



QSLH Series

Passively Q-Switched DPSS Lasers

Data Sheet



Overview

The QSLH Series is a family of visible and near-infrared diode-pumped solid-state (DPSS) passively Q-switched lasers delivering average output powers up to 1500mW. Available at wavelengths from 523.5nm to 1573nm, these compact laser systems provide high peak power, high repetition rates, short pulse durations, and pulse energies up to 150μJ for demanding scientific and industrial applications. Featuring an ultra-compact design and FDA-compliant laser driver, the QSLH Series is ideal for laser marking, nonlinear optics, fiber communications, research, and OEM integration.

Features

- Available wavelengths from 523.5nm to 1573nm
- Passively Q-switched operation
- Average output power up to 1500mW
- Pulse energy up to 150μJ
- High peak power
- High repetition rate
- Short pulse duration
- Ultra-compact integrated design
- FDA-compliant laser system with driver

Applications

- Laser marking on diamond and stone
- Nonlinear optics education and research
- Fiber communications
- Scientific research
- Precision material processing

523.5-1047 nm Specifications

Parameter	QSLH523	QSLH526	QSLH532	QSLH656	QSLH660	QSLH1047
Wavelength	523.5±1 nm	526.5±1 nm	532±1 nm	656.5±1 nm	660±1 nm	1047±1 nm
Operating mode	Frequency conversion of Q-switched pulsed laser					
Average power ⁽¹⁾	1-150 mW	1-150 mW	100-150 mW	1-10 mW	1-10 mW	1-300 mW
Single pulse energy ⁽²⁾	1-60 uJ	1-60 uJ	10-30 uJ	2-5 uJ	2-5 uJ	50-150 uJ
Peak power ⁽³⁾	2.5-15 kW	2.5-15 kW	3-6 kW	0.1-0.3 kW	0.1-0.3 kW	8.4-25 kW
Pulse duration	~4 ns	~4 ns	3-5 ns	~15 ns	~15 ns	~6 ns
Average power stability (rms, over 4 hours ±3°C)	<5%, <3%, <2%	<5%, <3%, <2%	<3%, <2%, <1%	<5%, <3%, <2%	<5%, <3%, <2%	<5%, <3%, <2%
Repetition rate	Internal Fixed ⁽⁴⁾	1 kHz	1 kHz	1 Hz-4 kHz	1-2 kHz	1 Hz-1 kHz
	External Trigger	1 kHz	1 kHz	1 Hz-4 kHz	1-2 kHz	1 Hz-1 kHz
	QCW ⁽⁵⁾	2-5 kHz	2-5 kHz	5-15 kHz	2-5 kHz	2-5 kHz
Transverse mode	TEM ₀₀					
Beam diameter at aperture	~0.8 mm					
Beam divergence, full angle	<2.0 mrad	<2.0 mrad	<1.5 mrad	<2.0 mrad	<2.0 mrad	<2.0 mrad
M ² factor	<1.5	<1.5	<1.3	<1.5	<1.5	<1.5
Polarization ratio	>100:1, Vertical	>100:1, Vertical	>100:1, Horizontal	>100:1, Vertical	>100:1, Vertical	>100:1, Horizontal
Warm-up time	<5 min					
Operating temperature	10-35°C					
Expected lifetime	>10000 hours					

