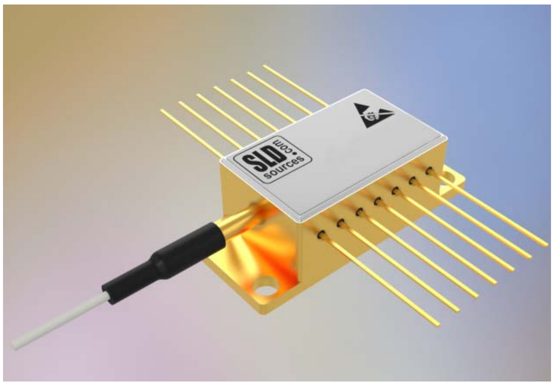
SLD840F50P8, SLD840F50P15, SLD840F50P25 – broadband, flat-top, fiber-coupled Superluminescent Diodes at 840 nm for OCT applications

Description

SLD840F50 is a series of TEC-cooled, fiber-pigtailed, butterfly packaged Superluminescent Diode (SLD) modules, specifically designed and optimized for Spectral Domain Optical Coherence Tomography (SD OCT) applications.



SLD840F50 SLDs possess a flat-top spectrum with a FWHM of 45 – 55 nm. These SLDs can be delivered with an output power in the range of 5 to 25 mW to meet specific customer requirements.

General specifications[1,2]

Parameter	SLD840F50P8	SLD840F50P15	SLD840F50P25	Units
Nominal output optical power[3], P_o	8 ± 3	15 ± 5	25 ± 5[4]	mW
Nominal driving current[3] at P_o (Beginning-of-Life)	150 [typ] 250 [max]	150 [typ] 250 [max]	200 [typ] 350 [max]	mA
Mean wavelength	840 ± 10	840 ± 10	840 ± 10	nm
Spectrum width (FWHM)[3] at P_o	50 ± 5	50 ± 5	50 ± 5	nm
Residual modulation of spectrum by Fabry-Perot modes (ripple) at P_o	< 3	< 3	< 5	%
Secondary coherence subpeak at P_o	< −20 / < −25, upon request			dB
Maximum driving current at P_o (End-of-Life)	300	300	400	mA
Polarization extinction ratio at P_o (for PMF output)	> 10	> 10	> 10	dB
Relative Intensity Noise at P_o (RIN)	−135	−135	−135	dB/Hz
Tracking error	< 10	< 10	< 10	%

[1] Customized specifications are available upon request. Please contact us at support@sldsources.com.

[2] All parameters are guaranteed with an optical feedback of less than 10^{-3}. A stronger feedback can lead to an abrupt change in performance, or even to an immediate failure of the device when operating at powers comparable to the allowable maximum for this device type.

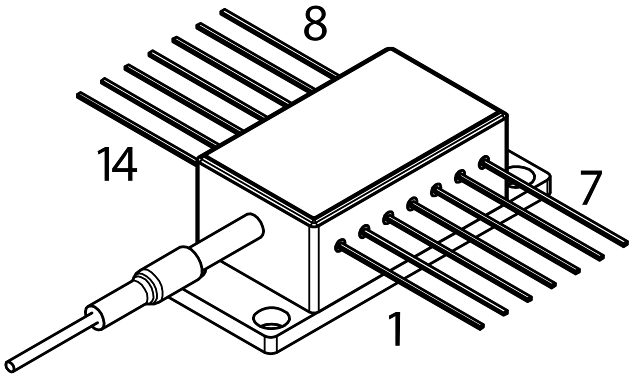
[3] Nominal optical power / nominal driving current is the optical power / driving current at which two spectral humps of the emission spectrum have the same intensity. Nominal optical power and nominal driving current are specific for each given SLD.

[4] More than 30 mW on request.

Electrical and other parameters

Parameter	All models	Units
Photodiode monitor current at maximum power	> 100, < 3000	µA
Bias voltage to PD monitor	5.0	V
Peltier TEC current	< 1.2	A
Peltier TEC voltage	< 3.5	V
Thermistor temperature sensitivity, BETA	3892	K
Thermistor resistance at 25°C	10	kOhm
Operating temperature range at full power	−55…+75	°C
Storage temperature	−55…+85	°C
Dimensions (W×H×D)	12.8 × 9.7 × 30	mm
Weight	15	g
Fiber type	Corning HI780 or PANDA PM850 *250 µm buffered fiber with 900 µm loose tube*	
Output optical connector	FC/APC with narrow key	

Module pinout



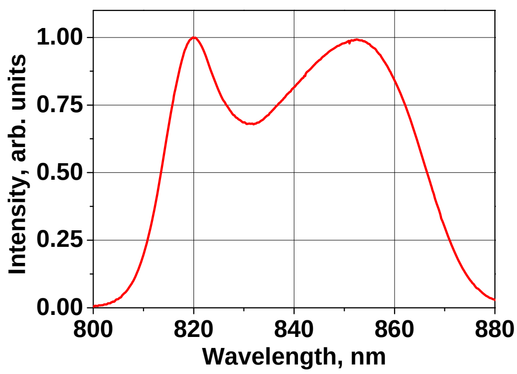
1	TEC Anode (+)
2	Thermistor
3	PD Anode (-)
4	PD Cathode (+)
5	Thermistor
6	N/C
7	N/C
8	N/C
9	N/C
10	SLD Anode (+)
11	SLD Cathode (-)
12	N/C
13	Case
14	TEC Cathode (-)

Ordering information

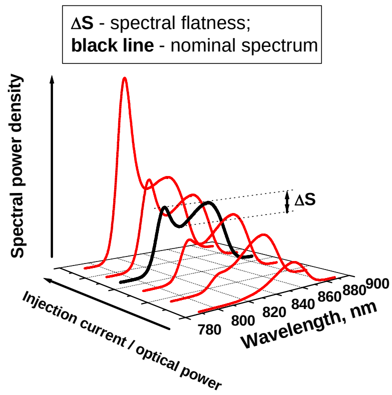
Part number	Description
SLD840F50P8S	8 mW, SM fiber output
SLD840F50P8P	8 mW, PM fiber output
SLD840F50P15S	15 mW, SM fiber output
SLD840F50P15P	15 mW, PM fiber output
SLD840F50P25S	25 mW, SM fiber output
SLD840F50P25P	25 mW, PM fiber output

Typical performance examples

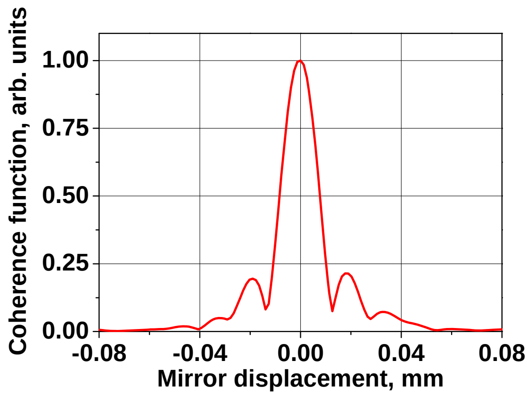
Spectrum at nominal power



Spectrum evolution over current



Coherence function (central peak)



Coherence function (extended displacement)