



# THz High Pass Filters



THz High pass filters (HPF) are designed to block lower frequencies and allow only high terahertz frequencies to pass. The filters are made from metal plates with subwavelength diameter holes. The plates are mounted in holders with fit rings. The micro-sized holes in the filters act as waveguides with reject frequency determined by the hole geometry.

### Applications:

- THz spectroscopy;
- THz diagnostic instruments;
- Astronomy and astrophysical applications, including space-based;
- Materials research;
- Sensors and detectors;
- High harmonics extraction from the radiation of a free electron THz laser;
- Shielding coating.

### Key properties:

- High transmittance of pass band;
- Low transmittance (<0.1%) in stop band;
- Cutting frequency up to 0.5 THz;
- Mounted in holders.

Part Number Designation for TYDEX high-frequency filters: HPF <frequency, THz>-<aperture, mm> Tydex

Characteristics and spectral curves of several filters can be found below:

Part Number	Cutting frequency, THz	Max transmittance of pass band, %	Transmittance 1 octave away from cutting frequency, %
HPF0.34-12.7	0.34	no less than 99	no less than 44
HPF0.5-12.7	0.5	no less than 88	no less than 30

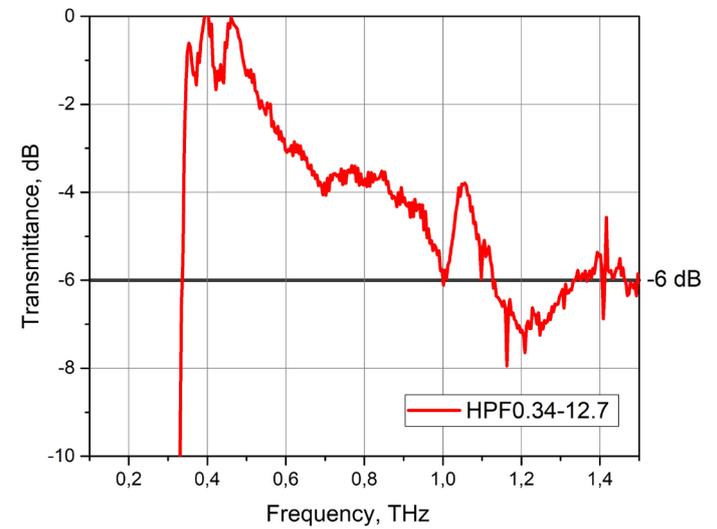
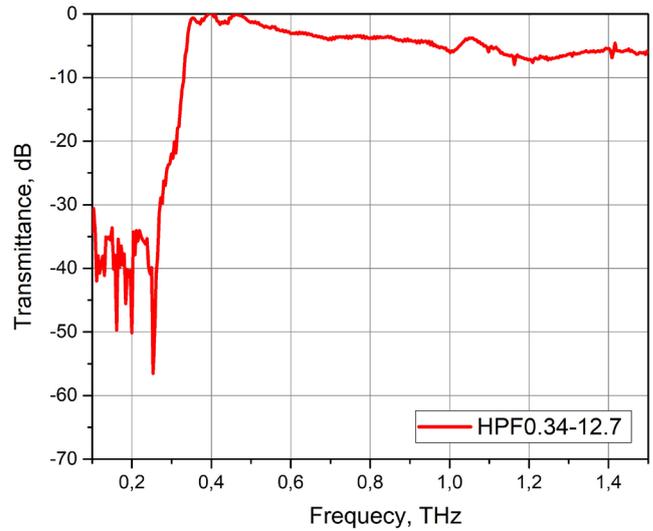
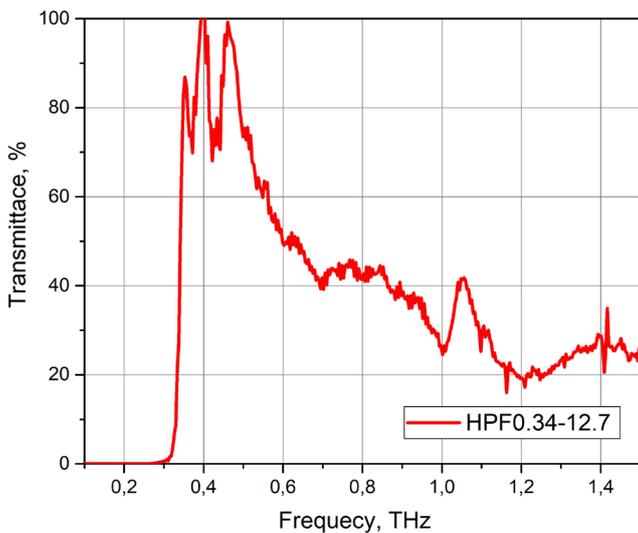
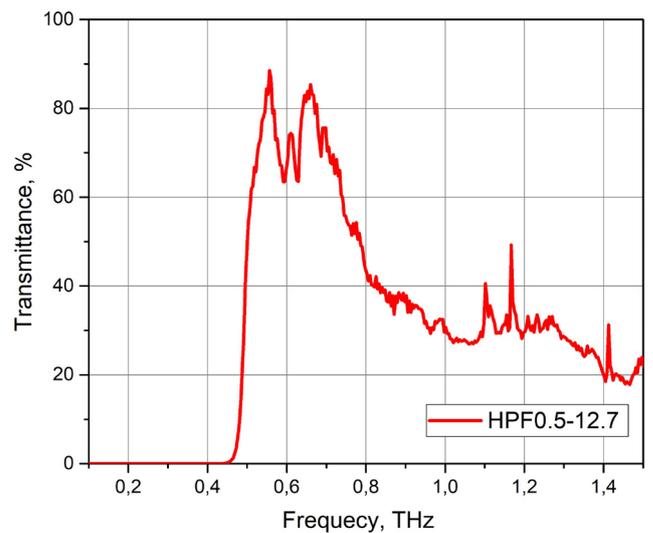


