

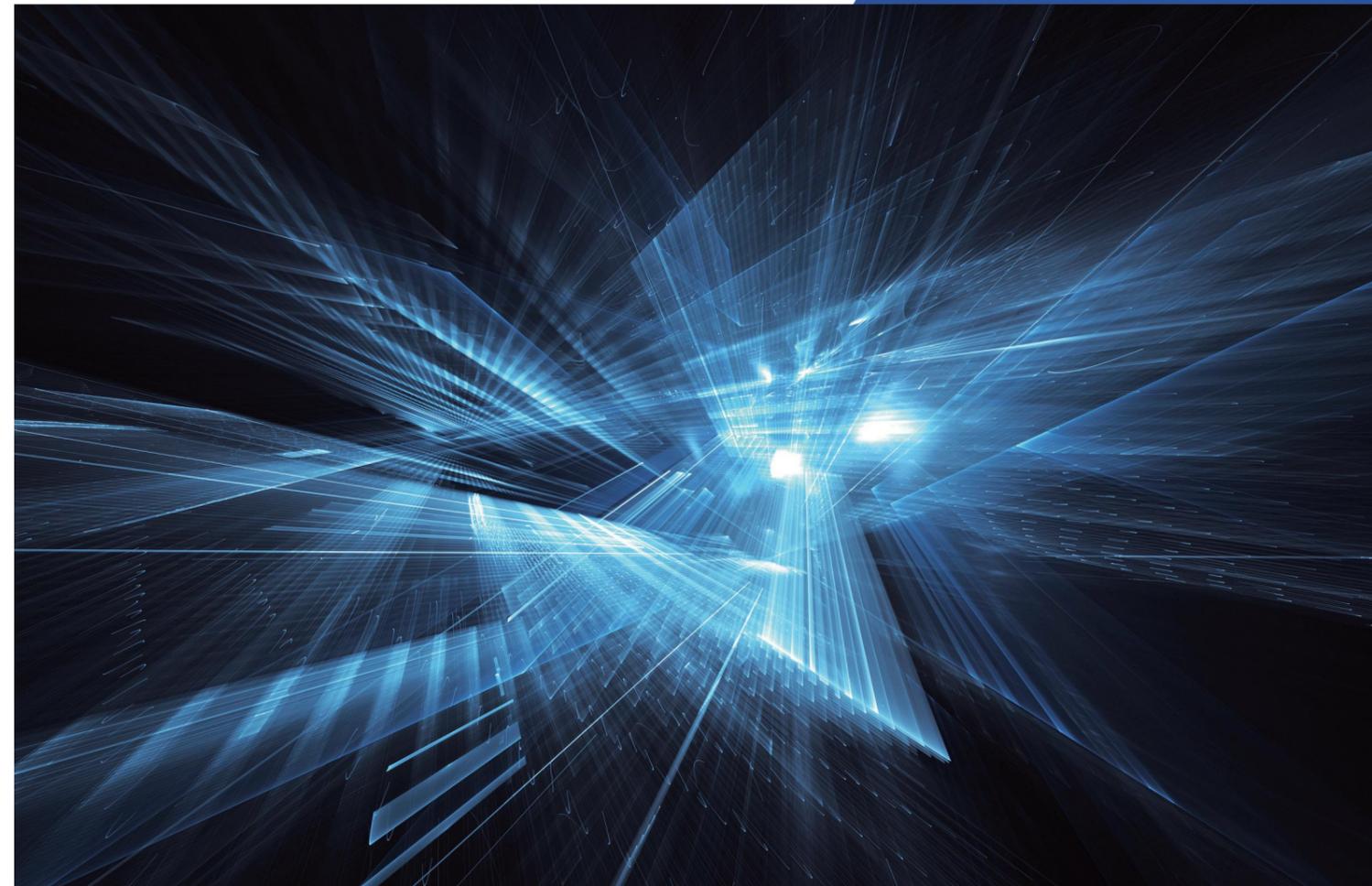


# 激光产品手册

LASER PRODUCT BROCHURE



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**激光科技点亮美好生活**

INNOVATIVE LASER TECHNOLOGY FOR A BETTER LIFE



激光科技点亮美好生活  
INNOVATIVE LASER TECHNOLOGY FOR A BETTER LIFE

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## 产品介绍

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# 企业文化

CORPORATE CULTURE



MISSION

## 我们的使命

激光科技点亮美好生活  
Innovative Laser Technology for a better life



VISION

## 我们的愿景

全领域激光解决方案领导者  
Global Leader in laser solution across all fields



OUR VALUE

## 我们的价值观

尊重 · 协作 · 坚韧 · 创新 · 奋斗  
Respect · Collaboration · Dedication · Innovation · Struggle

# 企业介绍

COMPANY INTRODUCTION

先导科技集团自2020年开始布局激光业务，先导激光依托集团的垂直一体化发展战略和资源优势，专注于高性能激光光源及解决方案的研发、生产和销售业务。先导激光在半导体激光器、光纤激光器、固体激光器以及气体激光器领域快速发展，逐步建立了材料、器件、模组、系统和整机五大平台能力。在国内设有3个研发中心和3个制造基地。公司立足全球市场，以核心材料为抓手，支持和推动集团业务的快速发展，致力于开发前沿新技术和平台技术，并为客户提供系统化解决方案。

Since 2020, VITAL Group has begun to layout the laser business, with its vertical integration strategy and resource advantages, VITAL Laser focuses on the R&D, production and sales of high-performance laser light sources and solutions. In the past few years, VITAL Laser has developed rapidly in the fields of semiconductor lasers, fiber lasers, solid-state lasers and gas lasers, and gradually established the capabilities of materials, parts, modules, systems and devices. The Group has three R&D centers and three manufacturing bases in China, and its business goes to the global market. By taking materials as the starting point, VITAL is committed to the rapid growth of the group's business, cutting-edge new technologies and systematic solutions for customers.



# 全球布局

GLOBAL LAYOUT



## 半导体激光器系列

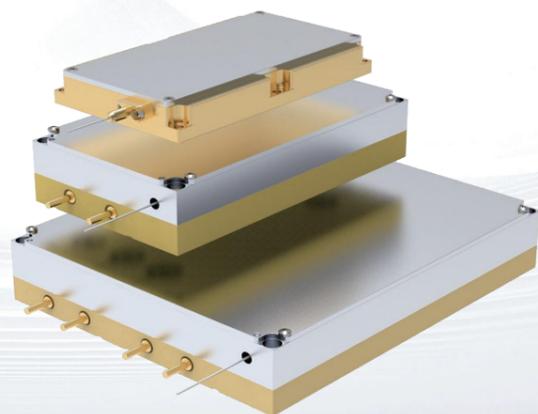
DIODE LASER SERIES

# 半导体激光器模块

DIODE LASER MODULE

先导激光半导体激光器模块，基于多芯片空间合束及偏振合束设计，输出功率覆盖280~2000W。模块具有体积小，高光电效率，高可靠性等优势，适用于光纤激光器泵浦应用，激光焊接及熔覆应用。

The VLS diode laser module designed based on multi chip space beam combining, polarization beam combining. The output power of this series production is 280~2000W. The production has a series merits of compact size, high energy efficiency, high reliability and can be used in fiber laser pump, laser welding and laser cladding.



