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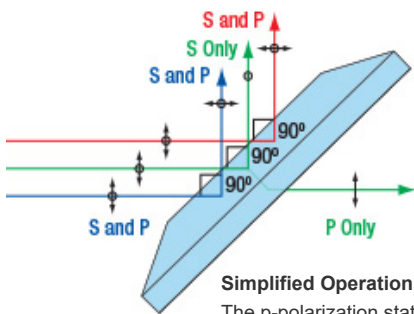
**THORLABS**

## FPB529-23 - AUG 10, 2020

Item # FPB529-23 was discontinued on AUG 10, 2020. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

### POLARIZING BANDPASS FILTERS

- ▶ Wavelength Pass Band Only Contains P-Polarization
- ▶ Pass Band Transmission >85%
- ▶  $10^6:1$  Extinction Ratio
- ▶ Four Center Wavelength Options from 355 nm to 1064 nm

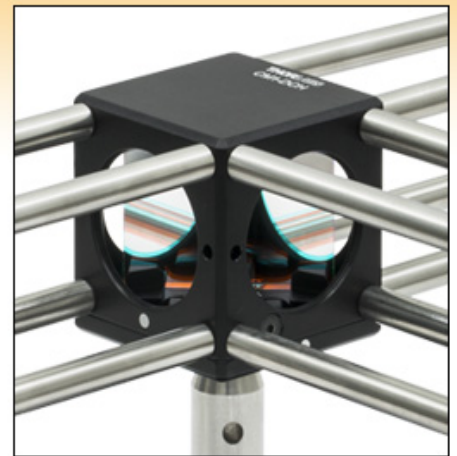


**Simplified Operation Drawing**

The p-polarization state is passed within the designed pass band, while the s-polarization state is rejected.



**FPB405-10**  
 Polarizing Bandpass Filter,  
 CWL = 405 nm



FPB529-23 Polarizing Bandpass Filter Mounted in a CM1-DCH Cage Cube Filter Mount

## OVERVIEW

## Features

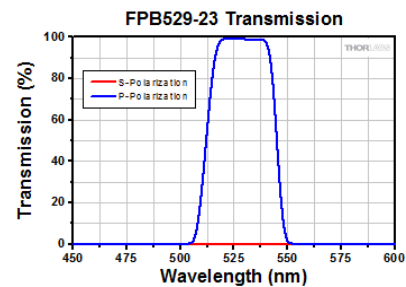
- Extinction Ratio: 1 000 000:1
- 25.2 mm x 35.6 mm x 2.0 mm Unmounted Filters
- >85% Transmission Within the Pass Band
- Excellent Suppression in Blocking Regions (OD > 6)
- UV Fused Silica Substrate
- Four Center Wavelength Options at Popular Laser Lines:
  - 355 nm +6 nm / -9 nm
  - 405 nm ± 5 nm
  - 532 nm +9 nm / -14 nm

Common Specifications	
<b>Extinction Ratio<sup>a</sup></b>	1 000 000:1
<b>Optic Size</b>	25.2 mm x 35.6 mm
<b>Optic Thickness</b>	2 mm
<b>Dimensional Tolerance</b>	±0.1 mm
<b>Clear Aperture</b>	>21.41 mm x 30.26 mm
<b>Acceptance Angle<sup>b</sup></b>	45° ± 0.5°
<b>Surface Quality</b>	60-40 Scratch-Dig
<b>Coating</b>	Polarizing Bandpass Filter
<b>Substrate</b>	UV Fused Silica <sup>c</sup>

<sup>a</sup>The extinction ratio (ER) is the ratio of maximum to minimum transmission of a sufficiently linearly polarized input. When the transmission axis and input polarization are parallel, the transmission is at its maximum; rotate the polarizer by 90° for minimum transmission.

<sup>b</sup>The acceptance angle is wider at the center wavelength of the optic; see the table below for details.

<sup>c</sup>Click Link for Detailed Specifications on the Substrate



Click to Enlarge

Transmission plot for the FPB529-23 Filter. Click the info icons (i) below for each filter's plots and downloadable data.

