

Superluminescent Diodes are semiconductor emitters combining the high brightness of laser diodes with a broad spectrum of LEDs. They are light sources of choice for numerous applications based on low coherence measurements, spectroscopy, low speckle illumination, and others.

Superlum offers a wide range of SLD modules and SLD-based light sources. Please also check our SLD controllers and light source modules to ensure safe and stable SLD operation in your system.

**Specifications (Nominal Emitter Stabilization Temperature +25 °C)**

Parameter	MIN	TYP	MAX
<b>S840.50.10</b>			
Output power, P <sub>op</sub> , ex SM fiber, mW	8.0	10.0	–
Forward current at P <sub>op</sub> , mA	–	200	250
Central wavelength at P <sub>op</sub> , nm	830	840	–
Spectrum width <sup>†</sup> at P <sub>op</sub> , FWHM, nm	48	52	–
Residual spectral modulation depth <sup>††</sup> at P <sub>op</sub> , %	–	–	5.0
Secondary coherence subpeaks <sup>†††</sup> at P <sub>op</sub> , dB (10 log)	–	-25	-20
Slow / fast polarization ratio (PM modules) at P <sub>op</sub> , dB	–	7	–
PD monitor current <sup>††††</sup> at P <sub>op</sub> , mA	0.1	–	–
<b>S840.50.15</b>			
Output power, P <sub>op</sub> , ex SM fiber, mW	12.0	15.0	–
Forward current at P <sub>op</sub> , mA	–	250	300
Central wavelength at P <sub>op</sub> , nm	830	840	–
Spectrum width at P <sub>op</sub> , FWHM, nm	48	52	–
Residual spectral modulation depth <sup>††</sup> at P <sub>op</sub> , %	–	–	5.0
Secondary coherence subpeaks <sup>†††</sup> at P <sub>op</sub> , dB (10 log)	–	-25	-20
Slow / fast polarization ratio (PM modules) at P <sub>op</sub> , dB	–	7	–
PD monitor current <sup>††††</sup> at P <sub>op</sub> , mA	0.1	–	–

<sup>†</sup> - SLD spectrum shape and width depends on power. It has a double-peak structure. P<sub>op</sub> is output power at which spectrum peaks are equal. It varies from sample to sample. Long wavelength peak is higher than short wavelength peak at P<sub>op</sub>.

<sup>††</sup> - rated at P<sub>op</sub>, decreases proportional to operating power

<sup>†††</sup> - **direct measurements by Michelson interferometer**, rated at P<sub>op</sub>, lower at lower power

<sup>††††</sup> - at 5 V reverse bias

**Attention: all parameters are measured at optical feedback not exceeding 1E-3**



**Features**

- Two power categories
  - 10 mW P/N S840.50.10
  - 15 mW P/N S840.50.15
- Butterfly packaged with cooler and thermistor
- SMF or PMF pigtailed
- FC/APC connectors, LC/APC upon request

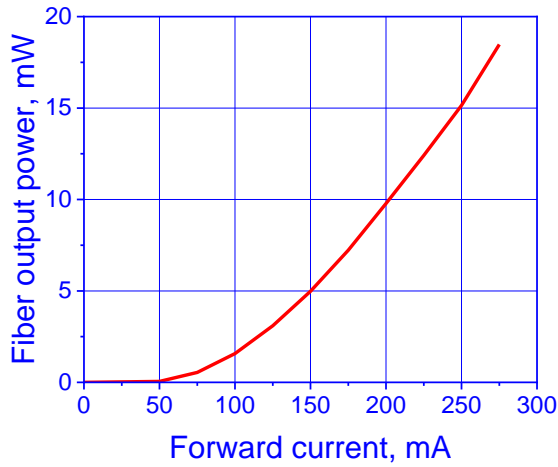
**Applications**

- optical coherence tomography
- optical sensors
- optical metrology
- spectroscopy
- others

