Fiber Optical Bandpass Filter

1970~1972 nm

DATASHEET

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The BAPF series bandpass filters provide a fixed wavelength passband based on advanced thin-film filter technology and micro-optical packaging. They feature excellent uniformity, a wide selection of wavelength ranges, low insertion loss, excellent temperature stability, and specified attenuation within designated blocking bands. These characteristics offer great flexibility for a wide range of customer applications. The wavelength blocking range is limited on both sides of the passband; however, edge filters can be added to further extend the blocking range if required. We also provide customized optical solutions to meet customers' specific application needs.

Features

- Low Insertion Loss
- Wide Stop Band
- High Isolation
- High Stability and Reliability

Applications

- Medical Cosmetology
- Laser Surgery
- Laser Engraving
- Gas Sensing

Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength		1971		nm
Center Wavelength Tolerance		±0.1		nm
Pass Wavelength Range	1970		1972	nm
Pass Wavelength Range tolerance		2±0.2		nm
Blocking Wavelength Band (Range)		1900~1960 and 1982~2000		nm
Pass Insertion Loss		≤0.8		dB
Stop Band Isolation		≥30		dB
PER for PM fiber version	18		28	dB
PDL for SMF fiber version		≤0.2		dB
Return Loss		≥50		dB
Max Power Handling (CW)		0.5	5	W
Fiber Type		SMF-28e, SM1950, PM1550, PM1950		
Operating Temperature	0		70	°C
Storage Temperature	-40		85	°C

* For devices with connectors, IL+0.3dB, RL-5dB, PER -2dB

* Power handling can be 1~5W on request.

RoHS COMPLIANT

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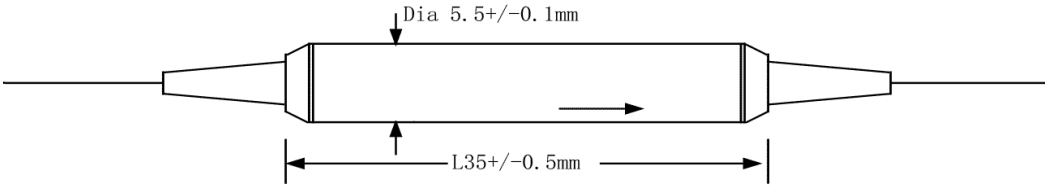
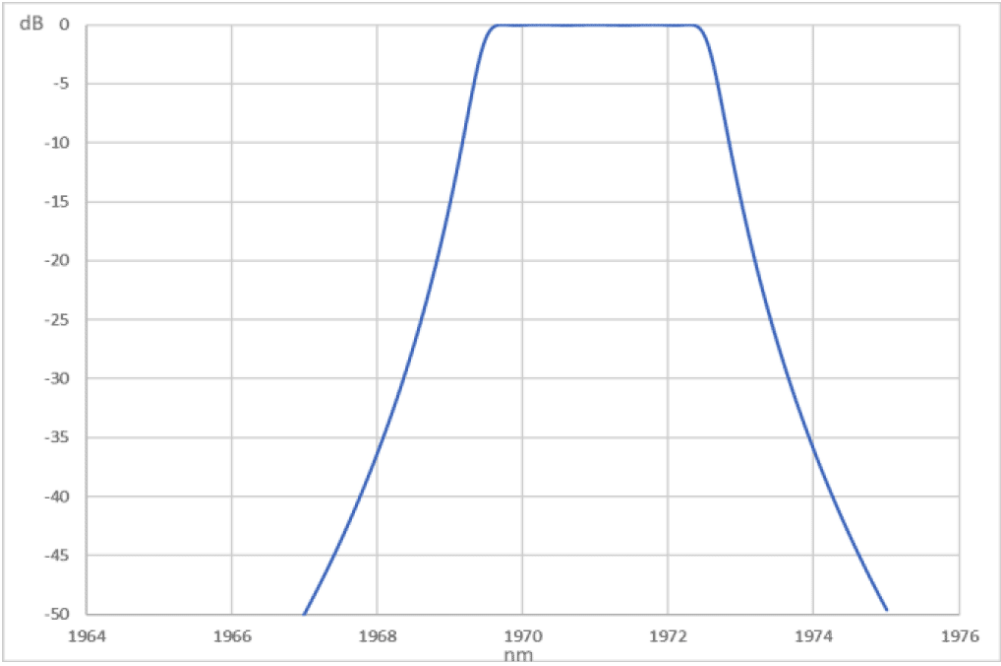
Mechanical Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Typical Spectrum



