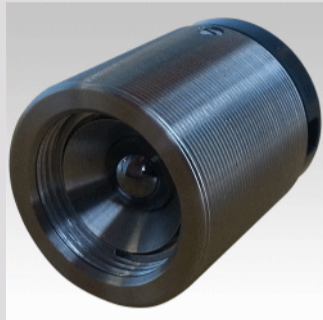


Terahertz Photoconductive Antennas (THz-PCAs)

T-Era-20D40P-1550-air



Key Features

- Rugged Packaging
- Wideband THz Signal
- Integrated Silicon Lens
- Standard Ø1" Treaded Body
- Easy to Mount
- Ready to Use

Applications

- Terahertz Spectroscopy
- Terahertz Imaging
- Material characterization
- Material sensing
- Non-destructive test
- Terahertz spectroscopy
- Hidden object detection
- Product inspection
- Manufacturing quality control
- Material identification, such as: plastics; pulp and paper; gels organic powders; adhesives
- Thickness measurement and uniformity analysis
- Coating and thin film analysis
- Additives analysis
- Electronic chip fault analysis
- THz Time-domain Systems

Product Overview

The T-Era-20D40P-1550-air terahertz photoconductive antenna (THz-PCA) is used to detect wideband THz pulses in terahertz time-domain systems. The T-Era-20D40P-1550-air THz-PCA is made on high resistive ultra-fast epitaxially grown multi-quantum well InGaAs-InAlAs substrates packaged in TeTechS' patent pending THz chip enclosure module. The enclosure module houses the THz-PCA chip with a collimating high-resistive silicon lens attached to the back side of the THz-PCA chip. The device is packaged in a modular format so that it is easy to change the THz-PCA chip inside the enclosure at a fraction of cost. The device is shipped with the silicon lens aligned and packaged on the back side of the THz-PCA chip. The silicon lens can be re-aligned after changing the THz-PCA chip using our silicon lens setting fixtures.

The detected terahertz photocurrent can be measured through a 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 18 mW average optical power, the T-Era-20D40P-1550-air THz-PCA generates 250 pA peak terahertz photocurrent with more than 50dB terahertz power spectrum dynamic range.

Product Specifications

Optical Excitation Wavelength	1540 nm-1560 nm
Average Optical Power	1 mW-20 mW
Bias Voltage for Optical Alignment	5 V
Dark Resistance	150 KΩ
Spectrum Bandwidth	>3 THz
Power Spectrum Dynamic Range	>50 dB
Size (O.D.)	1"

Typical THz Time-Domain Measurement Settings

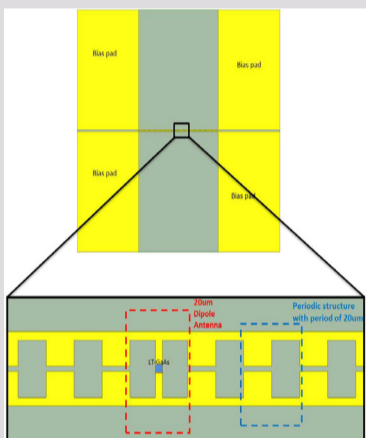
Transmitter Module	T-Era-100A-1550-air
Receiver Module	T-Era-20D40P-1550-air
Optical Excitation Wavelength	1550 nm
Optical Pulse Duration	100 fs
Average Optical Power on Transmitter	20 mW
Average Optical Power on Receiver	18 mW
Bias Voltage on Transmitter	60 V

