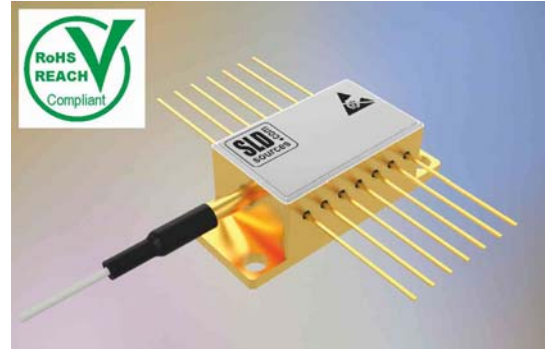




Superluminescent Diode (SLD) modules (all standard products)

Description

Superluminescent Diodes (SLDs) are used in various applications requiring high-power, spatially-coherent, wide-spectrum light sources. The unique characteristic of superluminescent diodes is that they combine the features of laser diodes – such as high spatial coherence and high brightness – with the very wide spectrum inherent to light-emitting diodes. The output emission is the amplified spontaneous emission of laser diode epi-structures in which lasing is suppressed by special measures.



These are light sources of choice for many disruptive technologies: optical coherence tomography, low-coherence interferometry, distributed Bragg grating sensing, speckle-free illumination and many others. The module design is Telcordia GR-468-CORE qualified.

This document describes the performance of standard products containing a single Superluminescent Diode (SLD) module:

- fiber-pigtailed cooled SLD modules;
- free-space TO9-canned uncooled SLD- modules.

If you need more detailed specifications for any part number (P/N) in the tables below, or if you need customized specifications, please contact us at enquiries@sldsources.com.

Features

- Wide range of products in the 670 — 1100 nm spectral range
- optimized combination of optical power and spectral width
- SMF, PMF, MMF fiber output, or free-space output
- wide selection of module packages, cooled and uncooled, including standard hermetically sealed Butterfly package
- low relative intensity noise, < -135 dB/Hz
- easy customization to meet specific requirements

Applications

- optical coherence tomography
- white light interferometry
- spectroscopy
- low-speckle illumination
- testing of optical components
- fiber optic gyroscopes

Standard fiber-pigtailed cooled SLD modules

(FC/APC terminated fiber pigtail with 900 μm loose tube; hermetically sealed Butterfly package with Peltier TEC, 10 kOhm thermistor, and PD monitor)

Product P/N ¹	Fiber optical power, mW	Central wavelength, nm	Spectral FWHM (-3dB width), nm	Type of spectrum ²
Products for medical Optical Coherence Tomography (OCT) <i>optical performance specifically optimized for TD and SD OCT</i>				
SLD670B8P10	10	670 \pm 10	8 \pm 1.5	Bell-like
SLD785F50P15	15 \pm 5	785 \pm 10	50 \pm 10	Flat-top (two humps)
SLD830F60P15	15 \pm 5	830 \pm 10	60 \pm 5	Flat-top (two humps)
SLD830F75P10	10 \pm 3	830 \pm 5	75 \pm 5	Flat-top (two humps)
SLD840F50P8	8 \pm 3	840 \pm 10	50 \pm 5	Flat-top (two humps)
SLD840F50P15	15 \pm 5	840 \pm 10	50 \pm 5	Flat-top (two humps)
SLD840F50P25	25 \pm 5	840 \pm 10	50 \pm 5	Flat-top (two humps)
SLD840B30P10	10	840 \pm 10	30 \pm 5	Bell-like
SLD840B30P20	20	840 \pm 10	30 \pm 5	Bell-like
SLD1010F100P7	7 \pm 2	1010 \pm 10	100 \pm 10	Flat-top (two humps)
SLD1055F70P10	10 \pm 2	1055 \pm 15	70 \pm 10	Flat-top (two humps)
Unique optical performance <i>outstanding, most optically powerful and most spectrally broad performance</i>				
SLD795B15P30	30	795 \pm 5	15 \pm 3	Bell-like
SLD840B25P50	50	840 \pm 10	25 \pm 5	Bell-like
SLD840F50P50	50 \pm 5	840 \pm 10	50 \pm 5	Flat-top (two humps)
SLD935F100P12	12 \pm 3	935 \pm 10	100 \pm 10	Flat-top (two humps)
SLD1185B30P1	1	1185 \pm 10	30 \pm 5	Bell-like
Other part numbers <i>Most standard products are listed. Much more customized products are available.</i> <i>Please contact us at enquiries@sldsources.com with your detailed requirements</i>				
SLD780B15P12	12	780 \pm 5	15 \pm 3	Bell-like
SLD840B16P10	10	840 \pm 10	16 \pm 3	Bell-like
SLD850B25P12	12	850 \pm 5	25 \pm 5	Bell-like
SLD960B35P20	20	960 \pm 15	35 \pm 10	Bell-like
SLD1065B35P20	20	1065 \pm 10	35 \pm 5	Bell-like

Free-space TO9-canned uncooled SLD modules

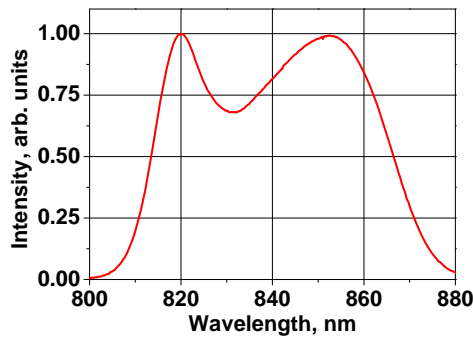
(standard TO9 package, AR-coated glass window, PD monitor)

