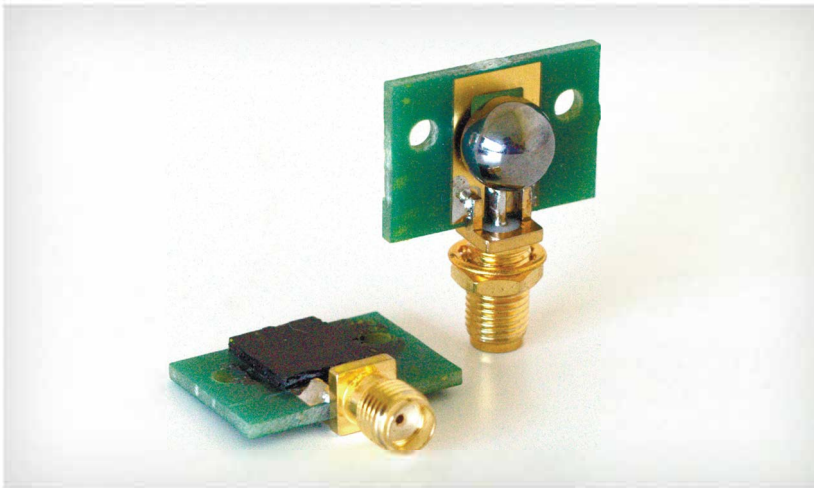# ULTRAFAST Sub-THz DETECTORS

TeraSense® presents ultra-fast detector for sub-THz radiation. It offers sub-nanosecond response time for the bands from 50 GHz to 0.7 THz with reasonable sensitivity and NEP. Its passive mode of operation ensures ultimate ease of use and versatility. Dimensions and output connector can be adjusted to suit customer needs.



- ✓ Response time 150 ps
- ✓ Spectral Range 50 GHz- 1.0 THz
- ✓ Responsivity (typical) 1 V/W
- ✓ Noise Equivalent Power 1 nW/√Hz
- ✓ SMA output connector
- ✓ Passive operation (no power supply)
- ✓ Compact size: 23 x 29 x 6.5 mm
- ✓ Customized solutions

## DESCRIPTION

Ultrafast detectors by TeraSense consistently demonstrate response time of less than 150 ps. This was confirmed by direct observation of its impulse response function. The detector was excited by 200 nJ 1 ps laser pulse with a broad spectrum ranging from 0.1 to 3 THz, and its response was recorded by a high-speed oscilloscope. The response function shows rise and fall times of 150 ps limited by the oscilloscope 4 GHz bandwidth. The measured short response time makes it possible to use our detectors for straightforward investigation of fast transient processes in THz-science and telecommunication.

TeraSense detectors are sensitive in a wide frequency range though its frequency response is not continuous but consists of multiple bands. Positions of the peaks in the responsivity curve are tuned at the manufacturing stage to suit client's requirements.



Excitation by a 200 nJ 1ps-long THz-pulse (Model TERA-AX generator by Avesta Ltd)
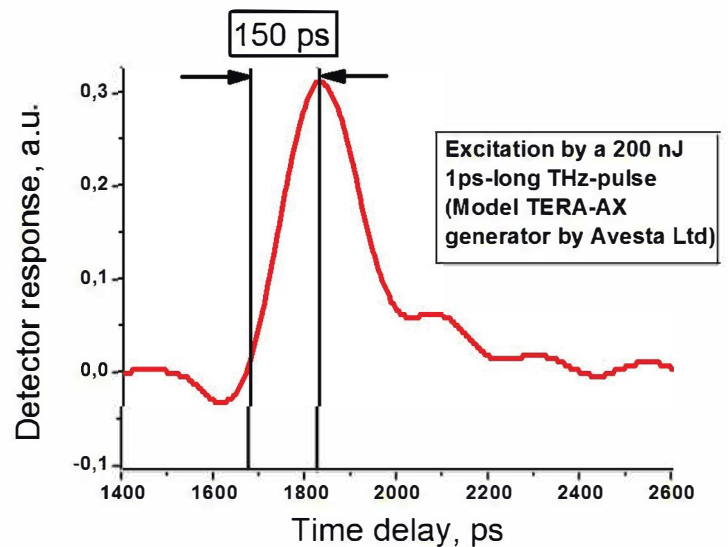
## ABOUT TERASENSE

TeraSense is a manufacturer of low-cost portable sub-terahertz imaging cameras, generators and ultrafast detectors. Our products balance at the cutting edge of scientific and technological breakthroughs. TeraSense has headquarters in Mountain View (CA, USA) and Chernogolovka (Russia). The company has a strong team of 20 skilled scientists and engineers. Most of them are young specialists with Ph.D. in the field of microwave and terahertz research. The team is led by highly renowned Prof. Igor Kukushkin, CEO, a corresponding member of the Russian Academy of Sciences.



**AUNION TECH**
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