SNP High Performances IR Microchip Series

KEY FEATURES

- **Repetition rate up to 130 kHz**
- **Ultrashort pulses down to 600 ps**
- **Multi-kW peak power**
- **Excellent beam quality – TEM00, M^2<1.2**
- **Efficient, air-cooled**
- **Sealed package, extremely long life**

For generating high peak power IR pulses of a few hundred picoseconds, microchip lasers are economical, compact, and reliable. Sub-nanosecond 1064nm pulses are indeed directly generated from the diode pumped passively Q-switched Nd:YAG microchip engine. Microchips are also easy to operate and service ; controllers can be used with every laser head model and swapped within minutes while conserving constant performances.
The SNP series are designed for high average power, either from pulse energies of 20 µJ at 1064nm, or from repetition rates up to 130 kHz.

APPLICATIONS

- Material processing
  - Cost effective marking solutions
  - Graphitization
- Instrumentation
  - Ranging
  - Differential absorption LIDAR
  - Super-continuum generation
  - Distributed temperature sensing
  - Raman spectroscopy
- Biophotonics
  - Nanosurgery
  - Protein cross-linking

TECHNICAL SPECIFICATIONS

	SNP-08E-100	SNP-18E-100	SNP-20F-100	SNP-50F-100	SNP-70F-100* SLM	SNP-130F-100*	SNP-200P-100	SNP-300P-100*
Wavelength	1064nm	1064nm	1064nm	1064nm	1064nm	1064nm	1064nm	1064nm
Repetition Rate	>5kHz	>13kHz	>19kHz	>45kHz	>65kHz	>130kHz	>19 KHz	>29 KHz
Constant Pulse width range (FWHM) (1)	<1ns	>3ns	<1ns	<0.7ns	<0.6ns	<1.4ns	<0.85 ns	<0.75 ns
Output power(2)	>40mW	>300mW	>140mW	>190mW	> 90mW	>200mW	>200mW	>300mW
Output energy	>8µJ	>18µJ	>7µJ	>4µJ	>1µJ	>1.5µJ	>11µJ	>10µJ
Peak Power	>8kW	N/A	>10kW	>5.5kW	>2kW	>1.1kW	>13kW	>13kW
Short term (10min) power stability (3)	<±1%	<±2%	<±1%	<±1%	<±1%	<±1%	<±1%	<±1%
Long term (6 hrs) power stability(3)	<±3%	<±5%	<±3%	<±3%	<±3%	<±3%	<±3%	<±3%
Beam profile	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00
Full angle divergence								
Horizt.@1/e²	12 ± 2 mrad	5.2±1 mrad(6)	13±5mrad	17±3mrad	22±3mrad	17±2.5mrad	13±2mrad	15±2mrad
Vertical@1/e²	14 ± 2 mrad	5.1±1 mrad(6)	13±5mrad	17±3mrad	22±3mrad	17±2.5mrad	13±2mrad	15±3mrad
M²(4)	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Beam ellipticity(5)	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.2	<1.2
Polarization	Linear PER>20dB	Elliptical(7)	Linear PER>20dB	Linear PER>20dB	Linear PER>20dB	Linear PER>20dB	Linear PER>20dB	Linear PER>20dB
Package dimensions	115x29x36 mm	145x42x36 mm	145x42x36 mm	145x42x36 mm	145x42x36 mm	145x42x36 mm	145x42x36 mm	145x42x36 mm
Package weight	250g	300g	300g	300g	300g	300g	300g	300g
Options (table p3)	None	None	F,M,S	F,M,S	F,M,S	F,M,S	F,M,S	F,M,S

*** The specifications will be confirmed after the Beta phase only. For the moment, the specifications are preliminary, which means that the final laser parameters might be different than the current specifications.**

NOTES

(1) Measured with 1Ghz photodiode and 1GHz/10GS/s oscilloscope.
(2) Measurement performed with an OPHIR thermal power sensor (OPHIR 3A-FS-SH)
(3) For temperature variation < ± 3°C and < 3°C/hour, stability is measured with calorimeter - detector band [DC, 2Hz]
(4) Mean average value M = √(XY), X and Y being respectively the major and minor axis of the ellipse
(5) Beam ellipticity is calculated as the ratio of the main axis far field divergence
(6) Collimated beam available as an option
(7) Linear polarization available as an option