Product P/N	Free-space optical power, mW	Central wavelength, nm	Spectral FWHM (-3dB width), nm	Type of spectrum ²
<i>Most standard products are listed. Much more customized products are available.</i> <i>Please contact us at enquiries@sldsources.com with your detailed requirements</i>				
SLD670B8P5F09	5	670 \pm 10	8 \pm 1.5	Bell-like
SLD670B8P15F09	15	670 \pm 10	8 \pm 1.5	Bell-like
SLD835B12P30F09	30	835 \pm 10	12 \pm 2	Bell-like
SLD840B18P20F09	20	840 \pm 10	18 \pm 3	Bell-like
SLD845B30P100F09	100	845 \pm 10	30 \pm 10	Bell-like
SLD880B40P20F09	20	880 \pm 10	40 \pm 10	Bell-like
SLD920B30P20F09	20	920 \pm 10	30 \pm 5	Bell-like
SLD970B30P8F09	8	970 \pm 10	30 \pm 5	Bell-like

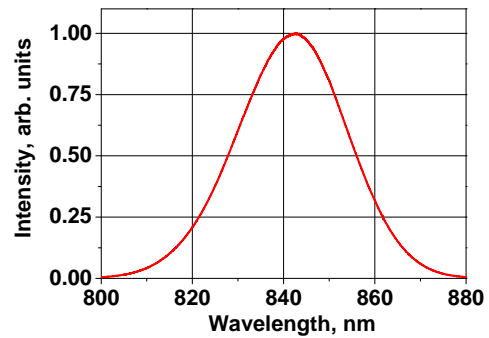
¹ P/Ns of fiber-pigtailed SLDs indicated in the Table do not contain information on the type of fiber. The corresponding suffix must be added to the end of the P/N to specify the fiber, as follows: **S** – for isotropic SM fiber; **P** – for PANDA PM fiber; **M** – for multi-mode [MM] fiber.

² see spectrum examples for bell-like and flat-top spectra on the next page.

Flat-top (two humps) spectrum example



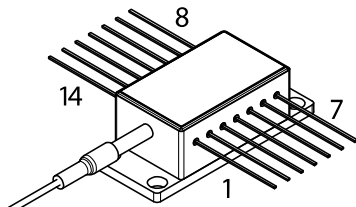
Bell-like spectrum example



Product customization

We are capable to customize our products to meet any specific requirements:

- **optical performance specifications.** Various SLD products at wavelengths of 660 nm, 780 nm, 805 nm, 810 nm, 850 nm, 860 nm, 870 nm, 920 nm, 980 nm, 1000 nm, 1050 nm, and in the 1300 – 1600 nm spectral range are available.
- **module package.** The module packages available can be found below.



Standard Butterfly package
(FC/APC terminated fiber pigtail with 900 μm loose tube; standard package with Peltier TEC, 10 kOhm thermistor, PD monitor)

30 x 12.7 x 9.8 mm (L x W x H)

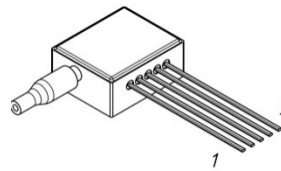
1	TEC Anode (+)
2	Thermistor
3	PD Anode (-)
4	PD Cathode (+)
5	Thermistor
6	N/C
7	N/C
8	N/C
9	N/C
10	SLD Anode (+)
11	SLD Cathode (-)
12	N/C
13	Case
14	TEC Cathode (-)



Free-space uncooled TO9 and TO56 canned packages
(standard package, AR-coated glass window, PD monitor)

$\varnothing 9 \times 6.7$ mm (D x H)
 $\varnothing 5.6 \times 3.6$ mm (D x H)

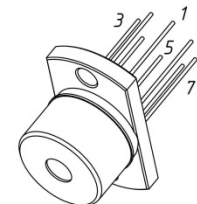
1	SLD Anode (+)
2	Common, Case
3	PD Cathode (+)



Uncooled fiber-pigtailed MiniButterfly package
(bare 250 μm optical fiber output package with thermistor and PD monitor)

14.8 x 8.5 x 4.5 mm
(L x W x H)

1	Thermistor
2	Thermistor
3	SLD Anode (+)
4	SLD Cathode (-) PD Anode (-) Case
5	PD Cathode (+)



Peltier-cooled free-space package [TOW]
(AR-coated glass window, Peltier TEC, 10 kOhm thermistor, PD monitor)

22.9 x 12.7 x 11.3 mm
(L x W x H)

1	PD Anode (-) Case
2	SLD Cathode (-)
3	TEC Cathode (-)
4	TEC Anode (+)
5	SLD Anode (+)
6	Thermistor
7	Thermistor
8	PD Cathode (+)

- **optical fiber.** The standard fibers available can be found below.

SM and PM fibers:

Spectral range	Single-mode (SM) isotropic fiber	Polarization maintain (PM) fiber
650 – 700 nm	FiberCore SM600	Corning PANDA PM63-U25D
750 – 1000 nm	Corning HI780	Corning PANDA PM85-U25D
1000 – 1200 nm	Corning HI1060	Corning PANDA PM98-U25D

MM fibers: Corning 50/125/250 μm , Corning 62.5/125/250 μm , ThorLabs GIF 625-100.