

FEATURES

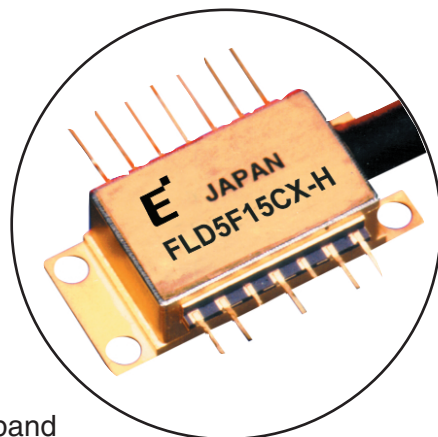
- Continuous Wave (CW) Light Source for DWDM System
- Output Power: 16dBm
- Available at C-band ITU-T Wavelengths between 1528.773 to 1569.594nm
- Built-in TEC, Thermistor, Monitor PIN PD and Optical Isolator
- Polarization maintaining (PANDA) fiber

APPLICATIONS

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

DESCRIPTION

The laser is for a high power (16dBm) CW operation, at selected C-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 LiNbO₃ 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	T _{th}	ATC Operation	0	+70	°C
Lead Soldering Time	-	260°C	-	10	sec

OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_L=T_{set}$, $T_c=25^\circ\text{C}$, BOL, unless otherwise specified)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Laser Set Temperature (BOL)	T_{set}	-	15	-	35	$^\circ\text{C}$
Optical Output Power	P_f	-	40	-	-	mW
Threshold Current	I_{th}	-	3	-	45	mA
Forward Voltage	V_F	-	-	-	3.0	V
Slope Efficiency	η	-	-	0.15	-	mW/mA
Operating Forward Current	I_{op}	-	-	-	350	mA
Peak Wavelength	λ_p	ORL>40dB	Note (3)			nm
Wavelength Drift	$\Delta\lambda$	20 Years	-	-	200	pm
Wavelength Stability with Case Temperature	-	$T_c=0$ to $+70^\circ\text{C}$	-1	-	1	pm/ $^\circ\text{C}$
Spectral Width (-3dB)	$\Delta\lambda$	ORL>40dB	-	5	10	MHz
Side Mode Suppression	S_r		35	-	-	dB
Monitor Current	I_m	$P_f=40\text{mW}$	0.1	-	2.0	mA
Monitor Dark Current	I_{dm}	$V_{PD}=5\text{V}$	-	-	100	nA
Monitor Capacitance	C_t	$V_{PD}=5\text{V}$, $f=1\text{ MHz}$	-	-	10	pF
Tracking Error (Note 1)	TE	$I_m=\text{constant}$, $T_c=0$ to $+70^\circ\text{C}$	-0.5	-	+1.0	dB
Optical Isolation	I_S	$T_c=0$ to $+70^\circ\text{C}$	22	-	-	dB
Polarization Extinction Ratio	PER		20	-	-	dB
Relative Intensity Noise	RIN	CW, ORL>40dB average of $f=\text{DC}$ to 7.5GHz	-	-	-140	dB/Hz
Cooler Current	I_c	$T_L=T_{set}$, $T_c=+70^\circ\text{C}$,	-	-	1.4	A
Cooler Voltage	V_c		-	-	4.2	V
Cooler Power	P_c		-	-	5.9	W
Thermistor Resistance	R_{th}	T_c , $T_L=25^\circ\text{C}$	9.5	10.0	10.5	k Ω
Thermistor B Constant (Note 2)	B		3,270	3,450	3,630	K

Note 1. $TE=10\cdot\log[P_f(T_c)/P_f(25)]$ Note 2. Relation between resistance and temperature ($^\circ\text{K}$) is: $R_{th}(T) = R_{th}(25) \cdot \exp[B(1/T - 1/298)]$

Note 3. The selected wavelength is available in accordance with Table 1.

