

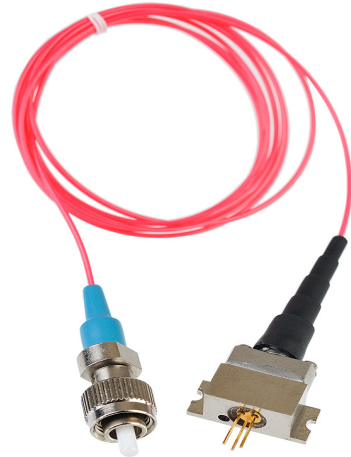
FiberMax520

Fiber Pigtailed 520nm Laser Module



Description

FiberMax520 is a fiber-pigtailed visible green laser module delivering superior single mode performance and stability in a robust, ultra-compact package. The units are optically & thermally stable, reliable, and are ideal for demanding industrial environments and applications. The units are offered with Polarization Maintaining Single Mode or Single Mode fiber, 3mm PVC or metal jacket, or 0.9mm loose-tube jacketing. A range of collimator, wavelength, power level and optical connector options are available.



Optical and Electrical Characteristics

Item	Symbol	Unit	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Test Condition
Optical power	P _o	mW	20	-	-	35	-	-	50	-	-	T _c =25°C
Threshold current	I _{TH}	mA	-	45	75	-	40	70	-	-	100	T _c =25°C
Operating current	I _{OP}	mA	-	150	160	-	200	240	-	-	350	T _c =25°C
Operating voltage	V _{OP}	V	-	7.0	8.0	-	6.4	8.0	4.2	-	6.0	T _c =25°C
Lasing wavelength	λ	nm	520	-	530	515	520	530	510	515	520	T _c =25°C
Monitor current	I _{MON}	mA	-	0.09	-	-	0.11	-	0.2	-	3.0	T _c =25°C
Electrical pin out					B			B			J	

Absolute Maximum Rating

Item	Symbol	Unit	Min	Max	Test Condition
Operating temperature	T _{OPR}	°C	-20/0*	+60	* 50mW LD only
Storage temperature	T _{STG}	°C	-40	+85	
LD reverse voltage	V _R (LD)	V	-	2/5*	T _c =25°C
Soldering Temperature	T _{Solder}	°C	-	260	10 second max

* = 50mW Laser Diode only

Fiber Specs

Single mode fiber w/ 3mm PVC or metal jacket, or 0.9mm loose-tube

Item	Symbol	Unit	Min	Typ	Max
Fiber numerical aperture	NA		-	0.13	
Mode Field Diameter @ 515nm	MFD	um	3.0	3.5	4.0
Length	L	meter	-	1	-

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Polarization maintaining fiber w/ 3mm PVC or metal jacket, or 0.9mm loose-tube

Item	Symbol	Unit	Min	Typ	Max
Fiber numerical aperture	NA		-	0.12	
Mode Field Diameter @ 515nm	MFD	um	2.8	3.3	3.8
Length	L	meter	-	1	-
Polarization Extinction Ratio	PER	dB	17	20	-

*Note: Polarization and slow axis is aligned to the keyway on the connector.
The keyway is narrow Key for FC/APC connector.*

Collimator Options (SM or PM)

Type	M	N	P	Q
Beam Diameter ($1/e^2$, mm, $\pm 25\%$)	0.8	1.3	1.7	2.5
Divergence (mrad)	<1.2	<0.8	<0.5	<0.4

FiberMax520 PART ORDERING TABLE

FMXL-520-020-Q-FCW

XXX = Wavelength ZZZ = Power Out Q = Cable Type F = Connector C = Collimator W = Pin out

520 = 520nm
020 = 20mW
035 = 35mW
050 = 50mW

T = 900um / SMF
S = 3mm / SMF

0 = None
F = FC/PC

0 = None
M = 0.8 mm

B
J

Example:

FMXL-520-020-P-A0B

520 = 520 nm wavelength

020 = 20 mW output

P = PM Fiber 3mm jacket

A = FC/APC connector

0 = no collimator

B = B type pin out

M = 900um / PMF

P = 3mm / PMF

K = 3mm Armor/SMF

N = 3mm Armor PMF

A = FC/APC

R = ferrule only

N = 1.3 mm

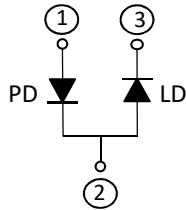
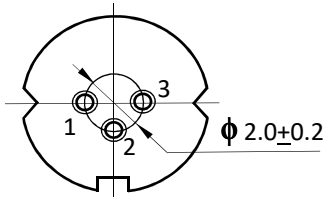
P = 1.9 mm

Q = 3.2 mm

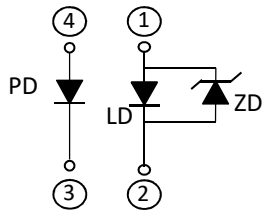
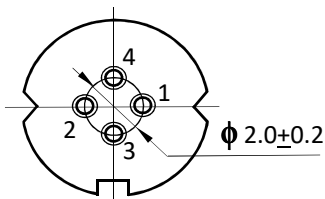
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Electrical Pin Out Configurations



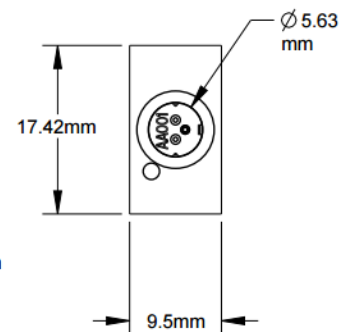
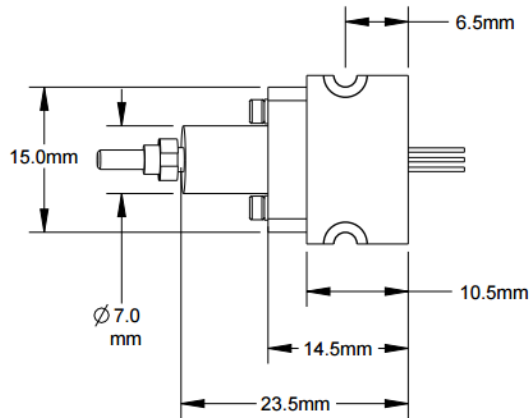
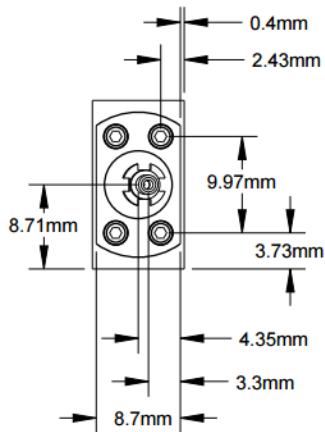
B Pin Out



This device has a Zener Diode (ZD) built in as a protection circuit against static electricity

J Pin Out

Mechanical Outline (dimensions in mm)



Blue Sky Research is able to manufacture additional wavelength FMXL's, and has the capability to use 3.8, 5.6 and/or 9.0 mm TO packages.

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.
- 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.
- d. During operation of the FiberMax module, working clothes, hats, and shoes should be static-protected.
- 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 optical connector end face. Any scratch or contamination may result in reduction of optical characteristics.
- c. Remove small contaminants on the optical connector end face surface carefully using a soft lint free wipe 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. Refer to IEC 825-1 and 21 CFR 1040.10-1040.11 as a radiation safety standard for laser products.

Blue Sky Research is an ISO 9001:2008 certified company

