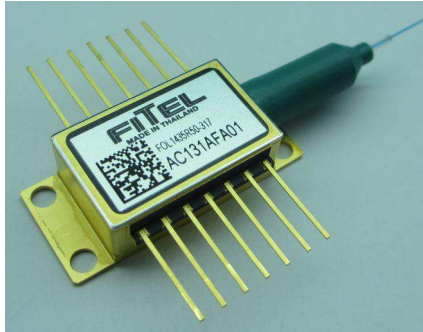


1480 Pump Laser Diode Module (with Isolator)



Applications

- Pump Source for Er-Doped Fiber Amplifier
 - C- and/or L-Band EDFA
 - Single Channel Amp to DWDM Amp

Product Type : FOL1402P/1404Q/1405R/1437R Series

Descriptions

- The FOL14xx series (with Isolator) has been designed for use in a wide variety of optical amplifier, such as EDFA used in optical transmission systems, especially in dense wavelength-division-multiplexing (DWDM) systems.
- A strained multi-quantum well laser diode chip is integrated with thermo-electric cooler (TEC), thermistor and PIN photodiode in a hermetically sealed 14 pin butterfly package.
- A 2-lens-system couples a round shape light from the laser chip efficiently to the fiber and enables the output power up to 500 mW.
- This laser module complies with telecom requirements described in Telcordia™ GR-468 requirement and manufactured in an ISO™9001 certified production line.

Features

- Rated output power up to 500 mW (CW)
- Widely deployed reliable package design with industry compatible 14 pin butterfly footprint
- Internal Thermo-electric cooler (TEC) and Thermistor for stable operation
- Integrated PIN photodiode for back facet monitor
- Internal optical Isolator
- Single mode fiber and Polarization maintaining fiber pigtail
- EU RoHS compliant (Exemption 7(c)-1, 13(a) applied)

Absolute Maximum Rating

Parameters	Sym.	Min.	Max.	Unit
Storage Temperature	Tstg	-40	85	°C
Operating Case Temperature 1402P(see TableA)	Tc	-20	75	°C
1402P(see TableA)		-20	70	
1404Q,1405R,1437R				
LD Forward Current 1402P	If	-	1000	mA
1404Q		-	1300	
1405R		-	1600	
1437R		-	2100	
LD Reverse Voltage	Vr	-	2	V
PD Forward Current	IfPD	-	5	mA
PD Reverse Voltage	VrPD	-	20	V
TEC Current 1402P	Ic	-0.6	2	A
1404Q		-1.1	4.5	
1405R,1437R		-1.1	4.5	
TEC Voltage 1402P	Vc	-	4.5	V
1404Q		-	4.2	
1405R,1437R		-	4.5	

Specifications

LD Temperature (Ts) = 25°C

Parameters	Sym.	Min.	Typ.	Max.	Unit	Conditions
Output Power ¹⁾	Pf	Table A			mW	
Forward Current	If	Table A				
Center Wavelength(FP)	λ	1460	-	1490	nm	RMS(-20dB) Rated Power
Spectral Width	$\Delta\lambda$	-	-	8	nm	RMS(-20dB) Rated Power
Forward Voltage	Vf	Table A			V	Rated Power
Forward Current at EOL 1402P,1404Q,1405R	IfEOL	-	-	1.2xIfBOL	mA	
1437R		-	-	1.15xIfBOL		
Monitor Current 1402P	Im	50	-	1000	μ A	VrPD=5V, Rated Power
1404Q		100	-	1500		
1405R,1437R		100	-	2000		
Monitor Dark Current	Id	-	-	100	nA	VrPD=5V
Extinction Ratio	Re	16	-	-	dB	-417 ²⁾
Isolation	Iso	30	-	-	dB	
TEC Specification	-	Table A				
Thermistor Resistance	Rth	9.5	10	10.5	k Ω	Ts = 25°C
Thermistor B Constant	Bth	-	3900	-	-	Ts = 25°C

1) Pf: Available Pf may depend upon center wavelength selected.

