



Active Components Pump Laser Modules

Product Datasheet

Key Features

Ultra compact package footprint
10x4.4x2.4 mm³ (LxWxH)

Up to 250 mW operating power

Extended operating temperature
range up to +80 °C

Low bending radius (≥ 5 mm) 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 80 μ m 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

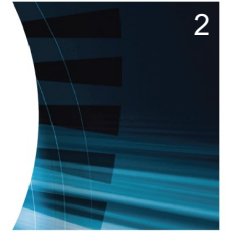
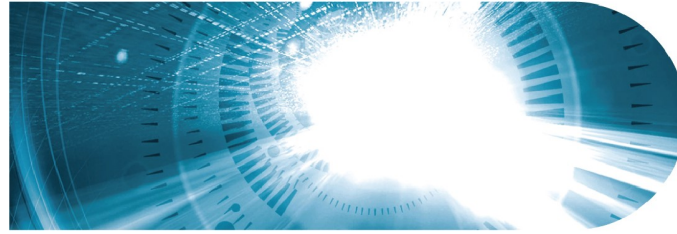
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ELECTRO-OPTICAL CHARACTERISTICS

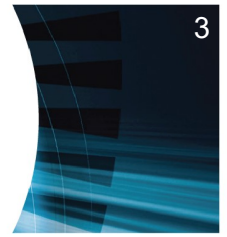
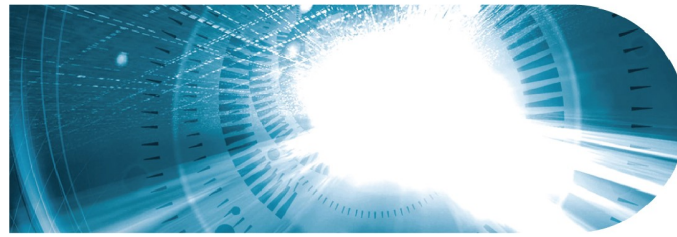
The following parameters are specified BOL for a $T_{case} = 0\text{ }^{\circ}\text{C}$ to $80\text{ }^{\circ}\text{C}$, $V_{BFM} = -5\text{V}$ and -50dB max back-reflection unless otherwise stated.

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⁾	$P_{nom} = 100\text{ mW}$ $P_{nom} = 150\text{ mW}$ $P_{nom} = 200\text{ mW}$ $P_{nom} = 250\text{ mW}$	I_{nom}	- - - -	300 400 500 500	mA
Forward voltage	@up to 250 mW	V_{nom}	-	1.9	V
Peak wavelength tolerance	@ $T_{case} = T_{FBG} = 25\text{ }^{\circ}\text{C}$ 35mW to P_{nom}	$\Delta\lambda_p$	-	± 0.5	nm
Center Wavelength	air reference 0 to $80\text{ }^{\circ}\text{C}$	λ_{P_974}	972	976	nm
		λ_{P_976}	974	978	
Wavelength tuning vs temperature ($T_{grating} = 0$ to $80\text{ }^{\circ}\text{C}$)		$\Delta\lambda_p / \Delta T$	-	0.02	nm / $^{\circ}\text{C}$
Spectral width @ -3 dB	$0.1 \times P_{nom}$ to P_{nom}	$\Delta\lambda_{FWHM}$	-	1.0	nm
Spectral width @ -13 dB	$0.1 \times P_{nom}$ to P_{nom}	$\Delta\lambda_{FWHM}$	-	1.0	nm
Power in band ⁽³⁾	$P_{nom}, \lambda_p \pm 1.5\text{nm}$	P_{band}	90	-	%
Optical power stability	Peak to peak, 1 Hz-50 kHz, 60 sec, $10\text{mW} \leq P < 20\text{mW}$ $20\text{mW} \leq P \leq 250\text{mW}$	ΔP		0.2 0.1	dB
Power consumption, EOL	$P_{nom} = 100\text{ mW}$		-	0.5	W
	$P_{nom} = 150\text{ mW}$		-	0.7	
	$P_{nom} = 200\text{ mW}$		-	1	
	$P_{nom} = 250\text{ mW}$		-	1.1	

(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 $I_{EOL} = 1.1 \times I_{BOL}$

(3) P_{band} is defined as the power within the band $\lambda_p \pm 1.5\text{ nm}$ 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, $T_{case}=25^{\circ}C$)		-	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

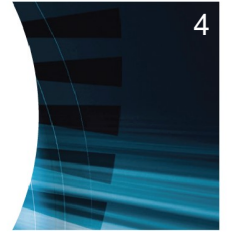
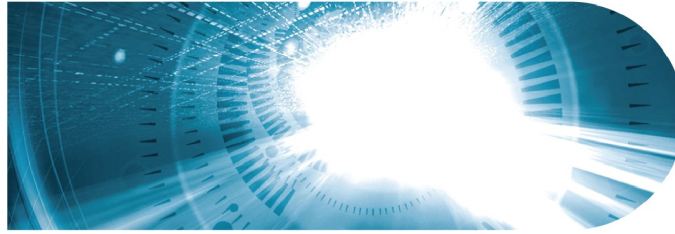
* Human Body model, C = 100 pF, R = 1.5 kΩ

