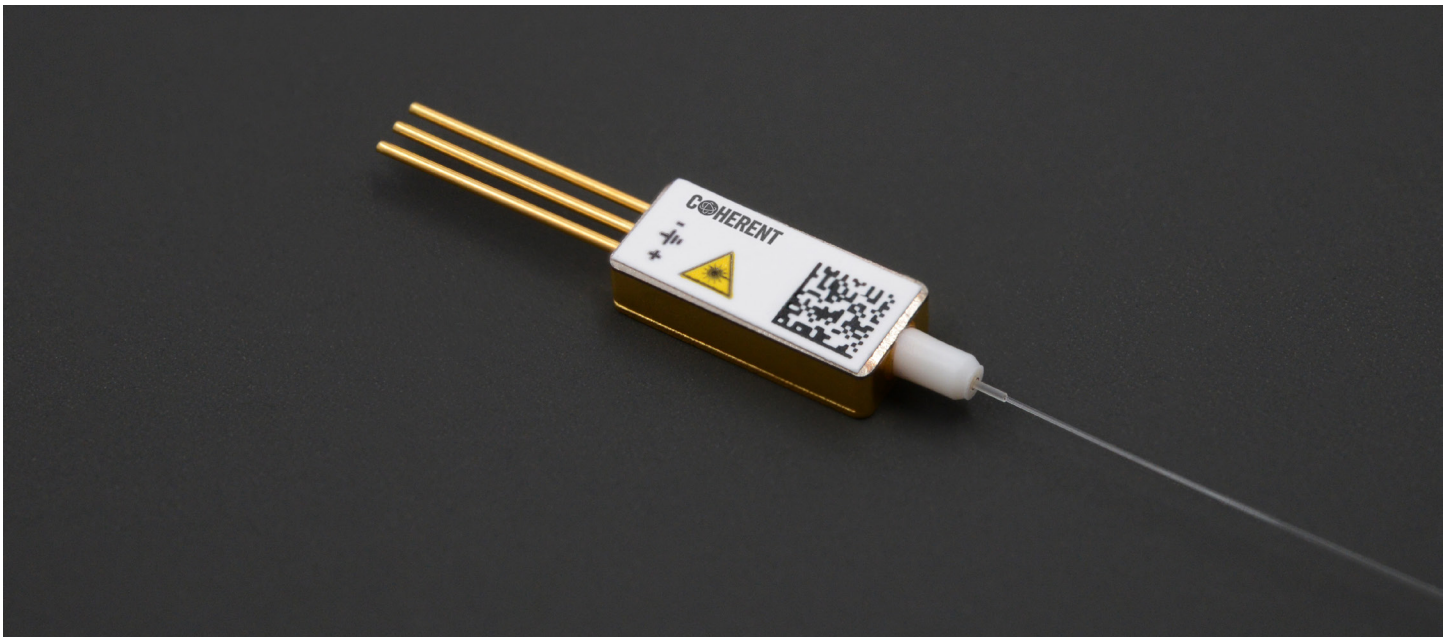
Optical Communications

ULTRA-COMPACT UNCOOLED 980nm MICRO PUMP LASER DIODE MODULE

SLU96ZW**-74R

Product Overview
The II-VI SLU96ZW**-74R-series uncooled micro pump laser module represents continuing innovation in packaging technology to enable highly reliable pump laser sources for existing and emerging applications.



FEATURES

- Ultra-compact package footprint:10 x 4.4 x 2.4 mm (LxWxH)
- Up to 440 mW kink-free power over full operating temperature range
- -20 to 85°C operating temperature range
- Low power consumption
- Low bend-loss, 80 μm, RC1060 fiber supporting 5 mm bend radius
- Wavelength stabilized by internal fiber Bragg grating over entire operating range
- Centre wavelength at 974 nm
- Telcordia GR-468-CORE compliant
- RoHS compliant

APPLICATIONS

- Integrated amplification within high bit-rate transceiver modules
- 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

COHERENT

Housed within a compact 3-pin, reduced-height package with a volume of just 101mm3, the laser module enables equivalent performance to the II-VI leading 3-pin uncooled micro-format products.

The laser module provides designers of ultra-compact integrated amplifier systems with the tools to enable low-noise, high power optical amplification within package volumes previously unachievable.

Combining a small package volume, and low bend-loss RC HI1060 SM fibre, the module can enable integrated optical amplification within small form-factor platforms such as QSFP-DD.

With <2W typical power consumption, and supporting a wide 105ºC operating temperature range, the SLU96ZW***-74R-series pump fits within tight power-consumption budgets and environmental requirements.

The SLU96ZW***-74R-series houses the market-proven II-VI enhanced G08 laser for superior reliability and stability, and the package is qualified to the requirements of Telcordia GR-468-CORE.

Optical Characteristics

Product Code	Minimum Kink-Free Power P_{kink} (mW)	Maximum Operating Power P_{op} (mW)	Typical Operating Current I_{op} (mA) @85°C	Maximum Operating Current $I_{o}p$ (mA) @85°C	Total power consumption @ Max operating conditions (W)
SLU96ZW100-74R	110	100	260	330	0.46
SLU96ZW150-74R	165	150	369	465	0.66
SLU96ZW200-74R	220	200	474	600	0.89
SLU96ZW250-74R	275	250	583	750	1.18
SLU96ZW300-74R	330	300	689	900	1.45
SLU96ZW350-74R	385	350	796	1000	1.70
SLU96ZW400-74R	440	400	903	1000	1.95

Notes:
1. Typical and maximum operating currents at 85°C
2. Operating power assumes a 10% ageing margin: Operating Power = Kink Free Power / 1.1

