



PART NUMBER 0532L-21B  
 ITEM NAME 532 NM SLM LASER (DPSS; FREE-SPACE)

## PRODUCT DATASHEET



### DESCRIPTION

Green single-frequency laser at 532 nm is one of the most important lines for Raman excitation. A very narrow spectrum combined with good beam quality makes this laser perfect for scanning micro Raman applications.

The 532 nm SLM laser is a very compact DPSS module for portable diagnostic applications, RGB holography, as well as various scientific setups. The module contains a powerful TEC cooler, microprocessor-based electronics, a USB control interface, and many useful accessories for ease of integration. In portable applications, this laser can be powered from conventional USB power banks. For fiber delivery, please check MM, SM, PM fiber output options. Higher output power is available on request.

### Note:

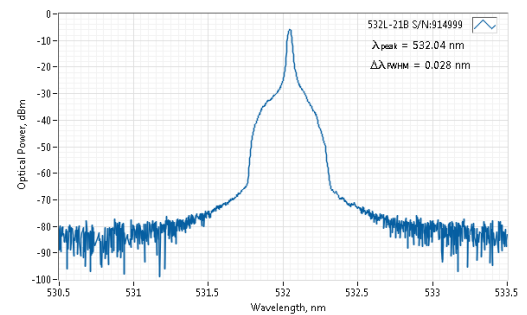
In optical systems with strong back-reflections (e.g. more than 10%), the laser does not have to be protected by using an optical isolator, unless high laser operation stability is required. Typical applications include interferometry, confocal microscopy (especially working with reflective samples), etc.

### SPECIFICATIONS

Specifications updated: 4 May 2021

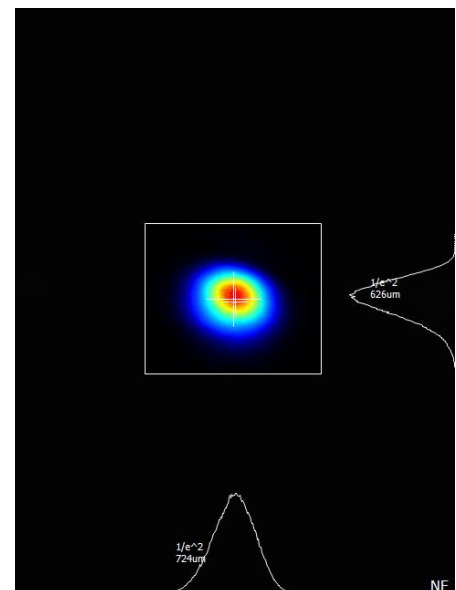
| Parameter                                 | Minimum Value | Typical Value         | Maximum Value |
|---|---------------|-----------------------|---------------|
| Central Wavelength, nm                    | 531.9         | 532.0                 | 532.1         |
| Spectral line width FWHM, pm              | -             | 0.1 <sup>1</sup>      | 1             |
| Output power, mW                          | -             | 50 <sup>2</sup>       | 100           |
| Power stability, % (RMS, 8 hrs)           | 0.03          | 0.1 <sup>3</sup>      | 0.3           |
| Power stability, % (peak-to-peak, 8 hrs)  | 0.1           | 0.4 <sup>4</sup>      | 1             |
| Intensity noise, % (RMS, 20 Hz to 20 MHz) | 0.3           | 0.5 <sup>5</sup>      | 1             |
| Longitudinal modes                        | -             | Single                | -             |
| Transversal modes                         | -             | TEM00                 | -             |
| Side-mode suppression ratio (SMSR), dB    | 40            | 50                    | 60            |
| Beam width (1/e <sup>2</sup> ), mm        | 0.6           | 0.9 <sup>6</sup>      | 1.2           |
| Beam height (1/e <sup>2</sup> ), mm       | 0.6           | 0.8                   | 1.2           |
| Horizontal beam divergence, mrad          | 0.9           | 1.1                   | 1.7           |
| Vertical beam divergence, mrad            | 0.9           | 1.1                   | 1.7           |
| M <sup>2</sup> horizontal axis            | -             | 1.05                  | 1.3           |
| M <sup>2</sup> vertical axis              | -             | 1.05                  | 1.2           |
| M <sup>2</sup> effective                  | -             | 1.05                  | 1.2           |
| Polarization direction                    | -             | Vertical <sup>7</sup> | -             |
| Polarization contrast                     | 500           | 2000                  | 4000          |
| Control interface type                    | -             | UART <sup>8</sup>     | -             |
| Operation mode                            | -             | APC (CW) <sup>9</sup> | -             |
| Modulation bandwidth, MHz                 | -             | N/A <sup>10</sup>     | -             |

### TYPICAL SPECTRUM



Typical spectrum of 0532 nm DPSS laser. Measured with 20 pm resolution.

