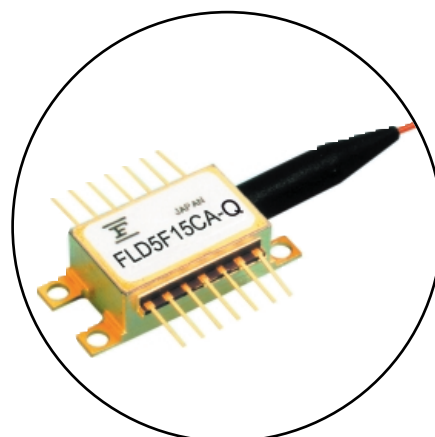


FEATURES:

- CW light source with integrated wavelength locker
- Output Power: 16dBm (min.)
- Available at L Band ITU-T grid wavelengths between 1570.41-1608.76nm
- Wavelength stability better than $\pm 25\text{pm}$ drift over 20 years operation and (0 - 70°C) case temperature variation
- Built-in optical isolator, Thermistor, TEC, Wavelength Monitor Pin, Power Monitor Pin
- Polarization preserving (PANDA) fiber



APPLICATIONS:

Long haul DWDM
Metropolitan DWDM
Optical Test Equipment

DESCRIPTION:

The Fujitsu Tunable LD module with Wavelength Locker (FLD5F15CA-Q) is a high power CW laser (16dBm) with polarization maintaining fiber. It is intended for use with an external modulator. The laser can be wavelength tuned across a 2.4nm range (4 ITU-T 100GHz spaced channels) via adjustment of the chip temperature with the included TEC. The tuned wavelength can be locked onto the desired ITU-T grid channel via use of the included fabry-perot etalon. This laser is available at any of the 52 ITU-T wavelengths in the L band (1570.41-1608.76nm). The device comes in a standard 14-pin butterfly package, operates between 0-70°C, and requires 300mA of drive current (typical).

ABSOLUTE MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Condition	Ratings	Unit
Storage Temperature	T_{stg}	-	-40 to +85	$^\circ\text{C}$
Operating Case Temperature	T_{op}	-	0 to +70	$^\circ\text{C}$
Optical Output Power	P_f	CW	50	mW
Laser Reverse Voltage	V_R	-	2	V
Laser Forward Current	I_F	CW	480	mA
Photodiode Reverse Voltage	V_{DR}	-	20	V
Photodiode Forward Current	I_{PF}	-	10	mA
Cooler Current	I_C	-	2.0	A
Cooler Voltage	V_C		5.0	V

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

Parameter	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Laser Set Temperature (BOL)	T_{set}	-	15	-	35	$^{\circ}\text{C}$
Laser Set Temperature (EOL)	T_{set}	-	14	-	36	$^{\circ}\text{C}$
Optical Output Power	P_f	CW, $T_c=0$ to $+70^{\circ}\text{C}$	40	-	-	mW
Threshold Current	I_{th}	CW	3	-	45	mA
Forward Voltage	V_F	CW, $I_f=30$ mA, pin 3,13	-	-	3.0	V
Slope Efficiency	η	CW, $P_f=40\text{mW}$, ORL>40dB	-	0.14	-	mW/mA
Operating Forward Current	I_{op}	-	-	300	400	mA
Peak Wavelength	λ_p	ORL>40dB	Note (4)			nm
Wavelength Stability with Case Temperature	-	$I_{m1,2}=\text{constant}$, $T_c=0-70^{\circ}\text{C}$, 20 years	-25	-	25	pm
Wavelength Stability with LD Current Change	-	$T_{LD}=T_{set}$	-	-	25	pm/mA
Spectral Width (-3dB)	$\Delta\lambda$	CW, $P_f=40\text{mW}$, ORL>40dB	-	3	10	MHz
Side Mode Suppression	S_r		33	-	-	dB
Power Monitor Current	I_{m1}	$P_f=40\text{mW}$	0.1	-	4.0	mA
Wavelength Monitor Current	I_{m2}	$P_f=40\text{mW}$, WL Locked	0.1	-	4.0	mA
Wavelength deference between lock point and $I_{m2\text{peak}}$ (Note 3)	$\Delta\lambda_{\text{locked}}$		6.0	-	33.0	GHz
I_{m2} peak-bottom Ratio	$I_{m2\text{peak}}/I_{m2\text{bottom}}$		1.0	-	4.5	dB
Tracking Error (Note 1)	TE	$I_{m1,2}=\text{constant}$, $P_f(T_c=25^{\circ}\text{C})=40\text{mW}$, $T_c=0$ to $+70^{\circ}\text{C}$	-0.5	-	+1.0	dB
Optical Isolation	I_S	$T_c=0$ to $+70^{\circ}\text{C}$	22	-	-	dB
Extinction Ratio	TE/TM	CW, $P_f=40\text{mW}$	20	-	-	dB
Relative Intensity Noise	RIN	CW, $P_f=40\text{mW}$, ORL>40dB, $f=\text{DC}-7.5\text{GHz}$	-	-	-140	dB/Hz
Cooler Current	I_c	$T_L=T_{set}$, $T_c=+70^{\circ}\text{C}$, $P_f=40\text{mW}$	-	-	1.8	A
Cooler Voltage	V_c		-	-	4.8	V
Cooler Power	P_c		-	-	8.6	W
Thermistor Resistance	R_{th}	$T_L=25^{\circ}\text{C}$, $T_c=+25^{\circ}\text{C}$	9.5	10.0	10.5	$\text{k}\Omega$
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: $R_{th}(T) = R_{th}(25^{\circ}\text{C}) \cdot \exp[B/(T-1/298)]$ Note 3. Wavelength at lock point is longer than I_{m2} peak. (Increasing wavelength shall give a decrease in wavelength monitor current) The value is written in frequency: $f=c/\lambda_p$, $c=2.99792458 \cdot 10^8\text{m/s}$

