

Pump Laser Modules

Key Features

Operating power up to 430mW

Operating temperature range:
-5 to 75°C

Total Power Consumption:
6.5W max @430mW Pop

Telcordia GR-468 CORE Qualified

RoHs 6/6

Applications

High output power Low noise
Erbium-doped Fiber Amplifier

CATV

Sensors

Wavelength Conversion

For more Info

Please contact us at:

North America: **514.748.4848**
888.922.1044

Europe & Asia: **+33 (0) 1 69 80 58 33**
or via e-mail at sales@3spgroup.com

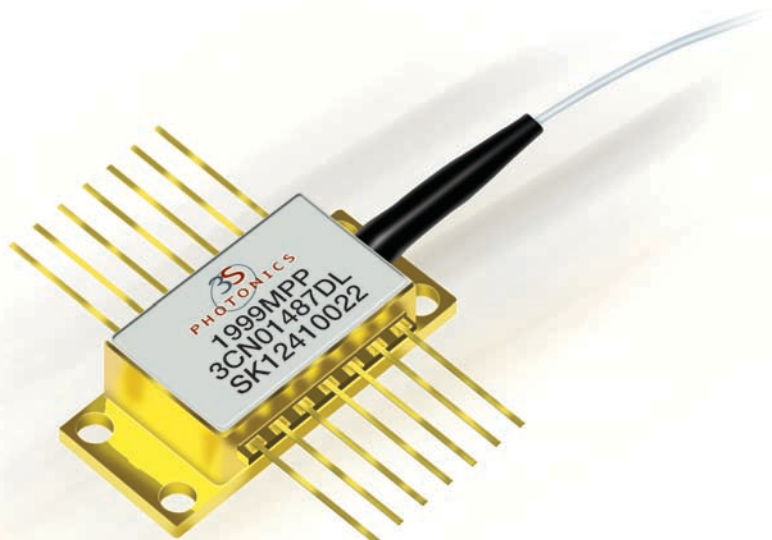
1999 MPP

475mW Kink-Free, FBG Stabilized 980nm Pump Laser Module

The 1999 MPP is a new generation of 980nm terrestrial pump modules powered by in-house chip technology, ensuring an outstanding level of performance, power consumption and reliability.

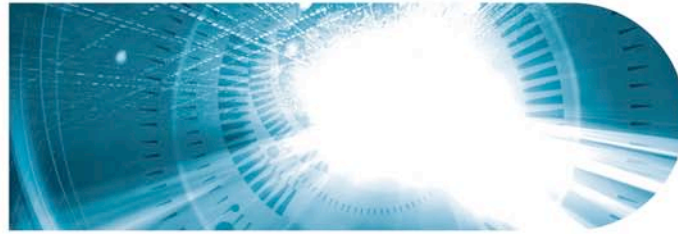
Low Profile, 14-pin butterfly modules are available with an operating power up to 430mW. The wavelength is “locked” utilizing a fiber bragg grating (FBG) located in a Single Mode HI1060 Fiber (SMF) pigtail. The module meets the Telcordia™ GR-468-Core requirements for hermetic 980nm pump modules.

These modules provide excellent stability and wide dynamic range due to their specific design.



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ELECTRO-OPTICAL CHARACTERISTICS

The following parameters are specified BOL for TLD= 25°C, Tcase= -5 to 75°C, Pop= Pnom, unless otherwise stated.