Thorlabs' Polarizing Bandpass Filters are designed to isolate key laser lines, such as Nd:YAG, HeNe, and diode, while also separating out the s- and p-polarization states. The p-polarized component is transmitted over a defined pass band and reflected (rejected) outside of the band, while the s-polarized component is reflected over the entire blocking region of the optic. Each offers a high extinction ratio of  $T_p:T_s > 10^6:1$ , high p-polarized transmission in the pass band (>85% for FPB353-15 and >95% for all other filters), and excellent suppression (OD > 6) in the blocking region.

Each filter is 25.2 mm x 35.6 mm and has a thickness of 2 mm. They are designed to be used at a 45° AOI; however, when used at the center wavelength, the incident angle can be widened without loss of performance. See the table below for details. The item number is engraved on the coated side of the filter, on which we recommend the beam be incident.

These items will be retired without replacement when stock is depleted. If you require this part for line production, please contact our OEM Team.

Limited  
STOCK



The unique design of these filters allows them to be used as a laser line filter, as an analyzer within a DIC microscopy system, or as wavelength selectors within harmonic generation setups or fluorescence imaging systems.

## BS SELECTION GUIDE

Thorlabs' portfolio contains many different kinds of beamsplitters, which can split beams by intensity or by polarization. We offer plate and cube beamsplitters, though other form factors exist, including pellicle and birefringent crystal. Many of our beamsplitters come in premounted or unmounted variants. Below is a complete listing of our beamsplitter offerings. To explore the available types, wavelength ranges, splitting/extinction ratios, transmission, and available sizes for each beamsplitter category, click *More [+]* in the appropriate row below.

### Non-Polarizing Beamsplitters

<b>Plate Beamsplitters</b>	<a href="#">More [+]</a>
<b>Cube Beamsplitters</b>	<a href="#">More [+]</a>
<b>Pellicle Beamsplitters</b>	<a href="#">More [+]</a>

- 45° AOI Unless Otherwise Noted

### Polarizing Beamsplitters

<b>Plate Beamsplitters</b>	<a href="#">More [+]</a>
<b>Cube Beamsplitters</b>	<a href="#">More [+]</a>
<b>Birefringent Crystal Beamsplitters</b>	<a href="#">More [+]</a>

- Mounted in a protective box, unthreaded ring, or cylinder.
- Available unmounted or mounted in a protective box or unthreaded cylinder.

### Other Beamsplitters

<b>Other Beamsplitters</b>	<a href="#">More [+]</a>
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## POLARIZER GUIDE

## Polarizer Selection Guide




Thorlabs offers a diverse range of polarizers, including wire grid, film, calcite, alpha-BBO, rutile, and beamsplitting polarizers. Collectively, our line of wire grid polarizers offers coverage from the visible range to the beginning of the Far-IR range. Our nanoparticle linear film polarizers provide extinction ratios as high as 100 000:1. Alternatively, our other film polarizers offer an affordable solution for polarizing light from the visible to the Near-IR. Next, our beamsplitting polarizers allow for use of the reflected beam, as well as the more completely polarized transmitted beam. Finally, our alpha-BBO (UV), calcite (visible to Near-IR), rutile (Near-IR to Mid-IR), and yttrium orthovanadate (YVO<sub>4</sub>) (Near-IR to Mid-IR) polarizers each offer an exceptional extinction ratio of 100 000:1 within their respective wavelength ranges.


To explore the available types, wavelength ranges, extinction ratios, transmission, and available sizes for each polarizer category, click *More [+]* in the appropriate row below.

<b>Wire Grid Polarizers</b>	<b>More [+]</b>
<b>Film Polarizers</b>	<b>More [+]</b>
<b>Beamsplitting Polarizers</b>	<b>More [+]</b>
<b>alpha-BBO Polarizers</b>	<b>More [+]</b>
<b>Calcite Polarizers</b>	<b>More [+]</b>
<b>Quartz Polarizers</b>	<b>More [+]</b>
<b>Magnesium Fluoride Polarizers</b>	<b>More [+]</b>
<b>Yttrium Orthovanadate (YVO<sub>4</sub>) Polarizers</b>	<b>More [+]</b>
<b>Rutile Polarizers</b>	<b>More [+]</b>

