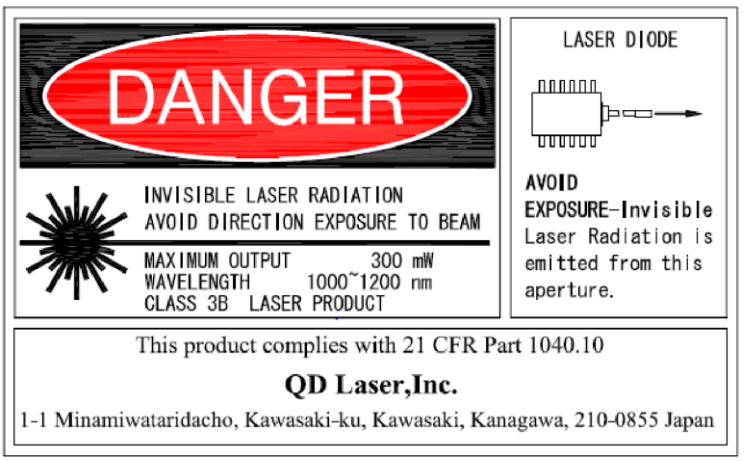
This product is classified as Class 3B laser product, and complies with 21 CFR Part 1040.10.
Please do not take a look at laser lighting in operations since laser devices may cause troubles to human eyes.
Please do not eat, burn, break and make chemical process of the products since they contain GaAs 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 Directive (EU) 2015/863.



QD Laser, Inc.
Contact : sales@qdlaser.com https://www.qdlaser.com
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