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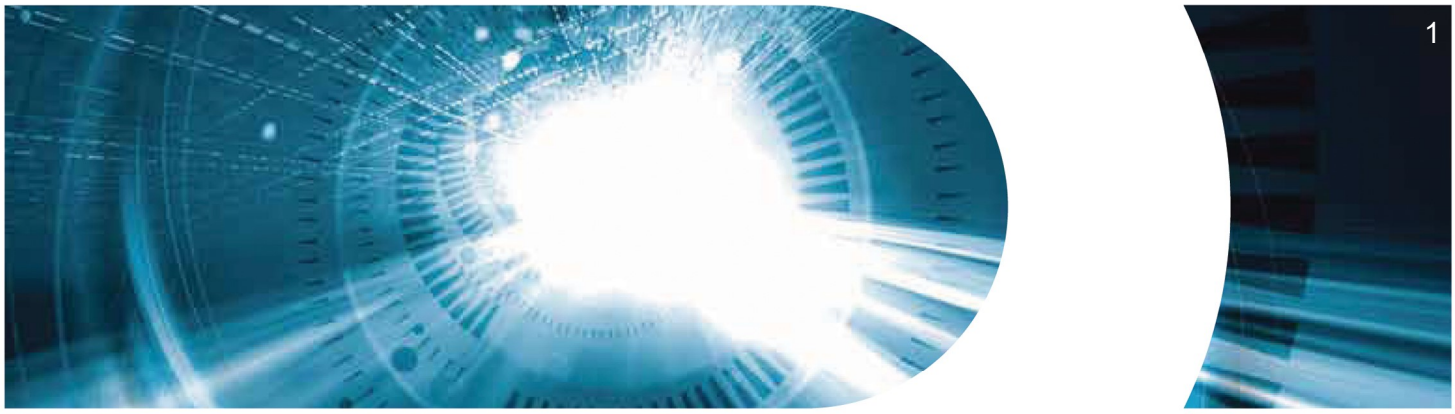


Active Components
Pump Laser Modules

Product Datasheet

Key Features

- Ultra compact package footprint 10x4.4x2.4 mm^3 (LxWxH)
- Up to 250 mW operating power
- Extended operating temperature range up to +80 °C
- Low bending radius (≥ 5mm) on RC HI1060™ pigtail
- RoHS compliant

Applications

- Compact size, low power consumption Erbium-Doped Fiber Amplifiers (EDFA)
- 100 to 400G coherent transceiver
- Sensors

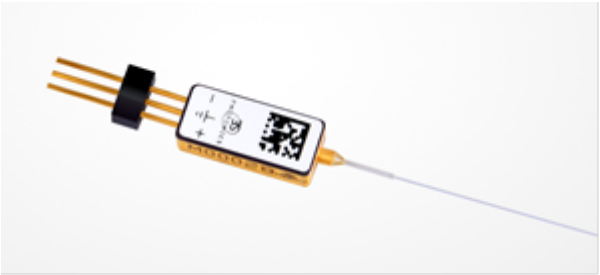
1999UMM

275 mW Kink-Free, FBG Stabilized, 980 **nm Uncooled Pump Laser Module**

The 1999UMM is the latest generation of 980 nm uncooled pump modules powered by in-house chip technology and specifically designed for applications where compactness and power efficiency are required.

Package in an ultra-compact 3-pin micro package, modules are available with an operating power up to 250 mW.
Product does not integrate NTC thermistor and a back-facet monitoring photodiode.
The wavelength is “locked” utilizing a fiber Bragg grating (FBG) located inside the module with a 80µm single mode RC HI1060™ Fiber pigtail to ease fiber management and low bending radius for High bit rate coherent transceivers.

The module meets Telcordia™ GR-468-Core requirements for hermetic 980 nm pump modules.



