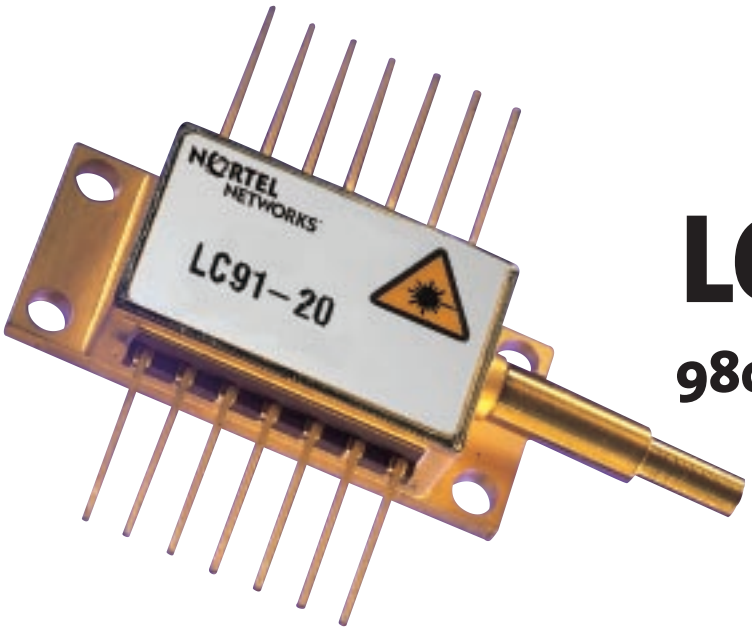
High Performance
Optical Component Solutions
DATASHEET



LC91*-20

980nm Pump Laser Module

Features

Wavelength 980nm.

Output power up to 140mW.

Single mode fibre pigtail.

Internal thermoelectric heatpump and monitor photodiode.

Hermetically sealed 14 pin butterfly package.

Bellcore TR-NWT-000468 compliant

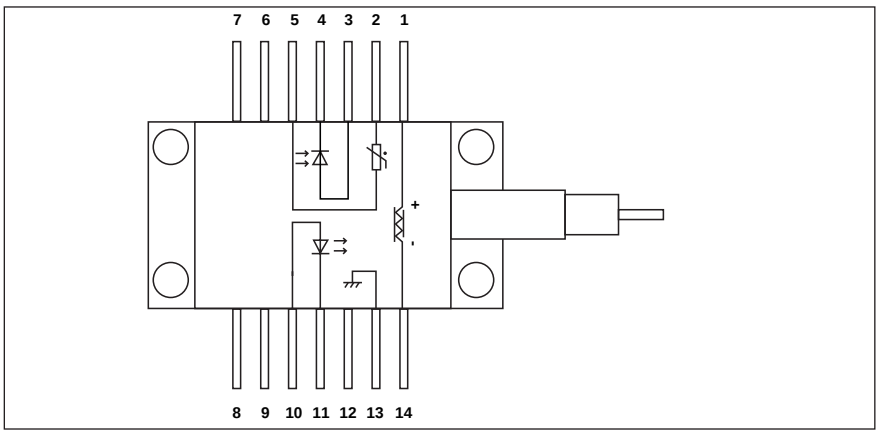
Applications

Low noise EDFA.

Description

These lasers are designed as pump sources for Erbium-Doped Fibre Amplifier (EDFA) applications. Proprietary processes and techniques of coupling the fibre to the laser allow high output powers which are very stable with both time and temperature. Devices are available with kink free output powers from 80mW to 140mW.

In order to ensure highly stable power and wavelength characteristics, Nortel recommend that the device is operated with dither applied to the laser drive current. The recommended dither conditions are 40mA peak-to-peak at 2MHz and can be achieved by applying a 2V pk-pk square wave modulation at 2MHz into 50Ω



NORTEL NETWORKS™

LC91*-20

Characteristics

Conditions unless otherwise stated:

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

Kink free fibre-coupled output power

LC91A-20	80mW	LC91B-20	90mW
LC91C-20	100mW	LC91D-20	110mW
LC91E-20	120mW	LC91F-20	130mW
LC91G-20	140mW		