Note 4. Reference Figure 1 for Wavelength Table

Figure 1 Wavelength Table

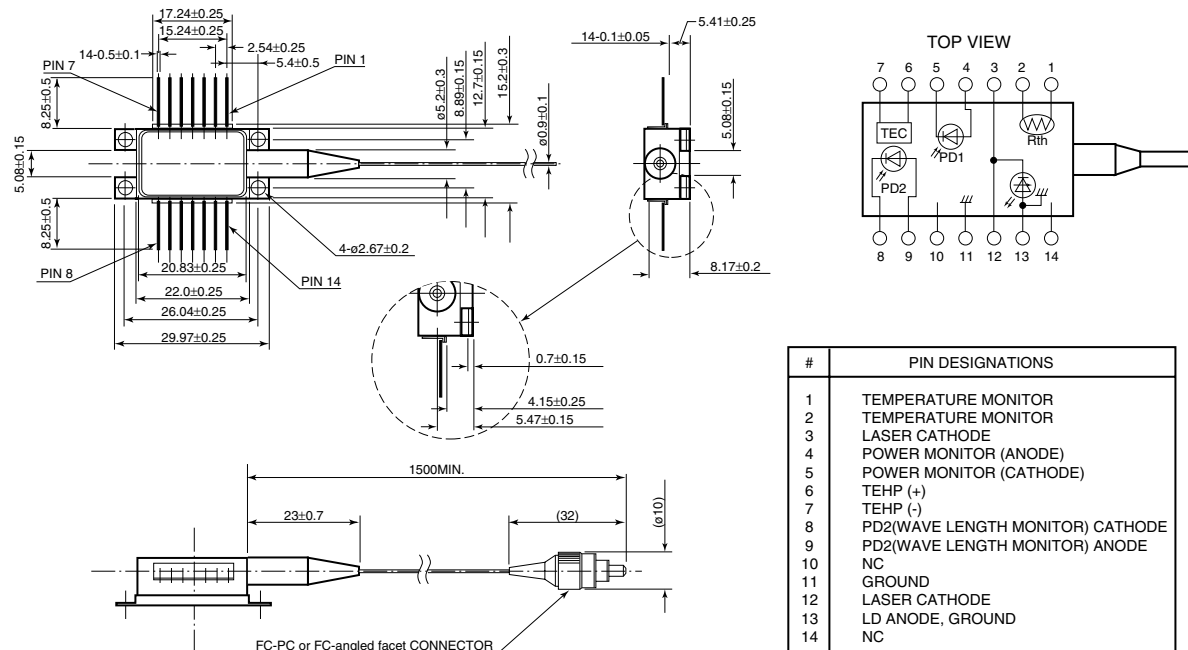
Part Number	Wavelength (nm) (TL=Tset) (in vacuum)	Tolerance (nm)	Part Number	Wavelength (nm) (TL=Tset) (in vacuum)	Tolerance (nm)
FLD5F15CA-Q9090	1570.416	±0.01	FLD5F15CA-Q8860	1589.568	±0.01
FLD5F15CA-Q9085	1570.828	±0.01	FLD5F15CA-Q8855	1589.989	±0.01
FLD5F15CA-Q9080	1571.239	±0.01	FLD5F15CA-Q8850	1590.411	±0.01
FLD5F15CA-Q9075	1571.651	±0.01	FLD5F15CA-Q8845	1590.833	±0.01
FLD5F15CA-Q9070	1572.063	±0.01	FLD5F15CA-Q8840	1591.255	±0.01
FLD5F15CA-Q9065	1572.476	±0.01	FLD5F15CA-Q8835	1591.678	±0.01
FLD5F15CA-Q9060	1572.888	±0.01	FLD5F15CA-Q8830	1592.100	±0.01
FLD5F15CA-Q9055	1573.301	±0.01	FLD5F15CA-Q8825	1592.523	±0.01
FLD5F15CA-Q9050	1573.714	±0.01	FLD5F15CA-Q8820	1592.946	±0.01
FLD5F15CA-Q9045	1574.127	±0.01	FLD5F15CA-Q8815	1593.369	±0.01
FLD5F15CA-Q9040	1574.540	±0.01	FLD5F15CA-Q8810	1593.793	±0.01
FLD5F15CA-Q9035	1574.954	±0.01	FLD5F15CA-Q8805	1594.217	±0.01
FLD5F15CA-Q9030	1575.368	±0.01	FLD5F15CA-Q8800	1594.641	±0.01
FLD5F15CA-Q9025	1575.782	±0.01	FLD5F15CA-Q8795	1595.065	±0.01
FLD5F15CA-Q9020	1576.196	±0.01	FLD5F15CA-Q8790	1595.489	±0.01
FLD5F15CA-Q9015	1576.610	±0.01	FLD5F15CA-Q8785	1595.914	±0.01
FLD5F15CA-Q9010	1577.025	±0.01	FLD5F15CA-Q8780	1596.339	±0.01
FLD5F15CA-Q9005	1577.440	±0.01	FLD5F15CA-Q8775	1596.764	±0.01
FLD5F15CA-Q9000	1577.855	±0.01	FLD5F15CA-Q8770	1597.189	±0.01
FLD5F15CA-Q8995	1578.270	±0.01	FLD5F15CA-Q8765	1597.615	±0.01
FLD5F15CA-Q8990	1578.686	±0.01	FLD5F15CA-Q8760	1598.041	±0.01
FLD5F15CA-Q8985	1579.102	±0.01	FLD5F15CA-Q8755	1598.467	±0.01
FLD5F15CA-Q8980	1579.518	±0.01	FLD5F15CA-Q8750	1598.893	±0.01
FLD5F15CA-Q8975	1579.934	±0.01	FLD5F15CA-Q8745	1599.320	±0.01
