



Sintec Optronics Pte Ltd

10 Bukit Batok Crescent #07-02 The Spire Singapore 658079

Tel: +65 63167112 Fax: +65 63167113

Integrated Diode-pumped Solid-State Lasers

Conventional solid-state lasers are pumped by a flashlamp. The lifetime of the lamp is generally shorter than 400 hours and the coupling efficiency of the lamp power into the laser crystal is very low (normally less than 3%), resulting in various undesirable effects such as serious thermal lensing, bad beam quality, bulky physical size and frequent replacement of the flashlamps. Solid-state lasers have undergone a renaissance since the development of reliable and cheap diode lasers, which can be used as pump sources. It has led to a new class of diode-pumped solid-state (DPSS) lasers which have been demonstrated to be highly efficient, reliable, and are attractive for a wide range of applications. DPSS lasers take the advantages of both flashlamp-pumped solid-state lasers and diode lasers, and therefore exhibit more advantages as follows:

- High optical-to-optical conversion efficiency (>50%);
- Good laser beam quality ($M^2 \sim 1.1$);
- Stable output laser power ($\pm 0.5\%$);
- Low maintenance or maintenance-free;
- Compact in size.



The performance of our DPSS lasers is comparable with similar products in the world, but their prices are very attractive and competitive. These lasers are widely used in industries such as electronics, semiconductor, hardware, precision machining, science, defence and medicine for laser marking, trimming and cutting.

Model	DPSS-50	DPSS-75	DPSS-150	DPSS-35S	DPSS-50S
Laser type	Diode-pumped solid-state lasers				
Laser wavelength	1064nm				
Beam diameter	3mm	3mm	6.3mm	2mm	2mm
Beam mode	Multi-mode	Multi-mode	Multi-mode	TEM00*	TEM00*
Laser power	50W	75W	150W	35	50
Power stability	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$	$\pm 1.5\%$	$\pm 1.5\%$
Cooling	Water	Water	Water	Water	Water
Electrical requirements	220VAC, 1KVA	220VAC, 1.5KVA	220VAC, 2.5kW	220VAC, 1KVA	220VAC, 1.5KVA
Chiller	ST-LW16-PF	ST-LW16-PF	ST-LW27-PF	ST-LW16-PF	ST-LW16-PF
Options	Laser marking head, Q-switch element, laser chiller, lab jack				

* Here TEM00 is not 100% TEM00 and it is low-order mode. The beam quality depends on the laser resonator mirrors, optical length etc.

Typical Applications:

Laser marking; Laser medicine; Laser trimming; Laser cutting; Laser micro-machining; Science & defence.

OEM Diode-pumped Solid-State Lasers

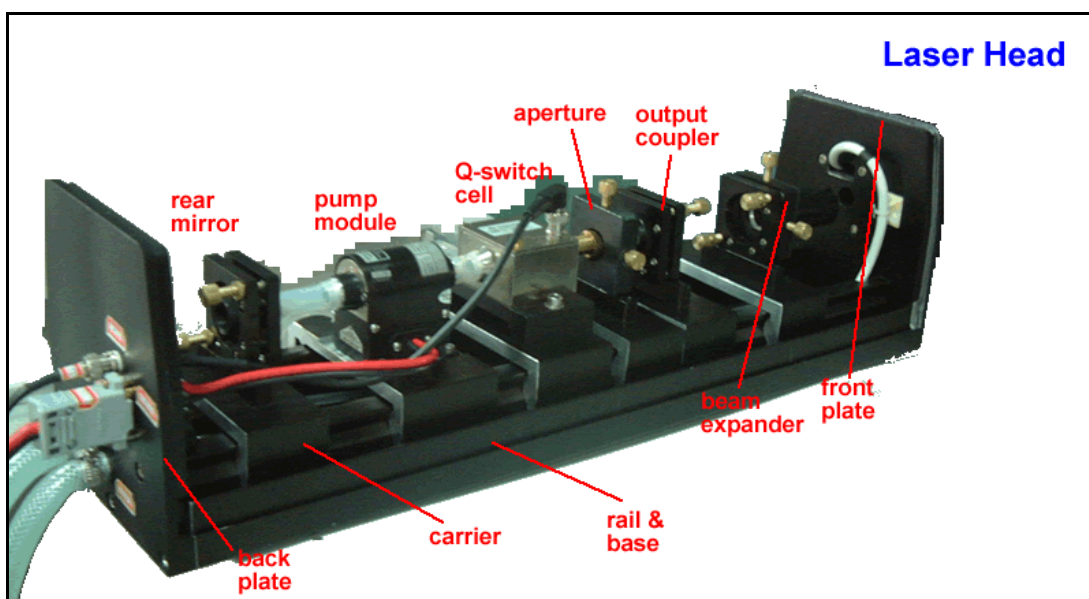
For OEM users or laser integrators, we can provide OEM and system integrators with a range of high performance components and sub-assemblies of diode-pumped Nd:YAG laser at more attractive prices. These components and sub-assemblies include laser head (diode pump module, laser resonator, Q-switch cell), Q-switch driver, diode driver and chiller.



