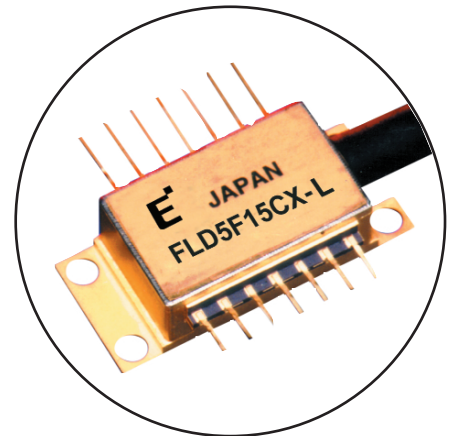


1,550nm Continuous Wave DFB Laser

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 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 | - | +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 | - | T _c =0 to +70°C | -1 | - | 1 | pm/°C |
| Spectral Width (-3dB) | Δλ | ORL>40dB | - | 5 | 10 | MHz |
| Side Mode Suppression | S _r | | 35 | - | - | dB |
| Monitor Current | I _m | P _f =40mW | 0.1 | - | 2.0 | mA |
| Monitor Dark Current | I _{dm} | V _{PD} =5V | - | - | 100 | nA |
| Monitor Capacitance | C _t | V _{PD} =5V, f=1 MHz | - | - | 10 | pF |
| Tracking Error (Note 1) | TE | I _m =constant, T _c =0 to +70°C | -0.5 | - | +1.0 | dB |
| Optical Isolation | I _S | T _c =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 | I _c | T _L =T _{set} , T _c =+70°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°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[P_f(T_c)/P_f(25)]

Note 2. Relation between resistance and temperature (°K) is: R_{th} (T) = R_{th} (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

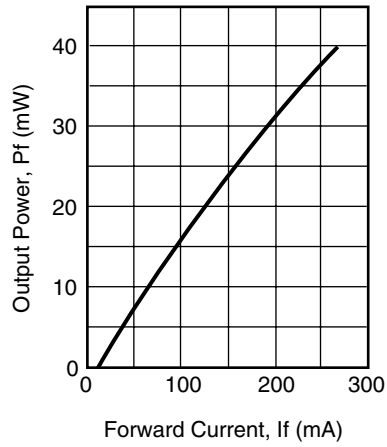


Fig. 2 Temperature Dependence of Wavelength(ACC Operation)