FLD5F15CA-Q8970	1580.350	±0.01	FLD5F15CA-Q8740	1599.746	±0.01
FLD5F15CA-Q8965	1580.767	±0.01	FLD5F15CA-Q8735	1600.173	±0.01
FLD5F15CA-Q8960	1581.184	±0.01	FLD5F15CA-Q8730	1600.600	±0.01
FLD5F15CA-Q8955	1581.601	±0.01	FLD5F15CA-Q8725	1601.028	±0.01
FLD5F15CA-Q8950	1582.018	±0.01	FLD5F15CA-Q8720	1601.455	±0.01
FLD5F15CA-Q8945	1582.436	±0.01	FLD5F15CA-Q8715	1601.883	±0.01
FLD5F15CA-Q8940	1582.854	±0.01	FLD5F15CA-Q8710	1602.311	±0.01
FLD5F15CA-Q8935	1583.271	±0.01	FLD5F15CA-Q8705	1602.740	±0.01
FLD5F15CA-Q8930	1583.690	±0.01	FLD5F15CA-Q8700	1603.168	±0.01
FLD5F15CA-Q8925	1584.108	±0.01	FLD5F15CA-Q8695	1603.597	±0.01
FLD5F15CA-Q8920	1584.527	±0.01	FLD5F15CA-Q8690	1604.026	±0.01
FLD5F15CA-Q8915	1584.946	±0.01	FLD5F15CA-Q8685	1604.455	±0.01
FLD5F15CA-Q8910	1585.365	±0.01	FLD5F15CA-Q8680	1604.885	±0.01
FLD5F15CA-Q8905	1585.784	±0.01	FLD5F15CA-Q8675	1605.314	±0.01
FLD5F15CA-Q8900	1586.203	±0.01	FLD5F15CA-Q8670	1605.744	±0.01
FLD5F15CA-Q8895	1586.623	±0.01	FLD5F15CA-Q8665	1606.174	±0.01
FLD5F15CA-Q8890	1587.043	±0.01	FLD5F15CA-Q8660	1606.605	±0.01
FLD5F15CA-Q8885	1587.463	±0.01	FLD5F15CA-Q8655	1607.035	±0.01
FLD5F15CA-Q8880	1587.884	±0.01	FLD5F15CA-Q8650	1607.466	±0.01
FLD5F15CA-Q8875	1588.304	±0.01	FLD5F15CA-Q8645	1607.897	±0.01
FLD5F15CA-Q8870	1588.725	±0.01	FLD5F15CA-Q8640	1608.329	±0.01
FLD5F15CA-Q8865	1589.146	±0.01	FLD5F15CA-Q8635	1608.760	±0.01

NOTE

This device is not available with a fiber polarization axis aligned connector. The attached Fujitsu connector is only for use at incoming inspection. A fusion splice is the recommended method for connecting this laser to an external modulator.

"CA" PACKAGE

UNIT: mm



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