Data sheet

# 980 nm Pump Laser Module - Grating Stabilised, 300 mW

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

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

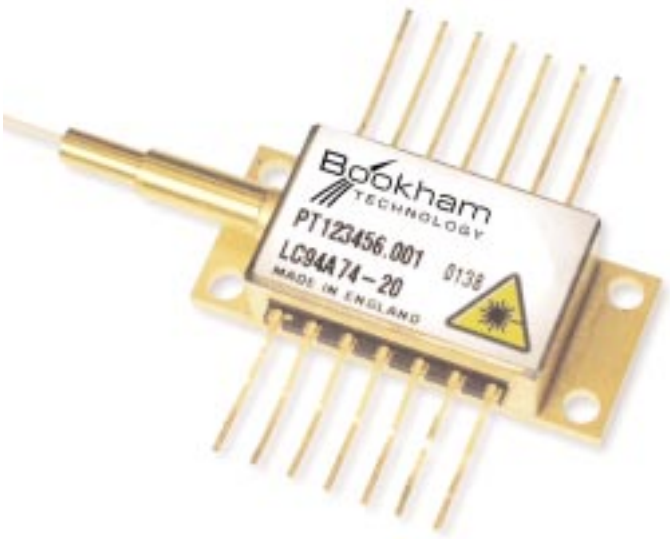
The LC94 series pump module utilises a double Fibre Bragg Grating design for enhanced wavelength and power stability performance. This product has been designed to ensure superior wavelength locking over drive current, temperature and optical feedback changes.

### Features

- Wavelength stabilised
- High output powers up to 300 mW kink free
- Single mode fibre pigtail
- Internal thermoelectric heatpump and monitor photodiode
- Hermetically sealed 14 pin butterfly package
- Telcordia GR-468-CORE compliant
- Double Fibre Bragg grating stabilisation
- Field proven high reliability

### Applications

- Low noise erbium doped fibre amplifiers (EDFAs)
- Dense wavelength division multiplexing (DWDM) EDFAs
- CATV Applications



## *Characteristics*

| | | |
|---|---|---|
| Conditions unless otherwise stated: | Case temperature | -20 to +75°C |
| | Submount temperature | 25°C |
| | Monitor diode bias | -5 V |
| | CW operation | |

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

For kink free powers beyond 300 mW please contact your sales representative.

| 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 | mA |
| | ZG thru ZJ | | | 350 | mA |
| | ZK thru ZM | | | 400 | mA |
| | A thru B | | | 450 | mA |
| | C thru E | | | 500 | mA |
| | F thru K | | | 550 | mA |
| | L | | | 600 | mA |
| Forward voltage | | | 1.9 | 2.5 | V |
| Peak wavelength (λp) | | 974 | | 980 | nm |
| Spectrum stability (t = 60 secs) | | | | ±0.5 | nm |
| Temperature dependence of peak wavelength | | | | 0.02 | nm/°C |
| Wavelength tolerance | | | | ±0.5 | nm |
| Monitor detector responsivity | | 1.0 | 8 | 25 | µA/mW |
| Monitor dark current | | | | 50 | nA |
| Thermistor resistance (at 25°C) | | 9.5 | 10 | 10.5 | kΩ |
| Intended laser submount operating temperature | | 20 | 25 | 30 | °C |
| Laser temperature, R = 10kΩ | | 23.5 | | 26.5 | °C |
| Heatpump current (ΔT = 50°C, If = 500 mA) | | | | 1.3 | A |
| Heatpump voltage (ΔT = 50°C, If = 500 mA) | | | | 2.8 | V |

## *Absolute Ratings*

| Parameter | Min | Max | Unit |
|---|---|---|---|
| Operating temperature | -20 | 75 | °C |
| Storage temperature | -40 | 85 | °C |
| Laser forward current | | 800 | mA |
| Laser reverse voltage | | 2 | V |
| Heatpump current | | 1.5 | A |
| Lead soldering temperature (10s max) | | 260 | °C |
| Fibre bend radius | 30 | | mm |

## *Package Outline Drawing and Dimensions*

Dimensions are in mm.