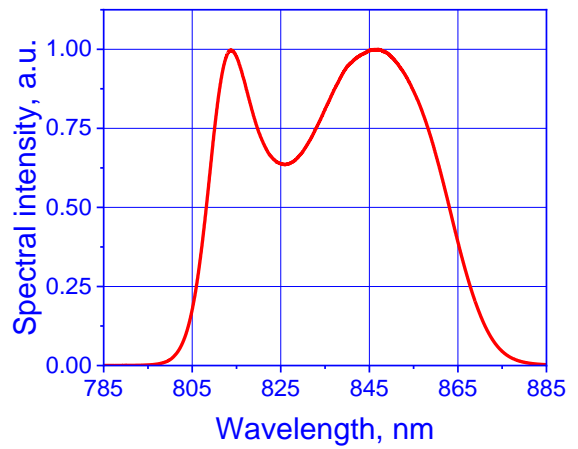
**Other parameters – all models**

SLD forward voltage at P <sub>op</sub> , V	–	–	2.6
PD monitor bias voltage, V	–	–	5.0
Operating temperature at P <sub>op</sub> , °C	-20	–	+65
Storage temperature at P <sub>op</sub> , °C	-40	–	+85
Cooler current, A	–	–	2.5
Cooler current, V	–	–	3.2
Thermistor BETA, K	–	3892	–
Thermistor Resistance at 25 °C, kΩ	–	10	–

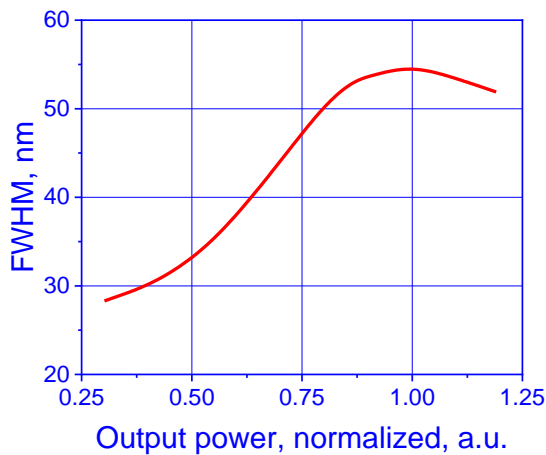
**TYPICAL PERFORMANCE EXAMPLES**



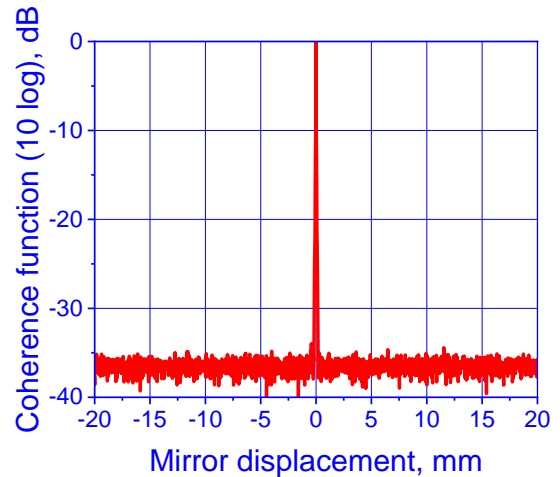
**S840.50.15 - Light-current characteristic**



**Spectrum at typical power (equalized spectral peaks)**



**Power normalized to typical equalized spectral peaks**



**Coherence at typical power, equalized spectral peaks**

**Notes:** examples demonstrate typical performance only. Actual performance may vary from sample to sample and from lot to lot. All specifications are subject to change without notice. **Coherence function is directly measured by Michelson interferometer.** Mirror displacement = Optical path difference / 2

**Attention:** SLDs are sensitive to optical feedback. The higher the power, the stronger the sensitivity. All parameters are measured at optical feedback not exceeding 1E-3.

**The following marking should be used for ordering:**

**P/N(type of fiber)**

**Examples :** **S840.50.10S** – as rated above, SMF pigtail, FC/APC; **S840.50.15P** – as rated above, PMF pigtail, FC/APC.

MMF pigtailed SLDs are available upon request. Modules will be shipped FC/APC finished if not specified otherwise in the PO.

Superlum offers customization of its products to best-fit the requirements of every Customer. Please contact us for more details if you need customer-specific SLD parameters before ordering.