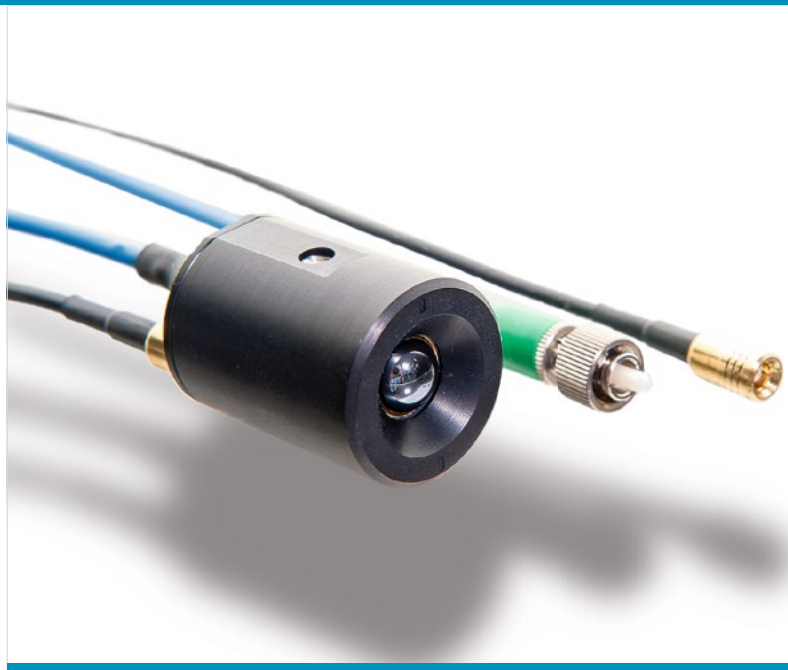


HIGH POWER PULSED TERAHERTZ EMITTER AND RECEIVER MODULES

AT A GLANCE

- Photoconductive switches for 1.5 μm optical wavelength



Features

- 30-fold increased THz power
- Photoconductive Emitter and Receiver
- Mesa-structured InGaAs chips
- Small module footprint
- Plug and play design

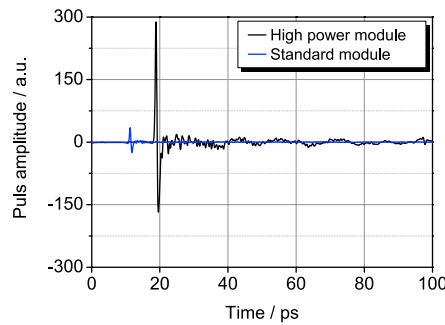
Applications

- High-bandwidth terahertz spectroscopy
- Industrial process control
- Non-contact coating film thickness measurement
- High-speed measurements

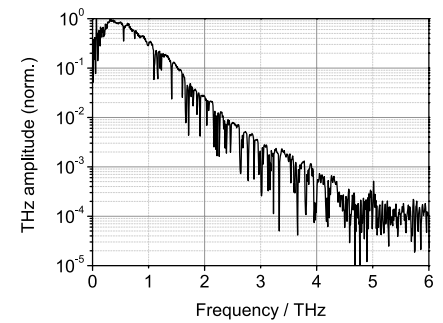
Specifications

- THz power 15 μ W
- Spectral range 0.1–4.5 THz
- Dynamic range (peak) > 70 dB
- Optical wavelength 1.5 μ m
- Average optical power 20 mW
- Puls duration 100 fs¹
- Emitter bias voltage 100V
- Measuring head diameter 25 mm

¹ at emitter position



Trace of electrical THz pulse. Time offset for clarity.



Frequency spectrum recorded with HHI's High power modules. Operation conditions are given in the specifications.

Technical background

In terahertz time domain spectroscopy (TDS), a device under test (DUT) is probed with a short THz pulse. The frequency dependence of loss and refractive index is extracted from the detected pulse via a Fourier transform. Typical applications for pulsed THz radiation are depth-resolved imaging

for e.g. 3D quality inspection and spectroscopic measurements beyond 3 THz. HHI's High Power THz modules allow for faster measurements and therefore facilitate the transfer of THz technologies to industrial applications and environments.

The Fraunhofer HHI

One of the prime research and development foci of the Fraunhofer Heinrich Hertz Institute lies in photonic networks, components and systems and their application in fields such as digital media.

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