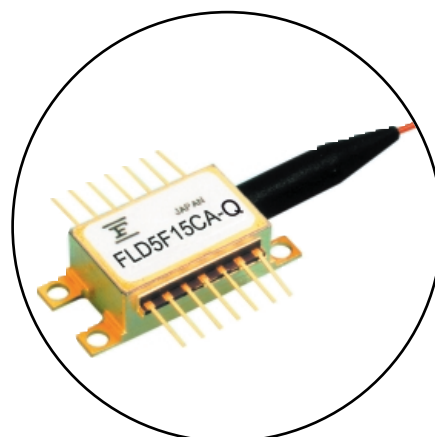


FEATURES:

- 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

FLD5F15CA-Q Tunable LD Module with Wavelength Locker

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, $P_f=40\text{mW}$, $\text{ORL}>40\text{dB}$	-	0.14	-	mW/mA
Operating Forward Current	I_{op}	-	-	300	400	mA
Peak Wavelength	λ_p	$\text{ORL}>40\text{dB}$	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	-	$T_L=T_{set}$	-	-	25	pm/mA
Spectral Width (-3dB)	$\Delta\lambda$	CW, $P_f=40\text{mW}$, $\text{ORL}>40\text{dB}$	-	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, $P_f=40\text{mW}$, $\text{ORL}>40\text{dB}$, $f=\text{DC}-7.5\text{GHz}$	-	-	-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. $TE=10\log[P_f(T_c)/P_f(25)]$

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: $f=c/\lambda_p$, $c=2.99792458 \times 10^8\text{m/s}$

Note 4. Reference Figure 1 for Wavelength Table

Tunable LD Module with Wavelength Locker

FLD5F15CA-Q

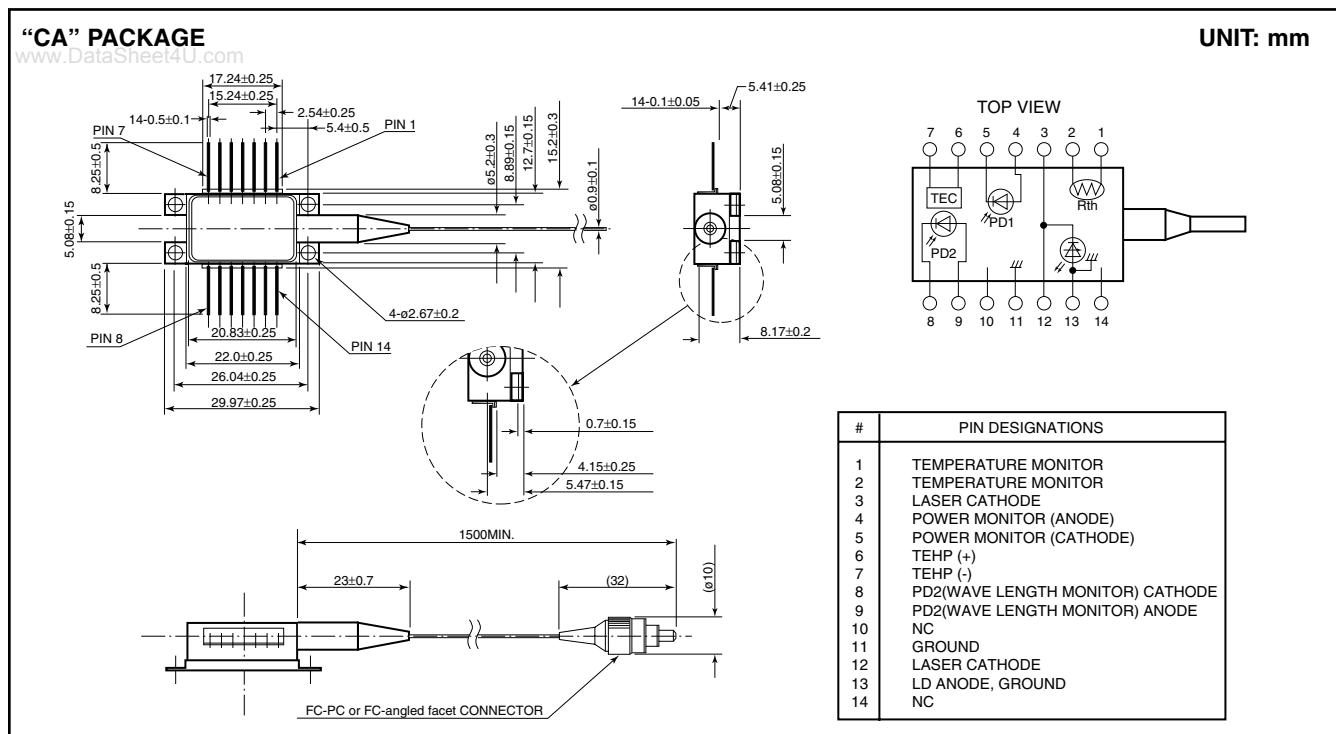
www.DataSheet4U.com

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.



For further information please contact:

FUJITSU COMPOUND SEMICONDUCTOR, INC.

2355 Zanker Rd.
San Jose, CA 95131-1138, U.S.A.
Phone: (408) 232-9500
FAX: (408) 428-9111
www.fcsi.fujitsu.com

FUJITSU QUANTUM DEVICES EUROPE LTD.

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

FUJITSU QUANTUM DEVICES SINGAPORE PTE LTD.

Hong Kong Branch
Rm. 1101, Ocean Centre, 5 Canton Rd. Tsim Sha Tsui,
Kowloon, Hong Kong
TEL: +852-23770226
FAX: +852-23763269

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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.

FUJITSU QUANTUM DEVICES LIMITED

Business Development Division
11th Floor, Hachioji Daiichi-Seimei Bldg.
3-20-6 Myojin-cho
Hachioji-city, Tokyo 192-0046, Japan
TEL: +81-426-43-5885
FAX: +81-426-43-5582

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