Fiber Coupled, Single Emitter Semiconductor Lasers

SF Series

These products consist of a high power, multi-transverse mode, single emitter semiconductor laser, efficiently coupled to a small core, low numerical aperture optical fiber. The resultant fiber output delivers very high brightness output, where brightness is defined as output power per unit of solid angle. High brightness results in increased power density in an optical system's final, focussed spot allowing thermal applications to be performed at higher speeds. Typical thermal processing applications include welding, heat treating, sintering and melting. These products are offered with several standard fiber connector options, including SMA, ST and SC.

In addition to superior performance, our products are also designed and manufactured for maximum reliability. We are able to achieve high quality on a volume basis because of our total vertical integration within a single manufacturing facility. This gives us complete control over every aspect of our production process – from wafer processing through final packaging.

The standard products listed here are representative of our capabilities, however, the majority of our products are designed and built to meet specific customer requirements. We offer a variety of materials, including Phosphorous-based materials (recently reffered to as "Aluminium Free") to provide the optimum combination of performance and price for each customer.

Features:

- 0.4 up to 1.2 W cw power
- High brightness
- High reliability
- Available in volume

Applications:

- Graphic arts
- Materials processing
- Medical

Spectra-Physics
SEMICONDUCTOR LASERS

Tucson, AZ • Toll Free (877) 228-9672 • www.spectra-physics.com
Telephone (650) 966-5444• info@splasers.com

P_o[1] (W)	Fiber Ø (µm)	I_{th}[2] (A)	I_{op}[3] (A)	R_s[4] (Ω)	λ_o[5] (nm)	Part Number		
						SMA Connector	ST Connector	SC Connector
0.40	40	0.15	0.90	0.35	830	SFA040-830-H1-01	SFB040-830-H1-01	SFD040-830-H1-01
0.70	60	0.25	1.25	0.15	830	SFA060-830-P1-01	SFB060-830-P1-01	SFD060-830-P1-01
0.75	100	0.25	1.25	0.10	808	SFA100-808-R1-01	SFB100-808-R1-01	SFD100-808-R1-01
					830	SFA100-830-R1-01	SFB100-830-R1-01	SFD100-830-R1-01
					860	SFA100-860-R1-01	SFB100-860-R1-01	SFD100-860-R1-01
					915	SFA100-915-R1-01	SFB100-915-R1-01	SFD100-915-R1-01
					940	SFA100-940-R1-01	SFB100-940-R1-01	SFD100-940-R1-01
					975	SFA100-975-R1-01	SFB100-975-R1-01	SFD100-975-R1-01
0.95	100	0.4	1.70	0.10	808	SFA100-808-V1-01	SFB100-808-V1-01	SFD100-808-V1-01
					830	SFA100-830-V1-01	SFB100-830-V1-01	SFD100-830-V1-01
1.20	100	0.4	2.00	0.10	915	SFA100-915-D2-01	SFB100-915-D2-01	SFD100-915-D2-01

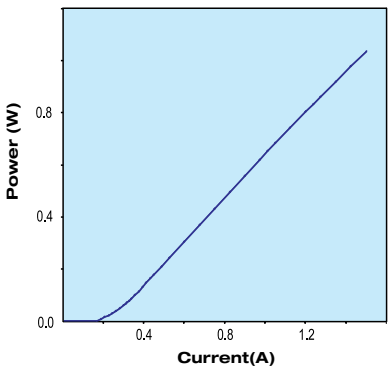
Notes:

(1).... P_o typical output power in cw regime
(2).... I_{th} typical threshold current
(3).... I_{op} typical operating current
(4).... R_s typical series resistance
(5).... λ_o center wavelength @ 25°C case temperature, +/- 5nm tolerance.
Typical wavelength temperature coefficient : 0.2-0.3 nm/°C

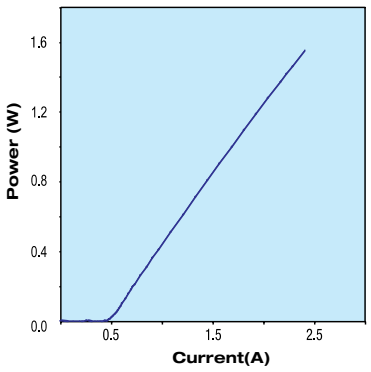
Common Specifications:

Optical	
Spectral Width (FWHM)	<5nm
Typical Slope Efficiency	0.7 W/A
Typical Conversion Efficiency	>25%
Fiber Numerical Aperture	0.22
Typical Divergence	
- FWHM	0.08 NA
- 90% total power	0.15 NA
Electrical	
Operating Voltage	< 2 Volts
Reverse Voltage	< 3 Volts
Negative Current Transient	< 25µA
Mechanical	
Storage Temp Range	-30°C to 80°C
Fiber length	32cm, typical
Dimensions	see figure
Environmental	
Thermal Resistance	< 14°C/W
Recommended Case Temp.	25°C

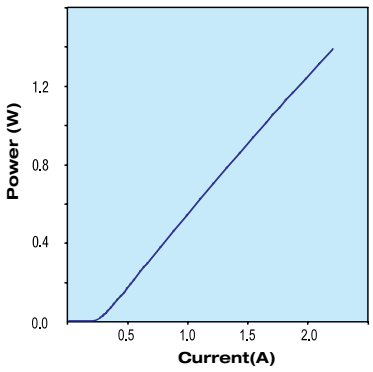
SFA060-830-P1-01
Power vs. Current(Typical)