### TYPICAL NEAR FIELD



Typical near field (0.45 m from output aperture) beam profile. Circular beam of a 0532 nm DPSS laser.

|  |     |  |      |
|--|-----|--|------|
| Input voltage, VDC                       | 4.8 | 5  | 5.3  |
| Input current, A                         | -   | 5  | -    |
| Max. power consumption, W                | 10  | 15   | 25   |
| Heat-sinking requirement, °C/W           | -   | 0.5  | -    |
| Optimum heatsink temperature, °C         | 20  | 25   | 30   |
| Warm up time, mins (cold start)          | 1   | 3  | 5    |
| Temperature stabilization                | -   | Internal TEC   | -    |
| External fan control                     | -   | Yes  | -    |
| Overheat protection                      | -   | Yes  | -    |
| Storage temperature, °C (non-condensing) | -10 | -  | 50   |
| Beam height from the base, mm            | 9.9 | 10.4   | 10.9 |
| Dimensions (WxDxH), mm                   | -   | 50 x 30 x 18 <sup>11</sup>   | -    |
| Net weight, kg                           | 0.1 | 0.12   | 0.14 |
| Laser Safety Class                       | -   | 3B   | -    |
| Residual IR wavelength contrast, dB      | -   | 20   | -    |
| RoHS                                     | -   | Yes  | -    |
| CE compliance                            | -   | - General Product Safety Directive (GPSD) 2001/95/EC - (EMC) Directive 2004/108/EC | -    |
| OEM lasers are not compliant with        | -   | IEC60825-1:2014 (compliant using additional accessories)                           | -    |
| Warranty, months (op. hrs)               | -   | 14 (10000) <sup>12</sup>   | -    |
| Country of origin                        | -   | Lithuania  | -    |

<sup>1</sup> Measured with a scanning Fabry-Perot interferometer having 7.5 Mhz resolution, with scanning frequency of about 10 Hz. Interferometer testing is not provided for each laser being manufactured, the standard test is OSA measurement with 10-20 pm resolution instead.

<sup>2</sup> The optical power of SLM lasers shall not be tuned and SLM performance is not guaranteed at power ratings other than the factory preset. However, the power setting capability is not disabled. External attenuators are recommended.

<sup>3</sup> The long term power test is carried out at constant laser body temperature (+/-0.1 °C) using an optical power meter with an input bandwidth of 10 Hz. The actual measurement rate has a period of about 20 seconds to 1 minute.

<sup>4</sup> The long term power test is carried out at constant laser body temperature (+/-0.1 °C) using an optical power meter with an input bandwidth of 10 Hz. The actual measurement rate has a period of about 20 seconds to 1 minute.

<sup>5</sup> Noise level is measured with a fast photodiode connected to an oscilloscope. The overall system bandwidth is from 2 kHz to 20 MHz.

<sup>6</sup> Beam width and height are measured at 0.45 m from output aperture.

<sup>7</sup> For lasers without integrated optical isolators.

<sup>8</sup> Break-out-boxes AM-C8 and AM-C3 can be used for conversion of UART communication to either USB or RS232.

<sup>9</sup> APC - Automatic Power Control.

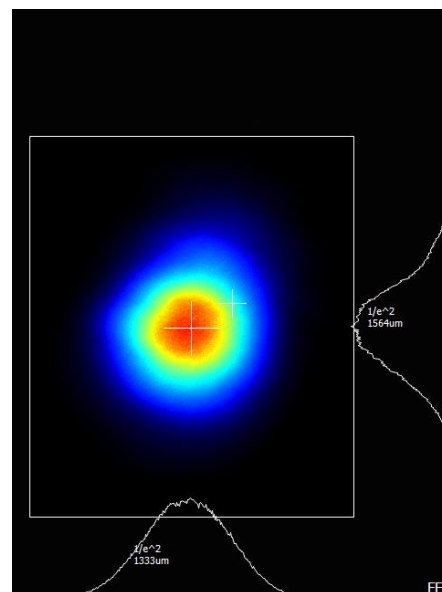
<sup>10</sup> SLM lasers shall not be modulated - use external modulators instead.

<sup>11</sup> Excluding control interface pins and an output window/fiber assembly.

<sup>12</sup> Whichever occurs first. The laser has an integrated operational hours counter.

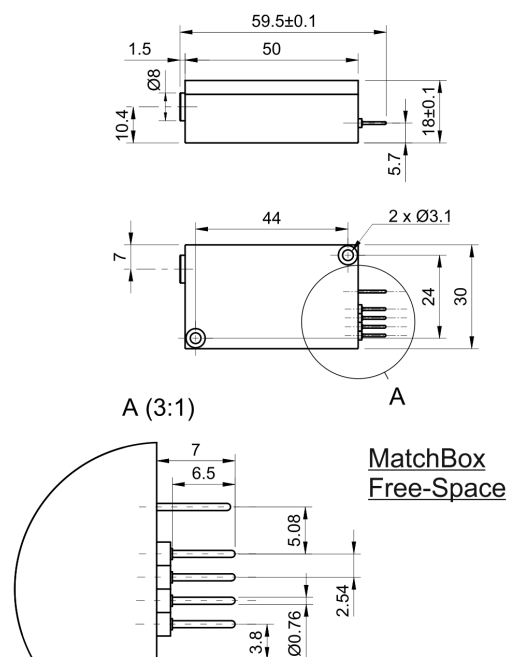
Note: Product specifications are subject to change without prior notice to improve reliability, function or design or otherwise.

## TYPICAL FAR FIELD



Typical far field (1 m from output aperture) beam profile. Circular beam of a 0532 nm DPSS laser.

## DRAWING



MatchBox  
Free-Space