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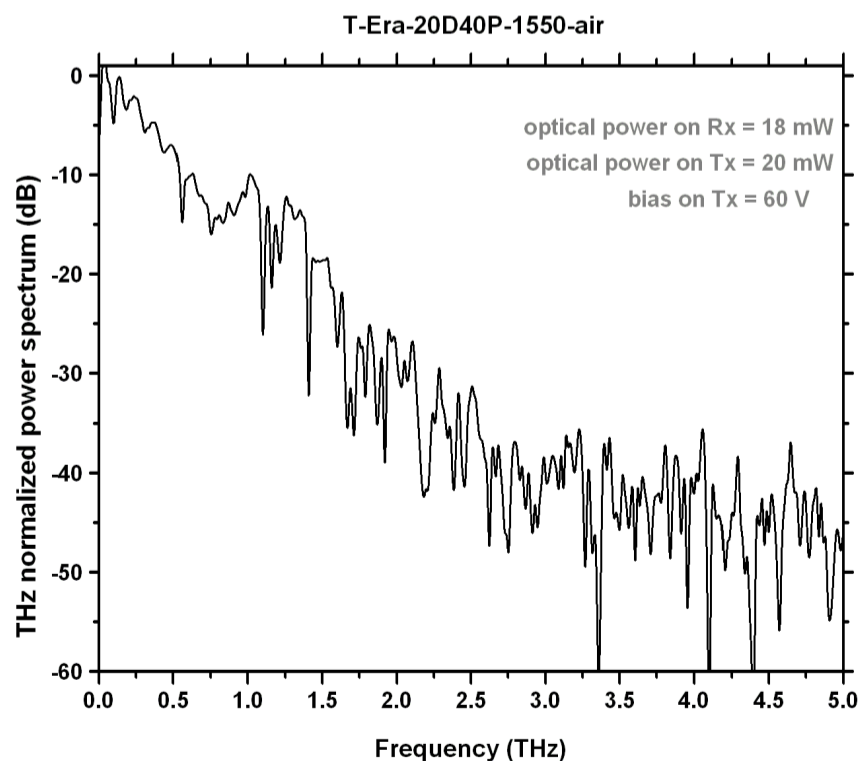
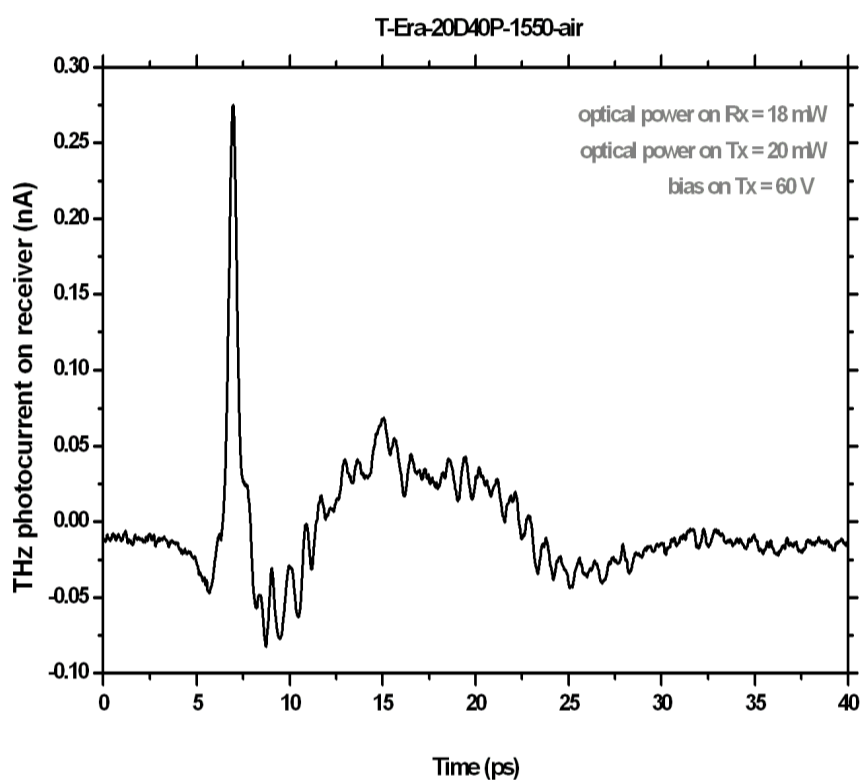
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T-Era-20D40P-1550-air



Excited by 100fs optical pulses with 18mW average power the T-Era-20D40P-1550-air THz-PCAs generate 250 pA peak THz photocurrent with more than 50dB THz power spectrum dynamic range.

A typical THz pulse and its corresponding power spectrum generated by a T-Era-100A-1550-air transmitter module and detected by a T-Era-20D40P-1550-air receiver module in a terahertz time-domain system.



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