

Data Sheet

FOL1404Qxy / 1480nm Pump Laser Module

Date DEC.22.2004 ODC-2B001E



1480nm Pump LDM up to 270mW



Applications

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

Description

- The FOL1404Q 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 270 mW.
- This laser module complies with telecom requirements described in Telcordia™ GR-468 requirement and manufactured in an ISO9001™ certified production line..

Features

- Rated output power up to 270 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

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Absolute Maximum Ratings

Parameters	Sym.	Min.	Max.	Unit	Parameters	Sym.	Min.	Max.	Unit
Storage Temperature	Tstg	-40	85	°C	PD Forward Current	IfPD	-	5	mA
Operating Case Temperature	Tc	-20	70	°C	PD Reverse Voltage	VrPD	-	20	V
LD Forward Current	If	-	1300	mA	TEC Current	Ic	-1.1	4.5	A
LD Reverse Voltage	Vr	-	2	V	TEC Voltage	Vc	-	4.2	V

Optical and Electrical Specifications (Sensor Temperature (Ts) = 25°C)

Parameters	Sym.	Min.	Typ.	Max.	Unit	Conditions
Output Power	Pf ¹⁾				mW	IfBOL=<900mA,
FOL1404QPK		210	-	-		
FOL1404QPL		220	-	-		
FOL1404QPM		230	-	-		IfBOL=<1000mA,
FOL1404QQN		240	-	-		
FOL1404QQO		250	-	-		
FOL1404QQP		260	-	-		
FOL1404QQA		270	-	-		
Center Wavelength(FP)	λ_c	1460	-	1490	nm	RMS(-20dB), Rated Power
Center Wavelength(FBG)	$\lambda_c^{2)}$	$\lambda_c-1.5$	λ_c	$\lambda_c+1.5$	nm	RMS(-20dB), Rated Power
Spectral Width(FP)	$\Delta\lambda$	-	-	8	nm	RMS(-20dB), Rated Power
Spectral Width(FBG)	$\Delta\lambda$	-	-	3	nm	RMS(-20dB), Rated Power
LD Operating Forward Voltage	Vf	-	-	2.5	V	Rated Power
LD Forward Current at EOL	IfEOL	-	-	1.2xIfBOL	mA	End of Life
Monitor Current	Im	50	-	1500	μ A	VrPD=5V, Rated Power
Monitor Dark Current	Id	-	-	100	nA	VrPD=5V
Extinction Ratio	Re	16	-	-	dB	Type4 and Type6
Isolation	Iso	30	-	-	dB	Type3 and Type4
TEC Spec.	-	Refer to below			-	-
Thermistor Resistance	Rth	9.5	10	10.5	k Ω	Ts=25°C
Thermistor B Constant	Bth	-	3900	-	K	Ts=25°C

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

2) λ_c ; Selected center wavelength from 1380nm to 1520nm available.

Thermo-Electric Cooler Characteristic & Power Consumption

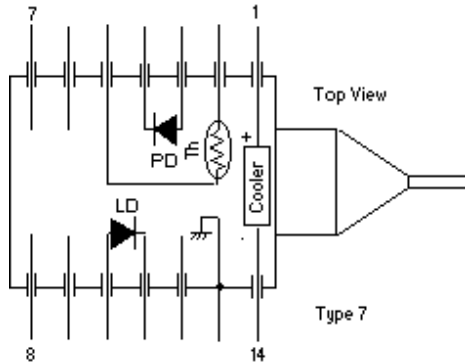
Part Numer	Itec[A]	Vtec[V]	4)Ptotal [W]	Condition
QP* series Pf=210 to 230[mW]	2.7	2.5	8.7	Max Val., Ts=25°C, Δ T=45°C, IfEOL
QQ* series Pf=240 to 270[mW]	3.0	2.7	10.5	Max Val., Ts=25°C, Δ T=45°C, IfEOL

4) Ptotal = Wtec + Wld (Total Power Consumption)

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Dimensions & 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(-)