1,550nm Continuous Wave DFB Laser FLD5F15CX-H

Fig. 1 Forward Current vs Output Power

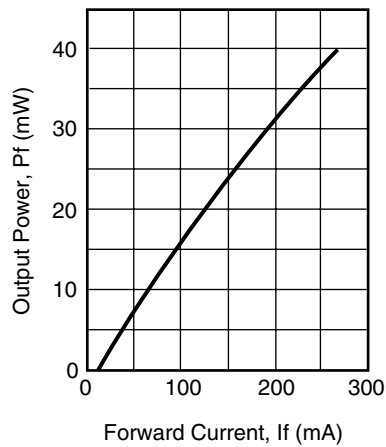


Fig. 2 Temperature Dependence of Wavelength(ACC Operation)

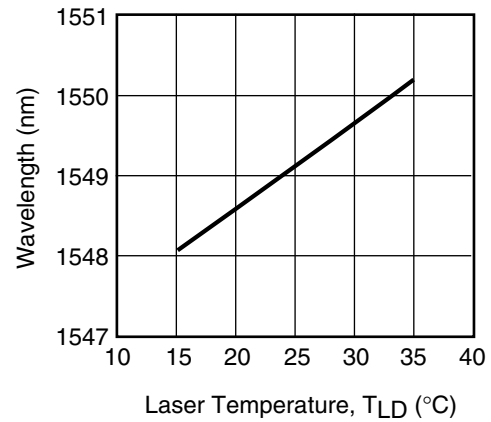


Fig. 3 Cooler Voltage -Current

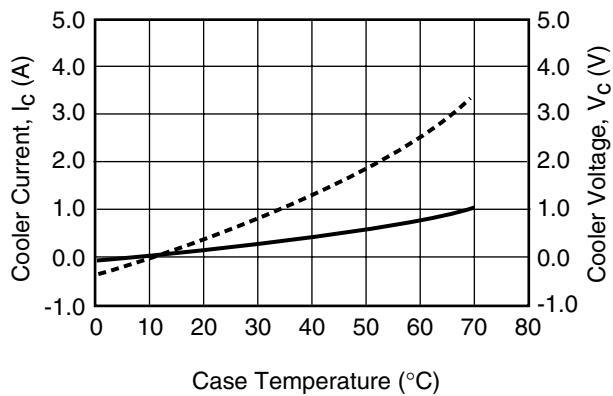


Fig.4 Spectrum

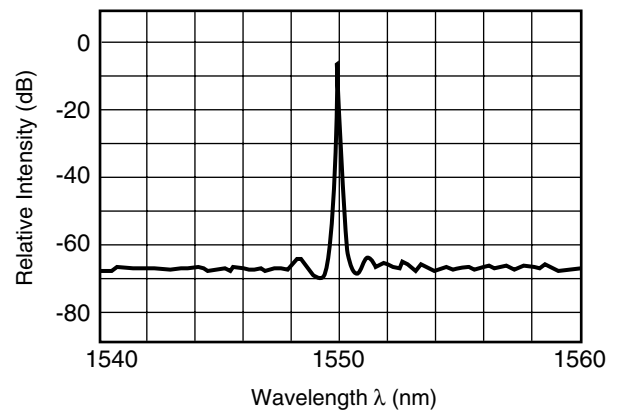


Table 1 Wavelength Table

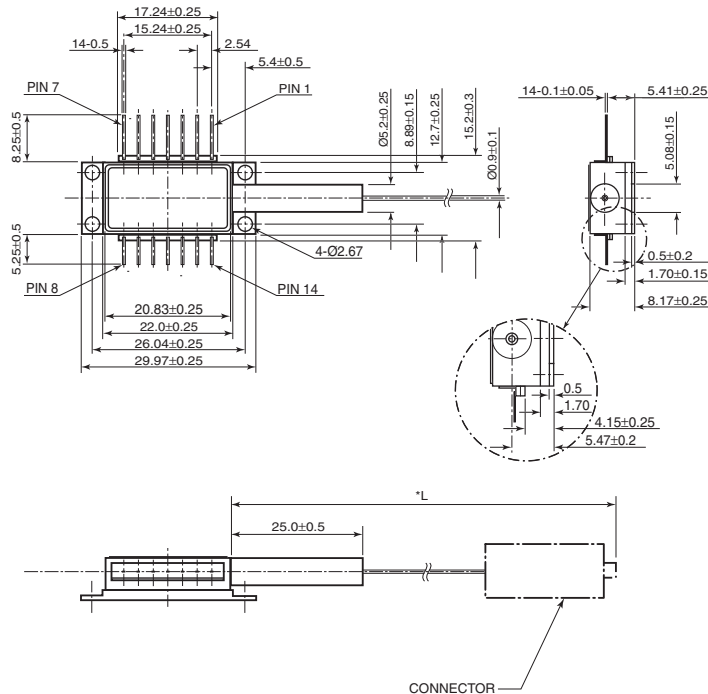
Part Number	Wavelength (nm) (TL=Tset) (in vacuum)	Tolerance (nm)
FLD5F15CX-H9610	1528.773	±0.01
FLD5F15CX-H9600	1529.553	±0.01
FLD5F15CX-H9590	1530.334	±0.01
FLD5F15CX-H9580	1531.116	±0.01
FLD5F15CX-H9570	1531.898	±0.01
FLD5F15CX-H9560	1532.681	±0.01
FLD5F15CX-H9550	1533.465	±0.01
FLD5F15CX-H9540	1534.250	±0.01
FLD5F15CX-H9530	1535.036	±0.01
FLD5F15CX-H9520	1535.822	±0.01
FLD5F15CX-H9510	1536.609	±0.01
FLD5F15CX-H9500	1537.397	±0.01
FLD5F15CX-H9490	1538.186	±0.01
FLD5F15CX-H9480	1538.976	±0.01
FLD5F15CX-H9470	1539.766	±0.01
FLD5F15CX-H9460	1540.557	±0.01
FLD5F15CX-H9450	1541.349	±0.01
FLD5F15CX-H9440	1542.142	±0.01
FLD5F15CX-H9430	1542.936	±0.01
FLD5F15CX-H9420	1543.730	±0.01
FLD5F15CX-H9410	1544.526	±0.01
FLD5F15CX-H9400	1545.322	±0.01
FLD5F15CX-H9390	1546.119	±0.01
FLD5F15CX-H9380	1546.917	±0.01
