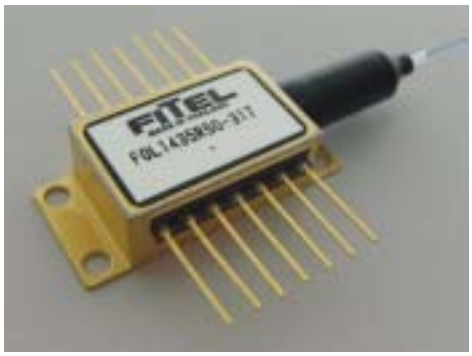
Data Sheet

FOL1435 Series

Feb. 2011

High power 1480 / 14xx-nm Pump Laser Diode Module



Applications

- Pump Source for EDFA
  - C- and/or L-Band EDFA
- Pump Source for Raman Amplifier
  - C-band

Product Type : FOL1435 Series

Descriptions

- The FOL1435 series has been designed for use in a wide variety of optical amplifier, such as EDFA or Raman Amplifier 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 (optional)
- Single mode fiber and Polarization maintaining fiber pigtail
- Wavelength stabilization available with external FBG (optional)
- Epoxy free design inside the module for long term reliability
- EU RoHS compliant (Exemption 7b applied)

Absolute Maximum Rating

Parameters	Sym.	Min.	Max.	Unit
Storage Temperature	Tstg	-40	85	°C
Operating Case Temperature	Tc	-20	70	°C
LD Forward Current	If		2100	mA
LD Reverse Voltage	Vr	-	2	V
PD Forward Current	IfPD	-	5	mA
PD Reverse Voltage	VrPD	-	20	V
TEC Current	Ic		4.5	A
TEC Voltage	Vc		4.5	V

Specifications

(LD Temperature (Ts) = 25°C)

Parameters	Sym.	Min.	Typ.	Max.	Unit	Conditions
Output Power[1)]	Pf	Table A			mW	
Forward Current	If				mA	
Center Wavelength(FP)	λ	1460	-	1490	nm	RMS(-20dB), Rated Power λ=1420~1465nm for FBG
Center Wavelength(FBG)		λ-1.5	λ	λ+1.5		
Spectral Width(-317 and -417)	Δλ	-	-	8	nm	RMS(-20dB), Rated Power
Spectral Width(-617)[2)]	Δλ	-	-	3		
Forward Voltage	Vf	Table A			V	Rated Power
Forward Current at EOL	IfEOL	-	-	1.15xIfBOL	mA	
Monitor Current	Im	100	-	2000	μA	VrPD=5V, Rated Power
Monitor Dark Current	Id	-	-	100	nA	VrPD=5V
Extinction Ratio	Re	16	-	-	dB	-417 or -617 [3)]
Isolation	Iso	30	-	-	dB	-317 or -417 [3)]
TEC Specification	-	Table A				
Thermistor Resistance	Rth	9.5	10	10.5	kΩ	Ts = 25°C
Thermistor B Constant	Bth	-	3900	-	-	Ts = 25°C

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

2) λc: Selected center wavelength from 1420nm to 1465nm available.

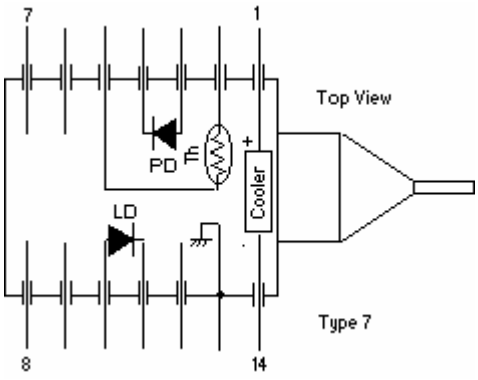
3) Design Description (See Table A and Ordering Information for detail)

Part Number	Build-in Isolator	External FBG	SM fiber	PM fiber
FOL1435Rxx-317	**X**		**X**	
FOL1435Rxx-417	**X**			**X**
FOL1435Rxx-617-xxxx		**X**		**X**

Table A

Part Number	Pf(mW)	If(mA)	Vf(V)	Tc(ºC)	Itec(A) max	Vtec(V) max	Wtotal(W) max
FOL1435R40	400	1400	2.2	70	2.6	3.2	12
FOL1435R45	450	1600	2.3	70	2.8	3.5	14
FOL1435R50	500	1800	2.4	70	3.0	3.8	16

