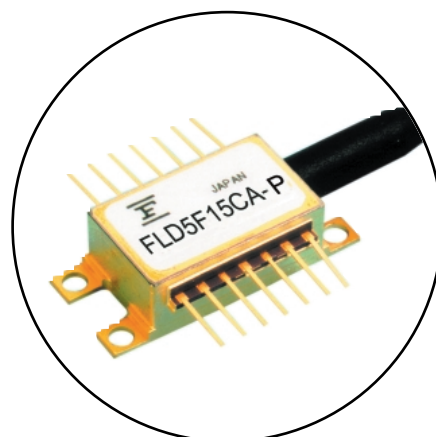


FEATURES:

- CW light source with integrated wavelength locker
- Output Power: 16dBm (min.)
- Available at C Band ITU-T grid wavelengths between 1528.773-1570.005nm
- Wavelength stability better than ± 25 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-P) is a high power CW laser (16dBm) with polarization maintaining fiber. It is intended for use with an external modulator. The 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 C band (1528.773-1570.005nm). 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°C)

Parameter	Symbol	Condition	Ratings	Unit
Storage Temperature	T _{stg}	-	-40 to +85	°C
Operating Case Temperature	T _{op}	-	0 to +70	°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: $f=c/\lambda_p$, $c=2.99792458 \cdot 10^8\text{m/s}$

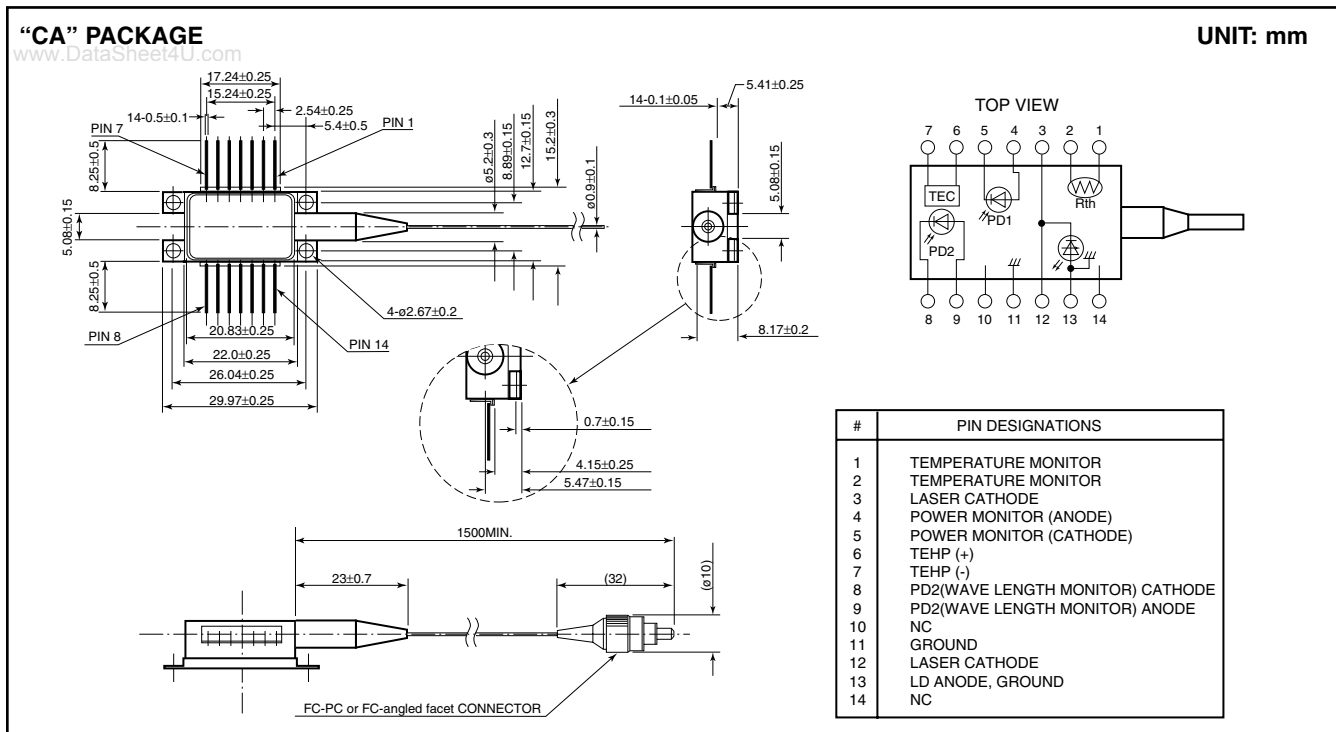
Note 4. Reference Figure 1 for Wavelength Table