FLD5F15CX-H9370	1547.715	±0.01
FLD5F15CX-H9360	1548.515	±0.01
FLD5F15CX-H9350	1549.315	±0.01
FLD5F15CX-H9340	1550.116	±0.01
FLD5F15CX-H9330	1550.918	±0.01
FLD5F15CX-H9320	1551.721	±0.01
FLD5F15CX-H9310	1552.524	±0.01
FLD5F15CX-H9300	1553.329	±0.01
FLD5F15CX-H9290	1554.134	±0.01
FLD5F15CX-H9280	1554.940	±0.01
FLD5F15CX-H9270	1555.747	±0.01
FLD5F15CX-H9260	1556.555	±0.01
FLD5F15CX-H9250	1557.363	±0.01
FLD5F15CX-H9240	1558.173	±0.01
FLD5F15CX-H9230	1558.983	±0.01
FLD5F15CX-H9220	1559.794	±0.01
FLD5F15CX-H9210	1560.606	±0.01
FLD5F15CX-H9200	1561.419	±0.01
FLD5F15CX-H9190	1562.233	±0.01
FLD5F15CX-H9180	1563.047	±0.01
FLD5F15CX-H9170	1563.863	±0.01
FLD5F15CX-H9160	1564.679	±0.01
FLD5F15CX-H9150	1565.496	±0.01
FLD5F15CX-H9140	1566.314	±0.01
FLD5F15CX-H9130	1567.133	±0.01
FLD5F15CX-H9120	1567.952	±0.01
FLD5F15CX-H9110	1568.773	±0.01
FLD5F15CX-H9100	1569.594	±0.01

1,550nm Continuous Wave DFB Laser

FLD5F15CX-H

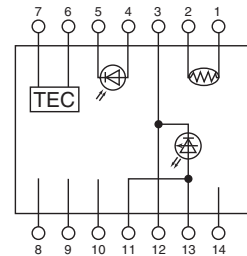
"CX" PACKAGE

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.

Eudyna Devices Inc. reserves the right to change products and specifications without notice. The information does not convey any license under rights of Eudyna Devices Inc. or others.

© 2004 Eudyna Devices USA Inc.
Printed in U.S.A.

Eudyna