

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
S840.50.10			
Output power, P _{op} , ex SM fiber, mW	8.0	10.0	–
Forward current at P _{op} , mA	–	200	250
Central wavelength at P _{op} , nm	830	840	–
Spectrum width [†] at P _{op} , FWHM, nm	48	52	–
Residual spectral modulation depth ^{††} at P _{op} , %	–	–	5.0
Secondary coherence subpeaks ^{†††} at P _{op} , dB (10 log)	–	-25	-20
Slow / fast polarization ratio (PM modules) at P _{op} , dB	–	7	–
PD monitor current ^{††††} at P _{op} , mA	0.1	–	–
S840.50.20 (former S840.50.15)			
Output power, P _{op} , ex SM fiber, mW	18.0	20.0	–
Forward current at P _{op} , mA	–	250	320
Central wavelength at P _{op} , nm	830	840	–
Spectrum width at P _{op} , FWHM, nm	48	52	–
Residual spectral modulation depth ^{††} at P _{op} , %	–	–	5.0
Secondary coherence subpeaks ^{†††} at P _{op} , dB (10 log)	–	-25	-20
Slow / fast polarization ratio (PM modules) at P _{op} , dB	–	7	–
PD monitor current ^{††††} at P _{op} , mA	0.1	–	–

[†] - SLD spectrum shape and width depends on power. It has a double-peak structure. P_{op} 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_{op}.

^{††} - rated at P_{op}, decreases proportional to operating power

^{†††} - **direct measurements by Michelson interferometer**, rated at P_{op}, lower at lower power

^{††††} - 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
 - 20 mW P/N S840.50.20
- Butterfly packaged with cooler and thermistor
- SMF or PMF pigtailed
- FC/APC connectors, LC/APC upon request

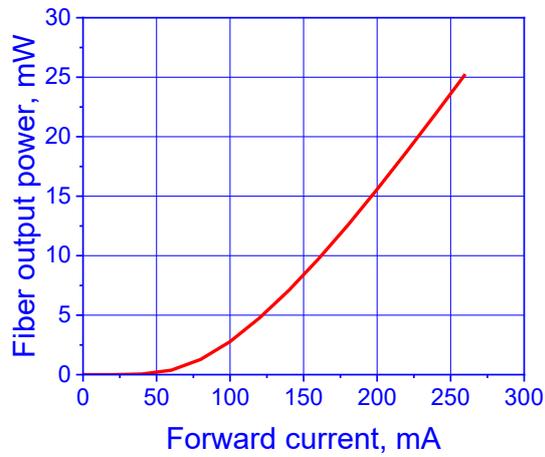
Applications

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

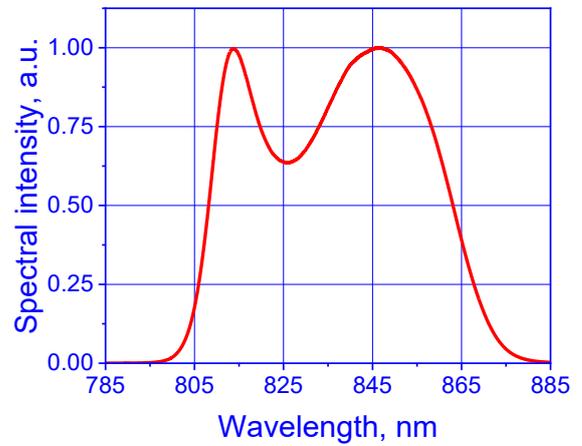
Other parameters – all models

Parameter	MIN	TYP	MAX
SLD forward voltage at P _{op} , V	–	–	2.6
PD monitor bias voltage, V	–	–	5.0
Operating temperature at P _{op} , °C	-20	–	+65
Storage temperature at P _{op} , °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



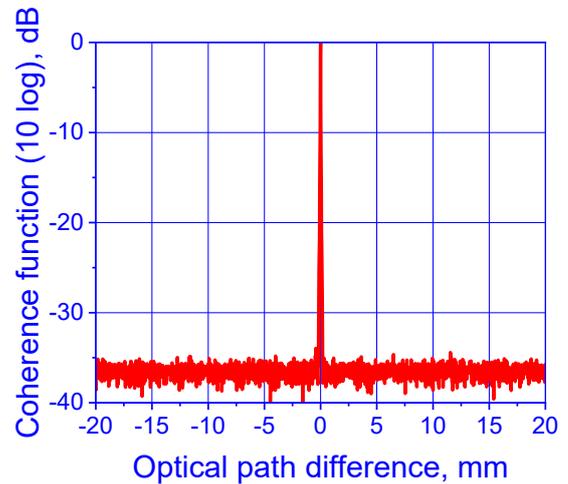
S840.50.20 - Light-current characteristic



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; **S840.50.20P** – 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.