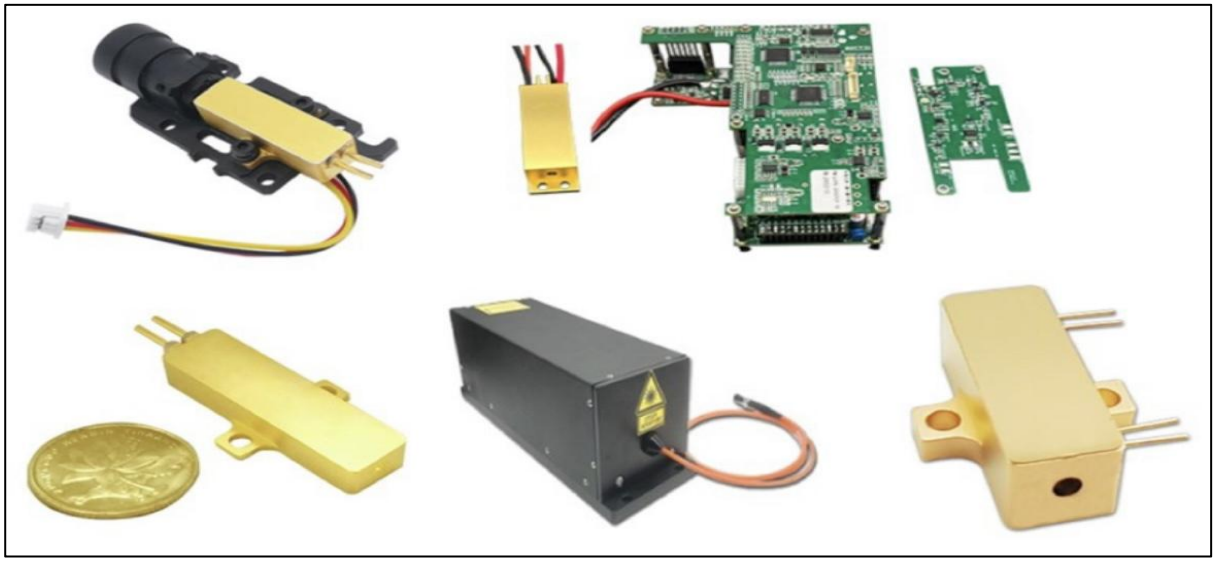
Sintec Optronics

STXL Series Microchip Lasers



1. STXL Series Sub-Nanosecond Microchip Lasers

The STXL series microchip lasers are passively Q-switched diode-pumped sub-nanosecond lasers, featuring narrow pulse width, high peak power high repetition rate and multiple wavelengths. We provide these microchip lasers at 1535nm, 1319nm, 1064nm, 1030nm, 946nm, 660nm, 532nm, 515nm, 473nm, 355nm, 343nm, 266nm, 257nm, 237nm and 213nm output wavelengths, with repetition rates up to 100kHz and pulse width from 300ps to 5ns. These compact and easy-to-integrate diode-pumped solid-state lasers support internal and external triggering, are ideally suited for eye-safe ranging, atmospheric monitoring, underwater imaging, optical metrology, bio-medicine, micro-machining etc.

1.1 STXL-AR Series 1.5ns Microchip Lasers

STXL-AR series microchip lasers are passively Q-switched diode-pumped solid-state lasers. The integrated design of diode-pumped module and laser crystal brings convenience to installation and integration due to the compact size. This series of lasers offer miniaturized drive boards specially for meteorological radar application, featuring small size, low power consumption, and can be used in high altitude, large temperature difference and other harsh environment.

Applications:
- LIDAR
- Laser ranging
- Atmospheric monitoring

Key Features:
- Pulse width down to 1.5ns
- Single pulse energy up to 200μJ
- Repetition rate up to 2.5kHz
- Spatial mode TEM00
- Sealed package, high reliability

Wavelength(nm)	1064		532	
Repetition rate (kHz)	2.5*			
Average power (mW)	300	500	150	250
Pulse energy (μJ)	110	180	55	90
Pulse width (ps)	2000		1500	
Power stability (8h)	±3%			
Beam profile	TEM00			

Beam full divergence (typ., mrad)	Horizontal @1/e²	≤3		≤2.5	
	Vertical @1/e²	≤3		≤2.5	
Polarization ratio		>100:1			
Supply power voltage		100-240VAC, 50/60Hz			
Control interface		RS232, USB			
Power consumption (W)		≤20	≤25	≤25	≤25
Power dimensions (W×H×L, mm)		90×32.6×120			
Laser head dimensions (W×H×L, mm)		45×30×120			
Operation temperature (℃)		15-35			
Storage temperature (℃)		0-60			

* Side-exit light structure. Trigger mode for frequency <20kHz is rising-edge trigger, trigger mode for frequency >20kHz is gated trigger, TTL 5V, SMA interface.

1.2 STXL-A Series Microchip Lasers

STXL-A series microchip lasers are compact, economical and reliable diode-pumped passive Q-switch solid-state lasers, with stable output energy, high peak powers and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger.

Applications:

- Seed laser
- Micromachining
- Pump source for optical parametric oscillators
- Laser-induced breakdown spectroscopy (LIBS)
- Laser-based ultrasound detection
- Laser ionization mass spectroscopy (LIMS)
- Laser ranging
- Laser-induced fluorescence (LIF)
- Laser ultrasonic imaging

Key Features:

- Single pulse energy up to 120μJ
- Repetition rate up to 10kHz
- Spatial mode TEM00
- Polarization-stable

Wavelength (nm)		1064			532			355			266		
Repetition rate (kHz)		1	5	10	1	5	10	1*	5*	10*	1*	5*	10*
Average power (mW)		120	350	400	60	150	150	30	50	50	10	40	30
Pulse energy (μJ)		120	70	30	60	35	15	15	10	6	8	7	3
Pulse width (ps)		2000		1500	1500	2000		1500	1200		1500	1200	
Power stability (8h)		±3%											
Beam profile		TEM00											
Beam full divergence (typ., mrad)	Horizontal @1/e²	8			6			5			5		
	Vertical @1/e²	8			6			5			5		
Polarization ratio		>100:1											
Supply power voltage		100-240 VAC, 50/60 Hz											
Control interface		RS232, USB											
Power consumption (W)		≤35											
Power dimensions (W×H×L, mm)		168×88×140											
Laser head dimensions (W×H×L, mm)		45×30×120											
Operation temperature (℃)		15-35											
Storage temperature (℃)		0-60											