Model	ST-DPSS-50OEM	ST-DPSS-75OEM	ST-DPSS-150OEM
Laser type	Diode-pumped solid-state lasers		
Laser wavelength	1064nm		
Beam diameter	3mm	3mm	6.3mm
Beam mode	50W	Multi-mode	Multi-mode
Laser power	50W	75W	150W
Power stability	±1%	±1%	±1%
Cooling requirement	Water	Water	water
Electrical requirements	220VAC, 1KVA	220VAC, 1.5KVA	220VAC, 2.5kW
Composition	Laser head, diode driver, Q-switch & driver (option), chiller (option)		
Optional chiller	PH-LW10-CLP	PH-LW16-PF	PH-LW27-PF

1. Laser Head

A laser head consists of base rail, diode pump module, output coupler and rear mirror, front plate, rear plate, and cover. Options include aperture, AO Q-switch cell and beam expander.



2. Q-switch Driver



The panel is standard 19 inch.

3. Diode Driver



The panel is standard 19 inch.

4. Chiller



LY Series Diode End-pumped Lasers

Diode End-pumped laser series adopt full sealed-off design with small volume and low power consumption as well as fiber pumping, which is easily for the integration of system and equipment. The modularized design provides the convenience for changing by customers. What's more, it's absolute air cooling, the micro-optics design of key pumping source is the most advanced all over the world.



FEATURES

- Diode pumped air cooling technology-low power consumption
- High efficiency fiber-coupled diode pumping technology
- Unique split type design
- Good beam quality

APPLICATIONS

Widely used for the OEM project including precise marking, engraving, scribing , fluting, skinning, cutting, ranging, resistance adjustment and crystal fine-tuning system.

Part number	DPSS-LY1064-10	DPSS-LY1064-20	DPSS-LY532-5	DPSS-LY355-2	DPSS-LY266-1
Wavelength	1064nm	1064nm	532nm	355nm	266nm
Max. Output Power	10W	20W	5W	2W	1W
Output Power	5W@10KHz (13-15ns) 8W@20KHz (20-23ns)	>15W@20KHz	≥4W@20KHz ≥3W@10KHz	>1.5W >0.8W	>0.8W(20KHz) >0.4W(10KHz)
Beam Divergence	<1.5mrad	≤2mrad	≤3mrad	<1.0mrad	<2.0mrad
Beam Diameter	0.5mm	≤0.7mm	≤0.7mm	1.2mm	1.2mm
Pulse Width	15-20ns	30ns@50KHz	≤12ns(20KHz) ≤9ns(10KHz)	10-17ns	10-15ns
Repetition Rate	1-100kHz	1-100kHz	1-100kHz	1-100kHz	1-100kHz
Power Instability	±1%	≤2%	≤3%	±2%	±2%
Pumping Source	Diode Laser	Diode Laser	Diode Laser	Diode Laser	Diode Laser
Cooling	Air Cooling	Air Cooling	Air Cooling	Air Cooling	Air Cooling
Power Requirement	220V,1.5kW	220v,1.5kW	220V,1.5W	200V, 1.5KW	220V,1.5KW
Max. Output Power	>40KW	≥70KW(5KHz)	≥40KW(5KHz)	>30KW	>10KW



Sintec Optronics Pte Ltd

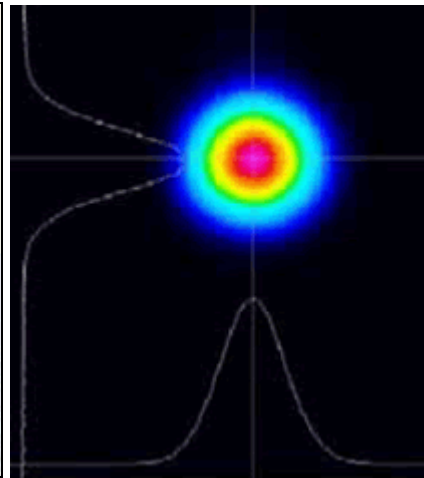
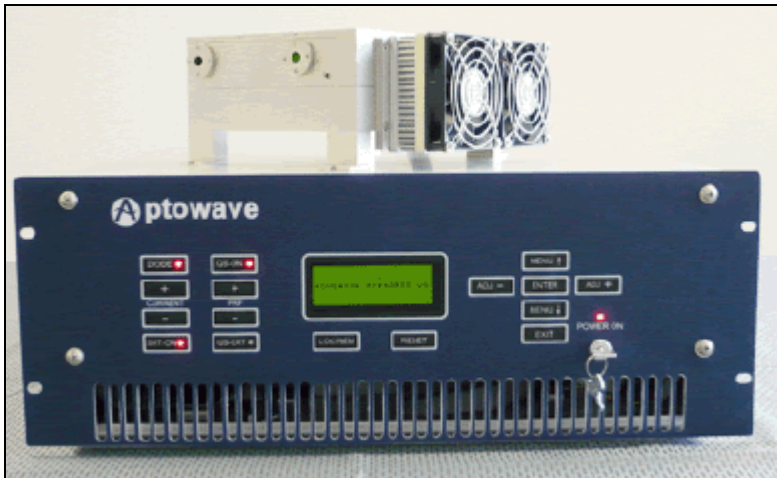
50 Bukit Batok Street 23 #07-15 Singapore 659578