Wavelength Specification

Product Code	Min.	Typ.	Max.	Units	Condition
SLU96ZW**-74R	972	974	976	nm	Air reference. Over entire operating temperature range

Product Specification [1]

Parameter		Min.	Typ.	Max.	Units	Condition
Threshold Current	I_{th}		55	100	mA	
Operating Forward Voltage	V_{op}		1.65	2.0	V	
Spectral Width	Δλ		0.2	1.0	nm	RMS at -13 dB
Power in band ratio >100 mW 50 mW to 100 mW	PIB	 90 75			%	λc ±1.5 nm, -20 °C to 85 °C
Fiber Power Stability >30 mW 20 – 30 mW 10 – 20 mW 5 – 10 mW	ΔP_{f_t}			 0.10 0.10 0.15 0.20	dB	Peak-to-peak Time = 60 sec DC to 50 kHz
Return Loss	RL	35			dB	1500 nm – 1600 nm

Note 1: All characteristics at <-40 dB back reflection

Absolute Maximum Ratings

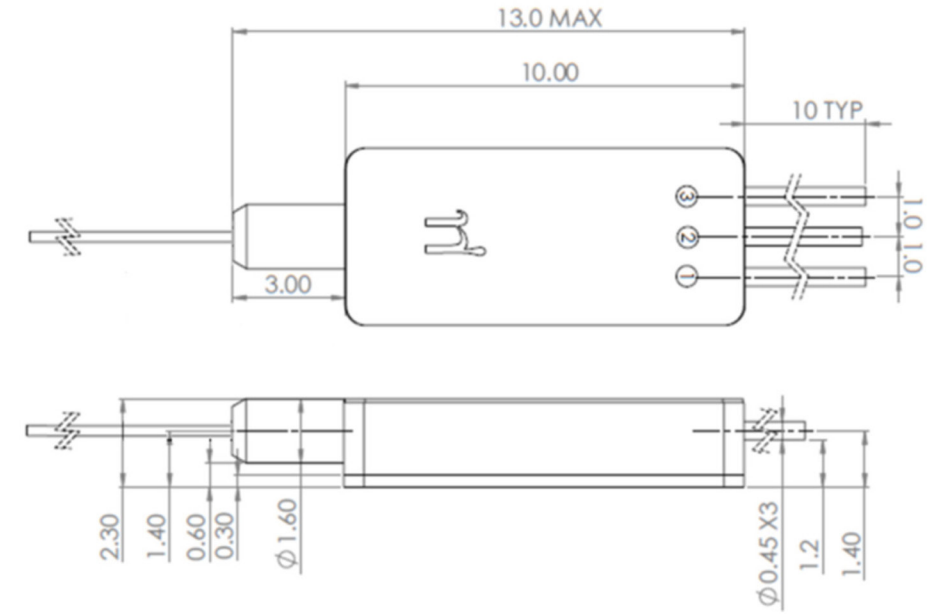
Parameter		Min.	Typ.	Max.	Units	Condition
Operating Case Temperature	T_{op}	-40		85	°C	
Storage Temperature	T_{stg}	-40		85	°C	
Storage Relative Humidity	RH_{stg}	5		95	%	But not to exceed 0.024 kg of water per 1.0 kg of dry air
Operating Relative Humidity	RH_{op}	5		85	%	
Pigtail Axial Pull Force				0.25	kg	1 minute
Fiber Bend Radius		7			mm	
Lead Soldering Temperature				350	°C	10 sec
Laser Diode Forward Current	$If_{\_max}$			1100	mA	
Laser Diode Current Transient				1200	mA	Time = 1000 ns max
Laser Diode Reverse Current	I_r			10	µA	
Laser Diode Reverse Voltage	V_r			2.0	V	
ESD Threshold				500	V	HBM, C = 100 pF, R = 1.5 kΩ

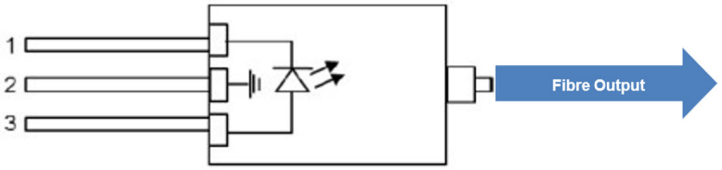
Fiber Specification

Parameter	Min.	Typ.	Max.	Units	Condition
Fiber Type	RC HI1060 Fibre or equivalent				
Cut-off Wavelength	870		970	nm	
Mode Field Diameter	5.6	5.9	6.2	µm	@ 980nm
Cladding Diameter	79	80	81	µm	
Fiber Coating Diameter	155	165	175	µm	Acrylate material, mechanically strippable
Core/cladding Concentricity			<0.5	µm	
Fiber Proof Test	200			kpsi	
Fibre Length	750			mm	No re-coated region along length

Notes:
1. Fiber termination; bare fiber with rough cleave.

Module Outline Drawing and Pin Connections





Pin	Connection
1	Laser Diode Cathode (-)
2	Package Ground
3	Laser Diode Anode (+)

Ordering Information

SLU	96Z	xxx	-	74	R
Product Type	Chip Type	LD Operating Power (mW)	-	Wavelength 74 for 974 nm	RC HI1060 Fibre Pigtail

Example: SLU96Z200-74R is a 200mW Operating Power, 974nm product

RoHS Compliance

Coherent 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 & Product Safety

Invisible laser radiation. Avoid eye or skin exposure to direct or scattered radiation. Class 4 laser product. ESD protection. Caution. Static sensitive device. To be opened by authorised personnel only.

THIS PRODUCT COMPLIES WITH 21CFR 1040.10

REFERENCE IEC 60825-1 Ed 3.0

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

Important Notice

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

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