COMPLEMENTARY INFORMATION & OPTIONS

Environment Parameters	
Operating Temperature Range	0-50°C
Maximum Laser Head Baseplate Temperature	<50°C
Maximum Power Consumption	<40W
Laser Head Thermal Dissipation	<15W
Storage Temperature	0-50°C
Shock of 11ms according to IEC 68-2-27, non operating	25g
Vibration 5Hz to 500Hz sinusoïdal according to IEC 68-2-6	2g

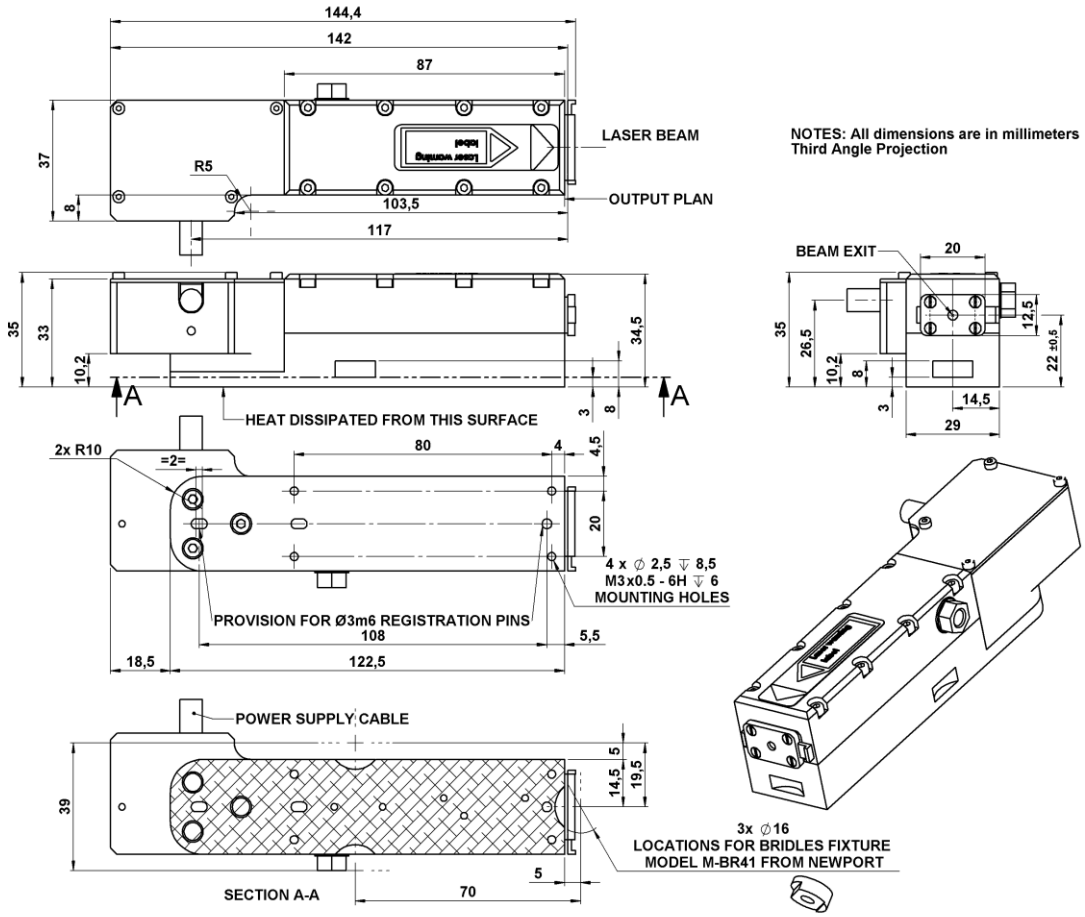
Certification	
Laser classification according to IEC 60825-1:2007	3B
CDRH	Yes, if used with a -DR1 controller
RoHS	Yes

Options	
Multimode fibering (M)	Contact factory for availability
Single mode fibering (F)	Contact factory for availability
Synchronization output (S)	Contact factory for availability

Available Controller Types

Model for the SNP-300P-100	Model for the other SNP lasers	Type	Input Power	CDRH
MLC-05A-DR1	MLC-03A-DR1	Desktop	100-240 V AC	Yes
MLC-05A-MR1	MLC-03A-MR1	Module	12 V DC	No
MLC-05A-BR1	MLC-03A-BR1	Board	12 V DC	No

CDRH LASER HEAD MECHANICAL DRAWINGS: SNP-18E-100, SNP-20F-100, SNP-50F-100, SNP-130F-100, SNP-200P-100, SNP-300P-100



CDRH LASER HEAD MECHANICAL DRAWINGS: SNP-08E-100