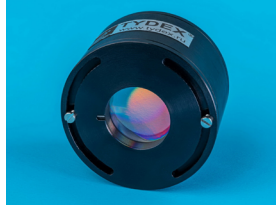


THz Isolator

THz radiation isolator is a non-reciprocal device with only unidirectional transparency. We have developed THz broad-band isolators based on a magneto-optical medium which has no requirements for an external magnetic field to operate.



THz isolator consists of two specific oriented THz polarizers and a magneto-optical medium that rotates the polarization plane by 45° over a wide frequency range. The device operates the following: THz radiation passes through the first input polarizer and becomes linearly polarized. Then the radiation passes through the magnetized barium-aluminum hexaferrite, and due to the Faraday effect the angle of the polarization plane is rotated by 45°. Further the radiation passes through the output polarizer oriented at 45° relative to the input one so that the direction of polarization at the exit from the hexaferrite coincides with the direction of the axis of the output polarizer.

When radiation propagates through the device in backward direction, the angle of the polarization plane also rotates by 45°, and THz radiation becomes polarized in the orthogonal direction to the axis of the input polarizer. This is how blocking of THz radiation propagation in the backward direction is achieved.

Common specifications:

| | | |
|---------------------------------|-------------------------------|----|
| Operating wavelength range, THz | 0.2-0.65 | |
| Forward transmissivity, % | not below 20 | |
| Backward transmissivity, % | no more than 10 | |
| Isolation, dB | not below 20 | |
| Aperture, mm | 25 (standard) or >25 (custom) | |
| Dimensions | Diameter, mm | 60 |
| | Length, mm | 35 |

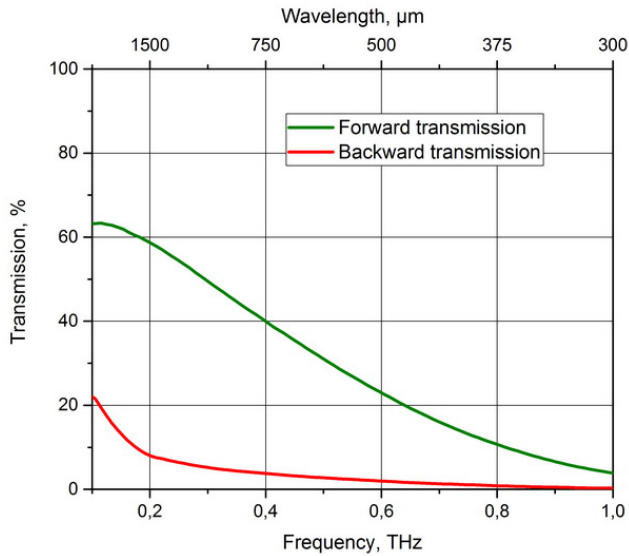


Fig. 1. Amplitude transmission spectrum in forward and backward directions

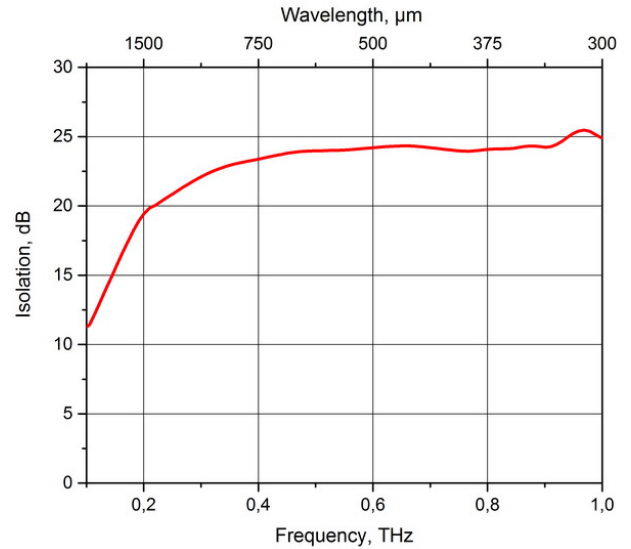


Fig. 2. Isolation spectrum

THz isolator can be used to protect sensitive THz radiation sources from reflected beam. Also it reduces the noise level and provides optical isolation by blocking backward-propagating radiation.

For price quotation and delivery please fill in our Request Form at our website.