## 产品特点

Product Features

- **最高功率可达2000W**  
The maximum power can reach up to 2kW
- **高能量密度输出**  
High energy density output
- **光电转换效率50%**  
The electro-optical conversion efficiency is 50%
- **高可靠性**  
High reliability

## 产品参数

Product parameters

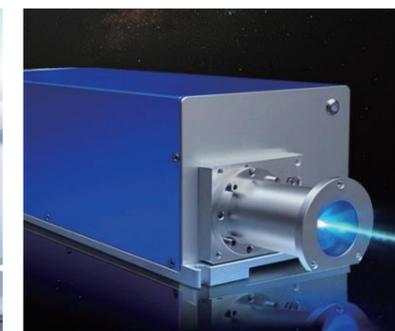
型号 Model	8XX半导体激光器模块 8XXSemiconductor Laser Module	9XX半导体激光器模块 9XXSemiconductor Laser Module
中心波长 Wavelength	808-888nm(可定制 Customized)	915/976±5nm
输出功率 Power	10-500W	10-1000W
光纤芯径 Fiber Core Diameter	200µm	105-400µm(可定制 Customized)
光纤长度 Cable Length	可定制 Customized	
数值孔径 Numerical Aperture	0.22	
光电效率 Efficiency	50%	

## 应用领域

Application Fields



光纤激光器泵浦  
Fiber Laser pumping



固体激光器泵浦  
Solid-state Laser pumping



科研应用  
Scientific Research

# 窄线宽激光器

NARROW LINEWIDTH LASER

## 主要特性

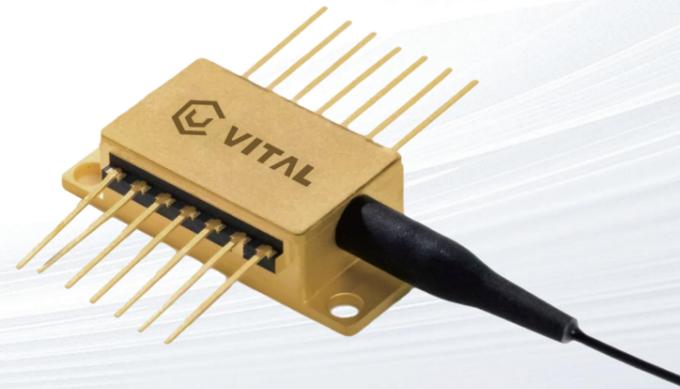
Main Features

- **窄谱线宽**  
Narrow spectral linewidth
- **低功耗**  
Low power consumption
- **高稳定性**  
High stability
- **高可靠性**  
High reliability

## 应用场景

Application Fields

- **拉曼光谱仪**  
Raman spectrometer



# 光纤耦合泵浦源

FIBER COUPLED PUMP SOURCE

## 主要特性

Main Features

- **高可靠性**  
High reliability
- **高稳定性**  
High stability

## 应用场景

Application Fields

- **固体激光器**  
Solid-state laser
- **光纤激光器**  
Fiber laser



## 产品参数

Product Parameters

VLS-NLL-(power)-(wavelength)	量值Value
中心波长 Central Wavelength	785nm
谱线宽度 Spectral Width	<0.1nm
输出功率 Output Power	500mW
功率稳定性 Power Stability	<1.5%@2hrs
边模抑制比 SMSR	40dB
光纤类型 Fiber type	105/125um MM
光纤数值孔径 NA	0.22
光纤长度 Fiber length	1M
光纤接头 Connector	FC/APC
工作环境温度 Operating Temperature	-20~50°C
工作电压 Operating Voltage	5V
存放温度 Storage Temperature	-20~70°C
使用寿命 Service Time	20000hours

## 产品参数

Product Parameters

VLS-HPLDM-(fiber type)-(power)-(wavelength)	量值Value
波长 Wavelength	878.6±1nm
输出功率 Power	P W
光纤类型 Fiber Type	MM
光纤数值孔径 NA	0.22
光纤芯径 Core Diameter	400um
光纤长度 Fiber Length	1.5M
光纤接头 Fiber Connector	SMA905
工作环境温度 Operating Temperature	15~40°C
外形尺寸 Package Size	L60xW52xH10mm
存储温度 Storage Temperature	15~60°C
使用寿命 Service Time	20000hours

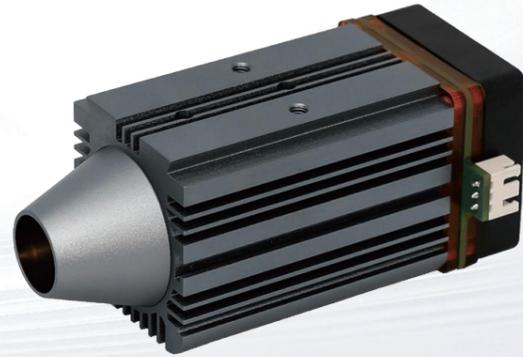
可选参数 Optional Parameter 功率 P: 30~65W  
Power: 30~65W

# 450nm蓝光激光器

4 5 0 N M B L U E L A S E R

## 应用场景 Application Fields

- 金属及非金属材料雕刻  
Engraving of metal and non-metal materials
- 激光打标  
Laser marking



## 产品参数

Product Parameters

VLS-LDM-450-(power)	量值Value
输出功率 Output Power	10W
波长 WaveLength	450nm
波长偏差 Wavelength Deviation	±10nm
光斑模式 Laser Beam Mode	点状 Dotted
工作模式 Working Mode	Pulse work
工作电流 Operating Current	3A
工作电压Vop Working Voltage	12V
阈值电流 Ith	0.35A
电路板 Circuit Board	12V/PWM 调制板 PWM Modulation
风扇电压 Fan Voltage	12V
工作温度 Operating Temperature	5~40°C
储存温度 Storage Temperature	-40~80°C

可选参数Optional Parameter P: 可选5w、10w、15w、30w  
P: Optional 5w、10w、15w、30w

# 微型调Q激光器

MINIATURE Q-SWITCHED LASER

## 应用场景 Application Fields

- 测距  
Ranging
- 遥感  
Remote sensing

## 主要特性 Main Features

- 微型化  
Miniaturization
- 低功耗  
Low power consumption
- 人眼安全波长  
Eye safe wavelength
- 高可靠性  
High reliability



