

HNx High Peak Power Amplified Microchip Series

Key features

- ▶ 1064nm and 532nm
- ▶ Ultra-short pulses down to 500ps@70kHz
- ▶ Peak power over 100kW
- ▶ Excellent beam quality – TEM00, $M^2 < 1.1$
- ▶ Efficient, air-cooled
- ▶ Sealed package, extremely long life



The PicoSpark™ series combines multi-watt output level with high repetition rate and exceptional pulse characteristics to provide the best price/quality ratio for micromachining application.

Passively Q-Switched (PQS) microchip laser technology and fiber amplification are brought together, delivering pulses with hundreds of kilowatt peak power and hundreds of gigawatt per square centimeter power density in a sealed and air-cooled compact package.

This Master Oscillator Fiber Amplifier (MOFA) architecture notably offers a full control over the pulse energy (or peak power) while leaving unchanged the pulse width and pulse shape.

Applications

- ▶ Micromachining
 - Selective ablation of μm to nm scale layers
 - Edge isolation
 - Cutting from PCB to PCD with no heat effect
- ▶ Instrumentation
 - Laser Induced Breakdown Spectroscopy
 - Raman spectroscopy
 - Supercontinuum generation
 - Ranging
 - Differential absorption LIDAR
- ▶ Biophotonics
 - Dense tissue ablation
 - Tattoo removal
 - Micro-surgery

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pulsed laser solution

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Technical specifications:

	HNP-70F-100⁽⁶⁾	HNG-70F-100
Wavelength	1064nm	532nm
Repetition Rate	>70kHz	>70kHz
Constant Pulse width range (FWHM)⁽¹⁾	<0.6ns	<0.55ns
Output power⁽²⁾	>6W	>4W
Output energy	>80μJ	>50μJ
Peak Power	>130kW	>100kW
Short term(10min) power stability⁽³⁾	<±3%	<±3%
Long term (6 hrs) power stability⁽³⁾	<±5%	<±5%
Beam profile	Gaussian TEM00	Gaussian TEM00
Beam diameter at output	3mm±0.5mm	0.65mm±0.2mm
Full angle divergence @1/e²		
Horizontal	<2 mrad	3±1 mrad
Vertical	<2 mrad	3±1 mrad
M²⁽⁴⁾	<1.2	<1.2
Beam ellipticity⁽⁵⁾	<1.20	<1.22
Polarization	Linear PER>20dB	Linear PER>20dB
Energy control function	RS232, Analog 0-5V	RS232, Analog 0-5V
Gating function	TTL 0-5V	TTL 0-5V
Options included	S	S

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 $M = \sqrt{XY}$, 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)** Contact factory for availability

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Complementary information & options:

Environment Parameters

Operating Temperature Range	15-30°C
Maximum Power Consumption	<600W
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 60825-1:2007	4
CDRH compliance	Yes
ROHs	Yes

Package

Laser Head dimensions, LxWxH⁽⁷⁾	429x250x120mm
Laser Head weight	9kgs
Cable length between head and controller	2m
Controller dimensions, LxWxH	483x390x88mm
Controller weight	10kgs

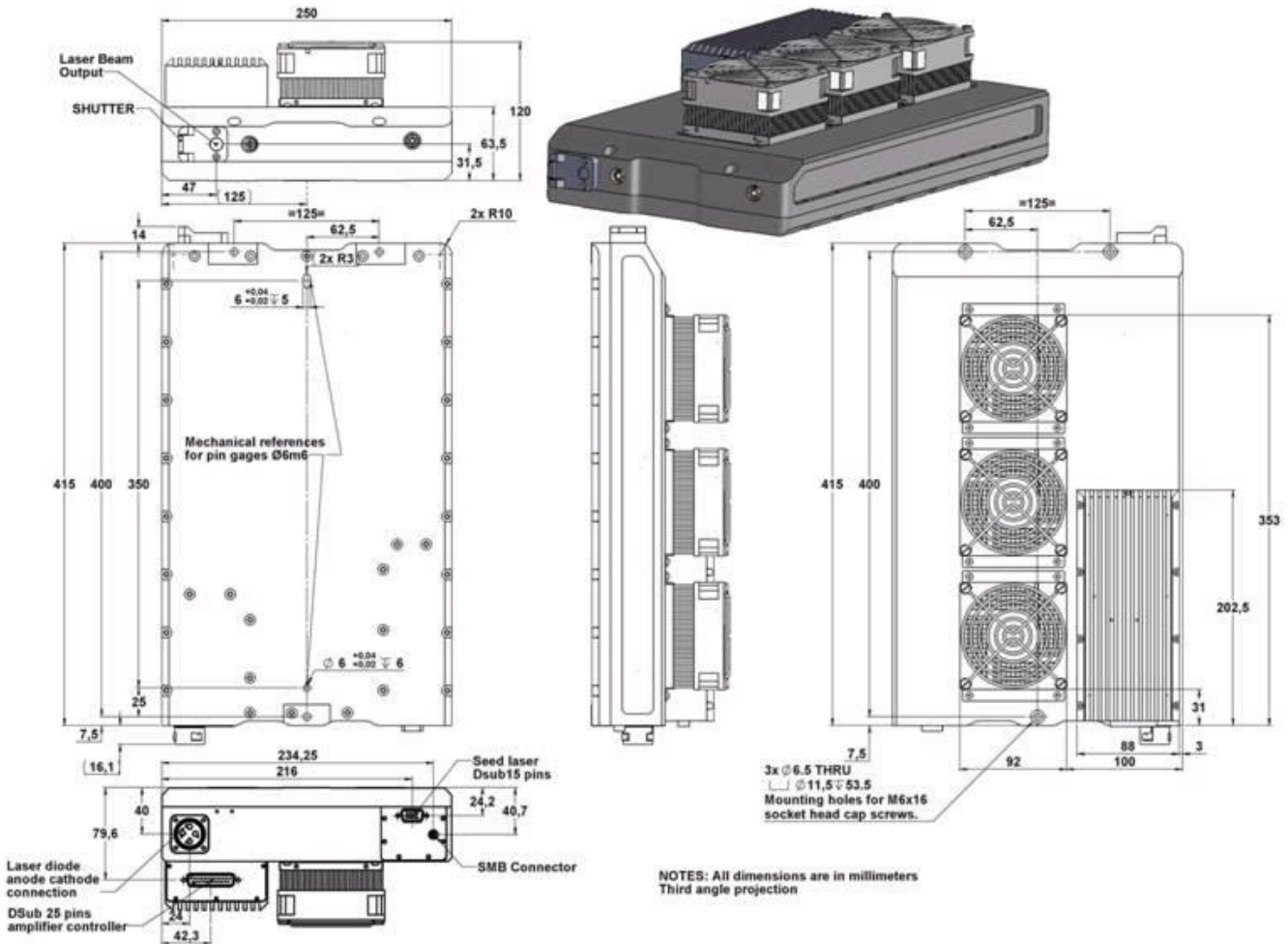
Options

Synchronization output (S)	TTL compatible output signal for synchronization/monitoring
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CDRH Laser Head Mechanical Drawings



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CDRH Controller Mechanical Drawings

