


LU96Z***-7*

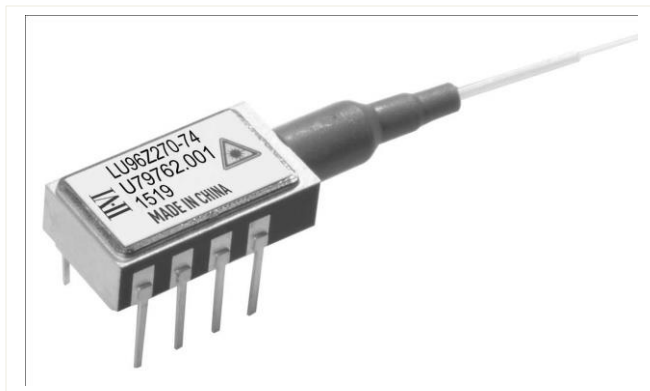
Uncooled mini-DIL 980nm Pump Laser Module

Features

- Up to 300mW kink-free power over full operating temperature range
- Operating temperature range from -5°C to +75°C
- Polarization maintaining (PM) fiber
- Low power dissipation
- Small form factor mini-DIL package
- Wavelength stabilized by fiber Bragg grating over entire operating range
- Centre wavelength at 974 and 976nm
- Telcordia GR-468-CORE compliant
- RoHS compliant 

Applications

- Low noise EDFA requiring higher optical power with low power consumption and small form-factor package
- Single or multi-stage EDFA applications including Single-channel and DWDM designs



Product Overview

The LU96Z-series uncooled pump laser module in an 8-pin mini-DIL package is II-VI's third-generation uncooled pump module providing low power consumption for highly reliable metro, cross-connect, SFF single and multi-channel amplifier designs plus high bit-rate, per-channel amplification.

The LU96Z-series is designed for uncooled operation at high temperature and power levels. Qualification of the enhanced G08 chip ensures high reliability even at high operating power, 75°C. External Fiber Bragg Grating (FBG) stabilization provides excellent wavelength and power stability over the entire operating temperature range.

LU96Z-Series

Operating Parameter

Product Code	Minimum Kink-Free Power P_{kink} (mW)	Maximum Operating Power P_{op} (mW)	Typical Operating Current I_{op} (mA)	Maximum Operating Current I_{op} (mA)
LU96Z100-7*	110	100	240	270
LU96Z110-7*	120	110	255	290
LU96Z120-7*	135	120	275	310
LU96Z130-7*	145	130	295	330
LU96Z140-7*	155	140	310	350
LU96Z150-7*	165	150	330	370
LU96Z160-7*	175	160	345	390
LU96Z170-7*	190	170	360	410
LU96Z180-7*	200	180	380	430
LU96Z190-7*	210	190	395	450
LU96Z200-7*	220	200	415	470
LU96Z210-7*	230	210	430	490
LU96Z220-7*	245	220	450	510
LU96Z230-7*	255	230	470	530
LU96Z240-7*	265	240	485	550
LU96Z250-7*	275	250	505	575
LU96Z260-7*	285	260	525	595
LU96Z270-7*	300	270	545	615

Notes;

1. Typical and maximum operating currents at 75°C
2. Operating power assumes a 10% ageing margin: Operating Power = Kink Free Power / 1.1

LU96Z-Series

Wavelength Specification

Product Code	Min.	Typ.	Max.	Units	Condition
LU96Z***-74	973	974	975	nm	Air reference. FBG temperatures is @ 25°C.
LU96Z***-76	975	976	977		

