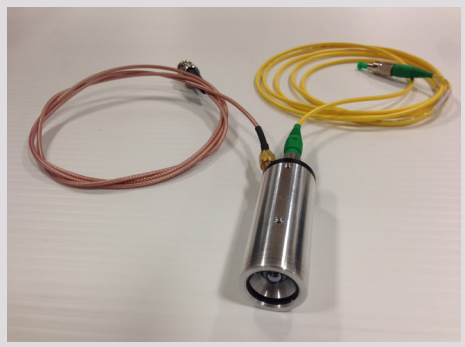
Terahertz Photoconductive Antennas (THz-PCAs)

T-Era-20D-1550-fiber



Key Features

- Fiber-coupled Enclosure
- Rugged Packaging
- Large THz Signal
- Integrated Silicon Lens
- Standard Ø1” Treaded Body
- Easy to Mount
- Ready to Use

Applications

- Terahertz Pulse Generation
- Terahertz Pulse Detection
- THz Time-domain Systems
- Terahertz Spectroscopy
- Terahertz Imaging

Product Overview

The T-Era-20D-1550-fiber terahertz photoconductive antenna (THz-PCA) is used to generate and detect high power and wideband terahertz pulses in THz time-domain systems. The T-Era-20D-1550-fiber THz-PCA is made on high resistive ultra-fast epitaxially grown multi-quantum well InGaAs-InAlAs substrates and is packaged in TeTechS’ patent pending terahertz chip fiber coupled enclosure module. The enclosure module houses the THz-PCA with a collimating high-resistive silicon lens attached to the back side of the THz-PCA chip, an FC/APC fiber connector and optical collimating and focusing lenses.

An input bias voltage can be applied to the chip through an isolated MMCX connector. In the receiving operation mode, the detected THz photocurrent can be measured through the MMCX connector. The standard Ø1” treaded body makes it convenient to attach the module to other standard optical components or mount it on an optical bench.

When excited by optical pulses with 15 mW average optical power, a pair of transmitter and receiver T-Era-20D-1550-fiber THz-PCAs generate 0.5 nA peak terahertz photocurrent on the receiver antenna with 50 dB terahertz power spectrum dynamic range.

Product Specifications

Optical Excitation Wavelength	1540 nm-1560 nm
Average Optical Power	1 mW-15 mW
Bias Voltage	1 V-15 V
Dark Resistance	0.276 MΩ
Spectrum Bandwidth	1 THz
Power Spectrum Dynamic Range	50 dB
Size (O.D., L)	1”, 2.5”

Typical THz Time-Domain Measurement Settings

Transmitter Module	T-Era-20D-1550-fiber
Receiver Module	T-Era-20D-1550-fiber
Optical Excitation Wavelength	1550 nm
Optical Pulse Duration	100 fs
Average Optical Power on Transmitter	15 mW
Average Optical Power on Receiver	10 mW
Bias Voltage on Transmitter	±10 V