## 产品参数

Product Parameters

型号 Model	VLS-DPQL-50μJ-1535	VLS-DPQL-100μJ-1535	VLS-DPQL-300μJ-1535
波长 WaveLength	1535nm	1535nm	1535nm
单脉冲能量 Single Energy	50μJ	100μJ	300~1000μJ
脉冲宽度 Pulse Width	<5ns	<5ns	<5ns
峰值功率 Peak Power	10kW	20kW	60kW
重复频率 Repetition Rate	1~1000Hz	1~10Hz	1~10Hz
光斑发散角 Beam Divergence Angle	< 15mrad	< 15mrad	< 15mrad
光斑直径 Beam Diameter	0.3~0.8mm	0.3~0.8mm	0.3~0.8mm
能量稳定性 Energy Stability	3%	3%	3%
光斑质量M <sup>2</sup> Beam Quality	1.2	1.2	1.2
工作温度 Operating Temperature	-40~+60°C	-40~+60°C	-40~+60°C
存储温度 Storage Temperature	-40~+85°C	-40~+85°C	-40~+85°C
激光器尺寸 Laser Dimension	32x10x9mm	35x15x12mm	35x15x12mm

型号 Model	VLS-DPQL-50uJ-1064	VLS-DPQL-100uJ-1064	VLS-DPQL-300uJ-1064
波长 WaveLength	1064nm	1064nm	1064nm
单脉冲能量 Single Energy	50μJ	100μJ	300~1000μJ
脉冲宽度 Pulse Width	<5ns	<5ns	<5ns
峰值功率 Peak Power	10kW	20kW	60kW
重复频率 Repetition Rate	1~10Hz	1~10Hz	1~10Hz
光斑发散角 Beam Divergence Angle	< 15mrad	< 15mrad	< 15mrad
光斑直径 Beam Diameter	0.3~0.8mm	0.3~0.8mm	0.3~0.8mm
能量稳定性 Energy Stability	3%	3%	3%
光斑质量M <sup>2</sup> Beam Quality	1.2	1.2	1.2
工作温度 Operating Temperature	20~35°C	20~35°C	20~35°C
存储温度 Storage Temperature	-40~+85°C	-40~+85°C	-40~+85°C
激光器尺寸 Laser Dimension	27x17.8x8mm	27x17.8x8mm	27x17.8x8mm

# 直接半导体激光器

## DIRECT DIODE LASER

先导激光直接半导体激光器产品，基于多芯片空间合束、偏振合束及波长合束设计，输出功率覆盖1000-3000W。产品具有高光电效率，高可靠性，使用简易，免维护等特点，适用于激光焊接，激光熔覆，激光3D打印等领域。

The VLS industrial direct diode laser designed based on multi chip space beam combining, polarization beam combining and multi wavelength beam combining. The output power of this series production is 1000-3000W. The production has a series metits of high energy efficiency, high reliability, compact, rugged and easy to install. This production can be used in laser welding, laser cladding and laser 3D printing.



### 产品特点

Product Features

- 最高功率可达3 kW**  
 The maximum power can reach up to 3 kW
- 光电转换效率48%**  
 The electro-optical conversion efficiency is 48%
- 可连续或调制信号出光**  
 Emit light in continuous or modulated signals
- 高能量密度输出**  
 High energy density output
- 使用过程免维护**  
 Maintenance-free

### 产品参数

Product parameters

型号 Model	VLS-DL-LC-1500	VLS-DL-LC-2000	VLS-DL-LC-3000
中心波长 Wavelength	915&976±5nm		
输出功率 Power	1500W	2000W	3000W
光纤芯径 Fiber Core Diameter	220µm	220µm	400µm
光纤长度 Cable Length	可定制 Customized		
数值孔径 NA	0.22		
控制模式 Controller Mode	RS232/外控IO RS232/external control IO		
光电效率 Efficiency	48%		
外观尺寸 Dimensions	429.5x435x96mm		

### 应用领域

Application Fields



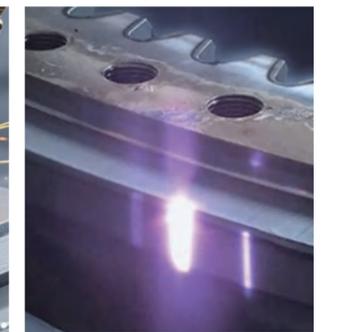
激光焊接  
Laser Welding



激光熔覆  
Laser Cladding



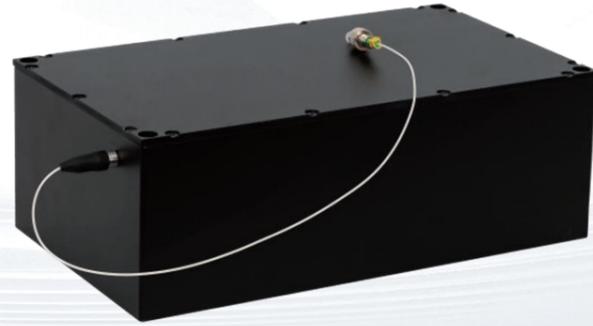
3D打印  
3D Printing



激光淬火  
Laser Quenching

# 皮秒种子源激光器

## PICOSECOND SEED SOURCE LASER



### 产品参数

Product Parameters

VLS-FLSps-(wavelength)-(power)	量值 Value	测试条件 Test Condition
中心波长 Wavelength	1064±1nm	
光谱宽度 Wavelength Range	< 1nm	
重复频率 Repetition Rate	100~1000kHz	
脉冲宽度 Pulse Width	10±2ps	
输出功率 Output Power	> 1mW	@100kHz, 单脉冲single pulse
单脉冲能量 Single Energy	> 10nJ	@100kHz, 单脉冲single pulse
消光比 PER	> 20dB	@100kHz, 单脉冲single pulse
功率波动 Power Stability	< 3%	@100kHz单脉冲single pulse, 16H
输出方式 Output Mode	> 0.5m length PM980 fiber with FC/APC	
工作温度范围 Operating Temperature	15~35°C	
供电电压 Operating Voltage	24V	
尺寸规格 Dimenstion	225x127x78mm	

\*注: 功率波动= (Pmax-Pmin) /PAverage×100%

\* Note: Power fluctuation = (Pmax-Pmin) /PAverage×100%

# 飞秒种子源激光器

## FEMTOSECOND SEED SOURCE LASER

### 应用场景

Application Fields

- 超快激光器种子源  
Ultrafast laser seed source
- 多光子光谱学  
Multi-photon spectroscopy
- 超快光谱学  
Ultrafast spectroscopy
- 生物光子学  
Biophotonics
- 计量学  
Metrology
- 频率梳  
Frequency comb



