


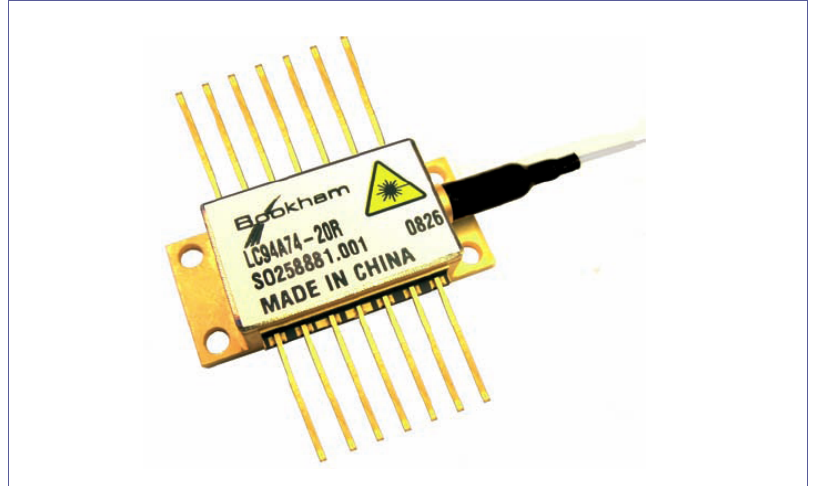
980nm Pump Laser Module Grating Stabilized, 300mW LC94*

Features:

- Double Fibre Bragg Grating wavelength stabilization
- High output power, up to 300mW kink free
- Single-mode fiber pigtail
- Internal thermoelectric heatpump and monitor photodiode
- Hermetically sealed 14 pin butterfly package
- Telcordia GR-468-CORE compliant
- Field-proven high reliability
- RoHS compliant 

Applications:

- Low noise EDFA
- Dense wavelength division multiplexing EDFA
- CATV



These lasers are designed as pump sources for erbium doped fiber amplifier (EDFA) applications. Processes and techniques of coupling the fiber to the laser allow high output powers that are very stable with both time and temperature. The grating is located in the pigtail to stabilize the wavelength.

The LC94* series pump module utilizes a fiber Bragg grating design for enhanced wavelength and power stability performance. This product has been designed to ensure superior wavelength locking over drive current, temperature and optical feedback changes.

Devices are available with kink free output powers to 300mW.

Operating Characteristics

Conditions unless otherwise stated:

Case temperature -20 to 75°C
 Submount temperature 25°C
 Monitor diode bias -5V
 CW operation

974nm Code	Kink-free Power	974nm Code	Kink-free Power
LC94ZC74-20R	100mW	LC94A74-20R	200mW
LC94ZD74-20R	110mW	LC94B74-20R	210mW
LC94ZE74-20R	120mW	LC94C74-20R	220mW
LC94ZF74-20R	130mW	LC94D74-20R	230mW
LC94ZG74-20R	140mW	LC94E74-20R	240mW
LC94ZH74-20R	150mW	LC94F74-20R	250mW
LC94ZJ74-20R	160mW	LC94G74-20R	260mW
LC94ZK74-20R	170mW	LC94H74-20R	270mW
LC94ZL74-20R	180mW	LC94J74-20R	280mW
LC94ZM74-20R	190mW	LC94K74-20R	290mW
		LC94L74-20R	300mW

Parameter	Min	Typ	Max	Unit
Threshold current (I _{th})		30	40	mA
Operating drive current (I _f)				
ZC thru ZD			250	mA
ZE thru ZF			300	
ZG thru ZJ			350	
ZK thru ZM			400	
A thru B			450	
C thru E			500	
F thru K			550	
L			600	
Forward voltage		1.9	2.5	V
Centre wavelength (λ _c)		974		nm
Spectral width (RMS @ -13dB)		0.2	1	nm
Spectrum stability (t = 60 secs)			±0.5	nm
Signal to noise ratio	20			dB
Temperature dependence of peak wavelength			0.02	nm/°C
Wavelength tolerance			±0.5	nm
Monitor detector responsivity	1		10	μA/mW
Monitor dark current			50	nA
Thermistor resistance (at 25°C)	9.5	10	10.5	kΩ
Thermistor BETA value (±1%)	3539	3575	3611	K
Intended laser submount operating temperature	23	25	27	°C
Power stability				
Peak-to-peak, t = 60s, DC to 50kHz sampling, T _c = 25°C			0.05	dB
>20mW			0.1	dB
10 – 20mW				
Heatpump current (ΔT = 50°C, I _f = 500mA)			1.3	A
Heatpump voltage (ΔT = 50°C, I _f = 500mA)			2.5	V

Absolute Maximum Ratings

Parameter	Min	Max	Unit
Operating case temperature	-20	75	°C
Storage temperature	-40	85	°C
Fiber bend radius	20		mm
Lead soldering temperature (10 sec max)		350	°C
Laser forward current (CW)		800	mA
Laser reverse voltage		2	V
Heatpump current		2.2	A