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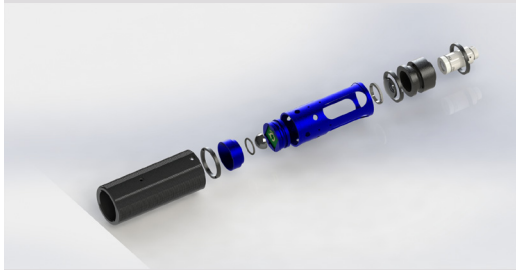
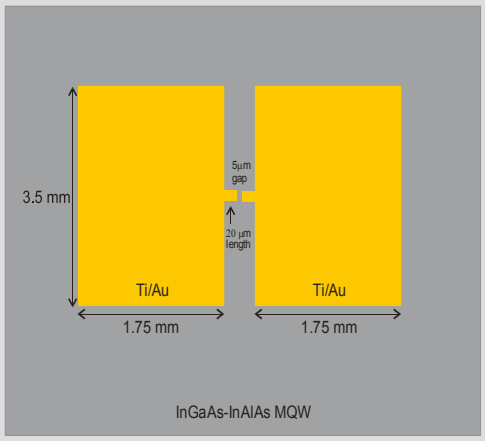
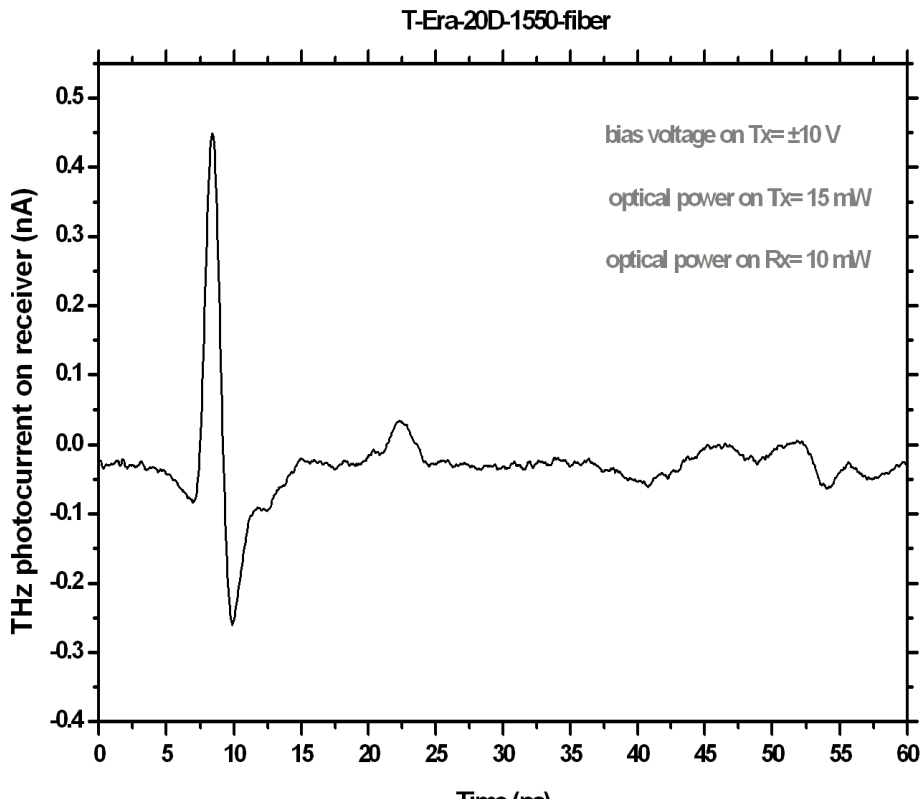
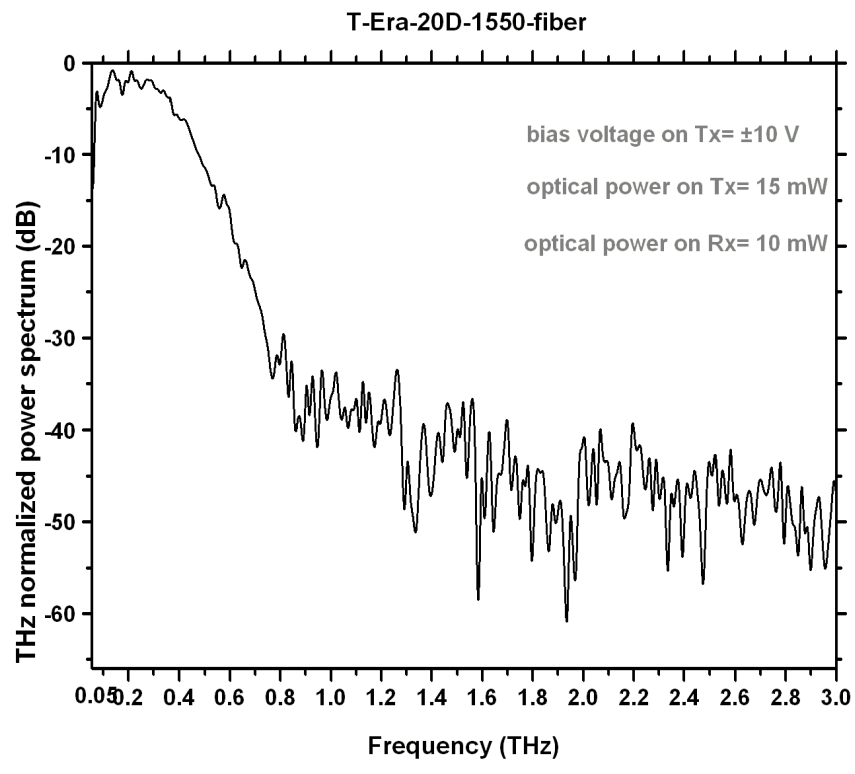




Excited by 100fs optical pulses with 15mW average power the T-Era-20D-1550-fiber THz-PCAs generate 0.5nA peak terahertz photocurrent with more than 50dB THz power spectrum dynamic range.

A typical THz pulse and its corresponding power spectrum generated by a T-Era-20D-1550-fiber transmitter module and detected by a T-Era-20D-1550-fiber receiver module in a fiber coupled terahertz time-domain system.





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