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Ordering Information (Part Number)

	☐☐☐☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Center Wavelength**	**Passing Band**	**Configuration**	**Power**	**PER**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector[1]**
BAPF-	1971 = 1971 Special = 0	2nm = 2 Special = 0	2-port = 2 3-port = 3 Special = 0	0.5W = 1 5W = 5 10W = 7	20 dB = 1 28 dB = 2	SMF-28 = 1 PM 1550 = 2 SM1950 = 9 PM1950 = 8	Bare = 1 0.9mm tube = 2 Special = 0	0.25m = 1 0.5m = 2 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 Special = 0

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

Application Notes

Fiber Core Alignment

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness

Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power

Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

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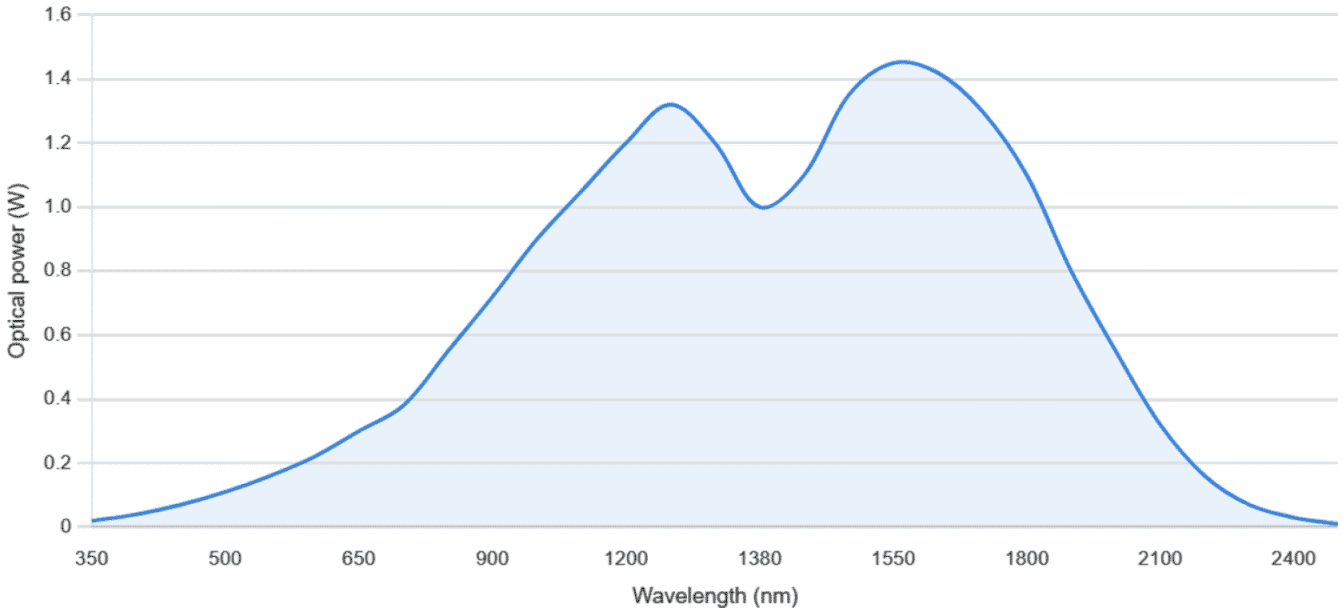
Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength



Single mode fiber optical power is limited by nonlinear effects in addition to absorption that increase loss and generate heat. The curve shows the approximate safe CW power envelope for standard single-mode fiber. Actual limits depend on fiber design, core size, length, and laser characteristics. Specialty fibers can significantly increase the power limit.

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