

## Quasi-Optical THz Detector Type 3DL 12C LS2500 A1M

### Product Description

High sensitivity in ultra-wide frequency band and room-temperature operation make ACST Schottky-barrier diode (SBD) based Quasi-Optical detectors the best alternative to available free-space detectors for the low-THz frequency-region.

Bias-free operation allows for system simplicity and ultra-low noise. In contrast to typical THz detectors, the ACST SBD solution is simpler, geometrically smaller, and much faster.

ACST optionally offers also a dedicated power supply unit, which considerably simplify the detector installation and exploitation in customer setups. Detector output is connected to a SMA connector, female.



Fig. 1: Optical view of the product

### Application Areas

- THz-imaging systems
- Fast THz screening
- THz spectroscopy

### Product Features

- Ultra-Wideband: 50 GHz – 2.5 THz in single device
- Much faster than Golay-Cell detector
- Much higher sensitivity than pyroelectric detector
- Operates at room temperature
- Compact, low power-consumption, simple operation

Tab. 1: Technical Specifications

Technical Specifications	
Lens Type	Silicon; spherical; collimating
Lens Diameter [mm]	12
Antenna Type	Log-spiral
Antenna Bandwidth [GHz]	50 - 2500
Video Amplifier Bandwidth [Hz]	10 Hz - 50 MHz (DC-Coupled)
Responsivity [V/W] (See Fig. 2 below)	3500 @70 GHz; 100 @1 THz
Output Voltage [V] (recommended max.)	± 0.3
NEP [pW/Hz <sup>1/2</sup> ] (See Fig. 3 below)	15
Power Supply Output [V]	± 12
Current Consumption [mA] (max.)	30
Responsivity Measured at [°C]	24