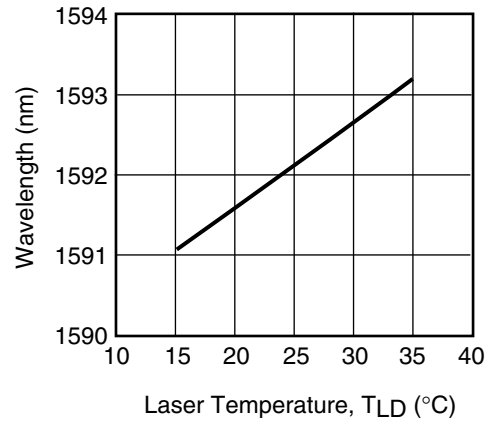


Fig. 3 Cooler Voltage -Current

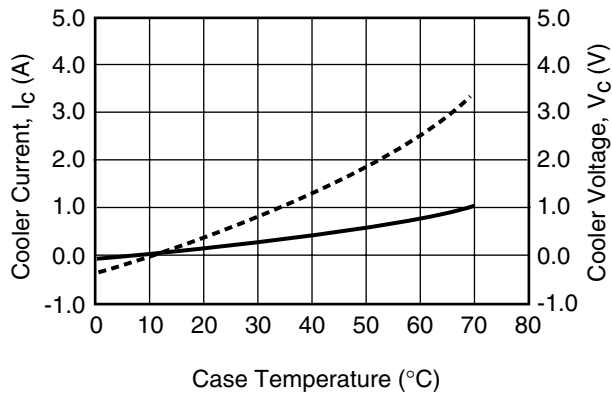


Fig.4 Spectrum

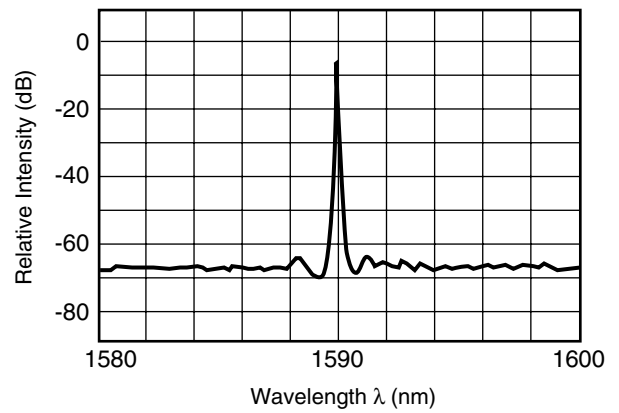


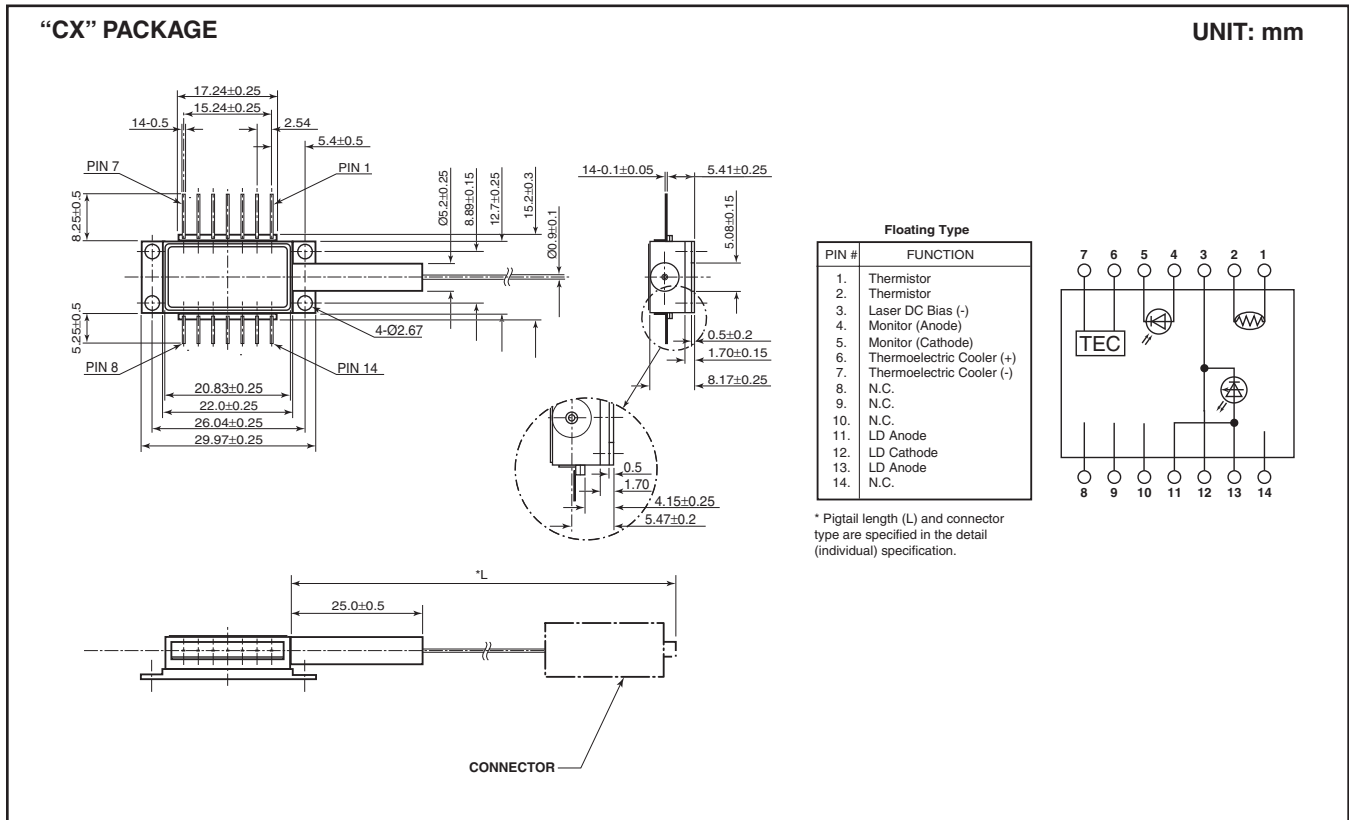
Table 1 Wavelength Table

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

1,550nm Continuous Wave DFB Laser

FLD5F15CX-L



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