### 产品参数

Product Parameters

VLS-FLSfs-(wavelength)-(power)	量值 Value
中心波长 Wavelength	1030±2nm
光谱宽度 Wavelength range	10±2nm
脉冲宽度 Pulse Width	3ps
重复频率 Repetition Rate	25±5MHz
输出功率 Output Power	>10mW or >50mW
偏振消光比 PER	>20dB
功率稳定性 Power Stability	<3%
激光输出 Laser Output Mode	PM SM fiber coupling FC/APC
同步电信号输出 Synchronous Electrical Output	SMA connector
工作温度 Operating Temperature	10~40°C
输入电压 Input Voltage	+5VDC
散热量 Power Consumption	<10W
尺寸 Size	200x130x50mm
重量 Weight	<1.2Kg
贮存温度 Storage Temperature	0~40°C
温度范围 Operating Temperature	10~40°C

# 风冷连续光纤激光器

AIR-COOLED CW FIBER LASER

先导激光风冷连续激光器基于单腔振荡结构设计，风冷散热条件下输出功率为800~1500W。该设备采用自主研发的被动散热器浦源，合理设计散热系统，结构小巧紧凑，散热稳定，稳定连续工作的优越性突出。设备广泛应用于激光手持式焊接，便携式户外激光加工等场景。

The VLS air-cooled CW laser is designed based on a single-cavity oscillation structure, and the output power is 800~1500W under air-cooled heat dissipation conditions. The device uses a self-developed passive heat dissipation pump source, a reasonably designed heat dissipation system, a compact structure, stable heat dissipation, and outstanding advantages in stable and continuous operation. The device is widely used in laser handheld welding, portable outdoor laser processing and other scenarios.



## 产品特点

Product Features

- **紧凑尺寸**  
Industrial grade compact size
- **高光束质量**  
High beam quality
- **高效能比**  
High energy efficiency ratio
- **高稳定性**  
High reliability

## 产品参数

Product parameters

型号 Model	VLS-FB-AS-800	VLS-FB-AS-1200	VLS-FB-AS-1500
<b>光学特性 Optical Properties</b>			
中心波长 Wavelength	1080±5nm		
额定输出功率 Rated Power	800W	1200W	1500W
工作模式 Operation Mode	连续/调制 Continuous/Modulated		
偏振方向 Polarization Direction	随机 Random		
输出功率不稳定性 Power Instability	±1.5%		
输出头形式 Output Head Type	QBH (可定制 Customized)		
光纤芯径 Fiber Core Diameter	20 (可定制 Customized)		
数值孔径 Numerical Aperture	0.075 (可定制 Customized)		
光纤长度 Fiber Length	10 (可定制 Customized)		
指示光 Indicator Light	650nm 0.5~1mW		
<b>电学特性 Electrical Properties</b>			
工作电压 Operation Voltage	AC 220V±10%、50/60Hz		
最大功耗 Max Power Consumption	2500W	4000W	4500W
控制方式 Control Method	RS232/外控IO RS232/external control IO		
<b>其他特性 Others</b>			
外观尺寸 Dimensions	404x510x134mm		
重量 Weight	≤25Kg		
工作环境 Operation Environment	温度5~40℃, 湿度65% Temperature 5~40℃, humidity 65%		
存储环境 Storage Temperature	-10~60℃		
冷却方式 Cooling Method	风冷 Air cooling		

## 应用领域

Application Fields



激光切割  
Laser Cutting



激光焊接  
Laser Welding



手持焊机  
Handheld Welder

# 水冷单腔连续光纤激光器

WATER-COOLED SINGLE-CAVITY CW FIBER LASER

先导激光水冷连续激光器基于单腔振荡结构或主振荡放大结构设计，实现从1000W~6000W的激光输出。该系列产品具有结构紧凑、高转换效率、高可靠性等优势。设备广泛应用于激光切割、激光焊接、激光熔覆等领域

The VLS water-cooled CW fiber laser is designed based on a single-cavity oscillation structure or a master oscillator power amplifier structure to achieve laser output ranging from 1000W to 6000W. This series of products has the advantages of a compact structure, high conversion efficiency, and high reliability. The equipment is widely used in fields such as laser cutting, laser welding, and laser cladding.



## 产品特点

Product Features

- **光束质量好**  
High beam quality
- **连续/调制**  
Continuous/Modulated
- **结构紧凑、坚固、易于安装**  
Compact, sturdy structure, and easy to install
- **免维护、低成本**  
Maintenance-free and low cost
- **电光转换效率高**  
High electro-optical conversion efficiency

## 产品参数

Product parameters

型号 Model	VLS-FB-LC-15S	VLS-FB-LC-1500	VLS-FB-LC-2000	VLS-FB-LC-3000	VLS-FB-LC-6000
<b>光学特性 Optical Properties</b>					
中心波长 Wavelength	1080±5nm				
额定输出功率 Rated Power	1200W	1500W	2000W	3000W	6000W
工作模式 Operation Mode	连续/调制 Continuous/Modulated				
偏振方向 Polarization Direction	随机 Random				
输出功率不稳定性 Power Instability	±1.5%				
输出头形式 Output Head Type	QBH (可定制 Customized)				
光纤芯径 Fiber Core Diameter	25μm (可定制 Customized)		50μm	50or100 μm	
数值孔径 NA	0.075 (可定制 Customized)		0.22/0.075	0.22	
光纤长度 Fiber Length	10M (可定制 Customized)		20M 可定制 (Customized)	25M 可定制 (Customized)	
指示光 Indicator Light	650nm 0.5~1mW				
<b>电学特性 Electrical Properties</b>					
工作电压 Operation Voltage	AC 220V±10%、50/60Hz			AC 380V±10%、50/60Hz	
最大功耗 Max Power Consumption	3500W	4500W	6000W	12000W	18000W
控制方式 Control Method	RS232/外控IO RS232/external control IO				
<b>其他特性 Others</b>					
外观尺寸 Dimensions	430x435x96mm		586x448x96mm	875x448x96mm	
重量 Weight	≤20Kg		≤25Kg	≤35Kg	
工作环境 Operation Environment	温度5~40℃, 湿度65% Temperature 5~40℃, humidity 65%				
存储环境 Storage Temperature	-10~60℃				
冷却方式 Cooling Method	水冷 Water cooling				

## 应用领域

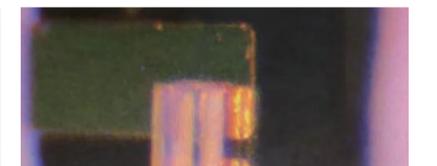
Application Fields



激光切割 Laser Cutting



激光焊接 Laser Welding



激光加热 Laser Heating



激光熔覆 Laser Cladding



激光淬火 Laser Quenching



激光3D打印 Laser 3D Printing

# 水冷合束多模连续光纤激光器

WATER-COOLED BEAM-COMBINED MULTI-MODE CW FIBER LASER

先导激光合束多模连续激光器基于单模块功率合束的方式，实现80kW的激光输出。该系列产品输出能量分布优越，加工断面质量良好，加工速度快，广泛应用于激光大型厚板切割，激光焊接，激光熔覆等。

The VLS beam-combined multi-mode CW laser is based on the method of combining the power of a single module to achieve laser output 80 kW. This series of products has superior output energy distribution, good processing section quality, and fast processing speed. It is widely used in laser large-thick-plate cutting, laser welding, laser cladding, etc.