- Click on the graph icons in this column to view a transmission curve for the corresponding polarizer. Each curve represents one substrate sample or coating run and is not guaranteed.
- Mounted in a protective box, unthreaded ring, or cylinder.
- Available unmounted or in an SM05-threaded (0.535"-40) mount that indicates the polarization axis.
- Available unmounted or in an SM1-threaded (1.035"-40) mount that indicates the polarization axis.
- Available unmounted or mounted in cubes for cage system compatibility.
- Calcite's transmittance of light near 350 nm is typically around 75% (see *Transmission* column).
- Available unmounted or in an unthreaded Ø1/2" housing.
- The transmission curves for calcite are valid for linearly polarized light with a polarization axis aligned with the mark on the polarizer's housing.
- The 1064 nm V coating corresponds to a -C26 suffix in the item number.
- Available unmounted or mounted in a protective box or unthreaded cylinder that indicates the polarization axis.

**Polarizing Bandpass Filters**

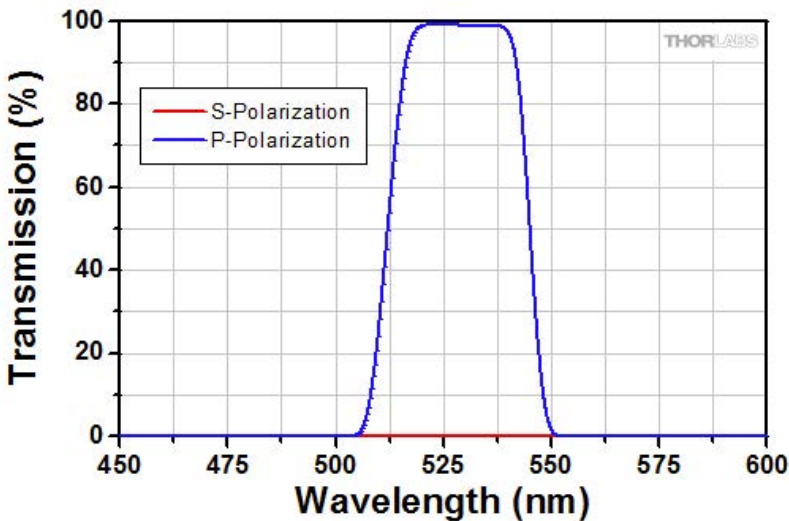
Item #	Center Wavelength	Bandwidth	Transmission (P-Pol., over Bandwidth)	Blocking (Reflection) Regions		Transmission/OD Data <sup>a</sup>	Acceptance Angle	Laser Lines
				P-Pol.	S-Pol.			
FPB353-15	355 nm	+6 nm / -9 nm	>85%	300 - 339 nm: OD > 6	300 - 455 nm: OD > 6		45° ± 0.5° 45° ± 7° at 355 nm	Nd:YAG
				369 - 434 nm: OD > 6				
FPB405-10	405 nm	±5 nm	>95%	322 - 388 nm: OD > 6	320 - 516 nm: OD > 6		45° ± 0.5° 45° +6° / -4° at 405 nm	Diode
				422 - 490 nm: OD > 6				
FPB529-23	532 nm	+9 nm / -14 nm	>95%	418 - 502 nm: OD > 6	400 - 695 nm: OD > 6		45° ± 0.5° 45° ± 7° at 532 nm	Nd:YAG HeNe
				557 - 664 nm: OD > 6				

a. Click on  for a plot and downloadable data.

Part Number	Description	Price	Availability
FPB353-15	Polarizing Bandpass Filter, CWL = 355 nm, Bandwidth = +6 nm / -9 nm	\$896.46	Today
FPB405-10	Polarizing Bandpass Filter, CWL = 405 nm, Bandwidth = ±5 nm	\$896.46	Today
FPB529-23	Polarizing Bandpass Filter, CWL = 532 nm, Bandwidth = +9 nm / -14 nm	\$896.46	Lead Time

Visit the *Polarizing Bandpass Filters* page for pricing and availability information:  
[https://www.thorlabs.com/newgrouppage9.cfm?objectgroup\\_id=10818](https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=10818)

**FPB529-23 Transmission**



**FPB529-23 Optical Density**