1.3 STXL-C Series 750ps Microchip Lasers

STXL-C series microchip lasers are compact, economical and reliable semiconductor pumped (diode pumped) passive Q-switch (passively Q-switched) solid state lasers independently developed by us, with stable output energy, high peak powers and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger. This series of products include 5 wavelengths of 1064nm, 532nm, 355nm, 266nm and 213nm. The pulse duration (pulse width) can go down to 600ps (0.6ns). Various models operate with repetition rates up to 10kHz and the average power ranges from 3mW to 350mW. The reliable and robust microchip design is perfect for advanced OEM industrial applications.

Applications:

- Seed laser
- Micromachining
- Pump source for optical parametric oscillators
- Laser-induced breakdown spectroscopy (LIBS)
- Laser-based ultrasound detection
- Laser ionization mass spectroscopy (LIMS)
- Laser ranging
- Laser-induced fluorescence (LIF)
- Laser ultrasonic imaging

Key Features:

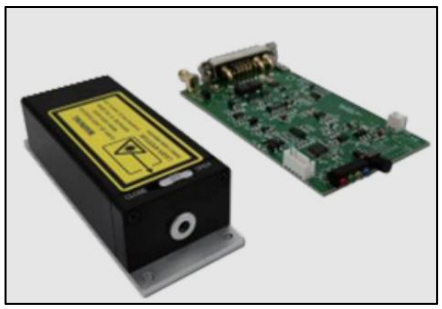
- Single pulse energy up to 120μJ
- Repetition rate up to 10kHz
- Spatial mode TEM00
- Polarization-stable

Wavelength (nm)		1064			532			355			266			213
Repetition rate (kHz)		1	5	10	1	5	10	1*	5*	10*	1*	5*	10*	1*
Average power (mW)		100	300	300	50	150	150	20	50	50	10	40	40	4
Pulse energy (μJ)		120	70	30	60	35	15	15	10	6	8	7	3	4
Pulse width (ps)		750			750			650			650			650
Power stability (8h)		±3%												
Beam profile		TEM00												
Beam full divergence (typ., mrad)	Horizontal @1/e²	8	12		7	10		5	8		5	8		5
	Vertical @1/e²	8	12		7	10		5	8		5	8		5
Polarization ratio		>100:1												
Supply power voltage		100-240 VAC, 50/60 Hz												
Control interface		RS232, USB												
Power consumption (W)		≤ 25	≤ 20	≤ 30	≤ 25	≤ 30	≤ 35	≤ 25	≤ 25	≤ 30	≤ 25	≤ 30	≤ 30	≤ 25
Power dimensions (W×H×L, mm)		168×88×140												
Laser head dimensions (W×H×L, mm)		45×30×120												
Operation temperature (℃)		15-35												
Storage temperature (℃)		0-60												

* Side-exit light structure. Trigger mode for frequency <20kHz is rising-edge trigger, trigger mode for frequency >20kHz is gated trigger, TTL 5V, SMA interface.

1.4 STXL-D Series 300ps-2ns Low Repetition Rate OEM Microchip Lasers

STXL-D series microchip lasers are passively Q-switched diode-pumped solid-state lasers, featuring stable single pulse energy, excellent beam quality and no tail pulse. 300ps-2ns low-repetition-rate microchip lasers coming along with miniaturized OEM drive boards, are designed especially for medical aesthetics. These lasers are compact, easy-to-integrate, and offer outstanding long working time. We also provide isolators with corresponding wavelengths and HQF series high-energy laser products for customers.



Applications:
- Seed laser

Key Features:
- Pulse width down to 300ps
- Single pulse energy up to 50μJ
- Spatial mode TEM00
- Polarization-stable

Wavelength(nm)		1064			
Repetition rate (kHz)		0.01			
Average power (mW)		3			
Pulse energy (μJ)		300			
Pulse width (ps)		500	350	500	2000
Power stability (8h)		±3%			
Beam profile		TEM00			
Beam full divergence (typ., mrad)	Horizontal @1/e²	6	6	4-6	4-6
	Vertical @1/e²	6	6	4-6	4-6
Polarization ratio		P-polarized, >100:1		500ps: P-polarized, >100:1 2ns: S-polarized, >100:1	
Supply power voltage		12V 2A			
Control interface		SMA			
Power consumption (W)		≤10			
Power dimensions (W×H×L, mm)		68×35×120		100x23x100	
Laser head dimensions (W×H×L, mm)		45×30×120		145x70x46	
Operation temperature (℃)		15-35			
Storage temperature (℃)		0-60			

1.5 STXL-D Series 350ps Microchip Lasers

STXL-D series microchip lasers are passively Q-switched diode-pumped solid-state lasers, featuring stable single pulse energy, excellent beam quality and no tail pulse. The integrated design of diode-pumped module and laser crystal brings convenience to installation and integration due to the compact size. This series provides various wavelengths include 1064nm, 532nm, 355nm and 266nm, and supports internal and external triggering. The internal hermetic module of the laser head is available to customers for tailor-made development. The STXL-D series is also available with OEM seed laser drivers.

