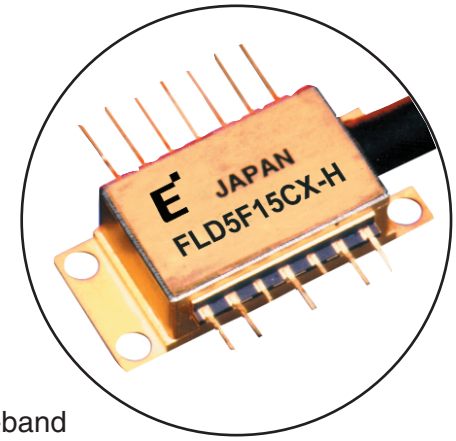
1,550nm Continuous Wave DFB Laser

FLD5F15CX-H

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 maintaning (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 $LiNbO_3$ 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	0	+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	-	-	0.15	-	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

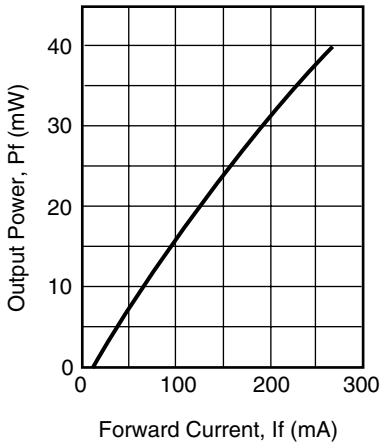


Fig. 2 Temperature Dependance of Wavelength(ACC Operation)

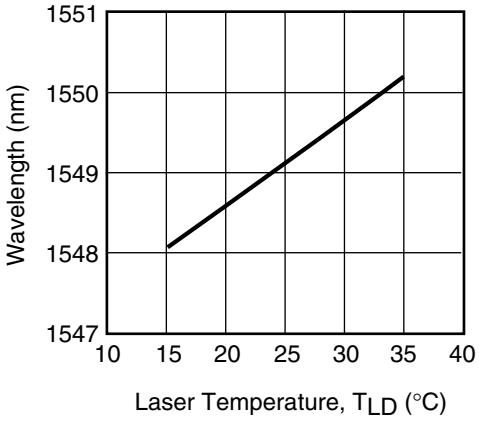


Fig. 3 Cooler Voltage -Current

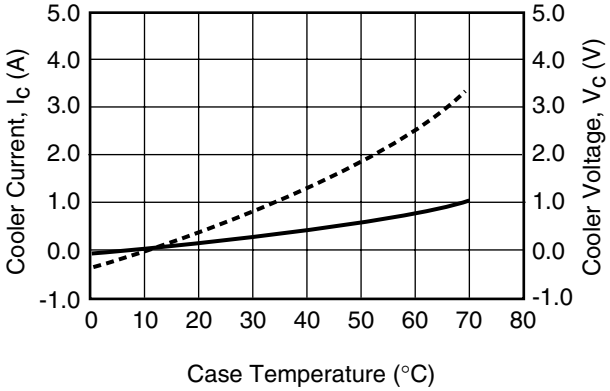


Fig.4 Spectrum

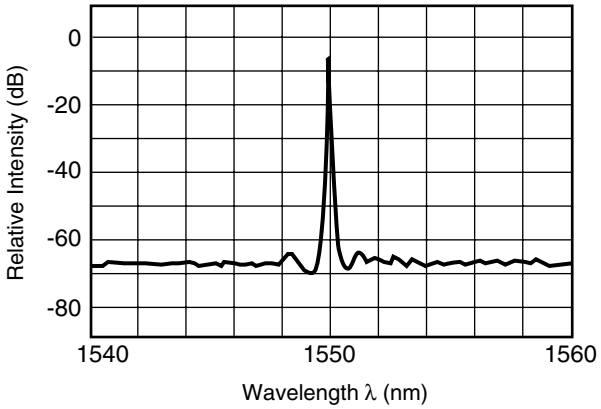
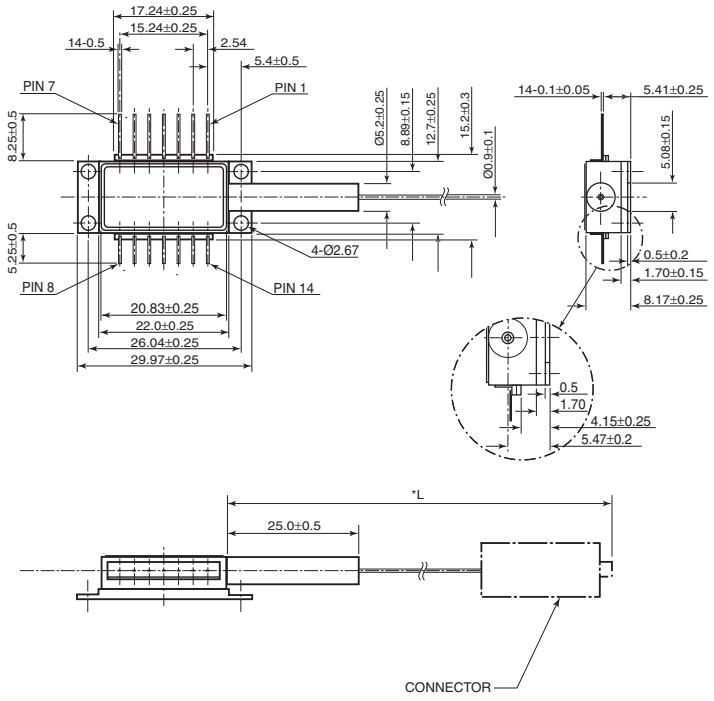


Table 1 Wavelength Table

Part Number	Wavelength (nm) (TL=Tset) (in vacuum)	Tolerance (nm)
FLD5F15CX-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

"CX" PACKAGE

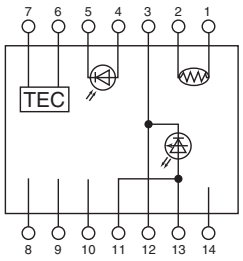
UNIT: mm



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.



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- **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.**