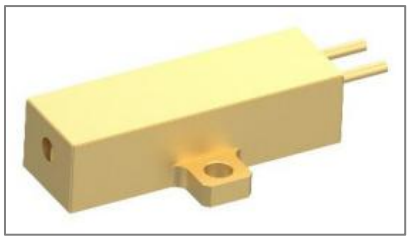
Sintec Optronics

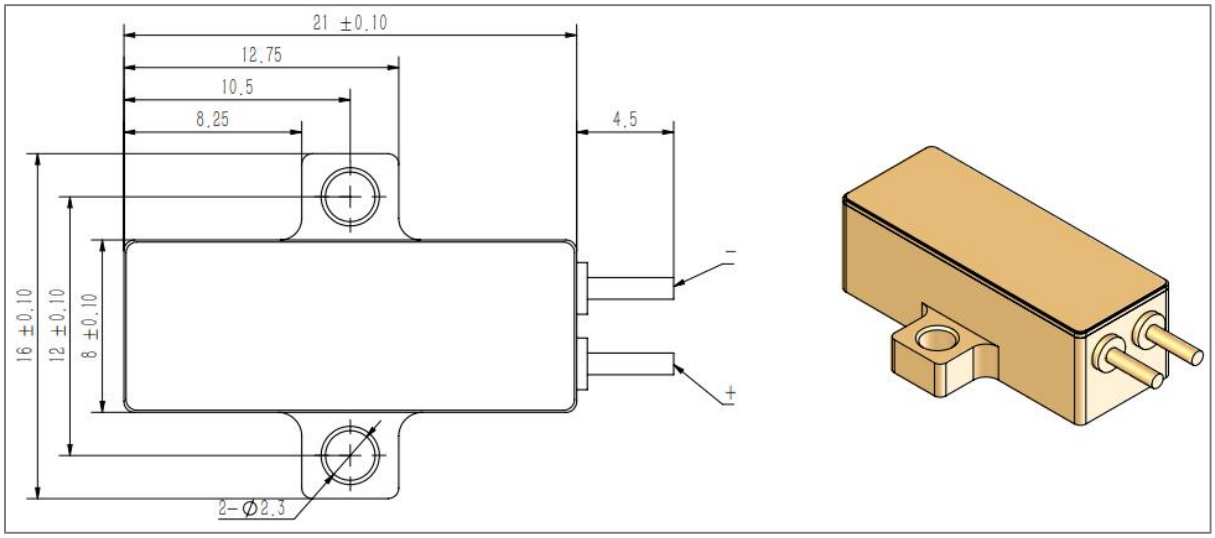
SLY Series 1535nm Erbium-Doped Glass Lasers

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

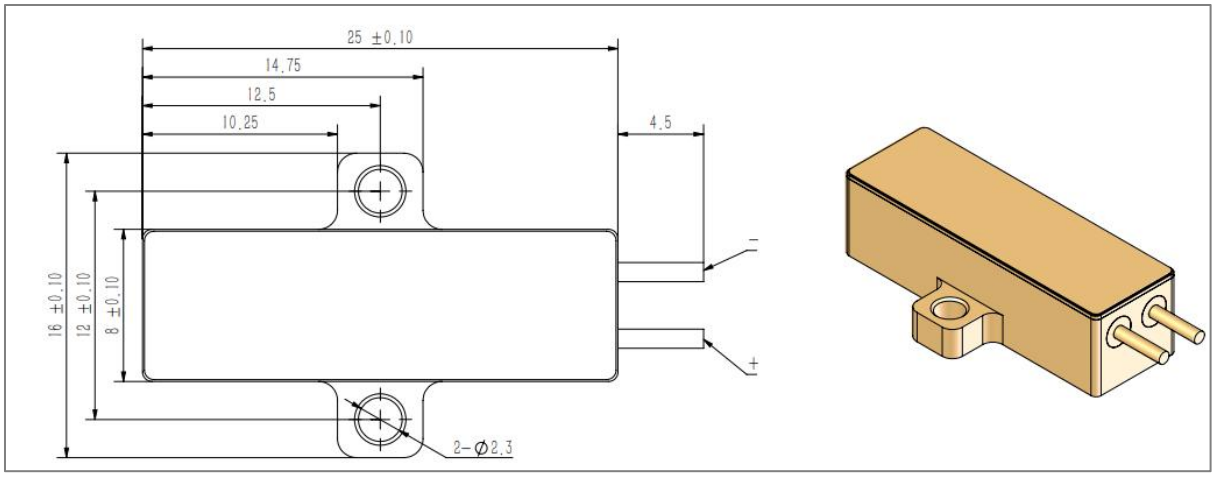


Parameters	SLY-40uJ--C12	SLY-100uJ-C14	SLY-200uJ-C14	SLY-300uJ-C10	SLY-400uJ-C13	SLY-500uJ-C11
Wavelength	1535nm ± 5nm					
Pulse width (FWHM)	3 – 6ns					
Pulsed energy	≥40uJ	≥100uJ	≥200uJ	≥300uJ	≥400uJ	≥500uJ
Frequency	1000Hz	1 – 10Hz				
Beam quality (M^2)	≤1.5	≤1.3				
Beam diameter (1/e2)	0.35mm	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