Applications:
- Seed laser
- Micromachining
- Laser-induced breakdown spectroscopy (LIBS)
- Laser ionization mass spectroscopy (LIMS)
- Laser-induced fluorescence (LIF)
- Nonlinear optics

Key Features:
- Pulse width down to 300ps
- Single pulse energy up to 50μJ
- Repetition rate up to 10kHz

- Spatial mode TEM00
- Polarization-stable

Wavelength (nm)		1064	532	355	266
Repetition rate (kHz)		0.1	0.1	0.1	0.1
Average power (mW)		10	3	1.5	0.5
Pulse energy (μJ)		100	30	15	5
Pulse width (ps)		350	300	300	300
Power stability (8h)		±3%			
Beam profile		TEM00			
Beam full divergence (typ., mrad)	Horizontal @1/e²	12	10	8	8
	Vertical @1/e²	12	10	8	8
Polarization ratio		>100:1			
Supply power voltage		100-240 VAC, 50/60 Hz			
Control interface		RS232, USB			
Power consumption (W)		≤25			
Power dimensions (W×H×L, mm)		168×88×140			
Laser dimensions (W×H×L, mm)		45×30×120			
Operation temperature (℃)		15-35			
Storage temperature (℃)		0-60			

1.6. STXL-H Series 300ps Single Longitudinal Mode Microchip Lasers

STXL-H series single longitudinal mode (SLM) microchip lasers are compact, economical and reliable semiconductor pumped (diode pumped) passive Q-switch (passively Q-switched) solid state lasers with stable output energy, high peak power and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger. This series of products produce the single longitudinal mode 1064nm, 532nm, 355nm, 266nm and 213nm radiation with a long lifetime. The pulse duration (pulse width) can go down to 300ps (0.3ns). Various models operate with repetition rates up to 50kHz and the average power ranges from 2mW to 100mW. The reliable and robust microchip design is perfect for advanced OEM industrial applications.

Applications:

- Seed laser
- Micromachining
- Raman spectroscopy
- Laser ranging
- Laser-induced fluorescence (LIF)
- Laser ultrasonic imaging
- Time of flight mass spectrometer (TOFMS)
- Photolithography

Key Features:

- Pulse width down to 300ps
- High energy stability
- Repetition rate up to 100kHz
- Spatial mode TEM00
- Polarization-stable

Wavelength (nm)	1064		532	
Repetition rate (kHz)	20	100	20	100
Average power (mW)	60	100	30	50
Pulse energy (μJ)	3	1	1.5	0.5
Pulse width (ps)	350	500	300	450
Power stability (8h)	±3%			
Beam profile	TEM00			

Beam full divergence (typ., mrad)	Horizontal @1/e²	25	30	16	25
	Vertical @1/e²	25	30	16	25
Polarization ratio		>100:1			
Supply power voltage		100-240 VAC,50/60 Hz			
Control interface		RS232, USB			
Power consumption (W)		≤35	≤40	≤35	≤40
Power dimensions (W×H×L, mm)		168×88×140			
Laser head dimensions (W×H×L, mm)		45×30×120			
Operation temperature (℃)		15-35			
Storage temperature (℃)		0-60			

1.7 STXL-I Series 2.5ns Microchip Lasers

STXL-I series microchip lasers are compact, economical and reliable semiconductor pumped (diode pumped) passive Q-switch (passively Q-switched) solid state lasers independently developed by us, with stable output energy, high peak powers and excellent beam quality. The monolithic laser cavity is permanently aligned, therefore extremely stable. The system supports internal trigger and external trigger.

Applications:

- Laser-induced fluorescence (LIF)
- Laser-based ultrasound detection
- Laser ranging
- Raman spectroscopy

Key Features:

- Compact design, excellent stability
- Polarization-stable
- Repetition rate up to 5kHz
- Spatial mode TEM00

Wavelength (nm)		946	473
Repetition rate (kHz)		1	1
Average power (mW)		20	5
Pulse energy (μJ)		20	5
Pulse width (ps)		2500	2000
Power stability (8h)		±3%	
Beam profile		TEM00	
Beam full divergence (typ., mrad)	Horizontal @1/e²	9	7
	Vertical @1/e²	9	7
Polarization ratio		>100:1	
Supply power voltage		100-240 VAC, 50/60 Hz	
Control interface		RS232, USB	
Power consumption (W)		≤15	≤15
Power dimensions (W×H×L, mm)		168×88×140	
Laser head dimensions (W×H×L, mm)		45×30×120	
Operation temperature (℃)		15-35	
Storage temperature (℃)		0-60	

1.8 STXL-J Series 1ns Microchip Lasers

Applications:
- Material micromachining
- Spectrum analysis
- LIDAR
- Pump source
- Biomedicine

Key Features:
- Pulse width down to 1ns
- Single pulse energy up to 100μJ
- Repetition rate up to 2kHz
- Spatial mode TEM00

Wavelength (nm)		1030	515	343	257
Repetition rate (kHz)		1	1	1*	1*
Average power (mW)		100	40	20	8
Pulse energy (μJ)		100	40	20	8
Pulse width (ps)		1000	900	800	800
Power stability (8h)		±3%			
Beam profile		TEM00			
Beam full divergence (typ., mrad)	Horizontal @1/e²	6	4	3	2
	Vertical @1/e²	6	4	3	2
Polarization ratio		>100:1			
Supply power voltage		100-240 VAC, 50/60 Hz			
Control interface		RS232, USB			
Power consumption (W)		≤15	≤15	≤15	≤15
Power dimensions (W×H×L, mm)		168×88×140			
Laser head dimensions (W×H×L, mm)		45×30×120			
Operation temperature (℃)		15-35			
Storage temperature (℃)		0-60			

1.9 STXL-O Series Energy Adjustable Fiber Pigtailed Microchip Lasers

STXL-O series sub-nanosecond fiber pigtailed microchip lasers are composed of integrated electronic control modules for energy adjustment, photodetector module and laser drive board, with a 200um 0.22NA fiber. This super compact laser is plug and play, making it an ideal source for a variety of applications.