Package Outline Drawing

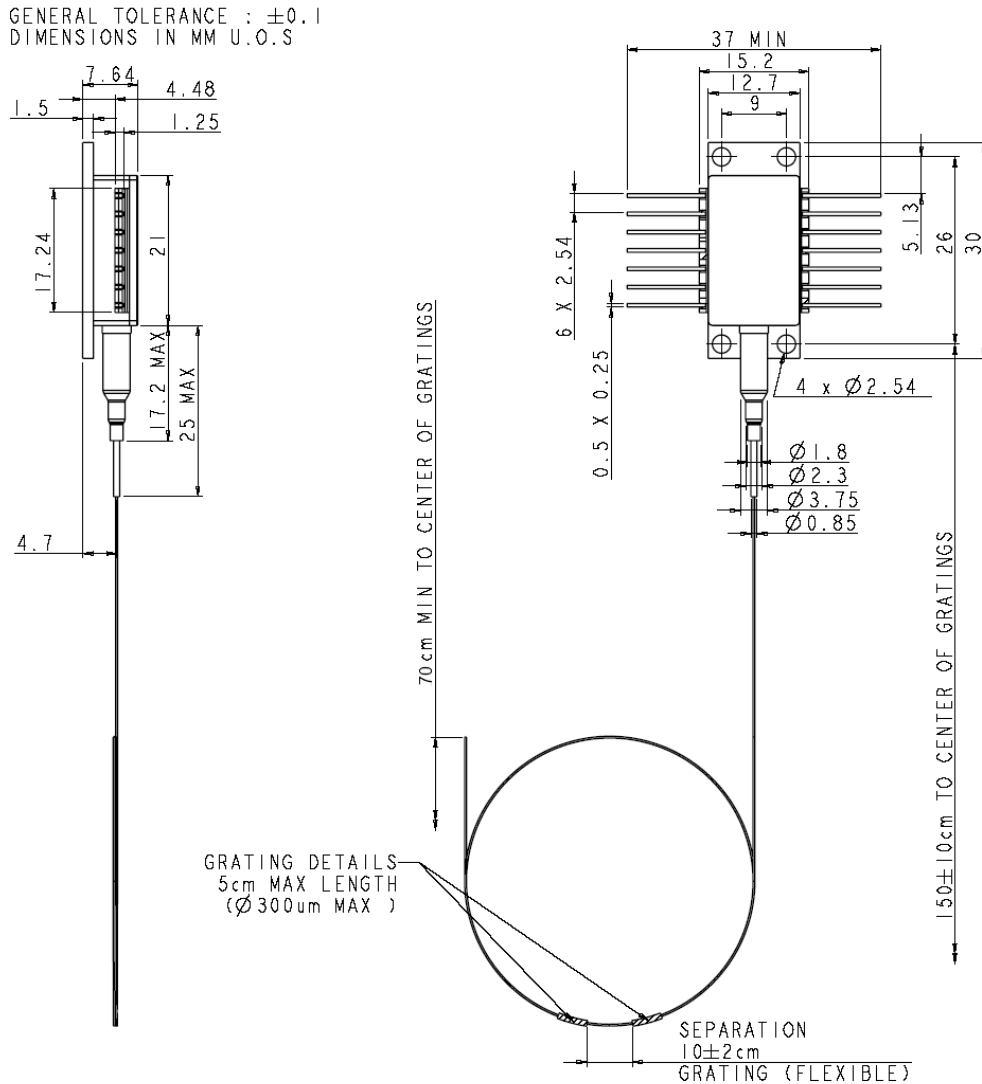


Figure 1: Package Outline Drawing and Dimensions (mm)

Fiber Specification

Parameter	Note	Min	Typ	Max	Unit
Fiber type	Puremode HI980 or equivalent, 250 μm				
Fiber termination	Bare fiber, rough cleave				
Cut-off wavelength		880	930	980	nm
Mode field diameter	@ 980nm	3.9	4.2	4.5	μm
Cladding diameter		124.5	125	125.5	μm
Fiber coating diameter	Acrylate material, mechanically strippable	235	245	255	μm
Grating recoat diameter		260	280	300	μm
Core-cladding offset				≤0.3	μm
Fiber proof test		150			kpsi

Connections

Pin #	Description	Pin#	Description
1	Peltier cooler (+)	8	Not connected
2	Thermistor	9	Not connected
3	Monitor anode (-)	10	Laser anode (+)
4	Monitor cathode (+)	11	Laser cathode (-)
5	Thermistor	12	Not connected
6	Not connected	13	Case ground
7	Not connected	14	Peltier cooler (-)

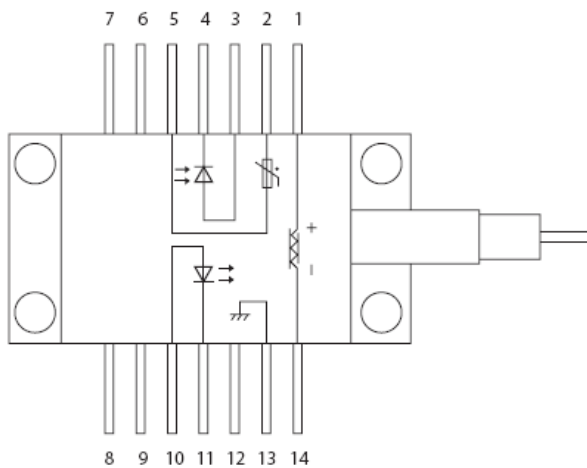


Figure 2: Connections

RoHS Compliance



Oclaro 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.

Patents

This product is protected by US patent numbers 6,359,330, 6,528,329, 6,782,024, 6,771,687, 6,798,815, 6,837,075, 7,173,953 and 7,218,659 and other patents and applications pending worldwide

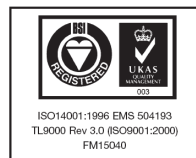
Contact Information Ordering Information

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LC94ZK74-20R	170mW	LC94H74-20R	270mW
LC94ZL74-20R	180mW	LC94J74-20R	280mW
LC94ZM74-20R	190mW	LC94K74-20R	290mW
		LC94L74-20R	300mW

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by Oclaro before they become applicable to any particular order or contract. In accordance with the Oclaro policy of continuous improvement specifications may change without notice. Further details are available from any Oclaro sales representative.



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

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