Tel: +65 67781866 Fax: +65 65152908

Q-Switched Harmonic DPSS Lasers

ADVANTAGES

- Patent pending harmonic conversion technologies
- 24/7 proven reliability
- Excellent beam quality, pulse and pointing stability
- Low operational cost
- Field-replaceable pumping diode
- Ultra-compact and low weight



AWAVE UV SERIES

Awave UV series, are Q-switched, nano-second pulsed TEM00 mode lasers and engineered for the highly demanding 24/7 production environment, consisting of a laser head and a laser controller connected with a ~ 2.5 meter umbilical cable. The hermetically sealed pumping diodes are located in the laser controller for easy field-replacement. The laser head is hermetically packaged in a clean room. Awave UV series lasers are featured with pulse frequency ranging from 1-200 kHz (200~400 kHz is optional), average power covered from 10 mW to 12 W, with pulse energy in excess of 10 mJ.

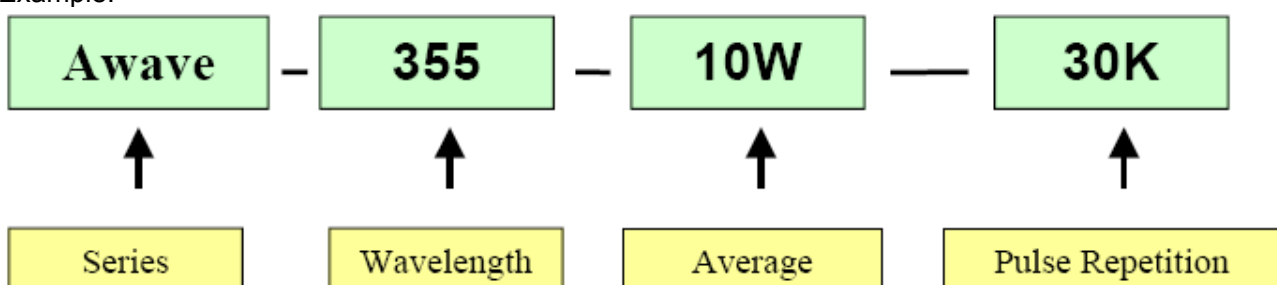
LASER COMMON SPECIFICATIONS

Pulse-Pulse Instability	Long Term Instability	Beam Roundness	Spatial Mode	Polarization Direction	Polarization Ratio
< 2 % rms	≤ 3% (12 hours)	>90%	TEM00 (M2<1.2)	Horizontal	>100:1

LASER MODEL

The lasers are designed and engineered with flexible laser architectures. As a result, application scientists can specify laser requirements based on their needs. Please contact us for any laser requirements exceeding standard specifications.

Example:



UTILIITY AND ENVIIRONMENTAL REQUIIREMENTS

Operating Voltage	Line Frequency	Cooling	Ambient Temp.	Storage Temp
90- 260 VAC	47-63 Hz	Air- cooling	15-30 oC	- 10 ~ 50 oC

DIMENSION AND WEIGHT

Laser Type		Compact	Medium	Large
Dimension (in.) (L×W×H)	Laser Head	8 x 5x 3.45	9 x 7.5x 3.7	13.5 x 8 x 3.7
	Laser Controller	15 x 15 x 5	19 x 17 x 7	19 x 17 x 7
Weight(lbs)	Laser Head	4.5	6	20
	Laser Controller	12	15	20
Umbilical Cable Length		About 100 inches (2.5 meters)		

Typical parameters of Awave-355-15W-100k

Rep. Rate (kHz)	Pulse width (ns)	Ave. Power (w)
40	17.5	18.8
50	20.3	19.2
60	23.1	19.7
70	25.9	20.1
80	28	20.2
90	31.5	19.8
100	33.6	16.5
110	36.4	13.9
120	39.2	11.9