Applications:
- Laser engraving
- Laser-induced breakdown
- spectroscopy (LIBS)
- Laser photoluminescence
- Laser marking
- Laser capture microdissection
- Laser-induced fluorescence (LIF)
- Laser mass spectroscopy
- Ultraviolet microscopy
- Raman spectroscopy
- LIDAR
- Thin film scribing and processing
- Semiconductor inspection
- Photoacoustic imaging
- Laser spark plug
- Laser remote sensing

Key Features:
- Pulse width <1ns
- Repetition rate variable from 1-200Hz
- Energy adjustable by PC control
- Photodiode output signal with time jitter < 00ps
- Sealed package, high reliability
- Plug and play, include PC control software

Wavelength (nm)	1064	532	355	266
Repetition rate (Hz)	1-200			
Max. energy @ Fiber coupled output (μJ)	50	25	25	10
Pulse width (ns)	≤1			
Energy stability (RMS)	≤3%			
Adjusting precision of output energy	≤2%			
Polarization	≥100:1			
Fiber	200μm/0.22NA			
Supply power voltage	24V DC			
Modulation input	TTL 0-5V, SMB input			
Control interface	RS-232			
Peak Power consumption (W)	<20			
Average power consumption (W)	<10			
Laser dimensions (W×H×L, mm)	82x79x250			
Operation temperature (℃)	15-35			
Storage temperature (℃)	-10-60			

1.10 STXL-O Series Energy Adjustable Free Space Microchip Lasers

STXL-O series energy adjustable sub-nanosecond microchip lasers with free space output, are composed of integrated electronic control modules for energy adjustment, photodetector module and laser drive board. This laser features compact design, plug and play, and free space output with a beam divergence lower than 2mrad.

Applications:
- Laser engraving
- Laser-induced breakdown
- spectroscopy (LIBS)
- Laser photoluminescence
- Laser marking
- Laser capture microdissection
- Laser-induced fluorescence (LIF)
- Laser mass spectroscopy
- Ultraviolet microscopy
- Raman spectroscopy
- LIDAR
- Thin film scribing and processing
- Semiconductor inspection
- Photoacoustic imaging
- Laser spark plug
- Laser remote sensing

Key Features:
- Pulse width <1ns
- Repetition rate variable from 1-200Hz
- Energy adjustable by PC control
- Photodiode output signal with time jitter <100ps
- Sealed package, high reliability
- Plug and play, include PC control software

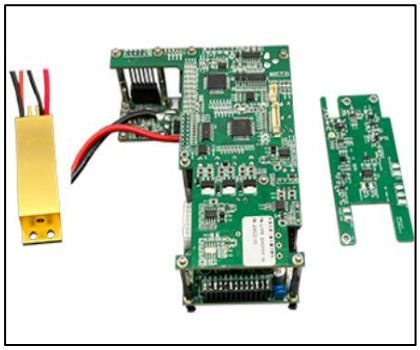
Wavelength (nm)		1064	532	355	266
Repetition rate (Hz)		1-200			
Max. energy @ free space output (μJ)		60	30	25	15
Pulse width (ns)		≤1			
Energy stability (RMS)		≤3%			
Adjusting precision of output energy		≤2%			
Beam profile (Free space output)		TEM00			
Full angle divergence Typ. (mrad)	Horizontal @1/e²	≤2			
	Vertical @1/e²	≤2			
Polarization		≥100:1			
Supply power voltage		24V DC			
Modulation input		TTL 0-5V, SMB input			
Control interface		RS-232			
Peak power consumption (W)		<20			
Average power consumption (W)		<10			
Laser dimensions (W×H×L, mm)		82x103x240			
Operation temperature (℃)		15-35			
Storage temperature (℃)		0-60			

1.11 STXL-M Series Microchip Lasers

STXL-M series microchip lasers are passively Q-switched diode-pumped solid-state lasers, featuring high energy, good value and low power consumption. The integrated design of diode-pumped module and laser crystal results in the compactness. And water cooling is not required for this laser. The series is also available with miniaturized drive boards for OEM control or PD signal for applications include LIBS and laser ablation, which is easy to install and integrate, and is suitable for handheld devices.

Applications:

- Laser ablation
- Laser-induced breakdown
- spectroscopy (LIBS)



Key Features:

- Pulse width <7ns
- Pulse energy up to 20mJ
- Built-in PD, drive board for PD available
- Compact size, no water cooing required
- Suitable for handheld devices
- Cost effective

Wavelength (nm)		1064
Repetition rate (Hz)		10
Pulse energy (mJ)		>10
Pulse width (ns)		<3
Power stability (RMS)		<3%
Full angle divergence Typ. (mrad)	Horizontal @1/e²	3
	Vertical @1/e²	3
Cooling method		Air cooling
Laser dimensions (W×H×L, mm)		17×16.1×58.5 (customizable)
Operation temperature (℃)		15-35
Storage temperature (℃)		-20 - +60
Supply power voltage		12VDC
Control interface		RS-232 or I/O
Power consumption (W)		15W (MAX)
*Drive board dimensions (W×H×L, mm)		45×40×111
Trigger mode		External or Internal Trigger
Drive board dimensions (W×H×L, mm)		39×10×86(customizable)

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STXL Series Microchip Lasers

1. STXL High Repetition Rate 1535nm Microchip Laser Module

Er:glass eye-safe lasers are diode pumped, water-free, passively Q-switched lasers independently developed by us, combine eye-safe wavelength operation with high peak power, short pulse duration (pulse width), and diffraction limited beam quality to deliver unmatched size, weight and power. Our eye-safe DPSS lasers operate at 1535nm, in addition to being called 1535nm lasers, these lasers are also called 1540nm lasers, 1534nm lasers, 1.54um lasers or 1.54μm lasers, widely used as the emission light source of rangefinder. At this wavelength, eye-safe laser ranging systems can be easily configured without compromise to beam power or quality. This makes laser ranging applications safer for customers. Most of these lasers are operational over a wide temperature range from -40℃ to 60℃, with lifetime exceeding 60 million shots.