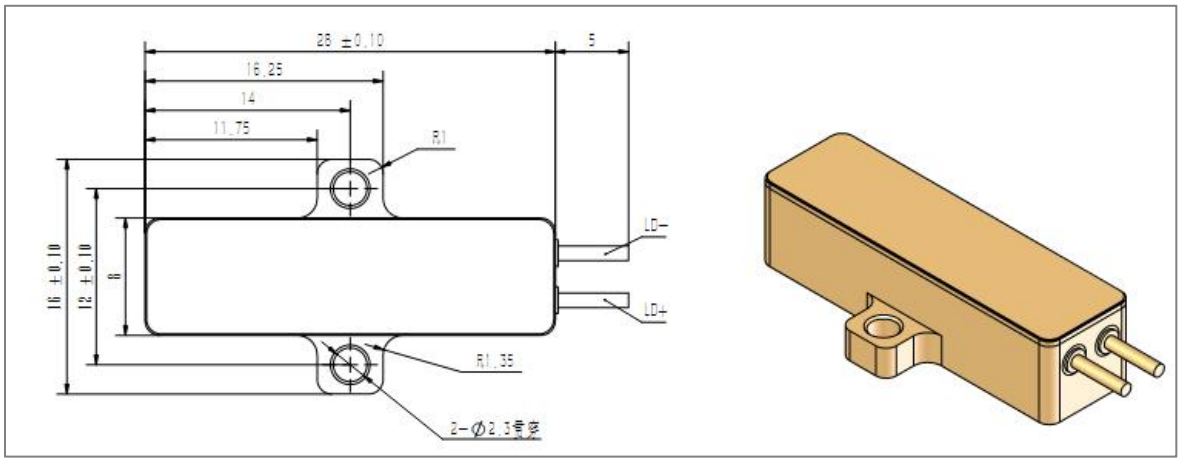
40uJ-200uJ Models:



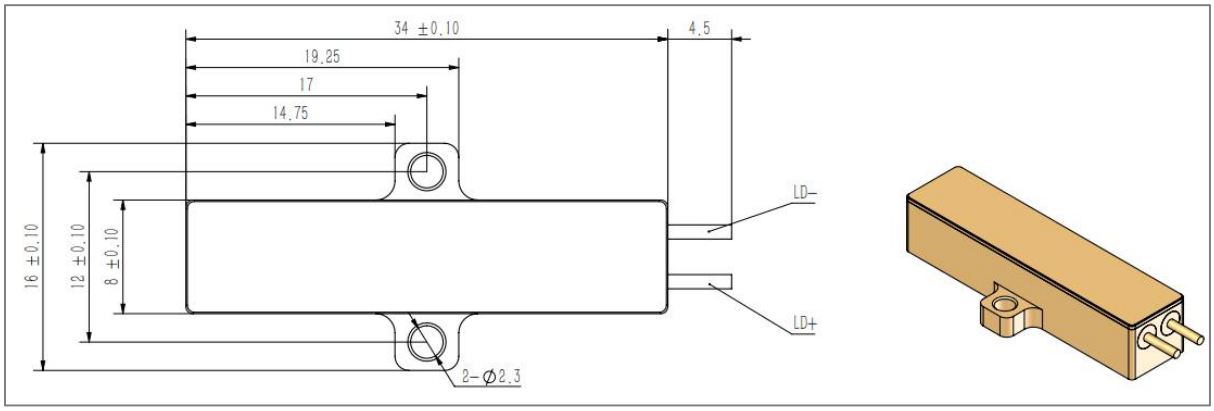
300uJ Models:



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.

Sintec Optronics

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.