## 产品特点

Product Features

- **输出能量分布优越**  
Superior output energy distribution
- **电光转换效率高**  
High electro-optical conversion efficiency
- **结构紧凑、坚固、易于安装**  
Compact, sturdy structure, and easy to install
- **免维护、低成本**  
Maintenance-free and low cost
- **连续/调制**  
Continuous / Modulation

## 产品参数

Product parameters

型号 Model	VLS-FB-LC-12k	VLS-FB-LC-20k	VLS-FB-LC-30k	VLS-FB-LC-60k	VLS-FB-LC-80k
<b>光学特性 Optical Properties</b>					
中心波长 Wavelength	1080±5nm				
额定输出功率 Rated Power	12000W	20000W	30000W	60000W	80000W
工作模式 Operation Mode	连续/调制 Continuous/Modulated				
偏振方向 Polarization Direction	随机 Random				
输出功率不稳定性 Power Instability	±1.5%				
输出头形式 Output Head Type	QD/LOE (可定制 Customized)				
光纤芯径 Fiber Core Diameter	100µm (可定制 Customized)		150or200µm	200µm	
数值孔径 Numerical Aperture	0.22				
光纤长度 Fiber Length	30M (可定制 Customized)				
指示光 Indicator Light	650nm 0.5~1mW				
<b>电学特性 Electrical Properties</b>					
工作电压 Operation Voltage	AC 380V±10%、50/60Hz				
最大功耗 Max Power Consumption	36kW	60kW	90kW	180kW	240kW
控制方式 Control Method	RS232/外控IO RS232/external control IO				
<b>其他特性 Others</b>					
工作环境 Operation Environment	温度5~40°C, 湿度65% Temperature 5~40°C, humidity 65%				
存储环境 Storage Temperature	-10~60°C				
冷却方式 Cooling Method	水冷 Water cooling				

## 应用领域

Application Fields



激光切割 Laser Cutting



激光焊接 Laser Welding



激光加热 Laser Heating



激光熔覆 Laser Cladding



激光淬火 Laser Quenching



激光3D打印 Laser 3D Printing

# 脉冲光纤激光器

## PULSED FIBER LASER

先导激光脉冲光纤激光器基于主振荡功率放大 (Master Oscillator Power-Amplifier: MOPA) 结构设计, 主振荡器用于产生纳秒 (ns) 级光脉冲, 经过整形后, 由一级或者多级的功率放大器提升输出功率。该设备脉冲频率和脉冲宽度是独立可控的, 通过这两项激光参数调整搭配, 可实现恒定的高功率输出, 能适用于更广泛的加工应用。更高的输出功率使其在高速打标、薄金属切割、激光清洗等应用中优势尤为突出。

The VLS pulsed fiber laser is designed based on the Master Oscillator Power-Amplifier (MOPA) structure. The master oscillator is used to generate nanosecond (ns) optical pulses. After shaping, the output power is increased by one or more stages of power amplifiers. The pulse frequency and pulse width of this equipment are independently controllable. Through the adjustment and combination of these two laser parameters, a constant high peak power output can be achieved, which can be applied to a wider range of processing applications. The higher output power makes it particularly prominent in applications such as high-speed marking, thin metal cutting, and laser cleaning.



### 产品特点

Product Features

- 工业级的紧凑尺寸  
Industrial grade compact size
- 高精度光束  
High precision beam
- 高可靠性  
high reliability
- 高能效比  
High energy efficiency ratio

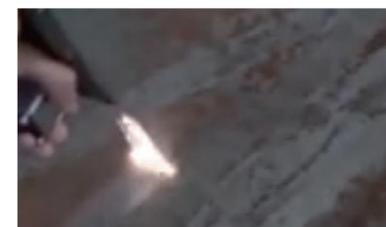
## 产品参数

Product parameters

型号 Model	VLS-OA-AS-60	VLS-OA-AS-120	VLS-OA-AS-350	VLS-OA-LC-500
<b>光学特性 Optical Properties</b>				
中心波长 Wavelength	1064±5nm			
光谱宽度 Emission Linewidth	< 15nm			
平均输出功率 Average output power	60W	120W	350W	500W
最大脉冲能量 Maximum pulse energy	2mJ	1.5mJ		
频率可调范围 Power Modulation Rate	1-4000kHz			
脉宽范围 Pulse width range	2-500ns			
光束质量 Beam quality	< 1.5m <sup>2</sup>	< 1.6m <sup>2</sup>	< 1.7m <sup>2</sup>	
光束直径 Beam Diameter (1/e <sup>2</sup> )	7±0.5mm	7±0.5mm	7±0.5mm	7±0.5mm
光纤长度 Cable Length	5m			
接头类型 Beam Delivery	QCS			
指示光 Guide Beam	650nm 0.5~1mW			
<b>电学特性 Electrical Properties</b>				
工作模式 Operation Mod	脉冲 Pulse			
工作电压 Voltage	24V	48V		
功率稳定性 Power Stabil	5%@8h			
整机功耗 Power Consumption	< 350W	< 450W	< 1500W	< 1700W
<b>其他特性 Others</b>				
整机尺寸 Dimensions	254x205x75mm	335x255x90mm	351x483x135mm	
工作温度 Working Temp	0-40°C			
储存温度 Storage Temp	-20-60°C			
冷却方式 Cooling method	风冷 Air cooling			水冷 Water cooling