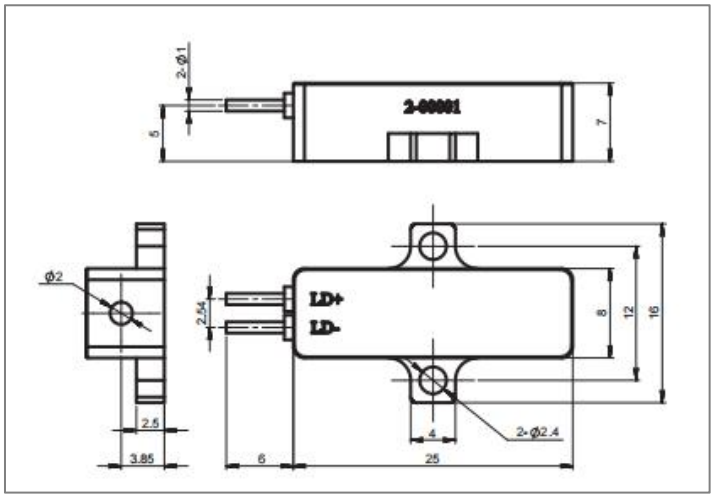
Applications:

- Obstacle avoidance radar
- Meteorological radar
- Laser range finder

Key Features:

- Passively Q-switched, Er:glass
- Eye-safe
- Extremely light
- Wide operating temperature range

Wavelength (nm)	1535		
Pulse energy (μJ)	50	20	10
Repetition rate (kHz)	1	2.5	5
Pulse width (ns)	5	6	8
Operating current (A)	5		
Operating voltage (V)	2		
Energy Stability (RMS)	3%		
Beam full divergence (typ., mrad)	16	17	18
Beam profile	TEM_{00}		
Weight (g)	10		
Dimensions (W×H×L, mm)	25x8x7		
Operation temperature (℃)	-40~65		
Storage temperature (℃)	-55~80		

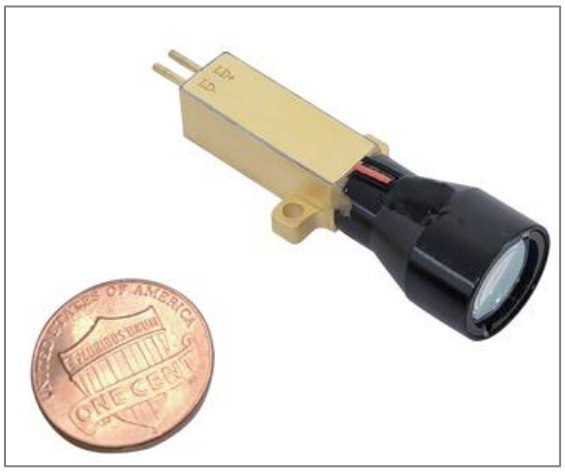


Part numbering:

Series – Wavelength – Pulse Energy – Repetition Rate

For example: STXL-1535nm-50uJ-1kHz, is a STXL series high repetition rate passively Q-switched microchip laser with 1535nm wavelength, 50uJ energy, 1kHz pulse repetition rate.

2. STXL 1535nm Eye-safe Laser Transmitter



The T01 series is an integrated laser transmitter consisting of a diode-pumped passively Q-switched erbium glass laser independently developed by us, a transmitting antenna, and a photodiode. The laser module operates at the eye-safe wavelength of 1535nm and can synchronize the laser pulse signal. The transmitter features small size, small divergence angle, and wide temperature range operation, and is professionally applied in fields such as LIDAR, laser ranging, and laser remote sensing.

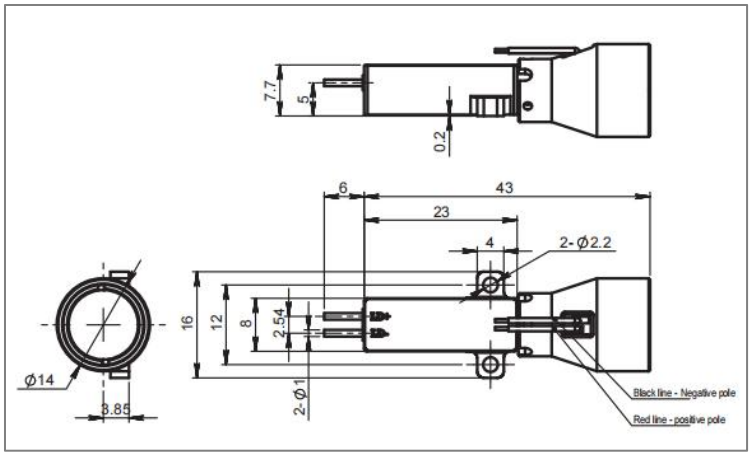
Applications:

- Laser range finding
- Remote sensing
- LiDAR

Key Features:

- Eye-safe laser wavelength
- Integrated photodiode
- Small divergence angle (With beam expander)
- Super compact design
- High reliability

Wavelength (nm)	1535		
Pulse energy (μJ)	>100	>200	>300
Pulse width (ns)	<5		
Repetition rate (Hz)	10		
Transmitter transmittance	>90%		
Operating current (A)	8	10	12
Beam full divergence (mrad)	<0.55	<0.5	<0.5
Beam diameter (typ., mm)	7	8	8
Beam profile	TEM_{00}		
Energy Stability (RMS)	3%		
PIN amplitude (typ., V@50Ω resistance)	3		
Weight (g)	13.5		
Operation temperature (℃)	-40~65		
Storage temperature (℃)	-55~80		



Part numbering:
Series – Wavelength – Pulse Energy – Repetition Rate
For example: STXL-1535nm-100uJ-10Hz

