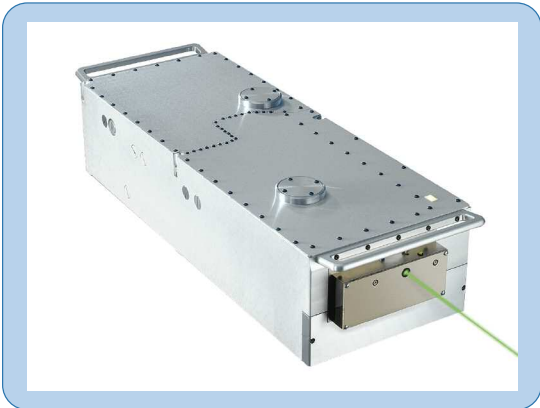


Pulseo® 532-34

HIGH POWER Q-SWITCHED LASER



The Pulseo 532 Advantage

- 34 W of 532 nm output at 120 kHz
- Short pulse width (<30 ns)
- High uptime and field serviceable design
- Lower cost of ownership and double diode life
- Excellent near and far field pointing stability
- Excellent pulse-to-pulse stability (<3% rms, 1sigma)
- Active Laser Purification System™ for longer life
- Designed for minimal user intervention

APPLICATIONS

- Electronic package singulation (micro-SD, QFN, FBGA, and Direct Chip Attach (DCA) type packages)
- PCB material ablation / PCB structuring
- Ceramic scribing
- PCB singulation
- Silicon wafer marking
- Solar cell edge isolation & thin film patterning

The Spectra-Physics® Pulseo® 532-34 laser is the newest addition to the Pulseo family of high-powered Master Oscillator Power Amplifier (MOPA) laser products. Producing over 34 W of 532 nm output at 120 kHz with a pulse width of <30 ns, the Pulseo 532-34 is the ideal laser for high-throughput micromachining applications.

HIGH RELIABILITY

The Pulseo family of rugged, industrial high power lasers are designed specifically for 24/7 operation, low maintenance and easier field serviceability. Reliability advantages include:

- Unique diode modules and fibers that can be easily replaced in the field
- ProLite® diodes that last up to double the industry average
- Unique field-replaceable laser output window to allow operation in typical industrial environments which are subject to contamination and airborne particulates generated from the ablation process
- Rugged I-beam laser housing and EternAlign™ optics protect the laser during vibration and shipping to ensure proper alignment over the life of the laser

With our commitment to quality and reliability, the Pulseo lasers offer the best in industrial reliability — higher uptime, lower mean time to repair (MTTR), and a lower cost of ownership.

SUPERIOR PERFORMANCE

Pulseo lasers also lead the industry in performance. With their shorter pulse widths, Pulseo lasers have higher peak powers resulting in cleaner scribing, and less thermal damage to your parts. And, excellent near- and far-field beam pointing stability and superior pulse-to-pulse stability translate to more consistent processing results and higher yields.

The integrated E-Pulse™ feature allows users to tailor the overall pulse energy to the specific job on hand. To ensure consistent machining quality and dependability over the lifetime of the laser, we've also integrated an automatic crystal shifter which keeps the output power constant. Finally, the Pulseo laser's Active Laser Purification System™ keeps the air in the laser cavity pure by both filtering and drying it to prevent burn spots on the optics which can result from component out-gassing.

EASE OF USE

The Pulseo laser is significantly smaller than competitive high power DPSS lasers ensuring simple integration into any machine tool. With its intuitive GUI, automated command set and superior laser design, the Pulseo laser is nearly maintenance free, requiring much less user intervention and far fewer tweaks to keep constant power, beam quality and throughput than other lasers on the market today.

Pulseo lasers ensure the best product reliability, value, laser performance, cost of ownership, and ease of use.