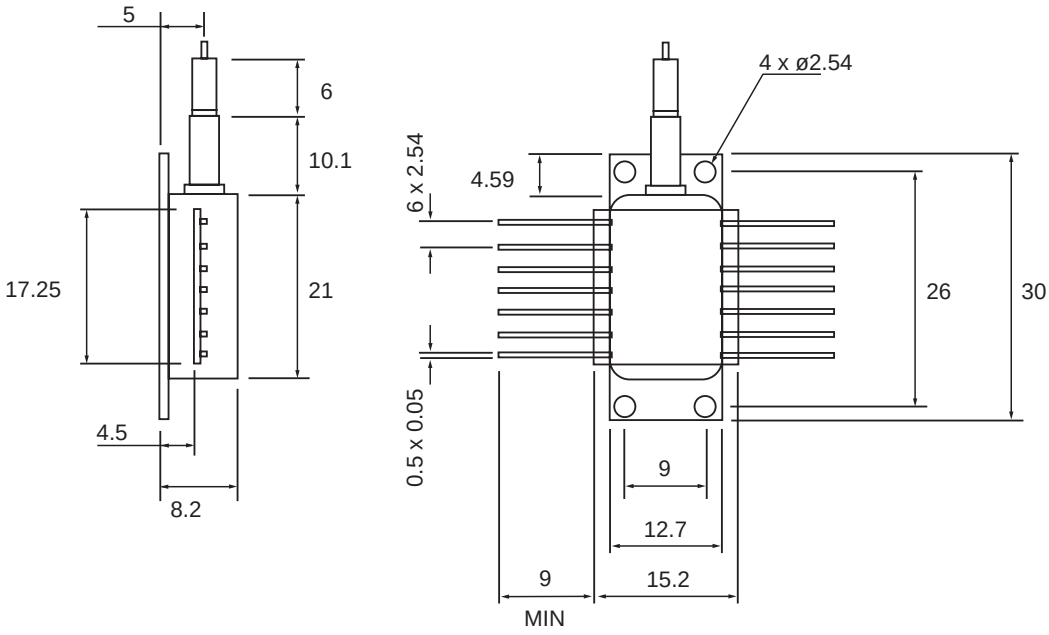
Parameter		Min	Typ	Max	Unit
Threshold current (1_{th})			15	20	mA
Operating drive current (If)	A, B, C, D,			210	mA
	E, F, G, H,			250	
	J, K, L, M, N			300	
Forward voltage			1.8	2.5	V
Peak wavelength (λp)		975		985	nm
Power in wavelength band 975 - 985nm		85	95		%
Monitor detector responsivity		2.5	15	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 = 300mA)				1.2	A
Heatpump voltage (ΔT = 50°C If = 300mA)				2.5	V

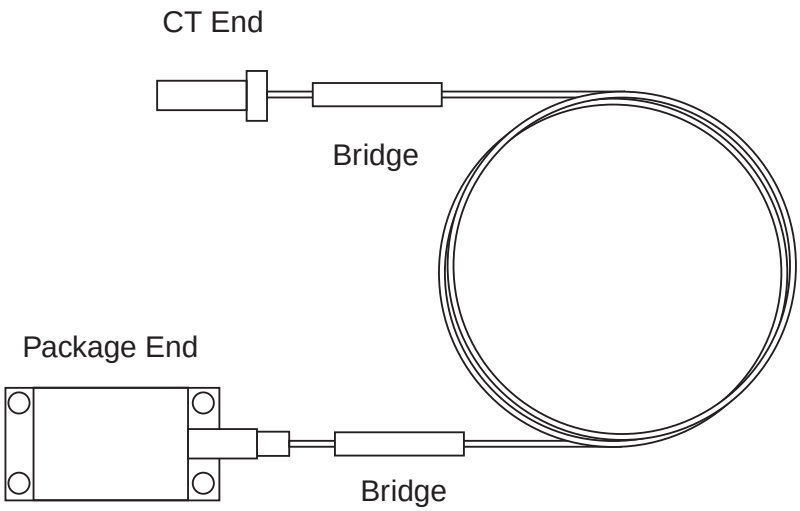
Absolute Ratings

Parameter	Min	Typ	Max	Unit
Operating temperature	-20		75	°C
Storage temperature	-40		75	°C
Laser forward current			500	mA
Laser reverse voltage			2	V
Heatpump current			1.5	A
Lead soldering temperature (10s max)			260	°C
Fibre bend radius	30			mm

Outline Drawing

Dimensions in mm





Fibre specification

CS980 fibre or equivalent 250µm primary coated removeable protective sleeve, length 1m min.

Fibre termination: Angled ceramic ferrule (CT connector).

LC91*-20

Connections

Pin	1	Peltier cooler (+)	Pin	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 (-)

Device Ordering Information

Order Code No.

LC91A for 80 mW device
LC91B for 90 mW device
LC91C for 100 mW device
LC91D for 110 mW device
LC91E for 120 mW device
LC91F for 130 mW device
LC91G for 140 mW device

A Qualification Test Report, reference QR1210 B is also available for this device.

INVISIBLE LASER RADIATION
AVOID EXPOSURE TO BEAM
CLASS 3B LASER PRODUCT

REFERENCE IEC 825-1:1993

THIS PRODUCT COMPLIES WITH 21 CFR 1040.10

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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