3. STXL 800~1000uJ 1535nm Erbium Glass Lasers

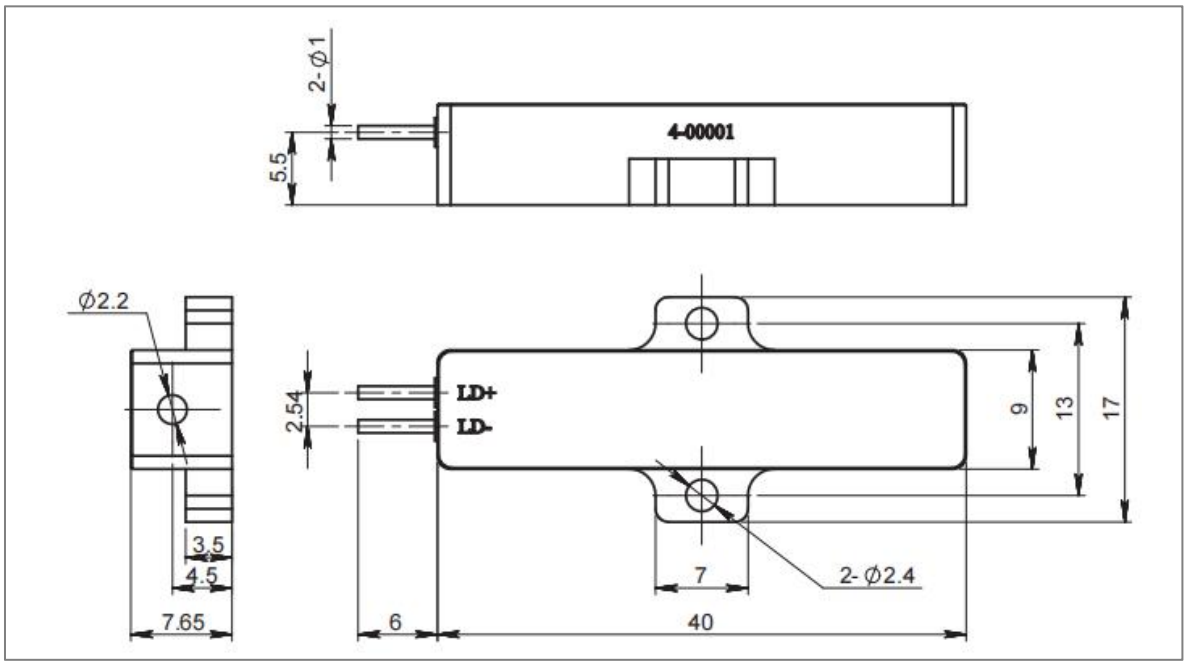
The 1535nm Erbium glass lasers operate in the eyesafe wavelength regime, have great advantages in applications including laser ranging and LiDAR. This series of lasers feature no tail pulse, stable pulse energy and excellent beam profile. The integrated design of diode-pumped module and laser crystal brings convenience to installation and integration due to the compact size. The output power of this series is up to 1mJ.

Applications:
- Laser rangefinder
- Meteorological radar

Key Features:
- Passively Q-Switched, Er:Glass
- Eye-safe
- Extremely light
- Super compact design
- Wide operating temperature range

Wavelength (nm)	1535	
Pulse energy (μJ)	800	1000
Pulse width (ns)	8	
Repetition rate (Hz)	5	
Operating current (A)	30	
Beam full divergence (typ., mrad)	7	
Beam profile	TEM_{00}	

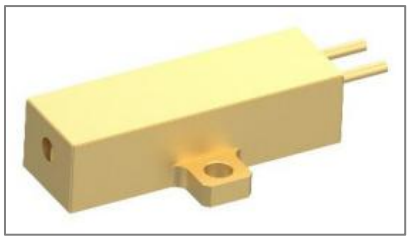
Weight (g)	20
Dimensions (W×H×L, mm)	40x9x7.5
Operation temperature (℃)	-40~65
Storage temperature (℃)	-45~80



Part numbering:
Series – Wavelength – Pulse Energy – Repetition Rate
For example: STXL-1535nm-800uJ-5Hz

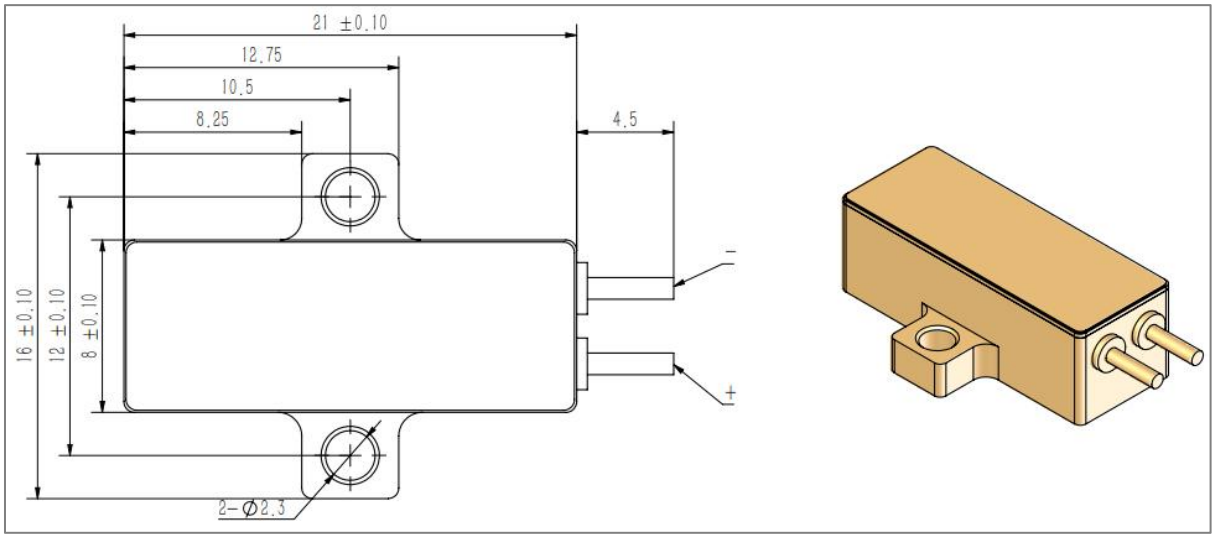
SLY Series 1535nm Erbium-Doped Glass Lasers

