LRS-0457 DPSS Laser System

Overview:

The LRS-0457 Series of Diode-Pumped Solid-State (DPSS) Lasers are ideal for applications requiring 1 mW to 10 W of 457 nm laser light with a high level of long-term output power stability and long operating lifetime at an aggressively competitive cost.

These lasers are commonly used for fluorescence excitation, PIV, Raman Spectroscopy, laser display and a broad spectrum of other applications. The driver is available as a complete FDA-compliant system or as an O.E.M. component with significantly reduced dimensions.

Available with TTL and Analog modulation, and in a wide array of output power and stability levels, Laserglow products are currently being used by some of the World's top universities and other prominent research facilities.

Key Features:

- Air cooled - no need for water cooling or external chiller
- Lightweight, compact design
- Efficient DPSS technology runs on standard AC power (85 - 264 V, 47 - 63 Hz)
- >10,000 hours continuous maintenance-free operating life
- TTL modulation (input via BNC connector)
- Analog modulation (input via BNC connector) lab-spec models only
- Adjustable output power via lockable dial lab-spec models only
- LED display showing LD current, laser cavity temperature lab-spec models only
- FDA CDRH Compliant Class IIIb / Class IV enclosure
- 48-hour replacement coverage available for an additional fee on specific models

Package Includes:

- Laser Head
- Driver/Power Supply
- Power Cable
- BNC Connector (LabSpec models only)
- Keys, Safety Interlock
- Hard-shell Carrying Case

Series Specifications:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Wavelength</td>
<td>457 nm</td>
</tr>
<tr>
<td>Output Type</td>
<td>CW</td>
</tr>
<tr>
<td>Laser Source Type</td>
<td>DPSS</td>
</tr>
</tbody>
</table>
**Specifications:**
This spec sheet has been generated specifically for part number R45-F, per your request, and data for the entire series is also displayed for your reference. The specs which are specific to R45-F have been highlighted below in **red + bold**.

<table>
<thead>
<tr>
<th>Specification</th>
<th>F</th>
<th>N</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Form Factor</td>
<td>F</td>
<td>N</td>
<td>W</td>
</tr>
<tr>
<td>Output Power (mW)</td>
<td>&lt;5, &gt;50, &gt;100, &gt;300, &gt;500</td>
<td>&gt;1000, &gt;2000</td>
<td>&gt;3000, &gt;4000, &gt;5000, &gt;8000, &gt;10000</td>
</tr>
<tr>
<td>Output Power Stability (%RMS/4h)</td>
<td>&lt;3, &lt;5, &lt;10</td>
<td>&lt;1, &lt;3, &lt;5</td>
<td>&lt;3, &lt;5</td>
</tr>
<tr>
<td>FDA Safety Class</td>
<td>IIIa, IIIb, IV</td>
<td>IV</td>
<td>IV</td>
</tr>
<tr>
<td>Central Wavelength (nm)</td>
<td>456.63</td>
<td>456.63</td>
<td>456.63</td>
</tr>
<tr>
<td>Wavelength Tolerance (+/- nm)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Divergence (mrad, full angle)</td>
<td>&lt;1.5</td>
<td>&lt;1.5</td>
<td>&lt;2</td>
</tr>
<tr>
<td>Beam Dimensions (mm, 1/e²)</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Transverse Mode</td>
<td>Near TEM00</td>
<td>Near TEM01</td>
<td>Near TEM01</td>
</tr>
<tr>
<td>Longitudinal Modes</td>
<td>Multiple</td>
<td>Multiple</td>
<td>Multiple</td>
</tr>
<tr>
<td>Warm-up Time (minutes)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Optical Noise Amplitude (%RMS @ 20 Hz - 20 MHz)</td>
<td>&lt;30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectral Linewidth (nm)</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>M²</td>
<td>&lt;2</td>
<td>&lt;3</td>
<td>&lt;3</td>
</tr>
<tr>
<td>Polarization Ratio</td>
<td>&gt;100</td>
<td>&gt;100</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Beam Pointing Stability (mrad)</td>
<td>&lt;0.05</td>
<td>&lt;0.05</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Operating Temperature Range (°C)</td>
<td>10 to 35</td>
<td>10 to 35</td>
<td>10 to 35</td>
</tr>
<tr>
<td>Storage Temperature Range (°C)</td>
<td>-10 to 50</td>
<td>-10 to 50</td>
<td>-10 to 50</td>
</tr>
<tr>
<td>Max. Analog Modulation Freq. (Hz)</td>
<td>30000</td>
<td>30000</td>
<td>30000</td>
</tr>
<tr>
<td>Max. TTL Modulation Freq. (Hz)</td>
<td>10000, 30000</td>
<td>30000</td>
<td>30000</td>
</tr>
<tr>
<td>Modulation Input Signal</td>
<td>0-5 VDC</td>
<td>0-5 VDC</td>
<td>0-5 VDC</td>
</tr>
<tr>
<td>Max. Power Input Duty Cycle</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Cooling Method</td>
<td>TEC/Forced Air</td>
<td>TEC/Forced Air</td>
<td>TEC/Forced Air</td>
</tr>
<tr>
<td>Standard Warranty (months)</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>MTTF (operational hours)</td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
</tr>
</tbody>
</table>

CW: All specifications are based on performance at full output power and after the specified warmup period. Output characteristics may change if the laser is run at a different power level.