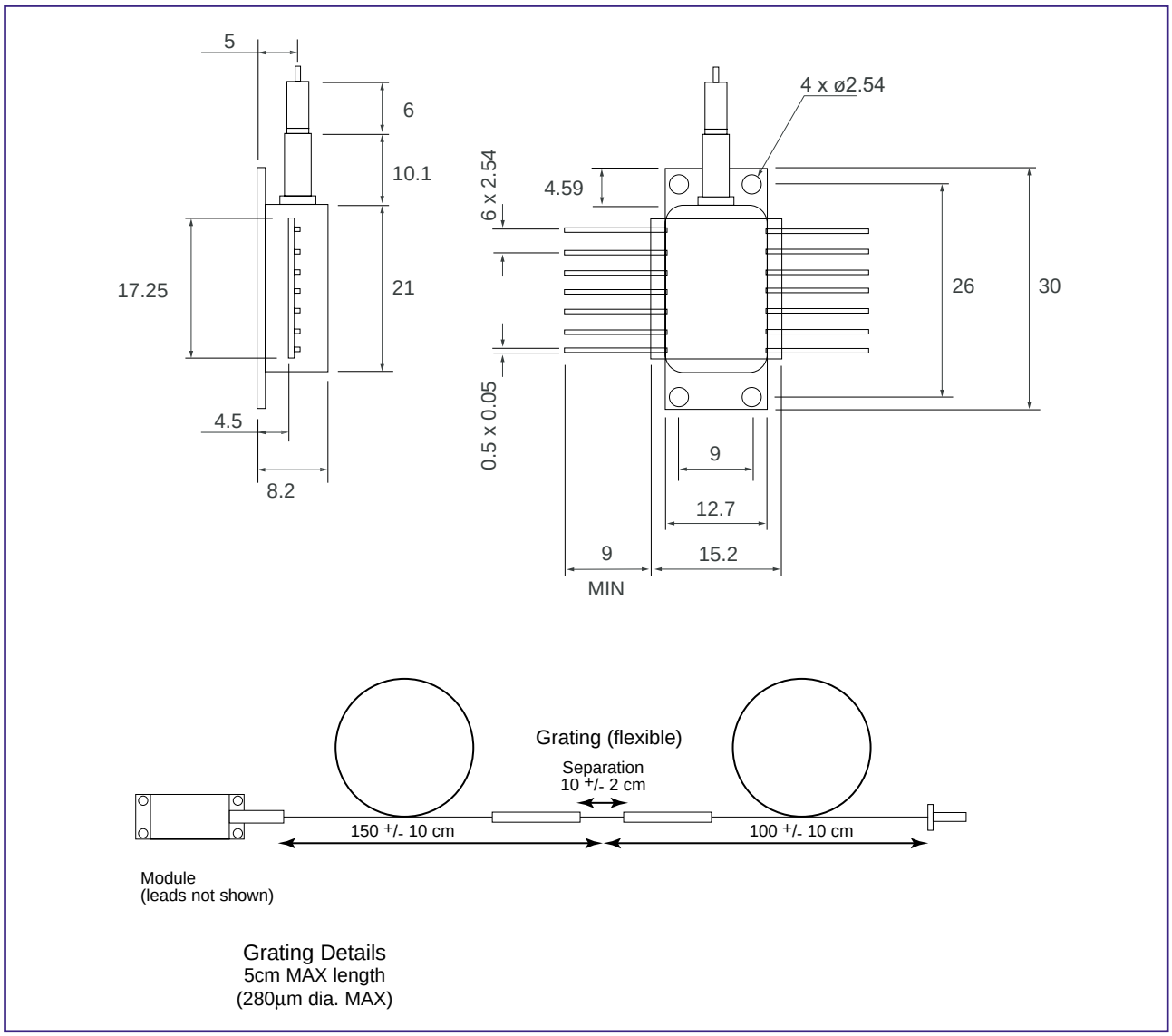



Figure 1: Package Outline Drawing and Dimensions

## *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 (-) |

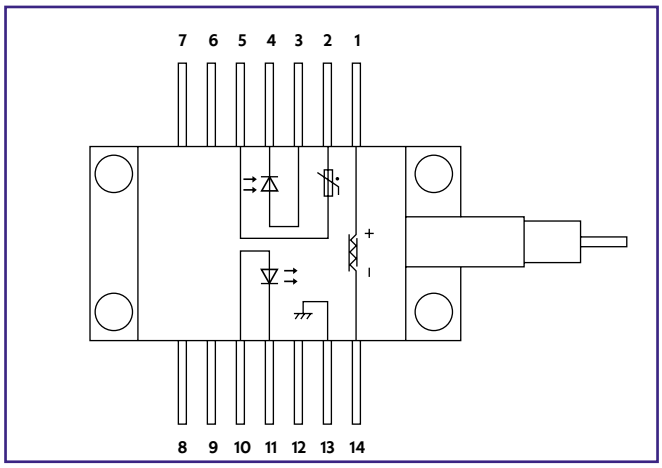



Figure 2: Connections

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## *Ordering Information*

Order Code No:

| | |
|---|---|
| LC94ZC74-20 for 100 mW device | LC94ZD74-20 for 110 mW device |
| LC94ZE74-20 for 120 mW device | LC94ZF74-20 for 130 mW device |
| LC94ZG74-20 for 140 mW device | LC94ZH74-20 for 150 mW device |
| LC94ZJ74-20 for 160 mW device | LC94ZK74-20 for 170 mW device |
| LC94ZL74-20 for 180 mW device | LC94ZM74-20 for 190 mW device |
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| LC94G74-20 for 260 mW device | LC94H74-20 for 270 mW device |
| LC94J74-20 for 280 mW device | LC94K74-20 for 290 mW device |
| LC94L74-20 for 300 mW device | |

The above codes are for a 974 nm device.
Other wavelengths may be supplied on request.


IEC60825-1: Edition 1.2


THIS PRODUCT COMPLIES WITH 21CFR 1040.10



Certificate No. FM 15040


Certificate No. EMS 35100


### North America

Bookham Technology Inc.
49 Buford Highway
Suwanee
GA 30024
USA

- **Tel: +1 678 482 4021**
- **Fax: +1 678 482 4022**

### Europe

Bookham Technology plc
Brixham Road
Paignton
Devon
TQ4 7BE
UK

- **Tel: +44 (0) 1803 66 2875**
- **Fax: +44 (0) 1803 66 2801**

### Asia

Bookham Technology plc
21/F Cityplaza One
1111 King's Road
Quarry Bay
Hong Kong

- **Tel: +852 (2100) 2249**
- **Fax: +852 (2100) 2585**

Sales@bookham.com


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