## 应用领域

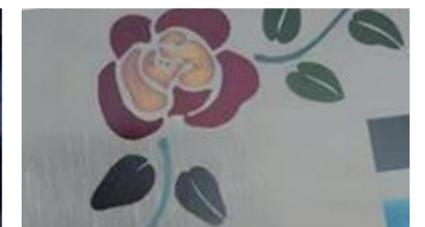
Application Fields



激光清洗 Laser Cleaning



薄板切割 Sheet Cutting



激光打标 Laser Marking

# 掺铥光纤激光器

## THULIUM-DOPED FIBER LASER

先导激光2.0μm波段连续光纤激光器采用主振荡器功率放大（MOPA）结构或者直接谐振腔结构设计，可以实现从毫瓦(mW)级到数百瓦量级的高功率输出，泵浦采用高亮度793nm，在提高输出功率的同时获得最佳光束质量，且不会使得脉冲变形，在毫秒（ms）量级长脉冲工作的情况下保证了近乎理想的方波脉冲输出。适用于器件测试，医疗，遥感，激光雷达，中红外泵浦等应用领域

The VLS 2.0μm band CW fiber laser adopts the design of master oscillator power amplifier (MOPA) structure or direct resonant cavity structure, which can achieve high-power output from milliwatt (mW) level to hundreds of watts level. The pump adopts high-brightness 793nm, which can obtain the best beam quality while increasing the output power, and will not cause pulse deformation. It ensures nearly ideal square wave pulse output when working in the long pulse of millisecond (ms) level. It is suitable for application fields such as device testing, medical treatment, remote sensing, lidar, mid-infrared pumping, etc.



### 产品特点

#### Product Features

- **高功率输出**  
High peak power output
- **风冷一体化设计**  
Integrated air cooling design
- **近衍射极限的输出光束质量**  
Output beam quality near diffraction limit

## 产品参数

### Product parameters

型号 Model	VLS-TM-AS-30	VLS-TM-AS-60	VLS-TM-LC-120
<b>光学特性 Optical Properties</b>			
中心波长 Wavelength	1940±3nm		
峰值输出功率 Peak Output Power	300W	600W	1200W
平均输出功率 Average Output Power	30W	60W	120W
最大脉冲能量 Maximum Pulse Energy	3mJ	6mJ	12mJ
频率可调范围 Power Modulation Rate	2.5kHz		
脉宽范围 Pulse Width Range	50-50000us		
光束质量 Beam Quality	< 1.2M <sup>2</sup>		< 1.5M <sup>2</sup>
光纤直径 Output Fiber Core	25um	50um	
光纤长度 Cable Length	5M		
接头类型 Beam Delivery	SMA905		QCS
指示光 Guide Beam	650nm 0.5~1mW		
工作模式 Operation Mode	CW/QCW		
<b>电学特性 Electrical Properties</b>			
工作电压 Voltage	48V		
功率稳定性 Power Stabil	2%@8h		
整机功耗 Power Consumption	< 250W	< 500W	< 1000W
<b>其他特性 Others</b>			
整机尺寸 Dimensions (mm)	265x270x90mm		400x482x180mm
工作温度 Working Temperature	0-40°C		
储存温度 Storage Temperature	-45-60°C		
冷却方式 Cooling Method	风冷 Air cooling		水冷 Water cooling

## 应用领域

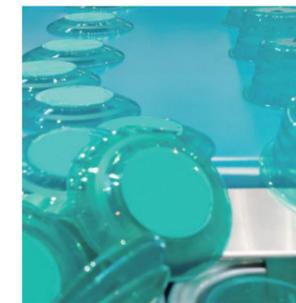
### Application Fields



激光医疗  
Laser Medical



中红外泵浦源  
Mid Infrared Pump Source



塑料材料加工  
Plastic Material Processing



科研实验领域  
Research and Experimental

# QCW光纤激光器

## QCW FIBER LASER

先导激光QCW光纤激光器可以输出高功率的激光束，光电转换效率高，输出功率和能量分布稳定，该系列产品具有结构紧凑，高转换效率，高可靠性等优势。设备广泛应用于高精度加工，科研实验和医疗等领域。

The VLS QCW fiber laser can output high-power laser beams with high electro-optical conversion efficiency and stable output power and energy distribution. This series of products has the advantages of a compact structure, high conversion efficiency, and high reliability. The equipment is widely used in high-precision processing, scientific research experiments, medical and other fields.



## 产品特点

Product Features

- **光束质量好**  
High beam quality
- **连续/调制**  
Continuous/Modulated
- **结构紧凑、坚固、易于安装**  
Compact, sturdy structure, and easy to install
- **免维护、低成本**  
Maintenance-free and low cost
- **电光转换效率高**  
High electro-optical conversion efficiency

## 产品参数

Product parameters

型号 Model	VLS-QF-AS-1200	VLS-QF-LC-1500	VLS-QF-LC-2000	VLS-QF-LC-3000
<b>光学特性 Optical Properties</b>				
中心波长 Wavelength	1080±5nm			
输出平均功率/峰值功率 Output Average Power / Peak Power	180/1200w	150/1500w	500/2000w	750/3000w
偏振方向 Polarization Direction	随机 Random			
输出功率不稳定度 Power Instability	±1.5%			
输出头形式 Output Head Type	QBH (可定制 Customized)			
光纤芯径 Fiber Core Diameter	200μm (可定制 Customized)			
数值孔径 NA	0.22 (可定制 Customized)			
光纤长度 Fiber Length	10m (可定制 Customized)			
指示光 Indicator Light	650nm 0.5~1mW			
<b>电学特性 Electrical Properties</b>				
工作电压 Operation Voltage	AC 220V±10%、50/60Hz			
最大功耗 Max Power Consumption	4000W	4500W	6000W	9000W
控制方式 Control Method	RS232			
<b>其他特性 Others</b>				
外观尺寸 Dimensions	404x510x134mm	430x435x96mm	586x448x96mm	
重量 Weight	≤25Kg	≤20Kg	≤25Kg	
工作环境 Operation Environment	温度5~40℃, 湿度65%		Temperature 5~40℃, humidity 65%	
存储环境 Storage Temperature	-10~60℃			
冷却方式 Cooling Method	风冷 Air cooling	水冷 Water cooling		

## 应用领域

Application Fields



精密切割  
Laser Cutting

精密焊接  
Precision Welding

精细钻孔  
Fine Drilling

激光打标  
Laser Marking

# 射频CO<sub>2</sub>系列激光器

## HIGH POWER RF CO<sub>2</sub> LASER

VLS-RF系列射频CO<sub>2</sub>激光器，具有极佳的光束质量，极高的功率稳定性，能轻松应对各种高难度加工任务，无论是非金属材料的精准切割，还是细腻的雕刻，都能游刃有余。其高效的电光效率，紧凑的结构，超长的使用寿命，在工业领域极具性价比。适用于木材、亚克力、纺织品、皮革、石英等非金属材料加工领域。

The VLS RF CO<sub>2</sub> lasers have excellent beam quality and extremely high power stability. They can easily handle various difficult processing tasks, whether it is the precise cutting of non-metallic materials or the delicate engraving. Their efficient electro-optical efficiency, compact structure, and extremely long service life make them highly cost-effective in the industrial field. They are suitable for non-metallic processing fields such as wood, acrylic, textiles, leather, quartz, etc.