1. Er:Glass Lasers without Beam Expander (Low Repetition Rate)

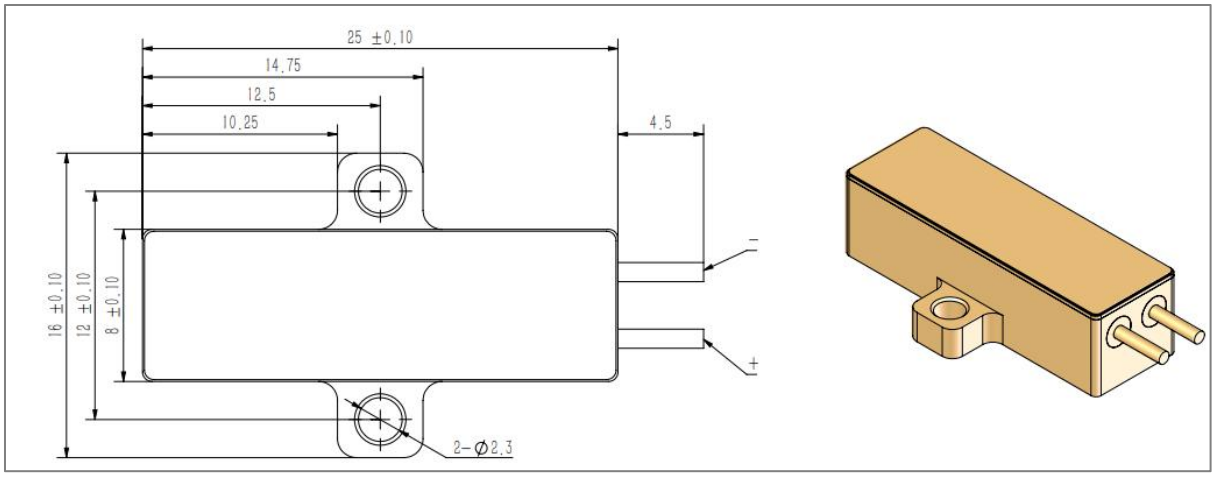


Parameters	SLY-40uJ--C12	SLY-100uJ-C14	SLY-200uJ-C14	SLY-300uJ-C10	SLY-400uJ-C13	SLY-500uJ-C11
Wavelength	1535nm ± 5nm					
Pulse width (FWHM)	3 – 6ns					
Pulsed energy	≥40uJ	≥100uJ	≥200uJ	≥300uJ	≥400uJ	≥500uJ
Frequency	1000Hz	1 – 10Hz				
Beam quality (M^2)	≤1.5	≤1.3				
Beam diameter (1/e2)	0.35mm	0.2mm			0.3mm	
Beam divergence	≤15	≤10mrad			≤15mrad	
Working voltage	<2V					
Working current	4A	6A	8A	12A	15A	18A
Pulse width	≤0.4ms	≤2.5ms				
Working temperature	-40°C ~ +65°C					
Storage temperature	-50°C ~ +75°C					
Lifetime	>10^7 times					
Weight	10g	9g			11g	13g

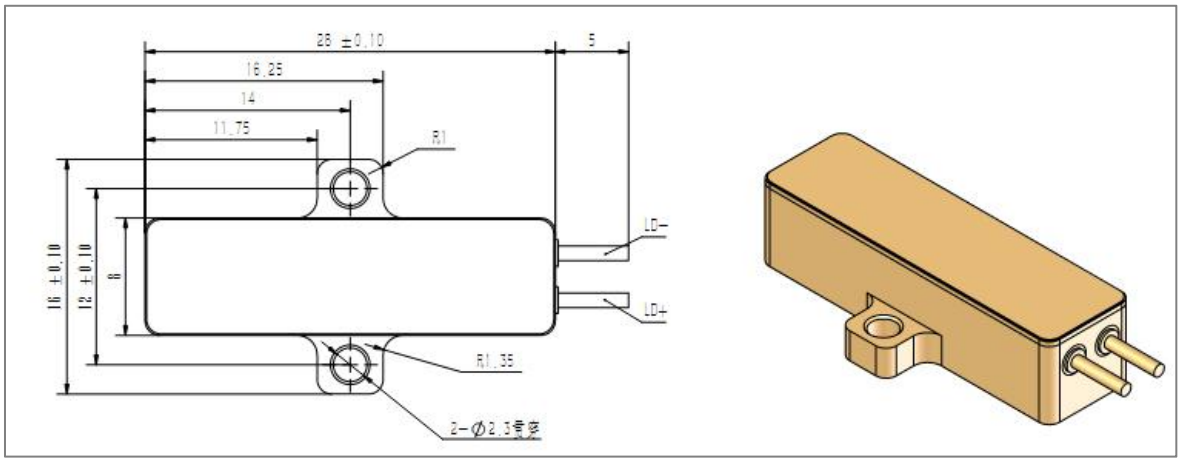
40uJ-200uJ Models:



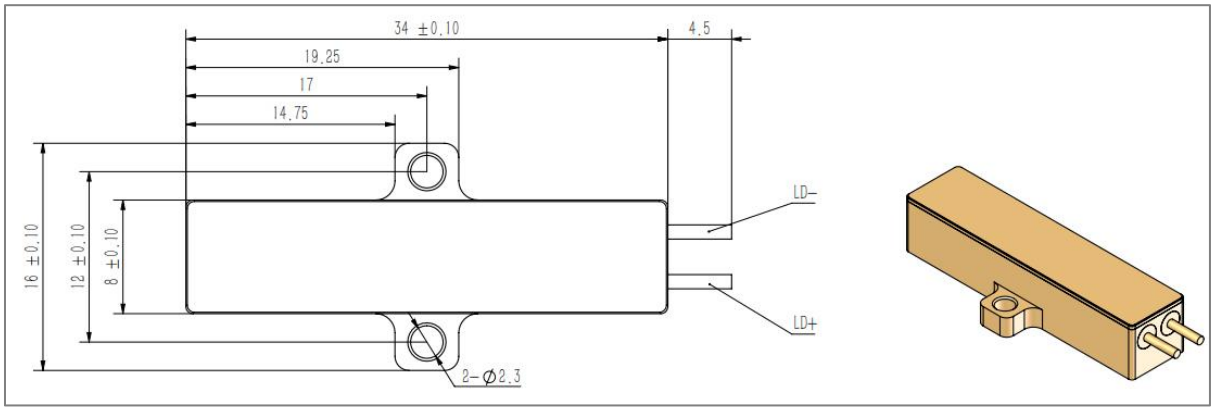
300uJ Models:



400uJ Models:



500uJ Models:



2. Er:Glass Lasers with Beam Expander

Parameter	SLY-40uJ-A6	SLY-100uJ-A8	SLY-400uJ-C7
Wavelength	1535nm ± 5nm		
Pulse width (FWHM)	3 – 6ns		
Pulsed energy	40	≥100uJ	≥400uJ
Energy stability		<8%	<5%
Frequency	1000Hz	1-10Hz	
Beam quality (M^2)	≤1.5	≤1.5	
Beam diameter (1/e2)	13mm	8mm	≤12mm
Beam divergence	0.5-0.6mrad	≤0.6mrad	≤0.5mrad
Working voltage	<2V		
Working current	4A	6A	15A
Pulse width	<0.4ms	≤2.5ms	
Working temperature	-40°C ~ +65°C		
Storage temperature	-50°C ~ +75°C		
Lifetime	>10^7 times		
Weight	<30g	≤10g	≤40g

NOTE:

● Anti-static measures must be taken during transportation, storage and use.
● Laser diode pins need to be connected to a short route protection.
● Use constant current power supply to avoid peak and surge during operation.
● Laser operating temperature, frequency, pulse width, current is strictly prohibited to exceed the specification of the range.
● Laser work to ensure reliable installation.
● Laser window to ensure clean and pollution-free, so as not to cause light abnormalities.