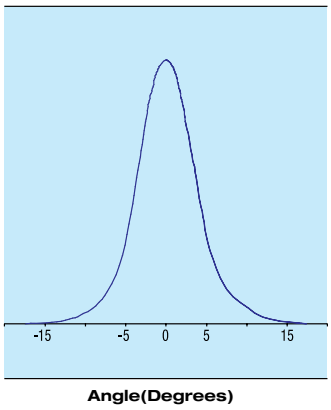
SFA100-915-D2-01
Power vs. Current(Typical)

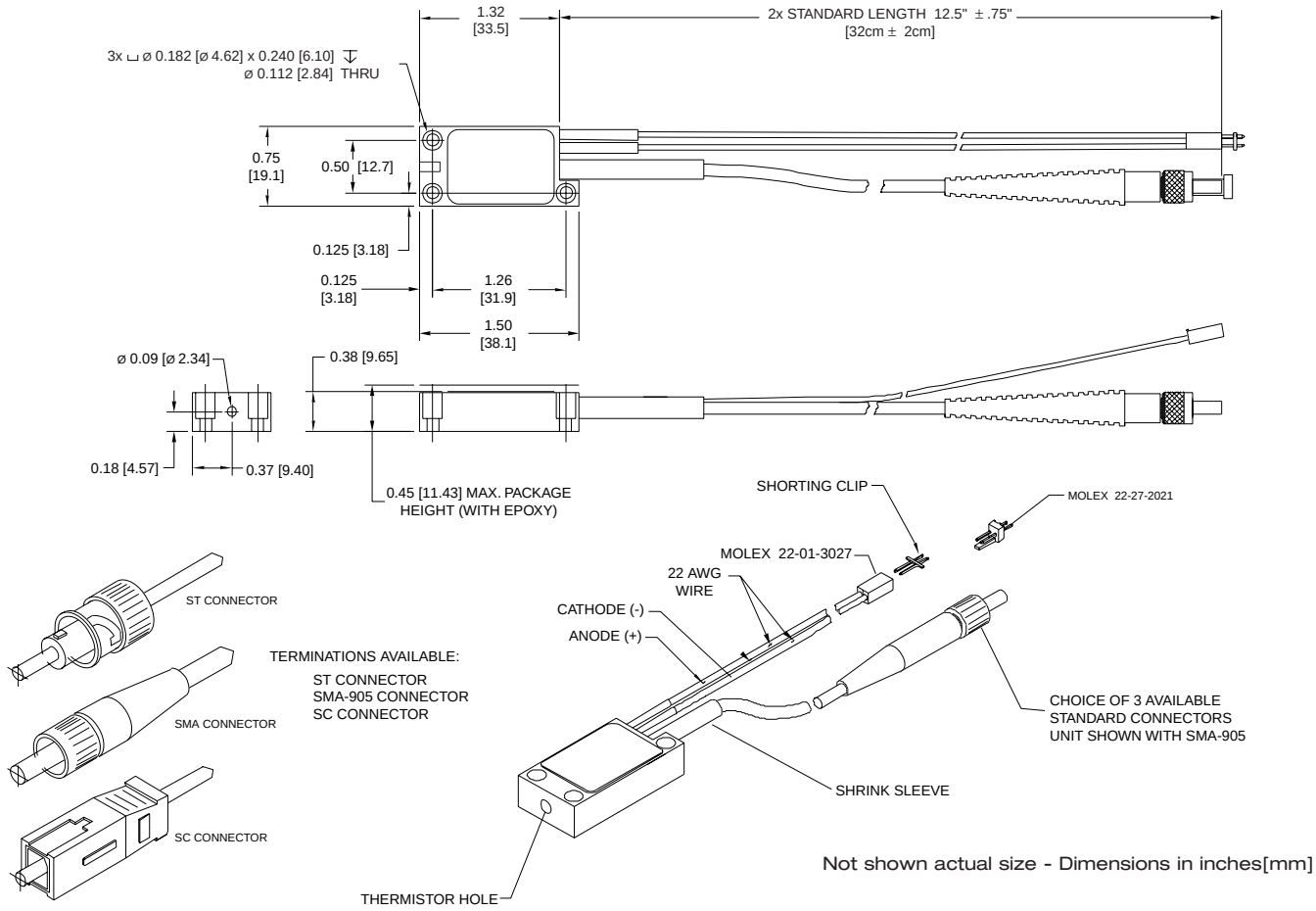


SFA100-808-V1-01
Power vs. Current(Typical)



Farfield Distribution
(Typical)





Not shown actual size - Dimensions in inches[mm]

Laser energy emitted from these products is invisible and harmful to the human eye. Avoid eye or skin exposure to direct or scattered radiation. Proper laser safety eyewear must be worn during operation. Use of controls, or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure. Use of collimating optics may increase the radiation hazard of these products. Pursuant to the Health and Safety Act of 1968, Radiation Control sections 21 CFR 1040.10 & 1040.11, laser safety warning labels, compliant as of date of manufacture, are provided on shipping containers.

Information and specifications contained herein are deemed to be reliable and accurate. SPSL reserves the right to change, alter or modify the design and specifications of these products at any time without notice

Spectra-Physics
3321 East Global Loop, Tucson, AZ 85706
(520) 746-1234 FAX (520) 294-3300

Model No. _____
Serial No. _____
Manufactured: _____
P.O. # _____

This product conforms to 21 CFR 1040.10 & 1040.11 at the date of manufacture.