QD LASER

QLD1a6L-xx50CzWtt series

1 µm-range 50 mW CW DFB Laser Butterfly Package C00243-03 October 2026



1. DESCRIPTION

The QLD1a6L-xx50CzWtt 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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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.

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6. PRODUCT PART NUMBER

6-1 General naming rule

QLD1a6L-xx50CzWtt

Symbol	Description	Definition / Options
a	Wavelength range indicator	**0**: 10xx nm range **1**: 11xx nm range
xx	Tens digit of the wavelength range (nm)	**30**: 1030 to 1039 nm **50**: 1050 to 1059 nm **80**: 1080 to 1089 nm (Exception: **64** for 1060 to 1069 nm)
tt	Last two digits of the wavelength (nm)	Examples: **63**: 1063 nm **32**: 1032 nm
zW	Wavelength tolerance	**none**: ±5 nm **W**: ±1 nm **TW**: ±0.5 nm

6-2 Connector type

Part Number	Fiber Type	Fiber Diameter	Connector
QLD1a6L-xx50CzWtt	Polarization maintaining fiber	900 µm	FC/APC
QLD1a6L-xx50CzWtt11		250 µm	Ferrule/APC

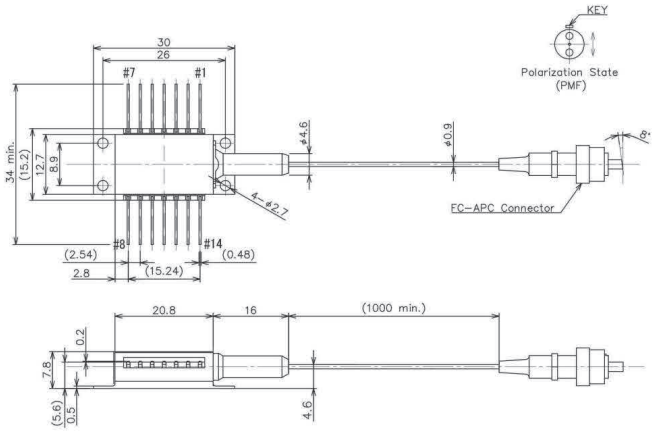
6-3 Examples of product part number

Part Number	Peak Wavelength, Fiber Type
QLD106L-6450CW60	1060 nm ±1nm, 900 µm fiber
QLD106L-3050CTW3211	1032 nm ±0.5 nm, 250 µm fiber
QLD116L-2050CW2211	1122 nm ±1 nm, 250 µm fiber
QLD106L-8050C83	1083 nm ±5 nm, 900 µm fiber

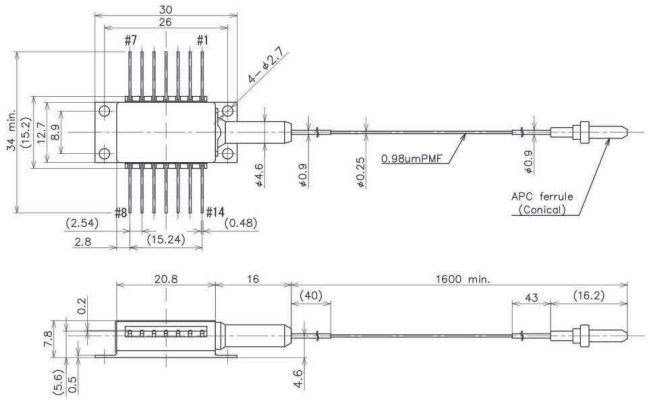
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7. OUTLINE DRAWING



(a) 900 μm fiber diameter and FC/APC connector type (QLD1a6L-xx50CzWtt)

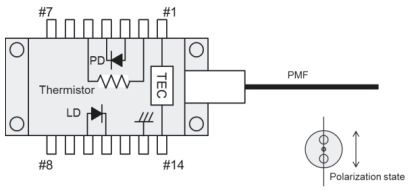


(b) 250 μm fiber diameter and ferrule/APC type (QLD1a6L-xx50CzWtt11)

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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

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.

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