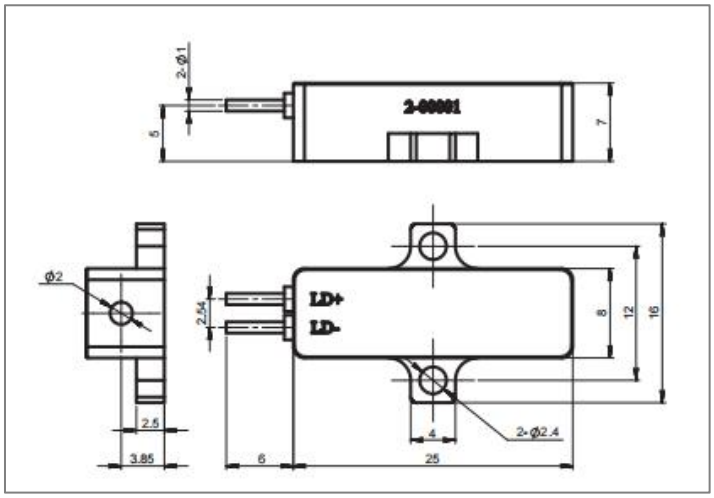
Applications:

- 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		

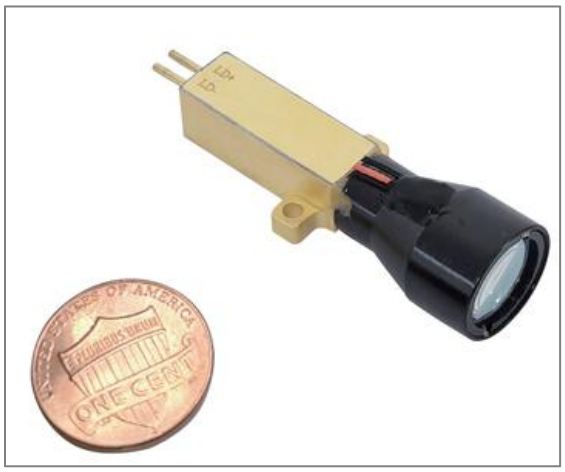


Part numbering:

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.

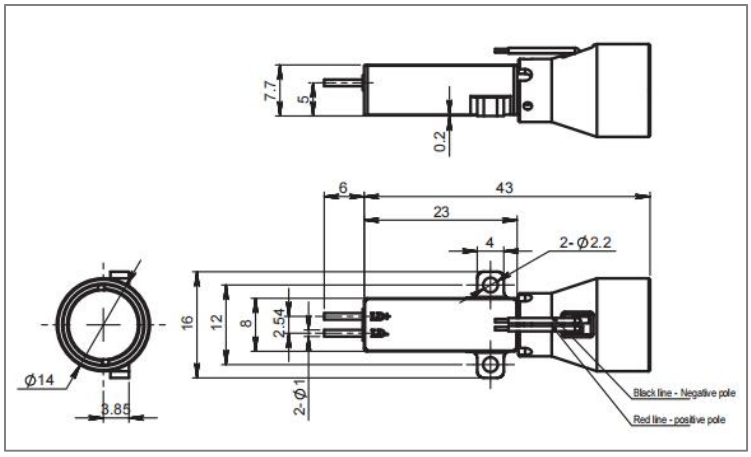
Applications:

- 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

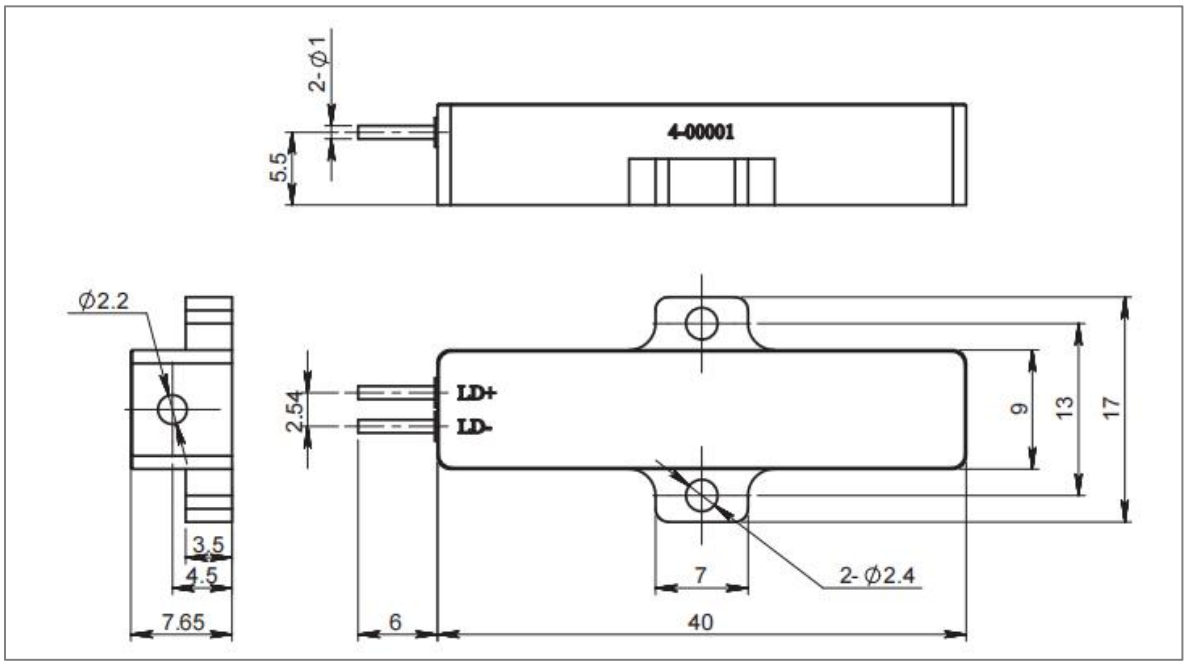
The 1535nm Erbium glass lasers operate in the eyesafe wavelength regime, have great advantages in applications including laser ranging and LiDAR. This series of lasers feature no tail pulse, stable pulse energy and excellent beam profile. The integrated design of diode-pumped module and laser crystal 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

