

MNx Microchip Series

Ultra-Compact, High-Peak-Power Lasers



KEY FEATURES

- Ultra-compact package
- 1064 nm and 532 nm
- Ultra-short pulses down to 750 ps
- Multi-kW peak power
- Excellent beam quality – TEM00, $M^2 < 1.1$
- Efficient, air-cooled

The MNx series are our most compact microchip lasers and cover the mid-IR to visible part of the spectrum. They integrate the pump diode, the micro-cavity and even the second harmonic generation crystal in a package less than 7 cm long.

The 1064 nm engine produces sub-nanosecond pulses with several kW peak power, achieving over 50% second harmonic generation efficiency at 532 nm.

APPLICATIONS

- LIDAR, Laser Ranging & 3D Sensing
- LIBS / Micro-LIBS
- Precision Micromachining & Micromarking
- Time-Resolved Raman & Fluorescence Spectroscopy
- Supercontinuum Generation & Nonlinear Optics
- Photoacoustic Imaging & Sensing

TECHNICAL SPECIFICATIONS

	MNP-08E-100	MNG-03E-100
Wavelength	1064nm	532nm
Repetition Rate	>5kHz	>5kHz
Constant Pulse width range (FWHM) ⁽¹⁾	<1ns	<0.75ns
Output power⁽²⁾	>40mW	>15mW
Output energy	>8μJ	>3μJ
Peak Power	>8kW	>4kW
Short term (10min) power stability ⁽³⁾	<±1%	<±1%
Long term (6 hrs) power stability⁽³⁾	<±3%	<±3%
Beam profile	Gaussian TEM00	Gaussian TEM00
Full angle divergence		
Horizontal@1/e ²	12±2 mrad	10±2 mrad
Vertical@1/e ²	14±2 mrad	9±2 mrad
M²⁽⁴⁾	<1.3	<1.3
Beam ellipticity⁽⁵⁾	<1.3	<1.3
Polarization	Linear PER>20dB	Linear PER>20dB
Package dimensions	68x41x29mm	68x41x29mm
Package weight	250g	250g
Options (table p3)	M	-

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 $M = \sqrt{\langle XY \rangle}$, 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

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	<10W
Storage Temperature	0-50°C
Shock of 11ms according to IEC 68-2-27, non operating	25g
Vibration 5Hz to 500Hz sinusoidal according to IEC 68-2-6	2g

Certification	
Laser classification according to IEC 60825-1:2014	3B
CDRH	Yes, if used with a -DR1 controller
RoHS	Yes

Options	
Multimode fiber (M)	Contact factory for availability

Available Controller Types			
Model	Type	Input Power	CDRH
MLC-03A-DR1	Desktop	100-240 V AC	Yes
MLC-03A-MR1	Module	12 V DC	No
MLC-03A-BR1	Board	12 V DC	No

CDRH LASER HEAD MECHANICAL DRAWINGS: MNP-08E-100, MNG-03E-100

