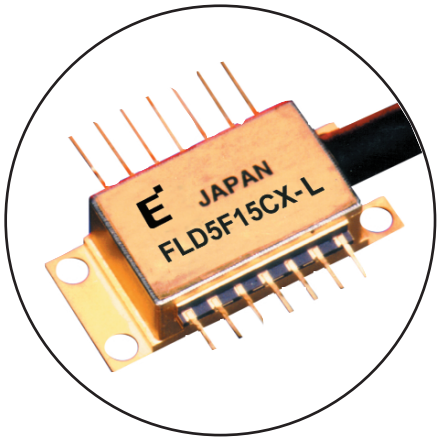
1,550nm Continuous Wave DFB Laser

FLD5F15CX-L

FEATURES

- Continuous Wave (CW) Light Source for DWDM system
- Output Power: 16dBm
- Available at L-band ITU-T Wavelengths between 1570.416 to 1608.329nm
- Built-in TEC, Thermistor, Monitor PIN PD and Optical Isolator
- Polarization maintaining (PANDA) fiber



APPLICATIONS

10 and 40 Gb/s long haul DWDM Transmission systems.

DESCRIPTION

The laser is for a high power (16dBm) CW operation, at selected L-band ITU-T grid wavelengths. The module includes an optical isolator monitor photodiode, thermistor and a thermo-electric cooler. This laser is designed for use with external modulation components (such as $LiNbO_3$ modulators). The device comes in "butterfly" type, 14-pin package, and operates between 0 to 70°C.

ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Rating		Unit
			Min.	Max.	
Storage Temperature	T_{stg}	-	-40	+85	°C
Operating Case Temperature	T_{op}	-	0	+70	°C
Optical Output Power	P_f	CW	-	50	mW
LD Forward Current	I_F	CW	-	420	mA
LD Reverse Voltage	V_R	CW	-	2	V
PD Reverse Voltage	V_{DR}	-	-	20	V
PD Forward Current	I_{PF}	-	-	10	mA
Cooler Voltage	V_C	Cooling	-	+5.00	V
		Heating	-2.50	-	
Cooler Current	I_C	Cooling	-	+1.85	A
		Heating	-0.60	-	
Thermistor Temperature	Tth	ATC Operation	-	+70	°C
Lead Soldering Time	-	260°C	-	10	sec

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_L=T_{set}, T_C=25°C, BOL, unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Laser Set Temperature (BOL)	T_{set}	-	15	-	35	°C
Optical Output Power	P_f	-	40	-	-	mW
Threshold Current	I_{th}	-	3	-	45	mA
Forward Voltage	V_F	-	-	-	3.0	V
Slope Efficiency	η	-	-	0.14	-	mW/mA
Operating Forward Current	I_{op}	-	-	-	350	mA
Peak Wavelength	λ_p	ORL>40dB	Note (3)			nm
Wavelength Drift	Δλ	20 years	-	-	200	pm
Wavelength Stability with Case Temperature	-	Tc=0 to +70°C	-1	-	1	pm/°C
Spectral Width (-3dB)	Δλ	ORL>40dB	-	5	10	MHz
Side Mode Suppression	Sr		35	-	-	dB
Monitor Current	I_m	Pf=40mW	0.1	-	2.0	mA
Monitor Dark Current	Idm	V_{PD}=5V	-	-	100	nA
Monitor Capacitance	C_t	V_{PD}=5V, f=1 MHz	-	-	10	pF
Tracking Error (Note 1)	TE	Im=constant, Tc=0 to +70°C	-0.5	-	+1.0	dB
Optical Isolation	I_S	Tc=0 to +70°C	22	-	-	dB
Polarization Extinction Ratio	PER		20	-	-	dB
Relative Intensity Noise	RIN	CW, ORL>40dB average of f=DC to 7.5GHz	-	-	-140	dB/Hz
Cooler Current	Ic	T_L=Tset, Tc=+70°C,	-	-	1.4	A
Cooler Voltage	Vc		-	-	4.2	V
Cooler Power	Pc		-	-	5.9	W
Thermistor Resistance	Rth	Tc, T_L=25°C	9.5	10.0	10.5	kΩ
Thermistor B Constant (Note 2)	B		3,270	3,450	3,630	K

Note 1. TE=10*log[Pf(Tc)/Pf(25)]
Note 2. Relation between resistance and temperature (°K) is: Rth (T) = Rth (25)*exp[B(1/T-1/298)]
Note 3. The selected wavelength is available in accordance with Table 1.