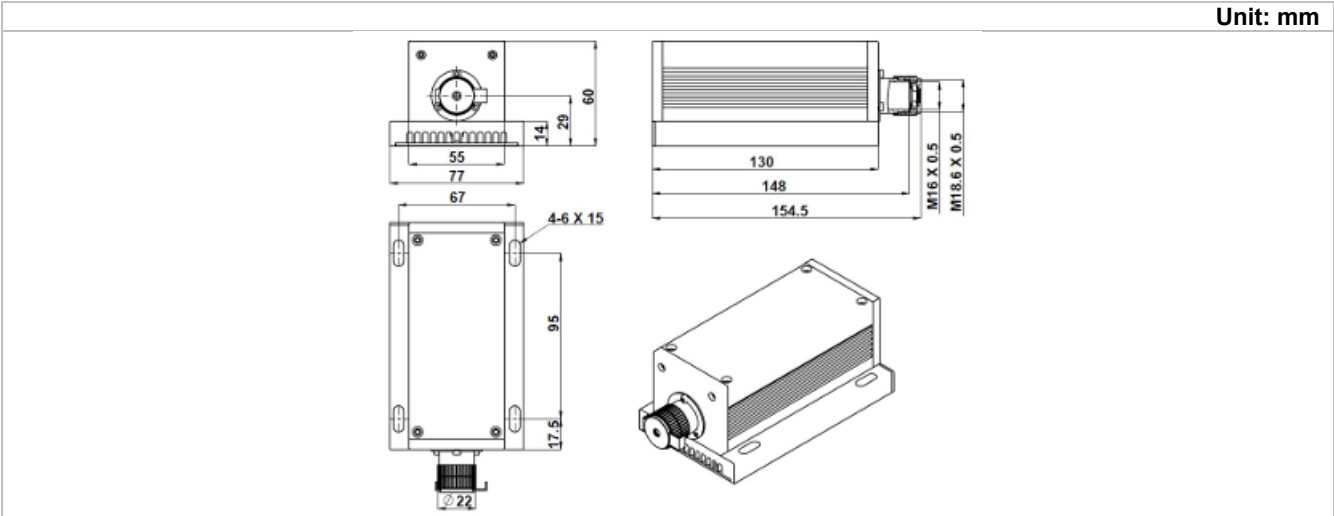
1053-1573 nm Specifications

Parameter		QSLH1053	QSLH1064	QSLH1313	QSLH1319	QSLH1573
Wavelength		1053±1 nm	1064±1 nm	1313±1 nm	1319±1 nm	1573±1 nm
Operating mode		Q-switched pulsed laser				
Average power ⁽¹⁾		300-450 mW	500-1500 mW	1-100 mW	100-150 mW	1-30 mW
Single pulse energy ⁽²⁾		30-50 uJ	20-100 uJ	10-20 uJ	7-15 uJ	1-30 uJ
Peak power ⁽³⁾		3-5 kW	6.7-10 kW	0.1-1.1 kW	0.5-1 kW	1-15 kW
Pulse duration		~10 ns	3-10 ns	~18 ns	~15 ns	1-2 ns
Average power stability (rms, over 4 hours)		<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<3%, <2%, <1%	<5%, <3%
Repetition rate	Internal Fixed ⁽⁴⁾	1 Hz-1 kHz	1 Hz-4 kHz	1 Hz-4 kHz	1 Hz-4 kHz	1 Hz-1 kHz
	External Trigger	1 Hz-1 kHz	1 Hz-4 kHz	1 Hz-4 kHz	1 Hz-4 kHz	-
	QCW ⁽⁵⁾	2-5 kHz	5-30 kHz	5-20 kHz	5-20 kHz	-
Transverse mode		TEM ₀₀				
Beam diameter at aperture		~1.5 mm				
Beam divergence, full angle		<2.0 mrad				
M ² factor		<1.5				
Polarization ratio		>100:1, Horizontal				
Warm-up time		<5 min				
Operating temperature		10-35°C				
Expected lifetime		>10000 hours				

Remarks:

1. Average power (mW) = Single pulse energy (μJ) * Rep. rate (kHz)
2. Any energy level can be selected within this range.
3. Peak Power (W) = Single Pulse Energy (μJ) / Pulse Duration (μs)
4. The frequency is selectable from one discrete value within the range.
5. The repetition rate is a free running value within this range.
6. Specifications of the Q-switched pulsed laser are based on the laser pulsed at the specified repetition rate. If the laser is run at a different repetition rate, the output characteristics may change.

QSLH Series Laser Head Dimensions



Parameter	QSLH Series
Dimensions	154.5(L)×77(W) ×60(H) mm ³
Weight	0.9 kg
Beam height from base plate	29 mm
Beam exit (from side)	38.5 mm

QSLH Series Power Supply Dimensions



Parameter	High Power Elite Power Supply
Dimensions	276.6(L) ×145(W) ×103.6(H) mm ³
Weight	2.3 kg
Input voltage	100-240 VAC

Ordering Information

For more information, please contact Lasermate directly at sales@lasermate.com.

Part Number Configuration QSLH[1][2][3][4][5]					
QSLH = Laser Model Series	[1] = Wavelength	[2] = Pulse Energy	[3] = Power Supply	[4] = Power Stability	[5] = Repetition Rate
			H=High Power Elite Power Supply	A= <5% E= <3% 2= <2% D= <1%	S1= INT FIXED 1kHz S2 = INT FIXED 2kHz S3= INT FIXED 3kHz S4= INT FIXED 4kHz C= EXT TRIG U= QCW

Note: The above specifications are subject to change without notice.