### 产品特点

Product Features

- **高光束质量**  
High beam quality
- **高可靠性**  
High reliability
- **免维护**  
Maintenance-free
- **使用寿命长**  
Long service life
- **结构紧凑**  
Compact

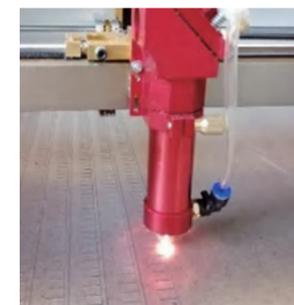
### 产品参数

Product parameters

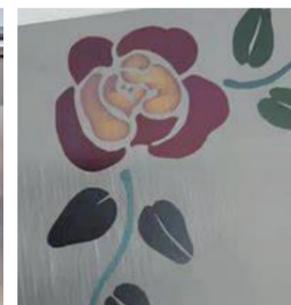
型号 Model	VLS-RF-A060	VLS-RF-L120	VLS-RF-L330
<b>光学特性 Optical Properties</b>			
波长Wavelength	10.6μm		
平均功率Average Power	60W	120W	330W
占空比Duty Cycle	1-60%		
频率Modulation Frequency	0-200kHz		
偏振态 Polarization state	线偏振 Linear polarization		
冷却方式 Cooling Method	风冷 Air cooling	水冷 Water cooling	水冷 Water cooling
全角发散角Beam Divergence	5.5mrad	5.5mrad	5.5mrad
光斑尺寸Beam Diameter (1/e <sup>2</sup> )	2.5mm	2.5mm	3mm
<b>电学特性 Electrical Properties</b>			
工作电压Voltage	48V		
功率稳定性 Power Stability	±5%		
整机功耗Power Consumption	< 1000W	< 2000W	< 6000W
<b>其他特性 Others</b>			
整机尺寸Dimensions	547x93x167mm	547x93x167mm	915x240x190mm
工作温度 Operation Temperature	5°C to 40°C		
储存温度Storage Temperature	-10°C to 60°C		

### 应用领域

Application Fields



激光切割  
Laser Cutting



激光打标  
Laser Marking



激光剥除  
Laser Stripping



塑料材料加工  
Plastic Material Processing

## 红外皮秒激光器

IR PICOSECOND LASER

### 应用场景

Application Fields

- 激光PI膜切割  
laser PI film cutting
- 蓝宝石、陶瓷盖板切割  
sapphire, ceramic cover cutting
- 复合薄膜材料加工  
Composite Film Material Processing
- 玻璃与金属焊接  
Glass-to-metal welding
- 材料微纳加工  
Micro-nano processing of materials
- OLED模组切割  
OLED module dicing
- 半导体晶圆加工  
Semiconductor Wafer Processing
- 锂电池隔膜切割  
Lithium Battery Separator Cutting



## 绿光皮秒激光器

GREEN PICOSECOND LASER

### 应用场景

Application Fields

- 激光PI膜切割  
laser PI film cutting
- 蓝宝石、陶瓷盖板切割  
sapphire, ceramic cover cutting
- OLED模组切割  
OLED module cutting
- ITO钻孔/划线  
ITO Laser Drilling/Scribing
- 材料微纳加工  
Micro-nano Material Processing
- 复合薄膜材料加工  
Composite Film Material Processing
- FPC材料切割/打孔  
FPC Material Laser Cutting/Drilling
- 半导体材料切割/划线  
Semiconductor Material Laser Dicing/Scribing



## 产品参数

Product parameters

VLS-SSLps-1064-(power)	量值Value	备注 Remark
中心波长 Central Wavelength	1064.2±0.5nm	
光谱宽度 Spectral Width	<1nm	
平均功率 Average Power	20/30/50/80W	@100KHz@1Burst
频率范围 Pulse Repetition Rate	50-1000kHz	
脉冲宽度 Pulse Duration	10±2ps	
光束质量M <sup>2</sup> Beam Quality	< 1.3	
功率稳定性 Power Stability	< 2%	RMS@48H
脉冲稳定性 Pulse to Pulse Stability	< 2%	RMS@48H
光斑直径 Beam Diameter	≤3mm	output@30cm
偏振要求 Polarization	≥20dB	垂直偏振Vertical
光斑圆度 Beam Circularity	>90%	
光束发散角 Beam Divergence Full Angle	< 2mrad	
Burst 个数 Burst Mode	1-10个/EA	支持脉冲个数可调 Burst No. adjustable
工作电压 Operating Voltage	110-220V	AC
工作环境温度 Operating Temperature	15-35°C	
存储温度 Storage Temperature	-10-50°C	低温下需防止结露 Condensation should be prevented at low temperatures
冷却方式 Cooling Mode	水冷Water cooling	
外形尺寸 Outline Dimension	646X410X165mm	
使用寿命 Working Life	10000 hours	

## 产品参数

Product parameters

VLS-SSLps-532-(power)	量值Value	备注 Remark
中心波长 Central Wavelength	532±1nm	
光谱宽度 Spectral Width	<1nm	
平均功率 Average Power	10/20/30W	@100KHz@1Burst
频率范围 Pulse Repetition Rate	50-1000kHz	
脉冲宽度 Pulse Duration	10±2ps	
光束质量M <sup>2</sup> Beam Quality	< 1.3	
功率稳定性 Power Stability	< 2%	RMS@48H
脉冲稳定性 Pulse to Pulse Stability	< 2%	RMS@48H
光斑直径 Beam Diameter	≤3mm	output@30cm
偏振要求 Polarization	≥20dB	水平偏振Horizontal
光斑圆度 Beam Circularity	>90%	
光束发散角 Beam Divergence Full Angle	< 2mrad	
Burst 个数 Burst Mode	1-10个/EA	支持脉冲个数可调 Burst No. adjustable
工作电压 Operating Voltage	110-220V	AC
工作环境温度 Operating Temperature	15-35°C	
存储温度 Storage Temperature	-10-50°C	低温下需防止结露 Condensation should be prevented at low temperatures
冷却方式 Cooling Mode	水冷Water cooling	
外形尺寸 Outline Dimension	646X410X165mm	
使用寿命 Working Life	10000 hours	

# 紫外皮秒激光器

UV PICOSECOND LASER

## 应用场景

Application Fields

- 激光PI膜切割  
laser PI film cutting
- 材料微纳加工  
Micro-nano material processing
- OLED模组切割  
OLED module cutting
- FPC材料切割/打孔  
FPC material cutting/punching
- 光纤光栅刻写划槽  
Fiber grating notching
- 复合薄膜材料加工  
Composite film material processing
- 医疗器械制造  
Medical device manufacturing
- 半导体材料切割/划线  
Semiconductor material cutting/scribing