Fig. 1 Forward Current vs Output Power

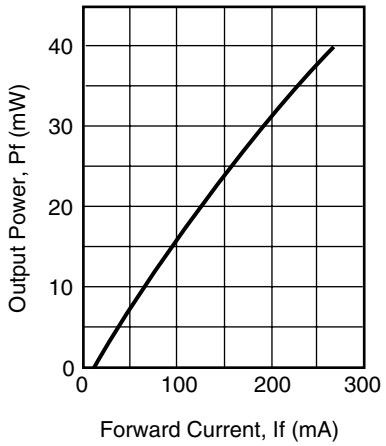


Fig. 2 Temperature Dependance of Wavelength(ACC Operation)

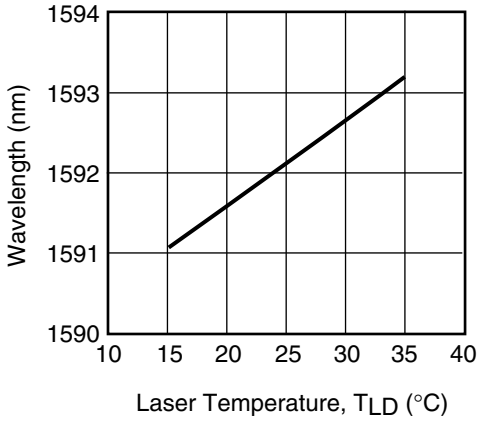


Fig. 3 Cooler Voltage -Current

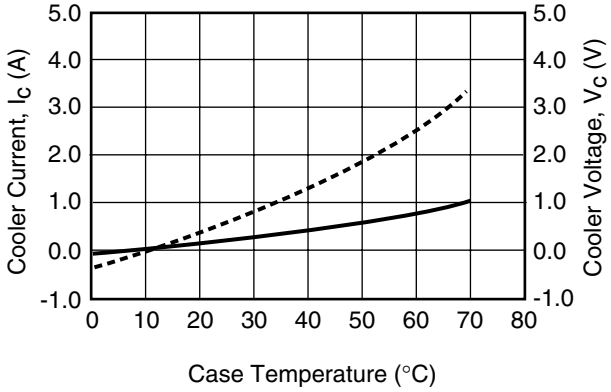


Fig.4 Spectrum

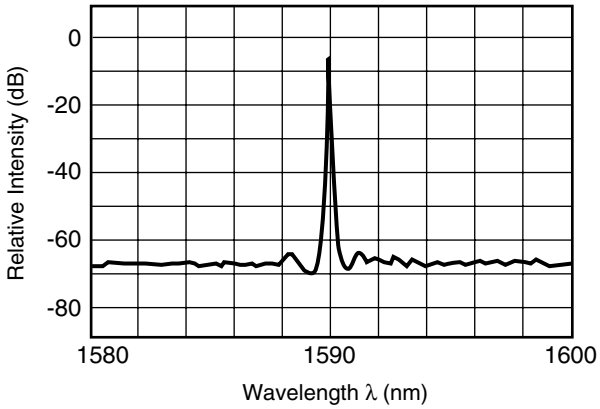


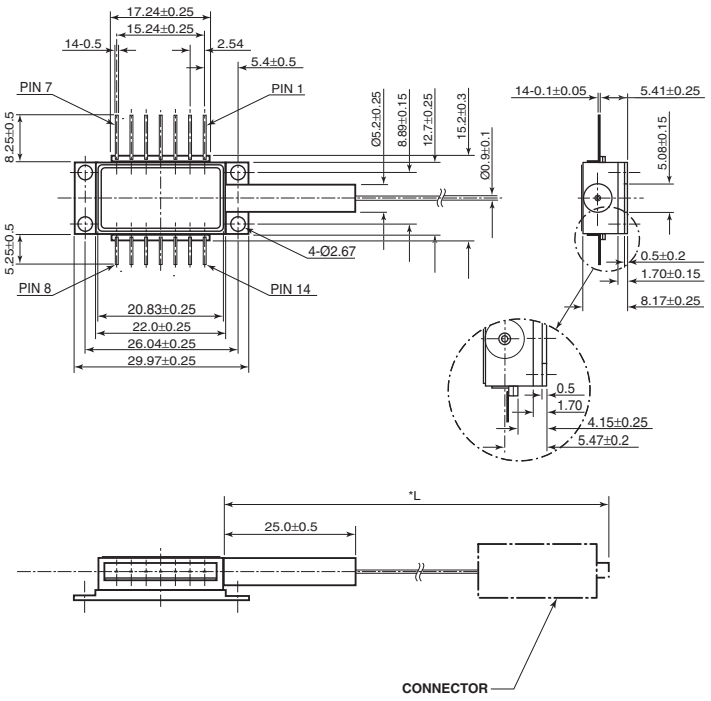
Table 1 Wavelength Table

Part Number	Wavelength (nm) (TL=Tset) (in vacuum)	Tolerance (nm)
FLD5F15CX-L9090	1570.416	±0.01
FLD5F15CX-L9080	1571.239	±0.01
FLD5F15CX-L9070	1572.063	±0.01
FLD5F15CX-L9060	1572.888	±0.01
FLD5F15CX-L9050	1573.714	±0.01
FLD5F15CX-L9040	1574.540	±0.01
FLD5F15CX-L9030	1575.368	±0.01
FLD5F15CX-L9020	1576.196	±0.01
FLD5F15CX-L9010	1577.025	±0.01
FLD5F15CX-L9000	1577.855	±0.01
FLD5F15CX-L8990	1578.686	±0.01
FLD5F15CX-L8980	1579.518	±0.01
FLD5F15CX-L8970	1580.350	±0.01
FLD5F15CX-L8960	1581.184	±0.01
FLD5F15CX-L8950	1582.018	±0.01
FLD5F15CX-L8940	1582.854	±0.01
FLD5F15CX-L8930	1583.690	±0.01
FLD5F15CX-L8920	1584.527	±0.01
FLD5F15CX-L8910	1585.365	±0.01
FLD5F15CX-L8900	1586.203	±0.01
FLD5F15CX-L8890	1587.043	±0.01
FLD5F15CX-L8880	1587.884	±0.01
FLD5F15CX-L8870	1588.725	±0.01

Part Number	Wavelength (nm) (TL=Tset) (in vacuum)	Tolerance (nm)
FLD5F15CX-L8860	1589.568	±0.01
FLD5F15CX-L8850	1590.411	±0.01
FLD5F15CX-L8840	1591.255	±0.01
FLD5F15CX-L8830	1592.100	±0.01
FLD5F15CX-L8820	1592.946	±0.01
FLD5F15CX-L8810	1593.793	±0.01
FLD5F15CX-L8800	1594.641	±0.01
FLD5F15CX-L8790	1595.489	±0.01
FLD5F15CX-L8780	1596.339	±0.01
FLD5F15CX-L8770	1597.189	±0.01
FLD5F15CX-L8760	1598.041	±0.01
FLD5F15CX-L8750	1598.893	±0.01