2) Design Description (See Table A and Ordering Information for detail)

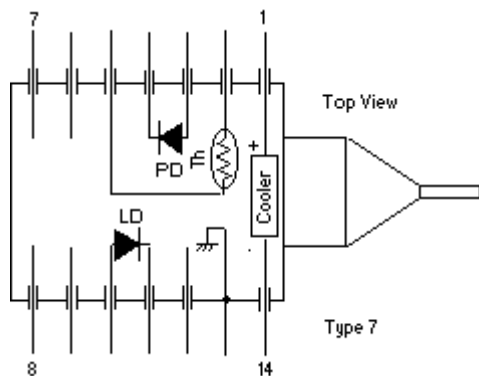
Part Number	Build-in Isolator	SM fiber	PM fiber
FOL14xxxxx-317	x	x	
FOL14xxxxx-417	x		x

Table A

*:EOL

Part Number	Pf(mW)	If(mA) max	Vf(V) max	T _c (°C)	I _{tec} (A)* max	V _{tec} (V)* max	W _{total} (W)* max
FOL1402PJX	120	500	2.5	75	1.2	2.7	4.0
FOL1402PJY	130	500	2.5	75	1.2	2.7	4.0
FOL1402PLZ	140	600	2.5	75	1.3	3.0	5.1
FOL1402PLE	150	600	2.5	75	1.3	3.0	5.1
FOL1402PLF	160	600	2.5	75	1.3	3.0	5.1
FOL1402PMG	170	700	2.5	75	1.5	3.5	6.8
FOL1402PMH	180	700	2.5	75	1.5	3.5	6.8
FOL1402PMI	190	700	2.5	75	1.5	3.5	6.8
FOL1402PNJ	200	800	2.5	70	1.7	3.6	7.8
FOL1402PLG	170	600	2.5	70	1.2	2.7	4.4
FOL1402PLH	180	600	2.5	70	1.2	2.7	4.4
FOL1402PMI	190	700	2.5	70	1.4	3.1	5.8
FOL1402PMJ	200	700	2.5	70	1.4	3.1	5.8
FOL1402PMK	210	700	2.5	70	1.4	3.1	5.8
FOL1402PML	220	700	2.5	70	1.4	3.1	5.8
FOL1402PNM	230	800	2.5	70	1.7	3.6	7.8
FOL1402PNN	240	800	2.5	70	1.7	3.6	7.8
FOL1402PNO	250	800	2.5	70	1.7	3.6	7.8
FOL1404QPK	210	900	2.5	70	2.7	2.5	8.7
FOL1404QPL	220	900	2.5	70	2.7	2.5	8.7
FOL1404QPM	230	900	2.5	70	2.7	2.5	8.7
FOL1404QQN	240	1000	2.5	70	3.0	2.7	10.5
FOL1404QQO	250	1000	2.5	70	3.0	2.7	10.5
FOL1404QQP	260	1000	2.5	70	3.0	2.7	10.5
FOL1405RSA	270	1200	2.6	70	2.7	3.4	12.3
FOL1405RSB	280	1200	2.6	70	2.7	3.4	12.3
FOL1405RTC	290	1300	2.6	70	2.9	3.7	14.1
FOL1405RTD	300	1300	2.6	70	2.9	3.7	14.1
FOL1405RTV	320	1300	2.6	70	2.9	3.7	14.1
FOL1437R34	340	1300	2.4	70	2.6	3.2	11.0
FOL1437R36	360	1300	2.4	70	2.6	3.2	11.0
FOL1437R38	380	1400	2.3	70	2.6	3.2	11.0
FOL1437R40	400	1400	2.3	70	2.6	3.2	11.0
FOL1437R45	450	1600	2.4	70	2.9	3.5	13.0
FOL1437R50	500	1800	2.5	70	3.2	3.8	15.0

