

Infrared Wide Bandpass Filters



Infrared wide bandpass filters developed by Viavi Solutions provide high transmission in specified wavelength regions and extremely high rejection outside the band, and can be deposited on a variety of infrared transmitting substrates. Bandpass center wavelengths can be located anywhere in the region from 1 μm to 16 μm .

Key Features

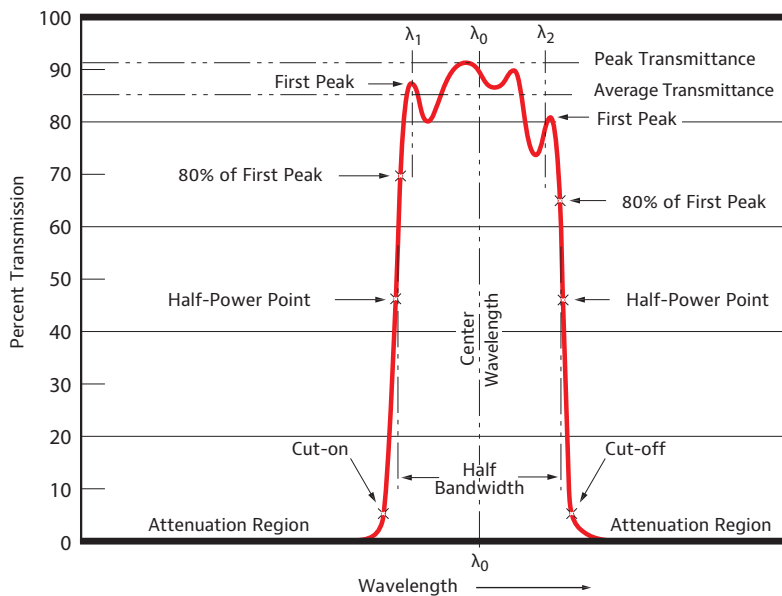
- Excellent coating uniformity
- Tightly toleranced precision filter expertise
- Flat spectral profile
- High peak transmission value
- Excellent blocking
- Wide range of filters and assemblies for the infrared sensing and imaging instrumentation market
- High volume capability
- Expert application engineering support
- Available filter substrates are: Si, Ge, Glass, Sapphire, Quartz, Fused Silica, ZnS, ZnSe

Applications

- Gas monitoring
- Temperature sensing
- Thermal imaging

Standard

- Temperature, humidity, mild abrasion, adherence: MIL-F-48616



Spectral Characteristics

Parameter	Symbol	Conditions	Minimum	Maximum
Wavelength range ¹	λ_1, λ_2	At 25°C, 0° AOI	1 μm	16 μm
Nominal bandwidth ¹	HBW	At 25°C, 0° AOI	10%	90%
Cut-on/Cut-off slope ^{1, 2}		At 25°C, 0° AOI	3%	6%
Absolute center wavelength drift vs temperature			0.002%/°C	0.01%/°C

Minimum Average Peak Transmission

All peak transmission values are minimal and consistent with standard production yields. Higher transmission values are available upon request if filters do not have to be completely attenuated outside the bandpass. All transmission values are for filters attenuated above and below bandpass to $T \leq 0.1\%$ average.

Center Wavelength Range	Nominal Bandwidth 10% to 20%	Nominal Bandwidth 20% to 60%	Nominal Bandwidth 60% to 90%
1 to 1.25 μm	40%	45%	45%
1.25 to 2.5 μm	45%	55%	55%
2.5 to 5.5 μm	70%	80%	70%
5.5 to 10.5 μm	75%	80%	80%
10.5 to 11.5 μm	75%	75%	80%
11.5 to 12.5 μm	75%	70%	70%
12.5 to 13.5 μm	70%	65%	65%
13.5 to 14.5 μm	65%	60%	65%
14.5 to 15.5 μm	55%	35%	55%

Filter Size

Type	Minimum	Maximum
Square or rectangle	2 mm	100 mm
Diameter	2 mm	150 mm
Thickness	0.3 mm	—
Thickness tolerance ³	± 0.025 mm	—

1. AOI: angle of incidence.

2. Cut-on/cut-off slopes $\geq 4\%$ are for standard design and are consistent with standard production yields.

3. Thickness tolerance for standard design is ± 0.1 mm.



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