FIBER PIGTAIL CHARACTERISTICS

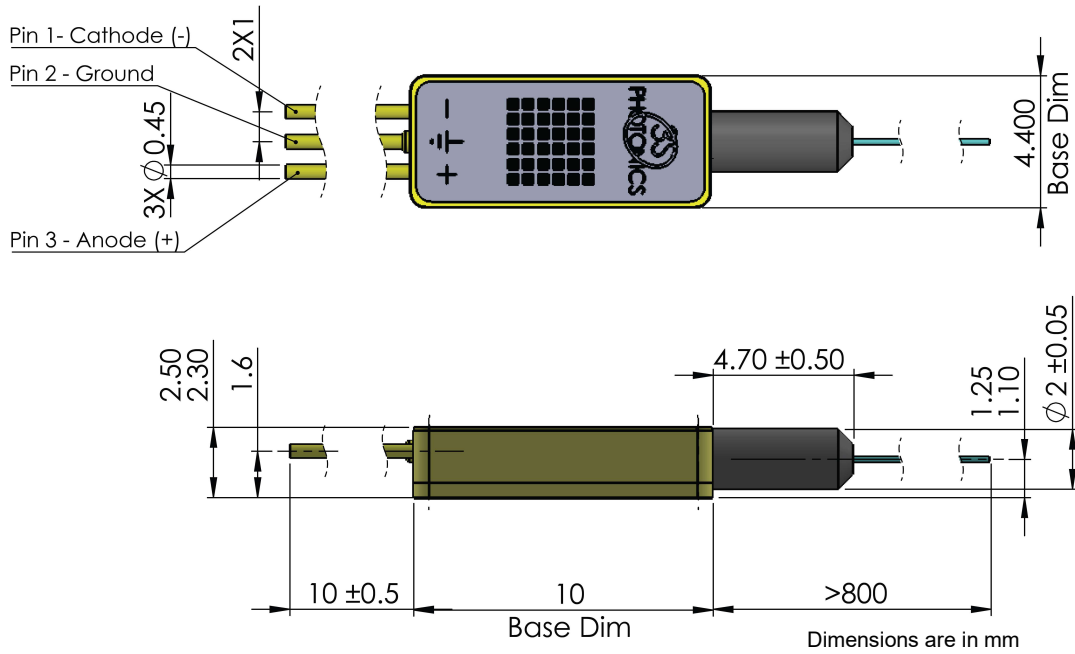
Parameter	Note	Min	Typ	Max	Unit
Fiber type		RC HI1060™ or equivalent			
Cut-off wavelength		870		950	nm
Cladding diameter		79	80	81	μm
Coating diameter		155	165	175	μm
Core cladding concentricity				0.5	μm
Fiber proof test level		200	-	-	kpsi
Pigtail termination	Bare fiber, 8° cleaved angle				
Fiber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

1999UMM

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



MECHANICAL DETAILS

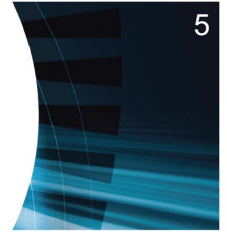
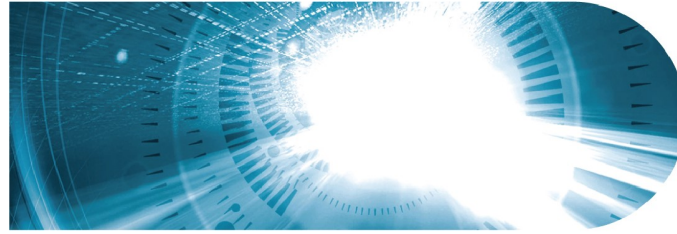


PIN ASSIGNMENT

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

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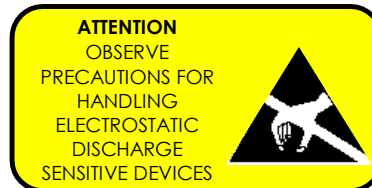


LASER SAFETY INFORMATION

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.



APPLICATION NOTE

In order to prevent any mishandling, misuse, neglect or accident, it is highly recommended to read and follow the instructions detailed in the application note reference RCLIMAAPN00000011.pdf to be downloaded on our website <https://3sptechnologies.com>

ORDERING INFORMATION

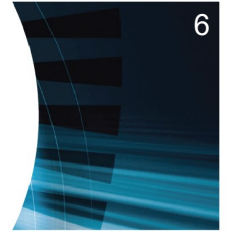
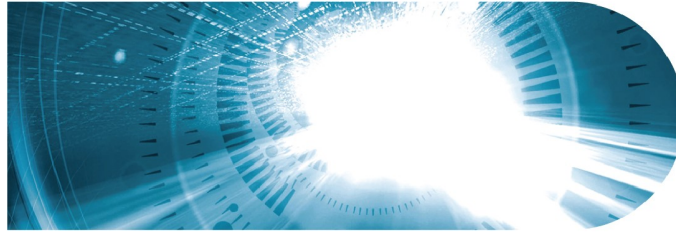
1999UMM PUMP PRODUCT FAMILY

	$\lambda_p = 974\text{nm}, T = 25^\circ\text{C}$	$\lambda_p = 976\text{nm}, T = 25^\circ\text{C}$
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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3SPTechnologies
Source of Smart Solutions



CONTACT INFORMATION

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