Fig. 1, 2, 3. Transmission of the HPF 0.34 filter.





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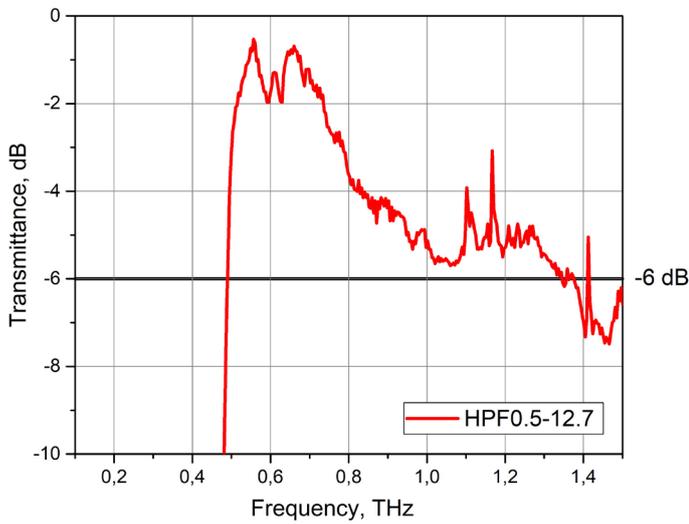
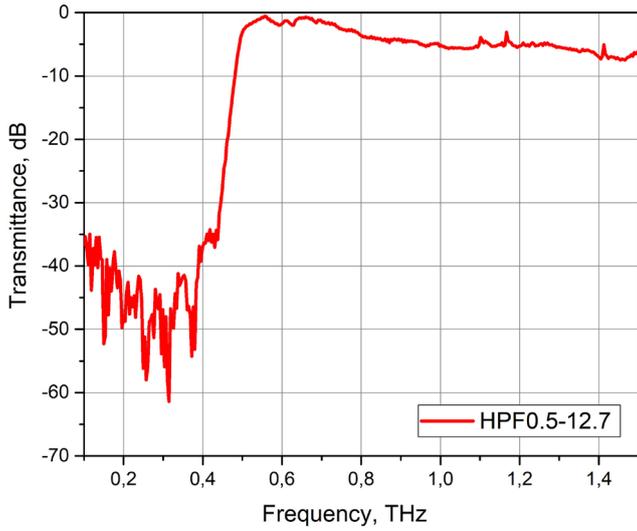


Fig.4, 5, 6. Transmission of the HPF 0.5 filter.

## Sizes and shapes

The filters with cutting frequencies of 0.1, 0.2, 0.3, 0.4, 0.5 THz and with apertures/outer diameters 12.7/31, 24/31, 35/44, 47/60 mm are available.

For price quotation and delivery please send us an e-mail or fill in our web site request form.