Parameters	Conditions	Symbol	Min	Typ	Max	Unit
PUMP LASER						
Threshold current Note 1		I_{th}	-	45	60	mA
Nominal operating power		P_{nom}	200	-	430	mW
Kink free power Note 2		P_{kink}	$1.1 \times P_{nom}$	-	-	mW
Forward voltage	@430mW	V_{nom}	-	1.8	2.1	V
Forward current @ P_{nom}	Note 3 $P_{nom} = 200mW$ $P_{nom} = 250mW$ $P_{nom} = 300mW$ $P_{nom} = 350mW$ $P_{nom} = 400mW$ $P_{nom} = 430mW$	I_{nom}	-	330 400 470 525 600 645	365 440 515 590 670 700	mA
Peak wavelength tolerance	@ $T_{case} = T_{FBG} = 25^\circ C$ $0.1 \times P_{nom}$ to P_{nom}	$\Delta\lambda_p$		-	± 0.5	nm
Wavelength tuning vs temperature ($T_{grating} = -5$ to $75^\circ C$)	$0.1 \times P_{nom}$ to P_{nom}	$\Delta\lambda_p / \Delta T$	-	0.01	0.02	nm/ $^\circ C$
Spectral width @-3dB	$0.1 \times P_{nom}$ to P_{nom}	$\Delta\lambda_{FWHM}$	-	0.6	1.0	nm
Optical power stability	Peak to peak 50kHz, 1mn 10mW $\Delta P_{op} \geq 20mW$ 20mW $\Delta P_{op} \geq 50mW$ $Pop \geq 50mW$	ΔP_{op}		0.4 0.3 0.15	0.6 0.4 0.2	dB
MONITOR DIODE						
Responsivity		dI_{BFM} / dP	0.5	-	10	mA
Dark current	$V_r = 5V$	I_{BFM_dark}	-	50	100	nA
THERMO-ELECTRICAL COOLER						
Cooling capacity		ΔT_{TEC}	50	-	-	$^\circ C$
TEC voltage (EOL)	$T_{case} = 75^\circ C,$ $1.1 \times I_{nom}$	$V_{TEC, EOL}$	-	-	2.5	V
TEC current (EOL)	$T_{case} = 75^\circ C,$ $1.1 \times I_{nom}$	$I_{TEC, EOL}$	-	-	2.0	A
TEC Power consumption	@430mW	PTEC	-	-	5.0	W
THERMISTOR						
Resistance	$25^\circ C$	R_{th}	9.5	10	10.5	k Ω
Constant		B	3600	-	4200	K

(1): I_{th} is the intersection point with the x-axis of a linear fit of the P(I) curve between 15 and 50mW

(2): A kink is detected when the local slope, dP/dI , is below S_{min} or above S_{max} .

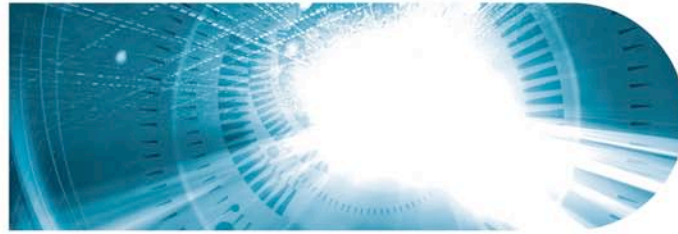
S_{min} is defined as $0.5 \times S_{avg}$ and S_{max} is defined as $1.5 \times S_{avg}$

S_{avg} is the slope of a linear fit of the P(I) curve between 50 and 150mW.

(3): EOL forward current (EOL) = $1.1 \times I(BOL)$

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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.

Parameter Conditions	Symbol	Min	Max	Unit
Storage temperature (2000h)	T_{stg}	-40	85	°C
Operating temperature (Tsubmount = 25°C)	T_{op}	-20	75	°C
Lead soldering temperature (10s maximum)		-	280	°C
LD forward drive current	$I_{LD,max}$	-	800	mA
LD reverse voltage	$V_{r,max}$	-	2	V
PD reverse voltage	$V_{PD,max}$	-	15	V
PD forward current	$I_{PD,max}$	-	10	mA
TEC voltage	$V_{TEC,C,max}$	-	3.3	V
TEC current	$I_{TEC,C,max}$	-	2.4	A
ESD* damage	V_{ESD}	-	1000	V
Mounting torque		-	150	mN.m
Fiber bend radius		25	-	mm
Axial pull force (1x 1min)		-	5	N

* Human Body model, C= 100pF, R= 1.5Ω

FIBER PIGTAIL CHARACTERISTICS

Parameter	Note	Min	Typ	Max	Unit
Fiber type		HI1060™ or equivalent			
Coating diameter	(except along grating)	230	250	270	μm
FBG recoat diameter		-	-	400	μm
FBG position	Module to center of FBG	-	2.0	-	m
Loose tube buffer diameter		885	-	915	μm
Fiber prove test level		200	-	-	kpsi
Grating proof test level		150	-	-	kpsi
Pigtail termination	Bare fiber				