Product Specification

Parameter		Min.	Typ.	Max.	Units	Condition
Threshold current	I _{th}		55	100	mA	
Operating forward voltage	V _{op}		1.65	1.8	V	
Spectral width	$\Delta\lambda$		0.2	1.0	nm	RMS at -13dB
Power in band ratio >100mW 50mW to 100mW	PIB	90 75			%	$\lambda_c \pm 1.5\text{nm}$, -5°C to 75°C
Temperature dependence of peak wavelength	$\Delta\lambda/\Delta T$		0.008	0.01	nm/°C	FBG temperature dependency
Monitor detector responsivity	R _m	0.3	6	15	$\mu\text{A/mW}$	
Monitor dark current	I _{dark}			60	nA	-5V bias voltage
Fiber power stability >30mW 20 – 30mW 10 – 20mW 5 – 10mW	ΔP_{f_t}			0.10 0.10 0.15 0.20	dB	Peak-to-peak Time = 60sec DC to 50kHz
Return loss	RL	35			dB	1500nm – 1600nm
Thermistor BETA value	β	3500		4100		
Thermistor resistance	R _{th}	9.5	10.0	10.5	k Ω	At submount temperature of 25°C
Thermal power dissipation	P _{thermal}		0.7	1.0	W	T _{case} = 75°C, 270mW
Total electrical power consumption	P _{total}		1.0	1.25	W	

Notes;

1. Conditions unless otherwise stated: Case temperature -5 to 75°C, Monitor diode bias -5V, CW operation

LU96Z-Series

Absolute Maximum Ratings

Parameter		Min.	Typ.	Max.	Units	Condition
Operating case temperature	Top	-5		75	°C	
Storage temperature	Tstg	-40		85	°C	
Storage relative humidity	RHstg	5		95	%	But not to exceed 0.024kg of water per 1.0kg of dry air
Operating relative humidity	RHop	5		85	%	
Pigtail axial pull force				10.0	N	3x10 seconds
Pigtail side pull force				5.0	N	3x10 seconds
Fiber bend radius		13			mm	
Lead soldering temperature				350	°C	10 sec
Laser diode forward current	I _{f_max}			1100	mA	CW
Laser diode current transient				1200	mA	Time = 1000ns max.
Laser diode reverse current	I _r			10	μA	
Laser diode reverse voltage	V _r			2.0	V	
Photodiode reverse voltage				20	V	
Photodiode reverse current				5	mA	
ESD threshold				500	V	HBM, C=100pF, R=1.5kΩ