Q-Switched: Specifications are based on the laser pulsing at the specified design frequency. Output characteristics may change if the laser is run at a different frequency.
### Specifications Page 2:

<table>
<thead>
<tr>
<th>Laser Form Factor</th>
<th>F</th>
<th>N</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of Product or Laser Head (kg)</td>
<td>1.6</td>
<td>2.6</td>
<td>6.1</td>
</tr>
<tr>
<td>Beam Height from Base Plate (mm)</td>
<td>45</td>
<td>68.2</td>
<td>93.5</td>
</tr>
<tr>
<td>Dimensions of Product or Laser Head (mm)</td>
<td>211.5 (l) x 88 (w) x 74 (h)</td>
<td>240 (l) x 99 (w) x 94 (h)</td>
<td>346 (l) x 140 (w) x 125 (h)</td>
</tr>
</tbody>
</table>

CW: All specifications are based on performance at full output power and after the specified warmup period. Output characteristics may change if the laser is run at a different power level.

Q-Switched: Specifications are based on the laser pulsing at the specified design frequency. Output characteristics may change if the laser is run at a different frequency.
Power Supply Options:
These lasers are available with several different power supply options. The model that you have selected is highlighted below, and any other options are shown for easy reference.

<table>
<thead>
<tr>
<th>Power Supply Type</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDA-Compliant Standard</td>
<td>Input Power</td>
</tr>
<tr>
<td></td>
<td>Power Supply Weight (kg)</td>
</tr>
<tr>
<td></td>
<td>Dimensions (mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power Supply Type</th>
<th>FF</th>
<th>FN</th>
<th>FW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDA-Compliant LabSpec</td>
<td>Input Power</td>
<td>85v to 264v</td>
<td>85v to 264v</td>
</tr>
<tr>
<td></td>
<td>Power Supply Weight (kg)</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td>Dimensions (mm)</td>
<td>268 (l) x 145 (w) x 106 (h)</td>
<td>268 (l) x 145 (w) x 106 (h)</td>
</tr>
</tbody>
</table>

*Power supply may not be exactly as shown, see dimensional drawings on next 2 pages.
*Dimensions for fiber-integrated (I_) include laser head packaged inside.

Regulatory Classification:
The model you have selected (R45-F) requires the following safety label(s):

[Image not found or type unknown]
**Accessories:**
The most popular accessories for model R45-F are shown below. For additional details regarding these or other accessories please see our website or contact us directly.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
</table>
| ACALBHFXX   | Carrying Case-103  
Holds Lab/OEM H, F and O size Standard/LabSpec laser  
Full Details: [www.laserglow.com/ACA](http://www.laserglow.com/ACA) | Included With Laser |
| ACFVISHXA   | FC/PC Fiber Coupler/ Collimator for visible spectrum wavelengths (400 to 700 nm) (installed and aligned)  
11mm diameter input lens  
Full Details: [www.laserglow.com/ACF](http://www.laserglow.com/ACF) |  |
| ACSVISHXA   | SMA-905 Fiber Coupler/ Collimator for visible spectrum wavelengths (400 to 700 nm) (installed and aligned)  
11mm diameter input lens  
Full Details: [www.laserglow.com/ACS](http://www.laserglow.com/ACS) |  |
| AFF2002XX   | Armored Fiber With FC/PC Connectors 200um Core Multimode 2m length  
Full Details: [www.laserglow.com/AFF](http://www.laserglow.com/AFF) |  |
| AFS2002XX   | Armored Fiber With SMA 905 Connectors 200um Core Multimode 2 m length  
Full Details: [www.laserglow.com/AFS](http://www.laserglow.com/AFS) |  |
| AGF5327XX   | LSG-532-NF-7 Fit-Over Safety Goggles 532nm  
Output: OD 7+ at 190-532 nm  
CE Certified  
Full Details: [www.laserglow.com/AGF](http://www.laserglow.com/AGF) |  |
| TBK         | Complete optics kits with breadboard mounting hardware.  
External modulators, variable attenuators, free-space fiber launch systems  
Full Details: [www.laserglow.com/TBK](http://www.laserglow.com/TBK) |  |
| ACALBHFXX   | Carrying Case-103  
Holds Lab/OEM H, F and O size Standard/LabSpec laser  
Full Details: [www.laserglow.com/ACA](http://www.laserglow.com/ACA) | Included With Laser |

**FOR MORE INFORMATION PLEASE CONTACT:**
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Tel. (416) 729-7976 Fax (480) 247-4864  
sales@laserglow.com [www.laserglow.com](http://www.laserglow.com)

E&OE: Data included in this sheet may be subject to change without notice.  
Please confirm critical specifications with our staff prior to ordering.