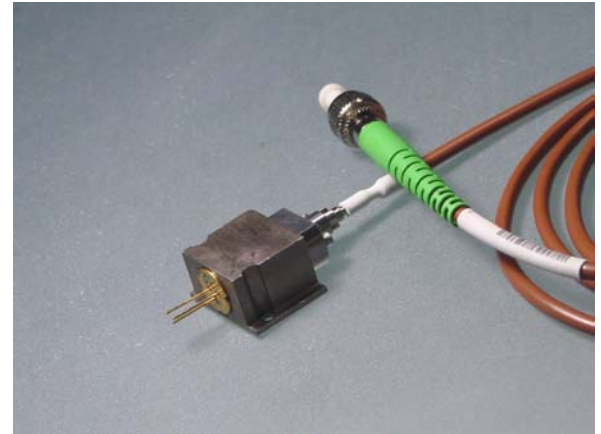


### Description

FiberMax single-mode fiber-pigtailed laser modules deliver superior performance for today's demanding electro-optic applications. Based on Blue Sky Research CircuLaser™ technology, the FiberMax package provides the highest fiber output power level achieved from its laser diode source by any commercially available single-mode fiber-pigtailed package. Using a unique Blue Sky Research package design, FiberMax outputs are amongst the most thermally stable available. The FiberMax line offers a wide range of wavelengths and power levels to fit customer requirements. In addition the units are offered with PM fiber, and 3mm jacketing. FiberMax fiber-coupled modules are competitively priced and backed by Blue Sky Research customer support.



### Optical and Electrical Characteristics\*

Item	Symbol	Unit	Min	Typ	Max	Test Condition
Optical output power	P <sub>o</sub>	mW	100			T <sub>c</sub> =25°C
Threshold current	I <sub>TH</sub>	mA		40	60	T <sub>c</sub> =25°C
Operating current	I <sub>OP</sub>	mA		185	230	T <sub>c</sub> =25°C
Operating voltage	V <sub>OP</sub>	V		2.0		T <sub>c</sub> =25°C
Lasing wavelength	λ	nm	820	830	840	T <sub>c</sub> =25°C
Monitor current	I <sub>MON</sub>	mA	0.2	1.0		T <sub>c</sub> =25°C

### Absolute Maximum Rating

Item	Symbol	Unit	Min	Max	Test Condition
Operating temperature	T <sub>OPR</sub>	°C	-10	+50	
Storage temperature	T <sub>STG</sub>	°C	-40	+85	
LD reverse voltage	V <sub>R</sub> (LD)	V		2	T <sub>c</sub> =25°C
PD reverse voltage	V <sub>R</sub> (PD)	V		30	T <sub>c</sub> =25°C

### Fiber Specs

Single mode fiber w/ 3mm or 900um protective jacket

Item	Symbol	Unit	Min	Typ	Max
Fiber numerical aperture	NA			0.13	
Mode Field Diameter @ 850nm	MFD	um	4.5	5.0	5.5
Length	L	meter	-	1	-

Polarization maintaining fiber w/ 3mm or 900um protective jacket

Item	Symbol	Unit	Min	Typ	Max
Fiber numerical aperture	NA			0.11	
Length	L	meter	-	1	-
Polarization Extinction Ratio	PER	dB	17	20	