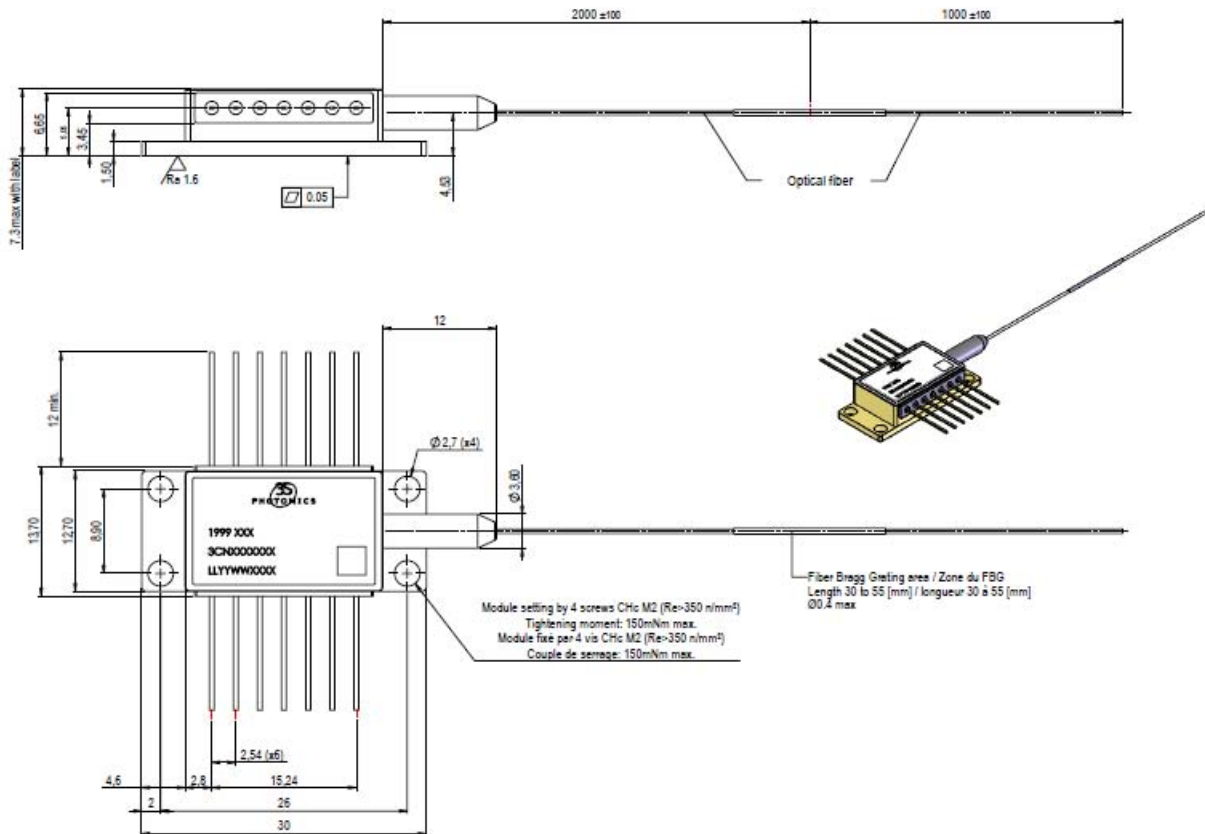
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MECHANICAL DETAILS

Dimensions are in mm.



PIN ASSIGNMENT

N°	Description
1	Cooler anode
2	Thermistor
3	Monitor PD Anode
4	Monitor PD Cathode
5	Thermistor
6	No connect
7	No connect
8	No connect
9	No connect
10	Laser Anode (+)
11	Laser Cathode (-)
12	No connect
13	Case
14	Cooler cathode

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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 modules. 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 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 product may cause permanent damage to the device.



ORDERING INFORMATION

1999 MPP pump product family – other wavelengths are available upon request.

Nominal Power	$\lambda_p=974.5\text{nm}$, $T_{\text{chip}}=25^\circ\text{C}$ Part Number	$\lambda_p=976.0\text{nm}$, $T_{\text{chip}}=25^\circ\text{C}$ Part Number
200mW	3CN01487BA	3CN01488BA
250mW	3CN01487BL	3CN01488BL
300mW	3CN01487CA	3CN01488CA
350mW	3CN01487CL	3CN01488CL
400mW	3CN01487DA	3CN01488DA
430mW	3CN01487DG	3CN01488DG

Revised March 2013

Please note: information in this document is typical and must be specifically confirmed in writing by your supplier before it becomes applicable to any order or contract. Information is subject to change without notice.
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ORDERING INFO

Please contact your Sales Manager. 3SPGroup can also develop custom products to meet a wide range of technical requirements.

3SPGroup

North America: 514.748.4848

888.922.1044

Europe and Asia: +33 (0)1 69 80 58 33

www.3spgroup.com • sales@3spgroup.com

