

# Terahertz Photoconductive Antennas

## For Scientific Applications

### Key Features

- High signal-to-noise-ratio
- More than 70 dB spectrum dynamic range
- More than 5 THz bandwidth
- Selection of LTGaAs antennas in different lithographies.
- Hyper-hemispherical silicon lens standard, collimating lens available
- Modular antenna package, allowing simple repair, rework or customization.

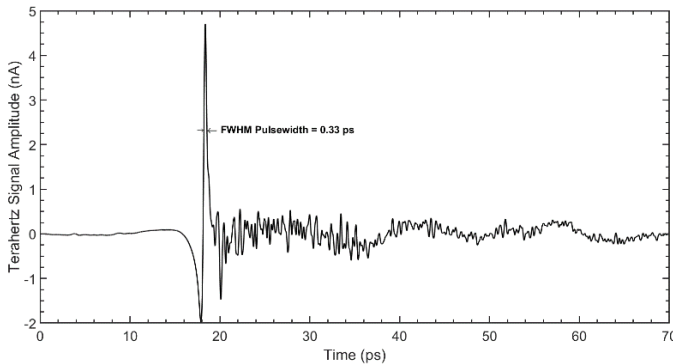


Figure 1: Time Domain Signal<sup>1</sup> (D20 Tx, 20D40P Rx)

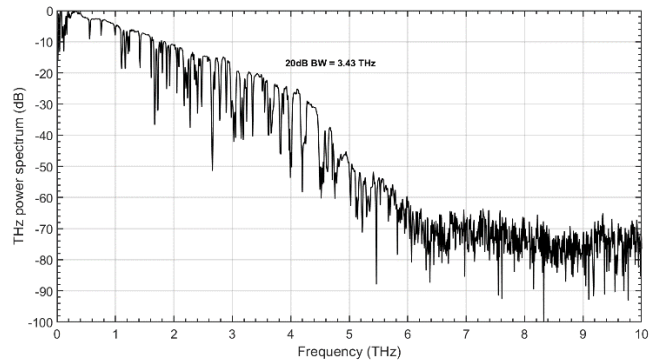
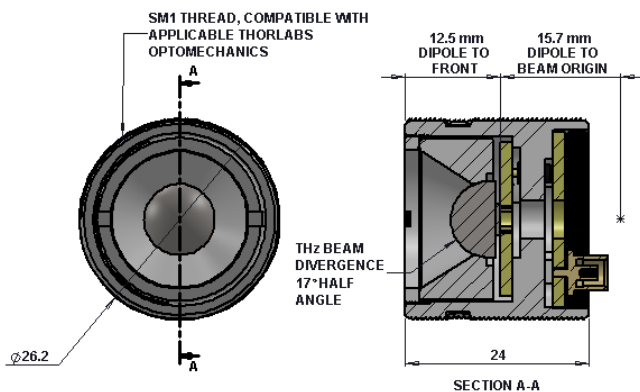


Figure 2: THz Power Spectrum (D20 Tx, 20D40P Rx)



MCX to BNC coaxial adapter cable is provided. Usage of a focusing lens of 30 mm focal distance or greater is recommended.

### Typical Test Conditions & Results<sup>2</sup>

<b>Transmitter Lithography</b>	G20 or G100 typ.
<b>Receiver Lithography</b>	20D40P
<b>Optical Power @ 780nm</b>	18 mW (Tx), 12 mW (Rx)
<b>Tx Square Wave Bias</b>	±30V @ 10kHz
<b>Lock-in Time Constant (SRS 850 Lock-in Amplifier)</b>	100 ms with 24dB/Oct Filter
<b>Scan Parameters</b>	550s @ (0.02 mm/s)
<b>Tx Dark Resistance</b>	>40 MΩ
<b>Rx Dark Resistance</b>	30 MΩ typ.
<b>Peak THz Photocurrent</b>	4.7 nA (Reflection Mode)
<b>THz Pulse Width</b>	0.33 ps
<b>-20 dB Spectral Power</b>	3.43 THz
<b>Noise Floor</b>	-70 to -80 dB

<sup>1</sup> Signal measured with a double pass reflection mode measurement setup. Transmission mode setups will see a signal amplitude increase of 3 to 4 times the amplitude shown.

<sup>2</sup> Offerings for scientific customers typically focus on broad spectral power. High signal amplitude options are available depending on specific application needs.

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