## 产品参数

Product parameters

VLS-SSLps-355-(power)	量值Value	备注 Remark
中心波长 Central Wavelength	355±1nm	
光谱宽度 Spectral Width	<1nm	
平均功率 Average Power	10/15/20W	@100KHz@1Burst
频率范围 Pulse Repetition Rate	50-1000kHz	
脉冲宽度 Pulse Duration	10±2ps	
光束质量M <sup>2</sup> Beam Quality	< 1.3	
功率稳定性 Power Stability	< 2%	RMS@48H
脉冲稳定性 Pulse to Pulse Stability	< 2%	RMS@48H
光斑直径 Beam Diameter	≤3mm	output@30cm
偏振要求 Polarization	≥20dB	垂直偏振 Vertical
光斑圆度 Beam Circularity	>90%	
光束发散角 Beam Divergence Full Angle	< 2mrad	
Burst 个数 Burst Mode	1-10个/EA	支持脉冲个数可调 Burst No. adjustable
工作电压 Operating Voltage	110-220V	AC
工作环境温度 Operating Temperature	15-35°C	
存储温度 Storage Temperature	-10-50°C	低温下需防止结露 Condensation should be prevented at low temperatures
冷却方式 Cooling Mode	水冷Water cooling	
外形尺寸 Outline Dimension	646X410X165mm	
使用寿命 Working Life	10000 hours	

# 紫外纳秒固体激光器

UV NANOSECOND SOLID-STATE LASER

## 应用场景

Application Fields

- 晶圆划线  
Wafer Scribing
- 微孔加工  
Micropore processing
- 薄膜蚀刻  
Film Etching
- 玻璃打标、划线  
Glass marking
- PCB/FPCB的切割与分板  
PCB/FPCB cutting and splitting board



## 产品参数

Product parameters

VLS-SSLns-355-(power)	量值Value
波长 Wavelength	355±1nm
脉冲宽度 Pulse Width	< 15@40kHz ns
输出功率 Output Power	>15@40kHz W
光束质量M <sup>2</sup> Beam Quality	< 1.3
光束发散角 Beam Divergence Full Angle	< 2 mrad
输出光斑直径 Beam Diameter	1±0.2mm output@30cm
光斑椭圆度 Beam Circularity	> 90
调制频率 Repetition Rate	30-200kHz
偏振性 Polarization Ration	>100:1, Horizontal
功率稳定性 Power Stability	< 1%@40kHz RMS
脉冲稳定性 Pulse to Pulse Stability	< 2%@40kHz RMS
预热时间 Warm-up Time	< 30min
供电要求 Power Supply	DC15V,350W
外形尺寸 Dimensions	507.5×233×95.5mm
工作环境温度 Operating Temperature	15~35°C
存放温度 Storage Temperature	-10~50°C
环境相对湿度 Environment Humidity	< 80% (无冷凝现象non-condensation)

可选参数 Optional Parameter: 3w、5w、15w 可选 Optional

# 绿光纳秒固体激光器

GREEN NANO SECOND SOLID-STATE LASER

## 应用场景

Application Fields

- 陶瓷打孔划片  
Ceramic punching and scribing
- 玻璃和晶圆打标、切割、打孔  
Glass and wafer marking, cutting, drilling
- 表面镀层去除  
Surface coating removal
- 超薄金属微孔制作  
Ultra-Thin metal microporous



## 产品参数

Product parameters

VLS-SSLns-532-20	量值Value
波长 Wavelength	532±1nm
脉冲宽度 Pulse Duration	< 20@40kHz ns
输出功率 Output Power	> 20@40kHz W
光束质量M <sup>2</sup> Beam Quality	< 1.3
光束发散角 Beam Divergence Full Angle	< 2mrad
输出光斑直径 Beam Diameter	1±0.2mm output@30cm
光斑椭圆度 Beam Circularity	> 90%
调制频率 Repetition Rate	30-200kHz
偏振性 Polarization Ration	>100:1, Vertical
功率稳定性 Power Stability	< 1% @40kHz
脉冲稳定性 Pulse to Pulse Stability	< 2% @40kHz
预热时间 Warm-up Time	< 30
供电要求 Power Supply	DC15V, 350W
外形尺寸 Dimensions	507.5×233×95.5mm
工作环境温度 Operating Temperature	15~35°C
存放温度 Storage Temperature	-10~50°C
环境相对湿度 Ambient Humidity	< 80% (无冷凝现象 non-condensation)

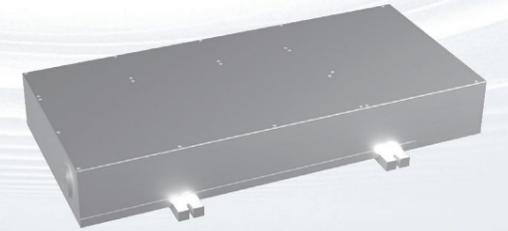
# 高能量绿光纳秒激光器

HIGH ENERGY GREEN NANOSECOND LASER

## 应用场景

Application Fields

- 碳化硅刻蚀  
Silicon carbide etching
- 钻石外形切割  
Diamond Contour Cutting
- 钻石切片、取芯、修面  
Diamond slicing, coring, shaving
- PCD/CVD 材料切割  
PCD/CVD Material Cutting



## 产品参数

Product parameters

VLS-SSLns-532nm-20W-10kHz	量值Value
输出功率 Output Power	>20 @10kHz W
功率稳定性 Power Stability	< 1% @10kHz PMS
波长 Wavelength	532±1nm
单脉冲能量 Single Energy	>2 @10kHz mj
重复频率 Repetition rate	7~20kHz
脉冲宽度 Pulse Width	< 80 @10kHz
光斑直径 Beam Diameter	1±0.2mm output@30cm
光斑椭圆度 Beam Ellipticity	>90%
偏振态 Polarization Direction	Vertical
偏振比 Polarization Ration	>100:1
光束发散角 Beam Divergence Full Angle	<2mrad
光束质量M <sup>2</sup> Beam Quality	< 1.3
脉冲稳定性 Pulse to Pulse Stability	< 2% @10kHz
冷却方式 Cooling Mode	Water-Cooled
水温 Water Temperature	20°C
供电要求 Power Supply	DC36V, 600W
工作环境温度 Operating Temperature	10~35°C
储存温度 Storage Temperature	-10~50°C
环境相对湿度 Ambient Humidity	< 80% (无冷凝现象 non-condensation)



全领域激光解决方案领导者

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