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.

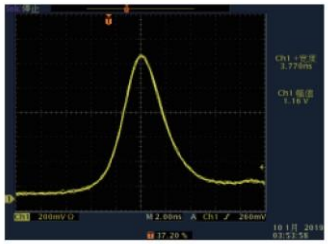
1. 500 μJ Erbium-doped glass laser, SED-1535nm-500uJ-5ns

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

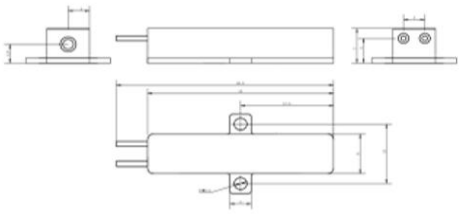
Pin Descriptions

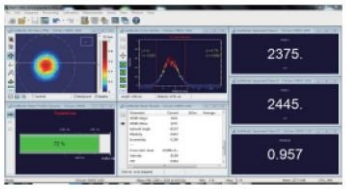
Pin	Function
1	Laser (+)
2	Laser (-)



Typical Pluse

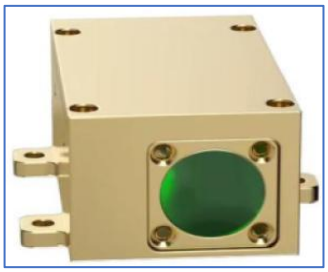
Mechanical Dimensions (mm)





Beam Profile

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

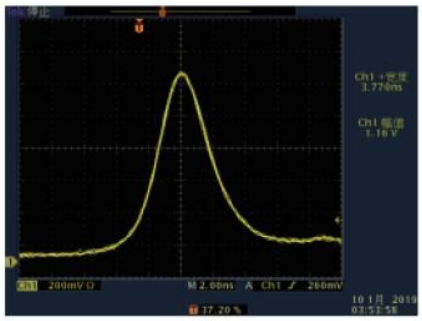


This laser employs erbium glass as the active medium operating at a wavelength of 1.54 μm. It offers a high photoelectric conversion efficiency, effectively converting electrical energy into laser power. With excellent optical performance and output stability, it consistently delivers pulse energy of 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

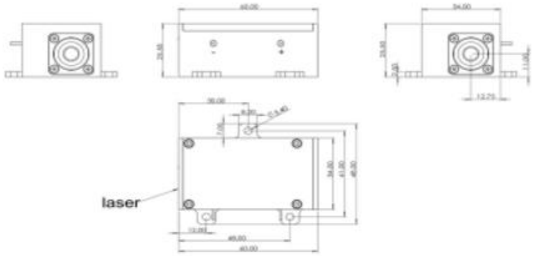
Pin Descriptions

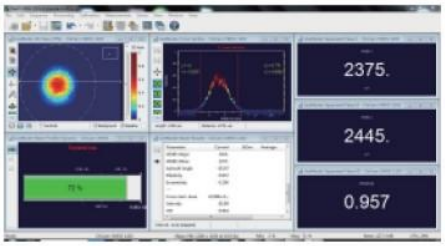
Pin	Function
1	Laser (+)
2	Laser (-)



Typical Pluse

Mechanical Dimensions (mm)





Beam Profile