FLD5F15CX-L8740	1599.746	±0.01
FLD5F15CX-L8730	1600.600	±0.01
FLD5F15CX-L8720	1601.455	±0.01
FLD5F15CX-L8710	1602.311	±0.01
FLD5F15CX-L8700	1603.168	±0.01
FLD5F15CX-L8690	1604.026	±0.01
FLD5F15CX-L8680	1604.885	±0.01
FLD5F15CX-L8670	1605.744	±0.01
FLD5F15CX-L8660	1606.605	±0.01
FLD5F15CX-L8650	1607.466	±0.01
FLD5F15CX-L8640	1608.329	±0.01

"CX" PACKAGE

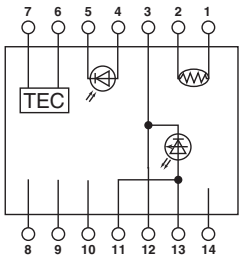
UNIT: mm



Floating Type

PIN #	FUNCTION
1.	Thermistor
2.	Thermistor
3.	Laser DC Bias (-)
4.	Monitor (Anode)
5.	Monitor (Cathode)
6.	Thermoelectric Cooler (+)
7.	Thermoelectric Cooler (-)
8.	N.C.
9.	N.C.
10.	N.C.
11.	LD Anode
12.	LD Cathode
13.	LD Anode
14.	N.C.

* Pigtail length (L) and connector type are specified in the detail (individual) specification.



For further information please contact:

Eudyna Devices USA Inc.
2355 Zanker Rd.
San Jose, CA 95131-1138, U.S.A.
TEL: (408) 232-9500
FAX: (408) 428-9111
www.us.eudyna.com

Eudyna Devices Europe Ltd.
Network House
Norreys Drive
Maidenhead, Berkshire SL6 4FJ
United Kingdom
TEL: +44 (0) 1628 504800
FAX: +44 (0) 1628 504888

Eudyna Devices Asia Pte Ltd.
Hong Kong Branch
Rm. 1101, Ocean Centre, 5 Canton Rd.
Tsim Sha Tsui, Kowloon, Hong Kong
TEL: +852-2377-0227
FAX: +852-2377-3921

Eudyna Devices Inc.
Sales Division
1, Kanai-cho, Sakae-ku
Yokohama, 244-0845, Japan
TEL: +81-45-853-8156
FAX: +81-45-853-8170

CAUTION

Eudyna Devices Inc. products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- **Do not put this product into the mouth.**
- **Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.**
- **Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.**