SED Series Erbium-doped Glass Microchip Lasers

Parts Numbering Schema

Series – Wavelength – Pulse Energy – Pulse Width– Others

For example: SED-1535nm-100uJ-3.5ns, is a SED Erbium-doped laser with 1535nm wavelength, 120uJ Pulse energy and 3.5ns pulse width.

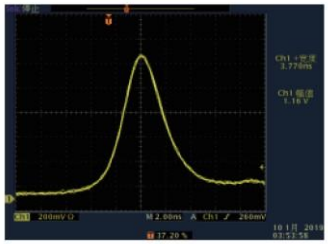
1. 500 μJ Erbium-doped glass laser, SED-1535nm-500uJ-5ns

The erbium glass laser emits at an eye-safe wavelength of 1.54μm and offers high beam quality within the atmospheric window. With a pulse energy of 500 μJ, it is suitable for eye-safe laser ranging. This laser exhibits low power consumption, high peak power, narrow pulse width, compact size, and does not require temperature control. It has been proven to be a safe, efficient, and stable eye-safe laser solution.

Wavelength	1535nm
Pulse energy (Min/Typ.)	≥500μJ
Pulse width, Typ. (FWHM)	5ns
Pulse repetition rate	1~10Hz
Pulse stability	10%
Spots diameter	0.3mm
Beam divergence angle	10mrad
Spots mode	TEM00
Operating temperature	-45 °C~ +65°C
Storage temperature	-55 °C~ +85°C
Impact	1500G, 0.5ms
Vibration	20~2000 Hz/20G
Life span	>50 million shots
Dimension (mm)	32x8x7
Weight	10g
Voltage	2V
Current	20A
Pulse width	≥2.4ms

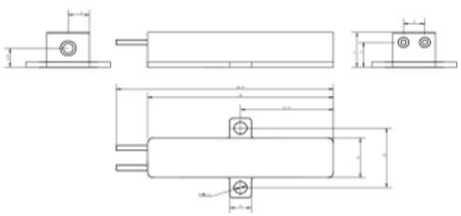
Pin Descriptions

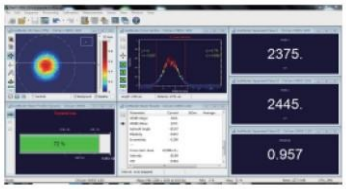
Pin	Function
1	Laser (+)
2	Laser (-)



Typical Pluse

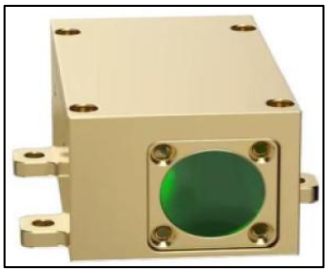
Mechanical Dimensions (mm)





Beam Profile

2. 2mJ Erbium-doped Glass Laser, SED-1535nm-2mJ-11ns

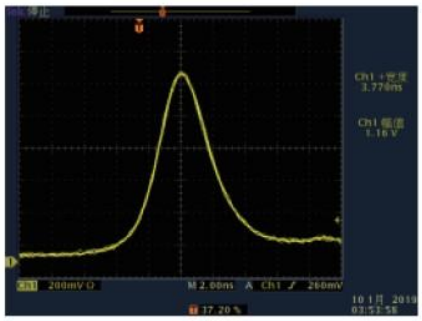


This laser employs erbium glass as the active medium operating at a wavelength of 1.54 μm. It offers a high photoelectric conversion efficiency, effectively converting electrical energy into laser power. With excellent optical performance and output stability, it consistently delivers pulse energy of over 2mJ. It is compact, lightweight, and excels in various fields such as scientific research, medical treatment, and industrial processing.

Wavelength	1535nm
Pulse energy (Min/Typ.)	≥2mJ
Pulse width, Typ. (FWHM)	11ns
Pulse repetition rate	5Hz
Pulse stability	±5%
Spots diameter	0.5mm
Beam divergence angle	4mrad
Spots mode	TEM00
Operating temperature	-45 °C~ +65°C
Storage temperature	-55 °C~ +85°C
Impact	1500G, 0.5ms
Vibration	5~2000 Hz/20G
Life span	>50 million shots
Dimension (mm)	60x34x26
Weight	120g
Voltage	5V
Current	65A
Pulse width	≥4ms

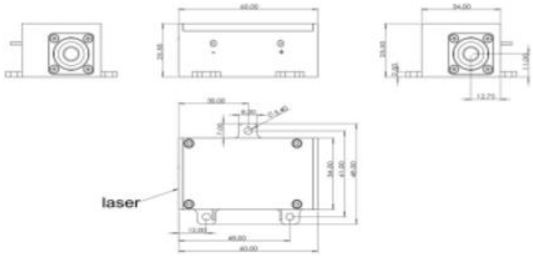
Pin Descriptions

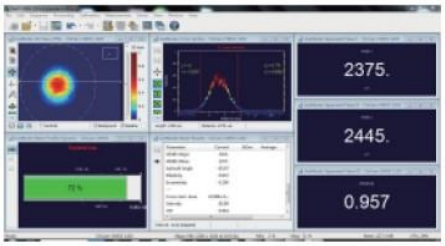
Pin	Function
1	Laser (+)
2	Laser (-)



Typical Pluse

Mechanical Dimensions (mm)





Beam Profile