## Typical Performance

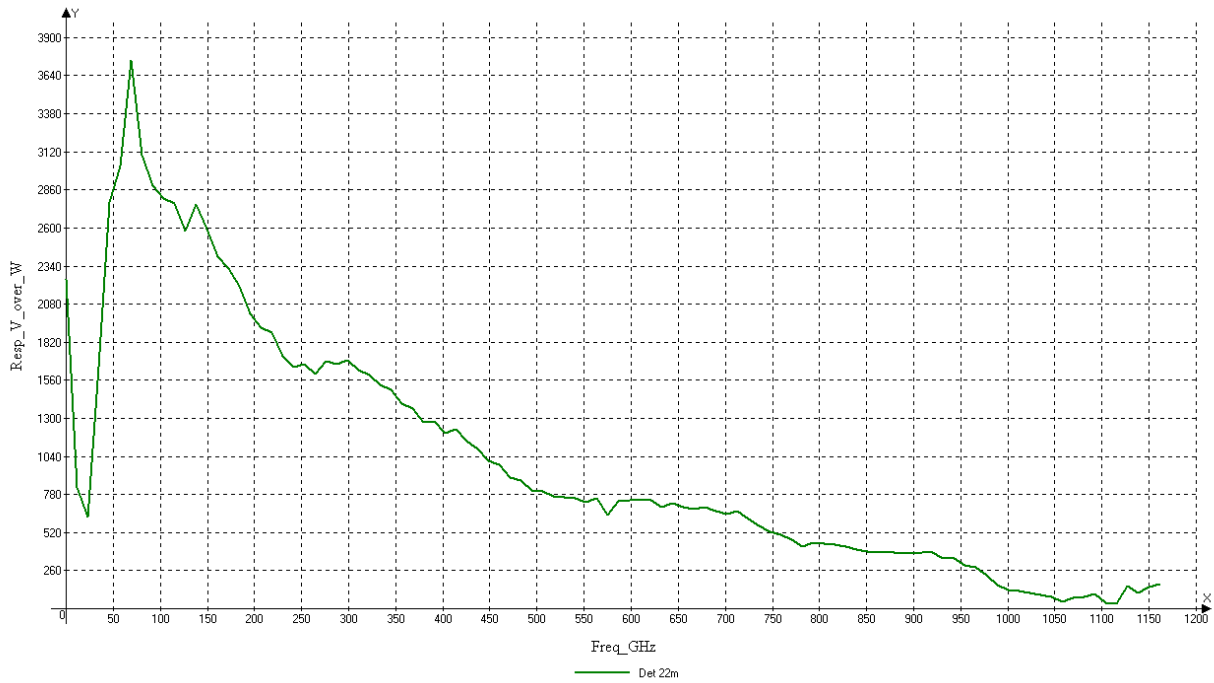


Fig. 2: A1M Responsivity vs. Frequency

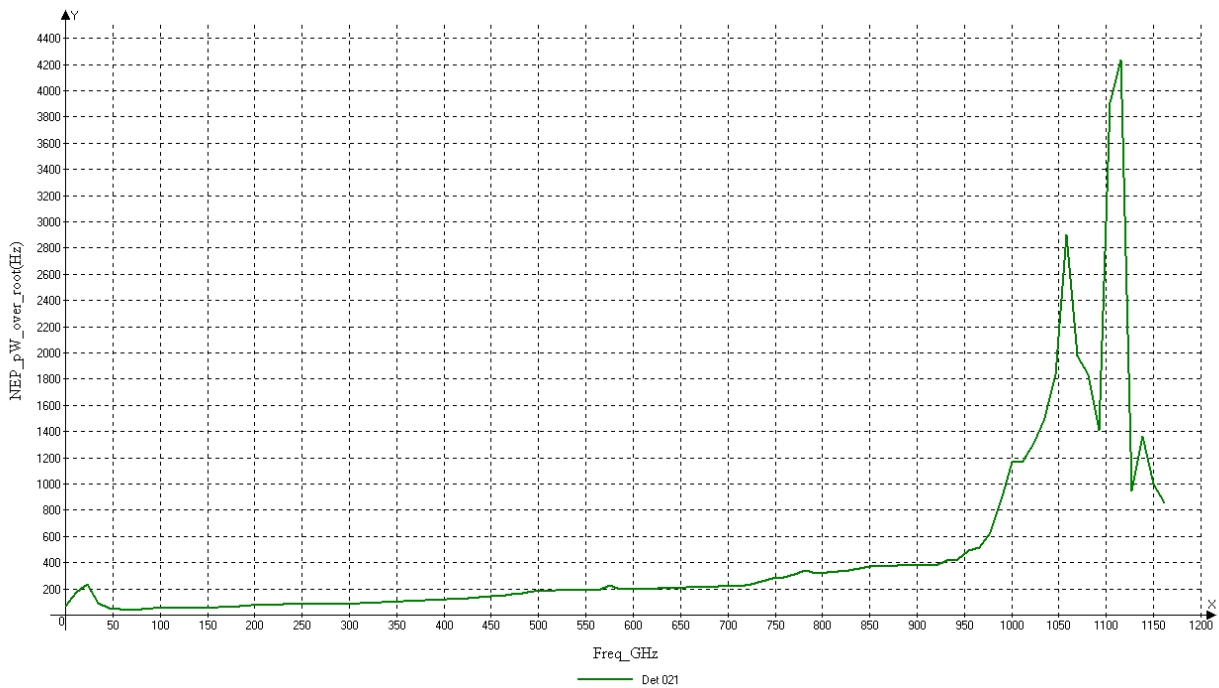


Fig. 3: A1M NEP vs. Frequency

## Mechanical Outlines

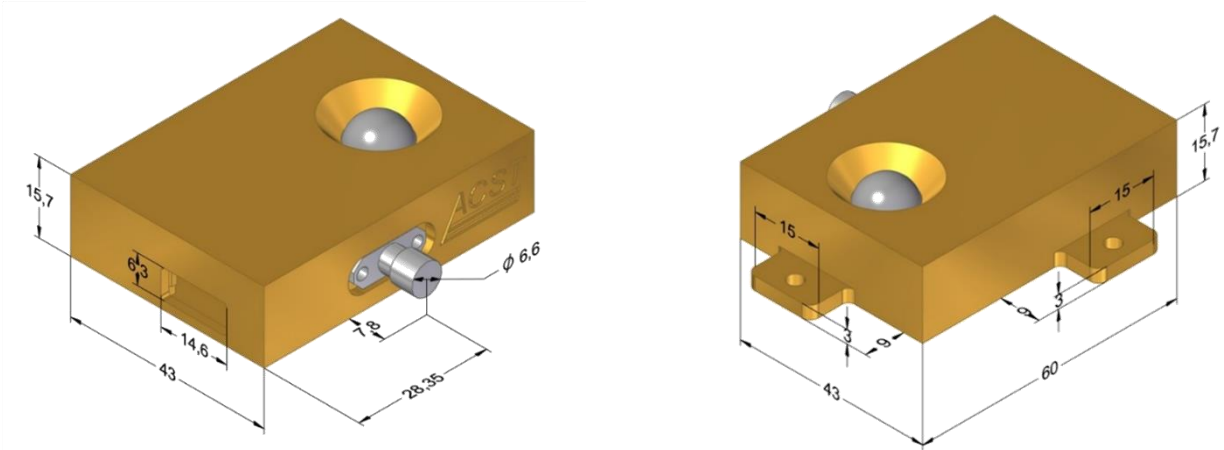
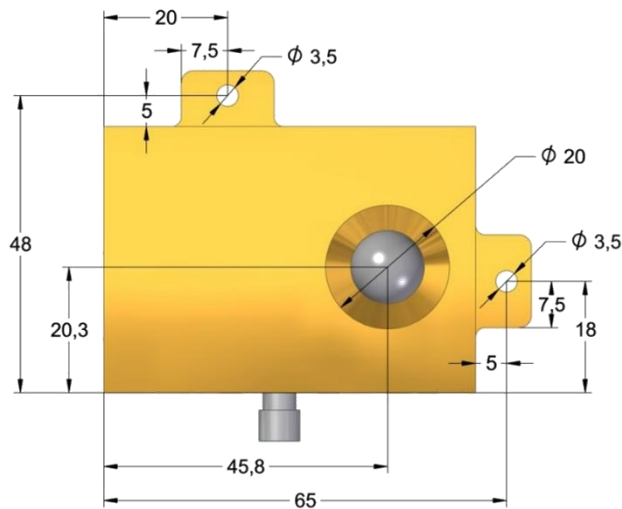


Fig.4: Overall dimensions



## Notes

- All plotted data represent typical values. The actual data may vary from unit to unit.
- All tests are carried out at a room temperature of 24 °C.

## Caution

- Absolute maximum ratings should not be used under normal operating conditions. Exceeding maximum ratings may lead to permanent failure.
- USB port of the detector should be used only for DC-power as shown in the user Guide. Plugging standard USB connectors may cause damage of Detector and external equipment.

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