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-P9610	1528.773	±0.01	FLD5F15CA-P9350	1549.315	±0.01
FLD5F15CA-P9605	1529.163	±0.01	FLD5F15CA-P9345	1549.715	±0.01
FLD5F15CA-P9600	1529.553	±0.01	FLD5F15CA-P9340	1550.116	±0.01
FLD5F15CA-P9595	1529.944	±0.01	FLD5F15CA-P9335	1550.517	±0.01
FLD5F15CA-P9590	1530.334	±0.01	FLD5F15CA-P9330	1550.918	±0.01
FLD5F15CA-P9585	1530.725	±0.01	FLD5F15CA-P9325	1551.319	±0.01
FLD5F15CA-P9580	1531.116	±0.01	FLD5F15CA-P9320	1551.721	±0.01
FLD5F15CA-P9575	1531.507	±0.01	FLD5F15CA-P9315	1552.122	±0.01
FLD5F15CA-P9570	1531.898	±0.01	FLD5F15CA-P9310	1552.524	±0.01
FLD5F15CA-P9565	1532.290	±0.01	FLD5F15CA-P9305	1552.926	±0.01
FLD5F15CA-P9560	1532.681	±0.01	FLD5F15CA-P9300	1553.329	±0.01
FLD5F15CA-P9555	1533.073	±0.01	FLD5F15CA-P9295	1553.731	±0.01
FLD5F15CA-P9550	1533.465	±0.01	FLD5F15CA-P9290	1554.134	±0.01
FLD5F15CA-P9545	1533.858	±0.01	FLD5F15CA-P9285	1554.537	±0.01
FLD5F15CA-P9540	1534.250	±0.01	FLD5F15CA-P9280	1554.940	±0.01
FLD5F15CA-P9535	1534.643	±0.01	FLD5F15CA-P9275	1555.343	±0.01
FLD5F15CA-P9530	1535.036	±0.01	FLD5F15CA-P9270	1555.747	±0.01
FLD5F15CA-P9525	1535.429	±0.01	FLD5F15CA-P9265	1556.151	±0.01
FLD5F15CA-P9520	1535.822	±0.01	FLD5F15CA-P9260	1556.555	±0.01
FLD5F15CA-P9515	1536.216	±0.01	FLD5F15CA-P9255	1556.959	±0.01
FLD5F15CA-P9510	1536.609	±0.01	FLD5F15CA-P9250	1557.363	±0.01
FLD5F15CA-P9505	1537.003	±0.01	FLD5F15CA-P9245	1557.768	±0.01
FLD5F15CA-P9500	1537.397	±0.01	FLD5F15CA-P9240	1558.173	±0.01
FLD5F15CA-P9495	1537.792	±0.01	FLD5F15CA-P9235	1558.578	±0.01
FLD5F15CA-P9490	1538.186	±0.01	FLD5F15CA-P9230	1558.983	±0.01
FLD5F15CA-P9485	1538.581	±0.01	FLD5F15CA-P9225	1559.389	±0.01
FLD5F15CA-P9480	1538.976	±0.01	FLD5F15CA-P9220	1559.794	±0.01
FLD5F15CA-P9475	1539.371	±0.01	FLD5F15CA-P9215	1560.200	±0.01
FLD5F15CA-P9470	1539.766	±0.01	FLD5F15CA-P9210	1560.606	±0.01
FLD5F15CA-P9465	1540.162	±0.01	FLD5F15CA-P9205	1561.013	±0.01
FLD5F15CA-P9460	1540.557	±0.01	FLD5F15CA-P9200	1561.419	±0.01
FLD5F15CA-P9455	1540.953	±0.01	FLD5F15CA-P9195	1561.826	±0.01
FLD5F15CA-P9450	1541.349	±0.01	FLD5F15CA-P9190	1562.233	±0.01
FLD5F15CA-P9445	1541.746	±0.01	FLD5F15CA-P9185	1562.640	±0.01
FLD5F15CA-P9440	1542.142	±0.01	FLD5F15CA-P9180	1563.047	±0.01
FLD5F15CA-P9435	1542.539	±0.01	FLD5F15CA-P9175	1563.455	±0.01
FLD5F15CA-P9430	1542.936	±0.01	FLD5F15CA-P9170	1563.863	±0.01
FLD5F15CA-P9425	1543.333	±0.01	FLD5F15CA-P9165	1564.271	±0.01
FLD5F15CA-P9420	1543.730	±0.01	FLD5F15CA-P9160	1564.679	±0.01
FLD5F15CA-P9415	1544.128	±0.01	FLD5F15CA-P9155	1565.087	±0.01
FLD5F15CA-P9410	1544.526	±0.01	FLD5F15CA-P9150	1565.496	±0.01
FLD5F15CA-P9405	1544.924	±0.01	FLD5F15CA-P9145	1565.905	±0.01
FLD5F15CA-P9400	1545.322	±0.01	FLD5F15CA-P9140	1566.314	±0.01
FLD5F15CA-P9395	1545.720	±0.01	FLD5F15CA-P9135	1566.723	±0.01
FLD5F15CA-P9390	1546.119	±0.01	FLD5F15CA-P9130	1567.133	±0.01
FLD5F15CA-P9385	1546.518	±0.01	FLD5F15CA-P9125	1567.542	±0.01
FLD5F15CA-P9380	1546.917	±0.01	FLD5F15CA-P9120	1567.952	±0.01
FLD5F15CA-P9375	1547.316	±0.01	FLD5F15CA-P9115	1568.362	±0.01
FLD5F15CA-P9370	1547.715	±0.01	FLD5F15CA-P9110	1568.773	±0.01
FLD5F15CA-P9365	1548.115	±0.01	FLD5F15CA-P9105	1569.183	±0.01
FLD5F15CA-P9360	1548.515	±0.01	FLD5F15CA-P9100	1569.594	±0.01
FLD5F15CA-P9355	1548.915	±0.01	FLD5F15CA-P9095	1570.005	±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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