

FORMULA SERIES

Industrial Green nanosecond laser

Features & Benefits:

Industrial Green nanosecond laser

FORMULA-532 laser adopts a compact all-in-one design, which effectively simplifies the design of the customer's equipment, making the installation and integration easier and more convenient. The design that organically combines the laser's electrical control part and the optical part greatly reduces the risk of possible failure caused by excessive external wiring connections and improves the overall stability of the user's equipment. Water-cooling, stable mechanical structure, and sufficient anti-stress design make it a perfect combination of performance and stability and a good candidate for various challenging applications.

FORMULA series is an upgraded version of the original AWAVE laser, with excellent performance. In addition to maintaining the original excellent beam quality ($M2 < 1.1$), it also expanded the laser's operating frequency range from 30-150kHz to 20-300kHz, and optimizes the laser power at high frequency. Thus, the laser can be used in more applications and improves the processing efficiency for customers. It adopts Inno Laser's world-leading intra-cavity harmonic generation technology. Its electrical-to-optical conversion efficiency is also industrial-leading. Thus, it is a solid-state Green laser with the lowest energy consumption.

The power ranges from 20w, 35w, up to 55 watts, which can meet most requirements on the power from customers for nanosecond Green lasers. The FORMULA series lasers can be operated with TTL level signals and PWM pulse width modulation signals. The PWF function allows customers to adjust the power output of the laser in the internal control mode through software.

The compact all-in-one design, excellent beam quality, wide repetition rate, flexible control mode, and comprehensive power coverage make it a perfect choice for the application of FPC/PCB cutting, solar cell processing, wafer processing, and so on.



PCB cutting



Ceramic cutting/Scribing



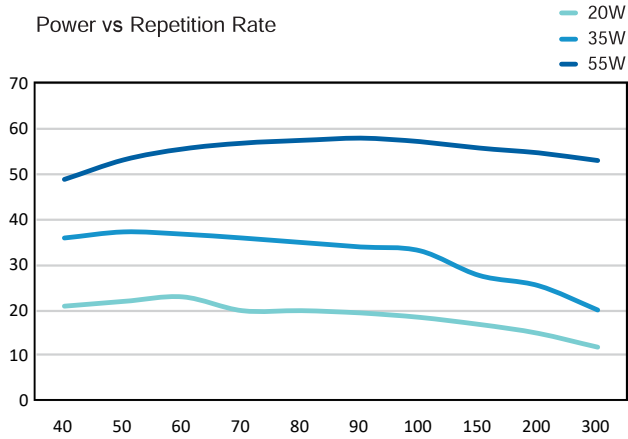
Carbon fiber cutting



Ferrite cutting

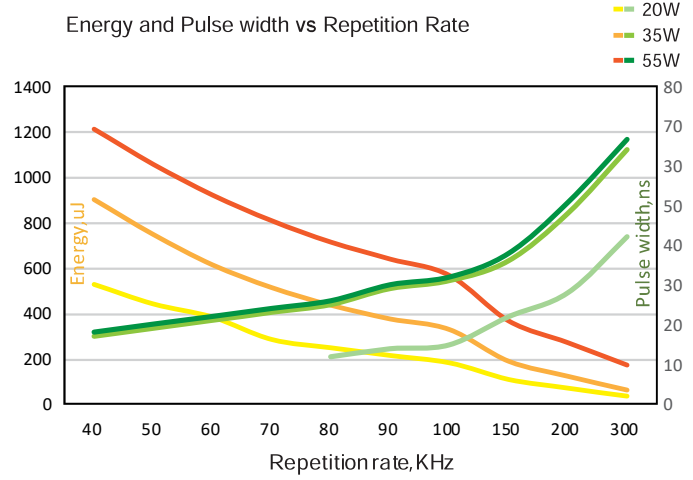
Typical Performance FORMULA 532-20W/35W/55W

Power vs Repetition Rate



Typical Performance FORMULA 532-20W/35W/55W

Energy and Pulse width vs Repetition Rate



FORMULA 532

Specification	20W-50K	35W-50K	55W-200K
Wavelength (nm)	532		
Average Power (Watts)	>20W@50KHz	>35W@50KHz	>55W@200KHz
Energy (μJ)	> 400	>700	>500
Specified Repetition Rate(kHz)	50	50	200
Repetition Rate (kHz)	30-150		
Pulse Width (ns)	<38		<48
Beam Quality (M ²)	<1.2		
Beam Roundness (%)	>90		
Beam Diameter (mm)	~0.85		
Beam Divergence (mRad)	<2		
Point Stability (μrad/°C)	<20		
Polarization Ratio	100:1 Linear, Vertical		
Pulse-to-Pulse Stability (% RMS)	<2		
Average Power Stability(% over 12 hours)	<3		
Cold Start Warm-Up (mins.)	<40		
Standby Warm-Up (mins.)	<10		
Operational Temperature Range (°C)	15 to 35		
Operation Humidity Range (%)	20 to 80, non-condensing		
Storage Temperature Range (°C)	- 20 to 50		
Storage Humidity Range (%)	20 to 80, non-condensing		
Input Voltage (VDC)/Rated Power(W)	24/450	24/600	24/600
Communication	RS232		
Cooling	Water		
Laser head (kg)	20		

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FORMULA -532 Laser Dimensions