For more Info

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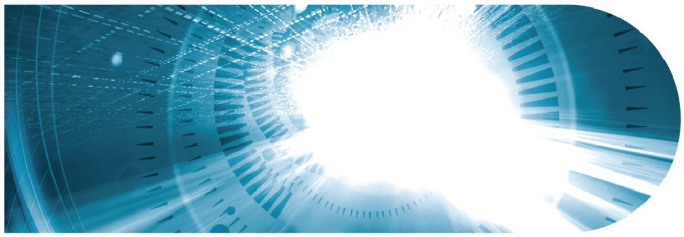
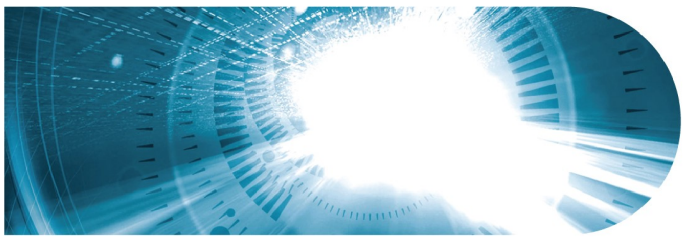


ELECTRO-OPTICAL **CHARACTERISTICS**

The following parameters are specified BOL for a T_{case} = 0 °C to 80 °C, V_{BFM}= -5V and -50dB max back-reflection unless otherwise stated.

Parameters	Conditions	Symbol	Min	Max	Unit
PUMP LASER					
Threshold current (1)		I_{th}	-	100	mA
Nominal operating power		P_{nom}	50	250	mW
Forward current (2)	P_{nom} = 100 mW P_{nom} = 150 mW P_{nom} = 200 mW P_{nom} = 250 mW	I_{nom}	- - - -	300 400 500 600	mA
Forward voltage	@up to 250 mW	V_{nom}	-	1.9	V
Peak wavelength tolerance	@ T_{case}= T_{FBG}= 25 °C 35mW to Pnom	$\Delta\lambda_p$	-	±0.5	nm
Center Wavelength	air reference 0 to 80°C	λ_P_974	972	976	nm
		λ_P_976	974	978	
Wavelength tuning vs temperature ($T_{grating}$= 0 to 80 °C)		$\Delta\lambda_p$ / ΔT	-	0.02	nm / °C
Spectral width @ -3 dB	0.1 x P_{nom} to P_{nom}	$\Delta\lambda_{FWHM}$	-	1.0	nm
Spectral width @ -13 dB	0.1 x P_{nom} to P_{nom}	$\Delta\lambda_{FWHM}$	-	1.0	nm
Power in band (3)	P_{nom}, λ_p±1.5nm	P_{band}	90	-	%
Optical power stability	Peak to peak, 1 Hz-50 kHz, 60 sec, 10mW≤P<20mW 20mW≤P≤250mW	ΔP		 0.2 0.1	dB
Power consumption, EOL	P_{nom} = 100 mW P_{nom} = 150 mW P_{nom} = 200 mW P_{nom} = 250 mW		- - - -	0.5 0.7 1 1.25	W

(1) I_{th} is the intersection point with the x-axis of a linear fit of the P(I) curve between 15 mW and 50 mW
(2) EOL forward current I_{EOL}= 1.1x I_{BOL}
(3) P_{band} is defined as the power within the band λp ±1.5 nm vs the total output power



ABSOLUTE MAXIMUM **RATINGS**

Exposing this device to stresses and conditions above those listed in this section could cause permanent damage and affect reliability. The device is not meant to operate outside the operational limits described in previous section at any length of time. Reliability and performances are not warranted if any of the operating conditions is exceeded. Exposure to absolute maximum ratings for extended periods of time or exposure to more than one absolute maximum rating simultaneously may adversely affect device reliability. Specifications may not necessarily be met under these conditions.