Fiber Specification

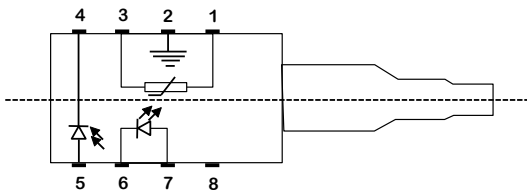
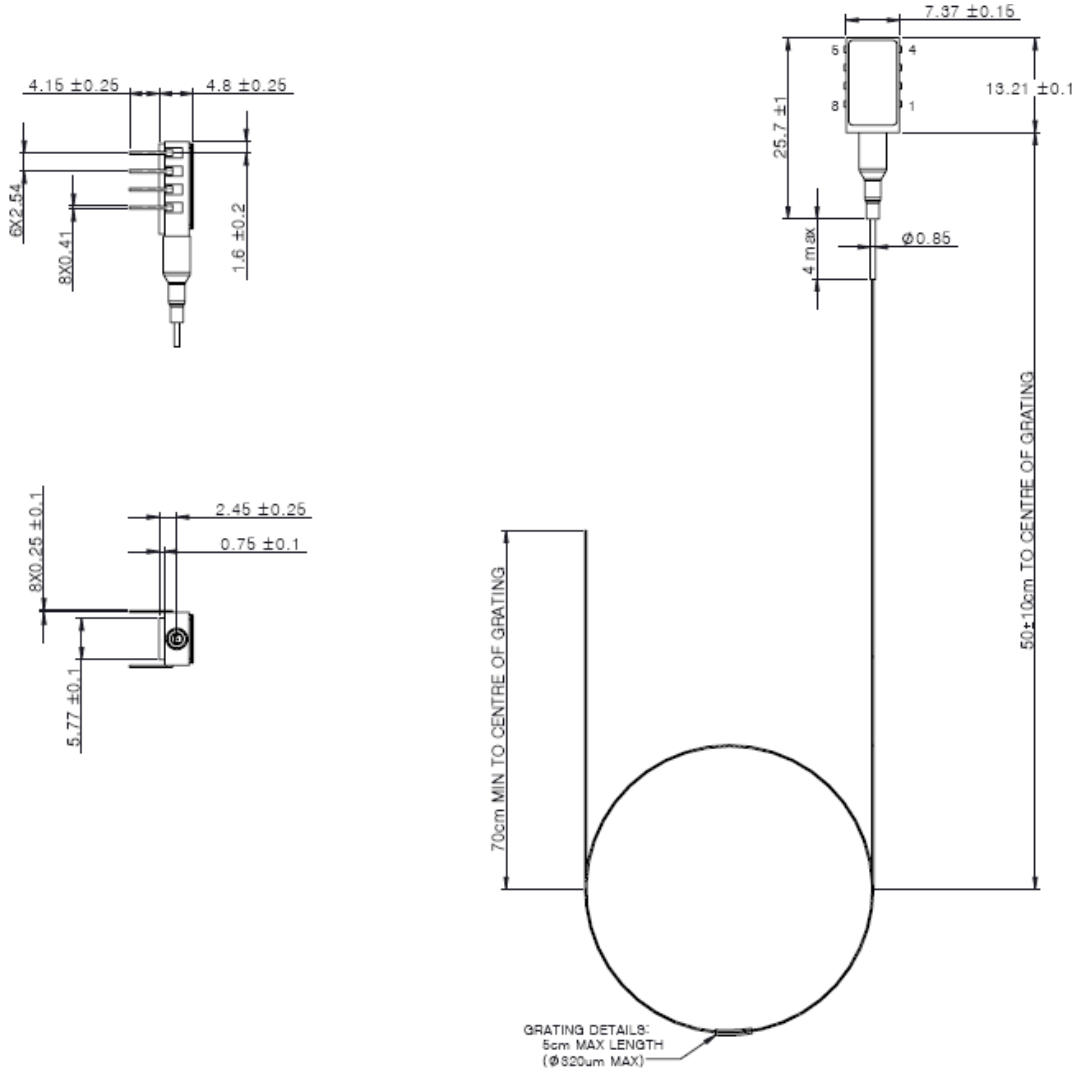
Parameter	Min.	Typ.	Max.	Units	Condition
Fiber type	Nufern PM980-XP or Corning PM 98-U25				
Cut-off wavelength	870	920	970	nm	
Mode field diameter	6.1	6.6	7.1	μm	@ 980nm
Cladding diameter	124	125	126	μm	
Fiber coating diameter	230	245	260	μm	Acrylate material, mechanically strippable
Grating recoat diameter	260	290	320	μm	
Core/cladding concentricity			<0.5	μm	
Coating-clad offset			≤5	μm	
Fiber proof test	200			kpsi	
Fiber Bragg Grating proof test	150			kpsi	

Notes;

1. Fiber termination; bare fiber with rough cleave.

LU96Z-Series

Module Outline Drawing and Pin Connections



PIN	CONNECTION
1	THERMISTOR
2	PACKAGE GROUND
3	THERMISTOR
4	MONITOR PD CATHODE
5	MONITOR PD ANODE
6	LASER DIODE CATHODE
7	LASER DIODE ANODE
8	N/C

LU96Z-Series

Ordering Information

LU	96Z	xxx	-	7x
Product Type	Chip Type	LD Operating Power (mW)	-	Wavelength 74 for 974nm 76 for 976nm

Example: LU96Z210-74 is a 210mW Operating Power, 974nm product.

Contact Information

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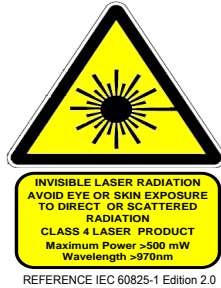
RoHS Compliance



II-VI Photonics is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

User Safety

The laser light is invisible and maybe harmful to human eyes. ESD protection, it is important that devices are handled correctly during all stages of manufacture and use.



Caution - use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Important Notice

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