Pulseo[®] 532-34

Specifications¹

General Characteristics

Wavelength	532 nm
Peak Power	>13.5 kW
Average Power	>34 W
Repetition Rate, nominal	120 kHz
Repetition Rate Range	1 Hz–300 kHz
Pulse Width	<30 ns

Beam Characteristics

Spatial Mode	TEM ₀₀
M ²	<1.3
Polarization	100:1, vertical
Beam Divergence	<0.3 mrad
Asymmetry	>85%
Beam Diameter, at waist	3.6 mm ±10%
Waist Location, nominal	At output ±25% of Rayleigh range
Astigmatism	<0.2

Stability

Pulse-to-Pulse Stability	<3% rms 1σ
Power Stability (over 8 hours at constant temperature)	±2%

Operating Conditions

Temperature Range	18–35°C
Warm-up Time, from cold start	<60 min
Warm-up Time, from standby	<30 min
Humidity	8–90%, non-condensing (for temperatures up to 35°C)

Non-Operating Conditions

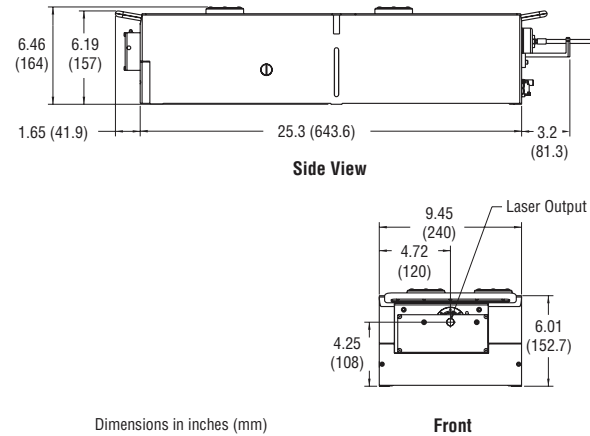
Temperature Range	0–40°C, non-condensing
Humidity	8–95%, non-condensing

Electrical/Mechanical Specifications

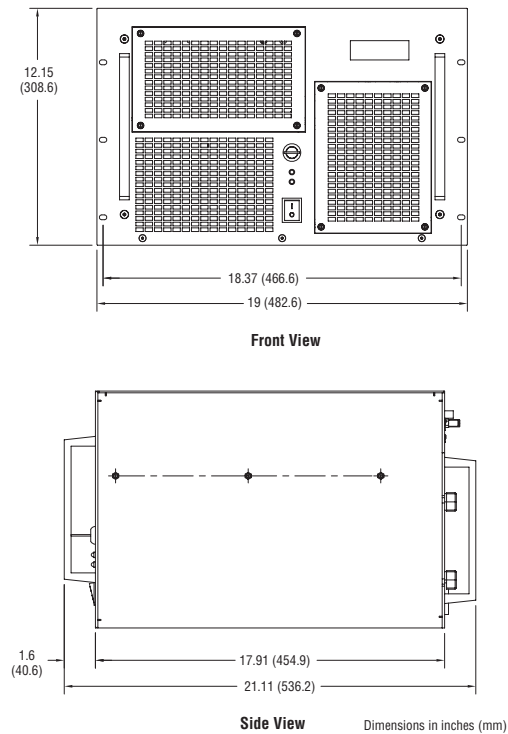
Electrical Requirements	200–240 VAC, 50/60 Hz, auto ranging
Power Consumption	1.1 kW
Sacrificial Output Window	Yes
Laser Head Dimensions	9.49 x 8.90 x 25.35 in (240 x 266 x 644 mm)
Laser Head Weight	60 lbs (27 kg)
Power Supply Dimensions	19 x 12.15 x 21.11 in (483 x 309 x 536 mm)
Power Supply Weight	95 lbs (43 kg)
Fiber Length	5 m
Water Cooling	Yes
Water Temperature	20°C
Water Flow Rate (input)	6 liter/min @ 50 psi
Heat Load	800–1200 W
Water Temperature Stability	±0.5°C

1. All specifications are reported at 120 kHz unless otherwise noted.

Pulseo Laser Head Dimensions



Power Supply Dimensions



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