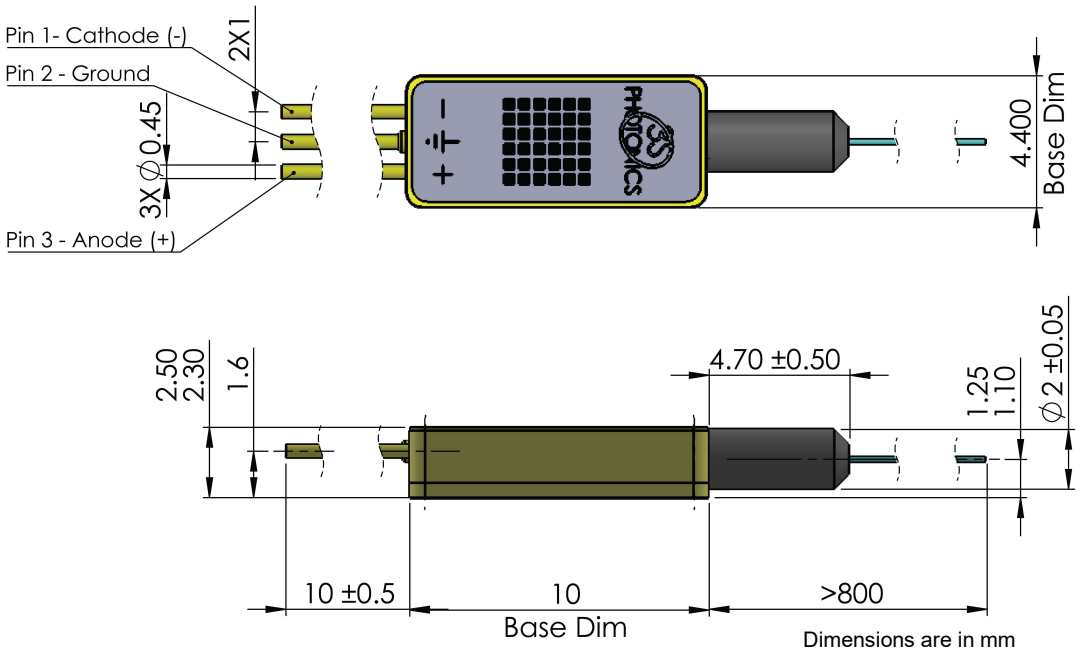
Parameter Conditions	Symbol	Min	Max	Unit
Storage temperature (2000h)	T_{stg}	-40	85	°C
Operating temperature	T_{op}	0	80	°C
Lead soldering temperature (10s maximum, Tcase=25°C)		-	350	°C
LD forward drive current (10s maximum)	I_{f_max}	-	650	mA
LD reverse voltage	V_{r_max}	-	2	V
ESD* damage	V_{ESD}	-	500	V
Fiber bend radius		5	-	mm
Axial pull force (1x1min)		-	5	N

* Human Body model, C = 100 pF, R = 1.5 kΩ

FIBER PIGTAIL **CHARACTERISTICS**

Parameter	Note	Min	Typ	Max	Unit
Fiber type		RC HI1060™ or equivalent			
Cut-off wavelength		870		950	nm
Cladding diameter		79	80	81	µm
Coating diameter		155	165	175	µm
Core cladding concentricity				0.5	µm
Fiber proof test level		200	-	-	kpsi
Pigtail termination	Bare fiber, 8° cleaved angle				
Fiber length		0.8			m

MECHANICAL **DETAILS**



PIN **ASSIGNEMENT**

N°	Description
1	Laser Cathode
2	Case ground
3	Laser Anode

LASER SAFETY **INFORMATION**

This laser module emits invisible light. Take appropriate precautions to prevent undue exposure to naked eye when module is in operation. This product is classified Class 4 Laser Product according to IEC-60825-1.

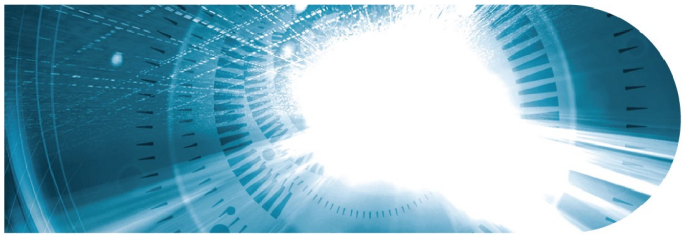
HANDLING

This product is sensitive to electrostatic discharge and should not be handled except at a static free workstation. Take precautions to prevent ESD; use wrist straps, grounded work surfaces and recognized anti-static techniques when handling the pump laser module. Caution! Handle the module by its package only; never hold it by its pigtail.
Care should be taken to avoid supply transient currents and voltages. Drive voltage above the maximum specified in absolute maximum rating section may cause permanent damage to the device.

ORDERING **INFORMATION**

1999UMM PUMP PRODUCT FAMILY

	λ_p= 974nm, T= 25 °C	λ_p= 976nm, T= 25 °C
Nominal Power	**Part Number**	**Part Number**
100 mW	3CN01810AA	3CN01812AA
150 mW	3CN01810AL	3CN01812AL
200 mW	3CN01810BA	3CN01812BA
250 mW	3CN01810BL	3CN01812BL



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Information is subject to change without notice.

3S PHOTONICS

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