# FiberMax™ Module

FMXL830-100-XXXB 830nm, 100mW

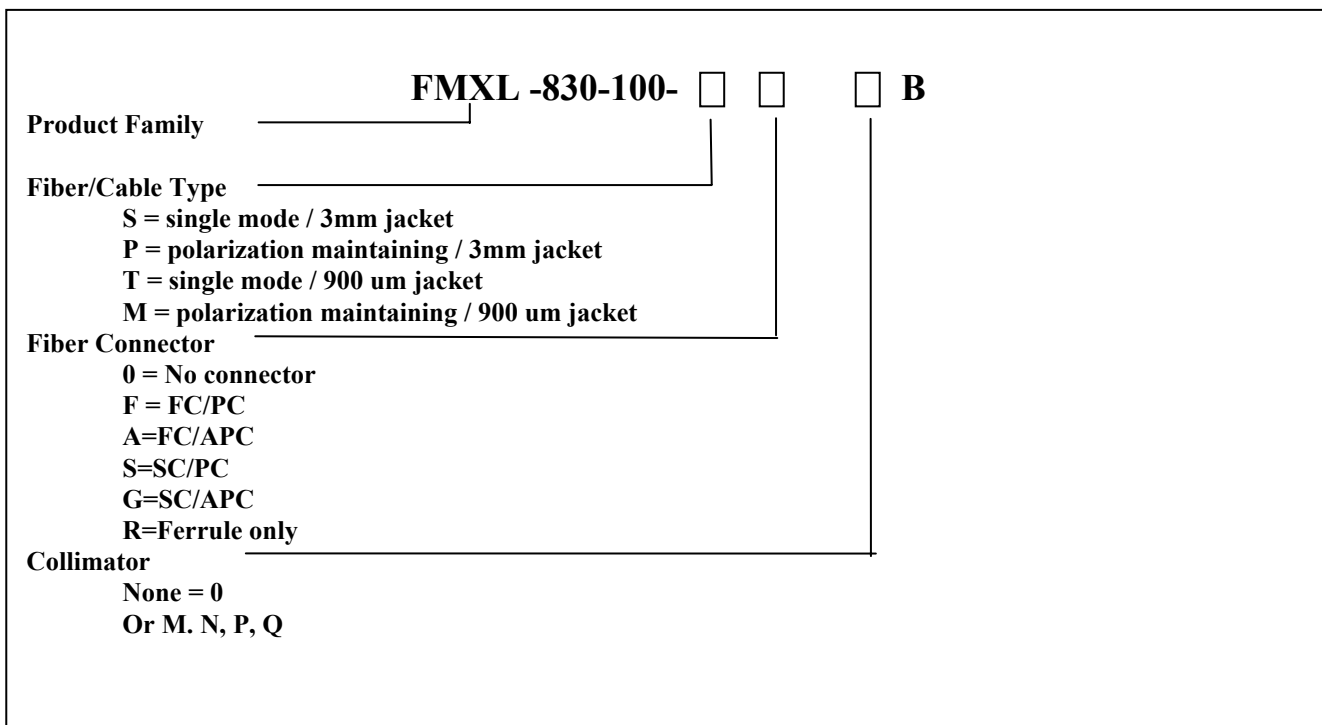


### Collimator Options

Type	M	N	P	Q
Beam Diameter ( $1/e^2$ , mm, $\pm 25\%$ )	0.8	1.3	1.9	3.2
Divergence (mrad)	<1.2	<0.8	<0.5	<0.4

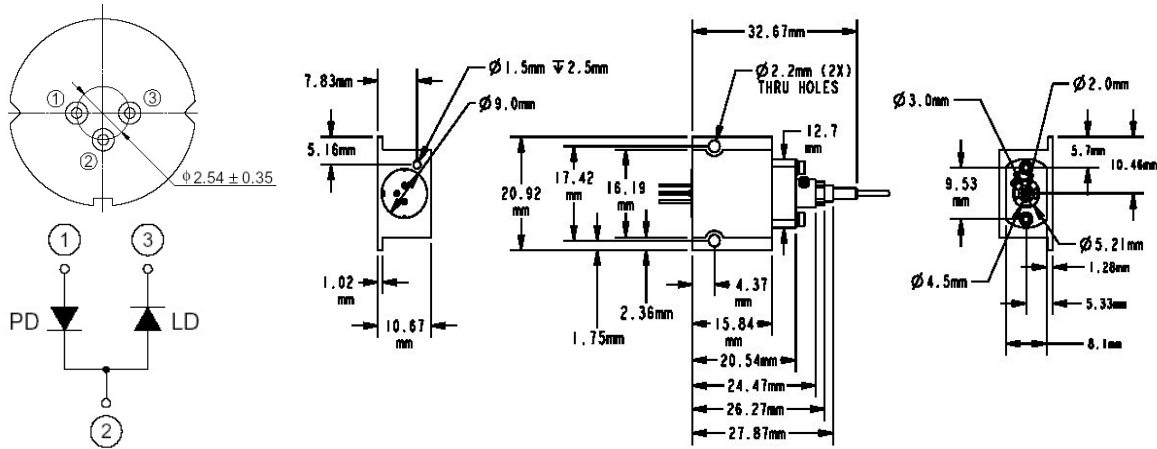
*\*Specifications are subject to change without notice*

### Ordering Information



**Example: FMXL-0830-100-SF0B, FiberMAX830™ laser module with 830nm Laser diode, 100mW power output, single mode fiber in 3mm jacketing, FC/PC connector, no collimated beam output optics, and B pin out.**

**Mechanical Outline**



**Case is positive.**

**Handling Care and Precautions for Use of FiberMax™ Modules**

**1. Absolute Maximum Ratings**

Do not exceed, *even momentarily*, the maximum ratings (see page 1, table). When a FiberMax module is driven in excess of its maximum ratings, it can cause at minimum a considerable reduction in reliability, and potentially instantaneous failure.

- a. FiberMax modules may be damaged by surge currents generated at power on-off operation. Check on the transient characteristics of the power supply to make sure that such surges do not exceed the maximum ratings.
- b. The maximum ratings are specified for a case temperature of 25°C. Designs should be made to work well within this temperature range. As the case temperature goes up, power dissipation as well as maximum light output power is reduced.

**2. Soldering Conditions**

Maximum solder-tip temperature is 260°C and soldering time must be within 3.0 seconds. A minimum solder clearance of 1.6mm should be maintained from the root of the lead.

**3. Prevention of Breakdown due to Static Electricity**

FiberMax modules may be adversely affected by static electricity and surge currents and, consequently, cause breakdown of the module and reduction of reliability unless the following precautions are taken:

- a. Power supplies, installation and measuring equipment should be grounded. A noise filter or noise-cut transformer should be provided on any power supply inputs.
- b. Anyone working with a FiberMax module should be grounded through high resistance (500 K Ohm - 1M Ohm) by means of a ground strap and wrist band (for example).
- c. Soldering irons should be grounded to protect laser modules from voltage leaks.
- d. During operation of the FiberMax module, working clothes, hats, and shoes should be static-protected. Cotton-based clothing is preferred.
- e. Any container for carriage and storage should be static-protected.
- f. Avoid using laser modules in an environment where high frequency surge currents may be generated by an inductive electric field (such as a fluorescent lamp). These fields can also cause breakdown or deterioration of the laser module.

**4. Package Handling**

- a. The laser module package should not be cut off, reworked, or deformed. Care should be taken when handling the fiber to avoid kinking it.
- b. Do not touch the ferrule end. Any scratch or contamination may result in reduction of optical characteristics.
- c. Remove small contaminants on the ferrule surface carefully using a soft cotton tip stick with a small amount of methyl alcohol.

**5. Safety**

The output light from laser modules is harmful to a human body even if it is invisible. Avoid looking at the output light of a FiberMax module directly, or even indirectly through a lens during operation. Observance of operation should be through an infrared TV camera or related equipment. Refer to IEC 825-1 and 21 CFR 1040.10-1040.11 as a radiation safety standard for laser products.