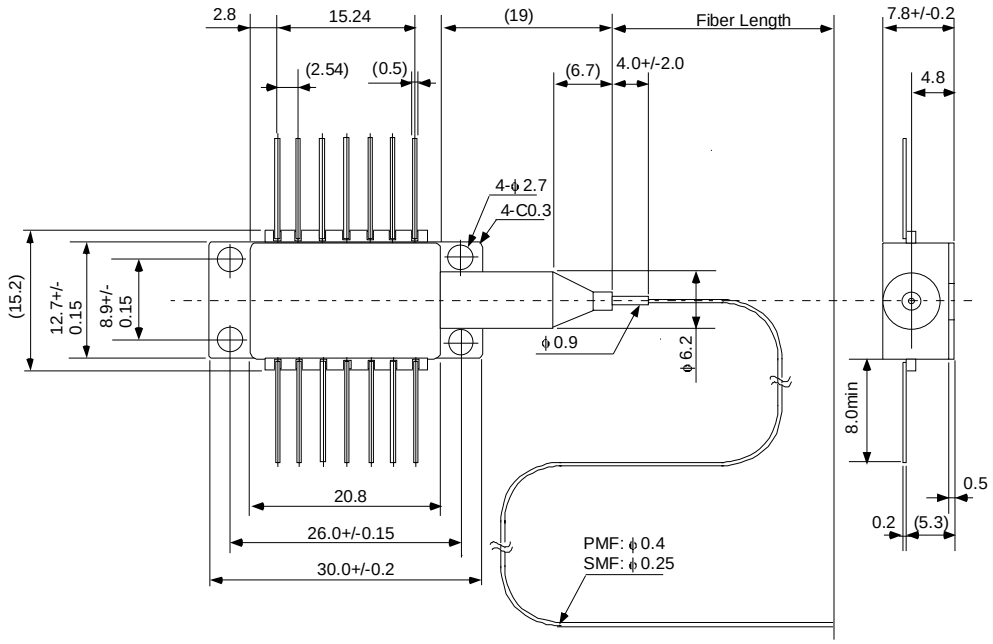
Pin Assignment



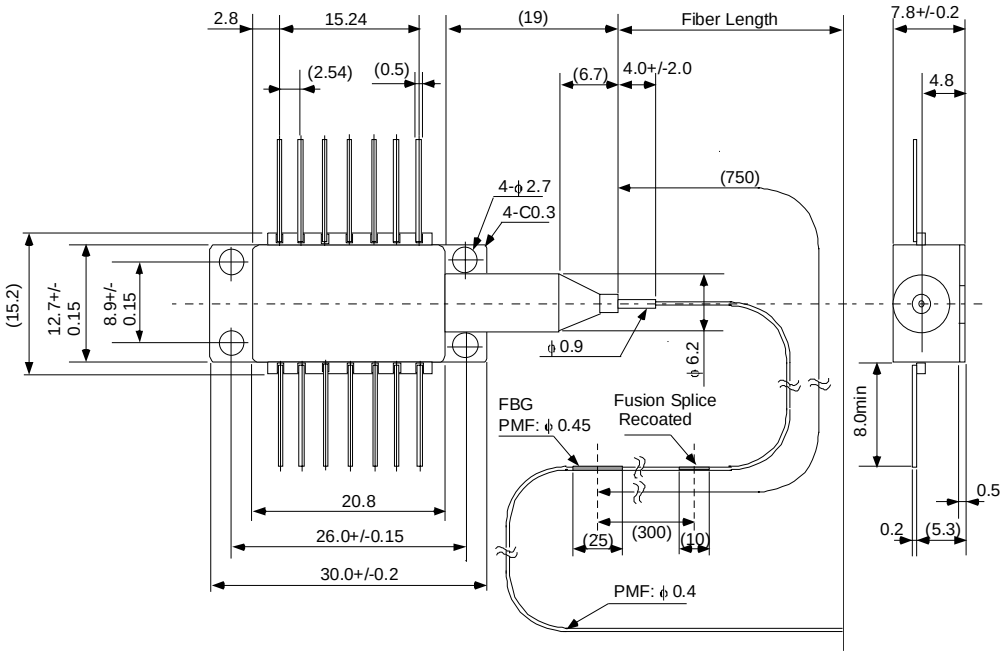
Pin#	Function	Pin#	Function
1	Cooler(+)	8	No Connection
2	Thermistor	9	No Connection
3	PD anode(−)	10	LD anode(+)
4	PD cathode(+)	11	LD cathode(−)
5	Thermistor	12	No Connection
6	No Connection	13	Case GND
7	No Connection	14	Cooler(−)

Dimensions

317 and 417 (w/isolator w/o FBG)



617 (w/FBG)



Ordering information

FOL 1 4 3 5 R□□ - □ 1 7 - □□□□

Wavelength for 617 *ex.1425*

Output power
ex. 500mW : FOL1435R50

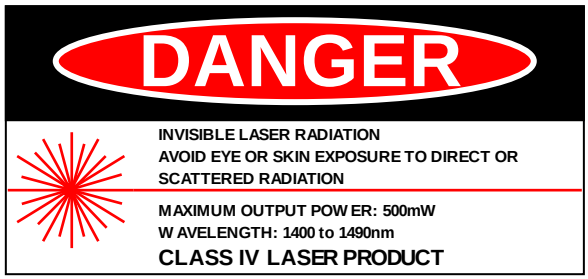
3: SMF pigtail w/isolator

4: PMF pigtail w/isolator

6: PMF pigtail w/FBG

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 direct exposure to the beam.



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

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