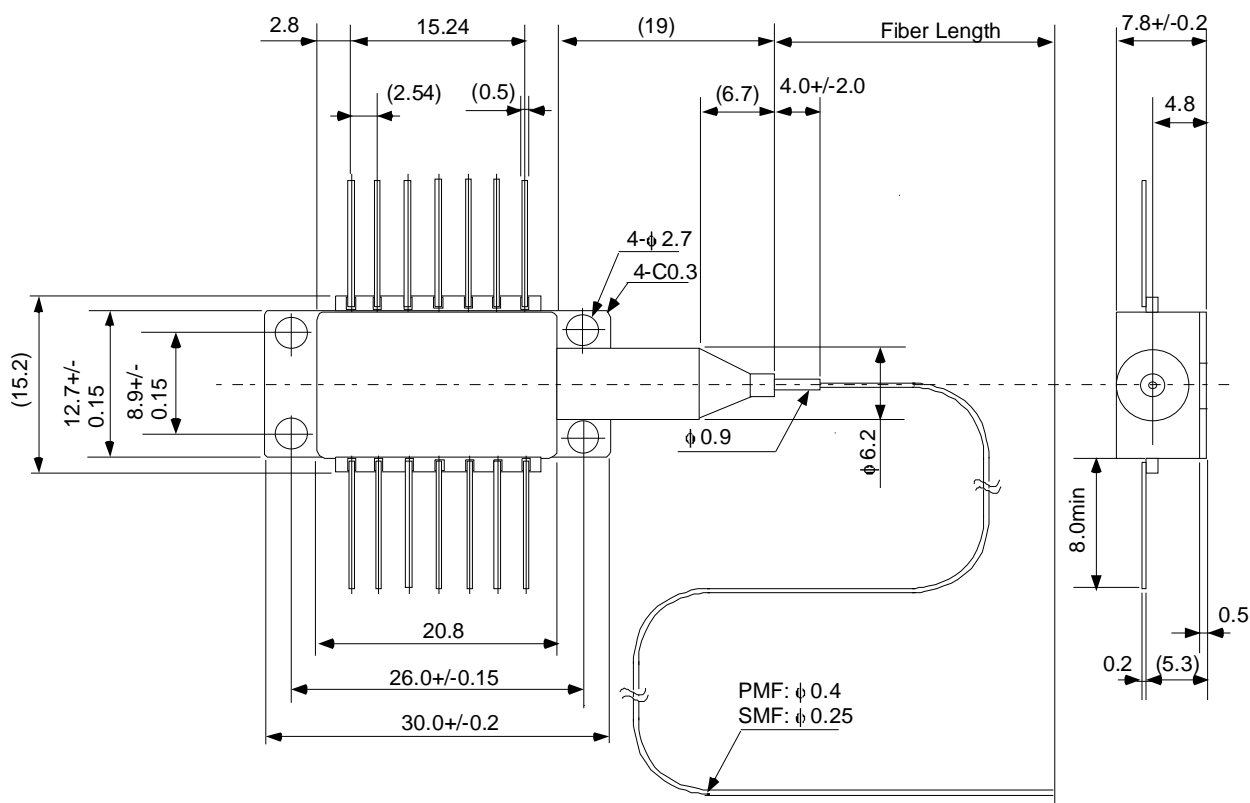
Pin Assignment



Pin#	Function	Pin#	Function
1	Cooler(+)	8	No Connection
2	Thermistor	9	No Connection
3	PD anode(-)	10	LD anode(+)
4	PD cathode(+)	11	LD cathode(-)
5	Thermistor	12	No Connection
6	No Connection	13	Case GND
7	No Connection	14	Cooler(-)

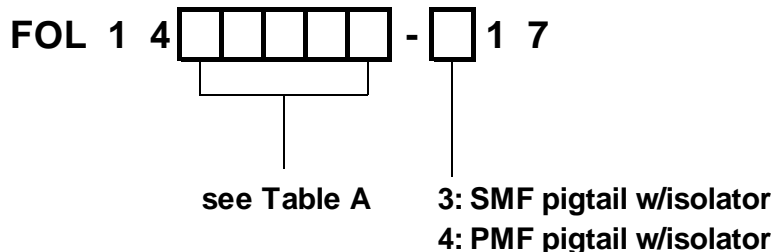
Dimensions

FOL14xxxxx-317 and -417 (w/isolator)



FOL14xx Series (with Isolator) August 2017

Ordering information



Safety information

This product complies with 21 CFR 1040.10 and 1040.11, Class IV laser product. Invisible laser radiation is emitted from the end of the fiber or connector. Avoid eye or skin exposure to direct or scattered radiation.



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Furukawa Electric reserves the right to improve, enhance and modify the features and specifications of FITEL products without prior notifications.

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