Aispec Instruments Co., Ltd.

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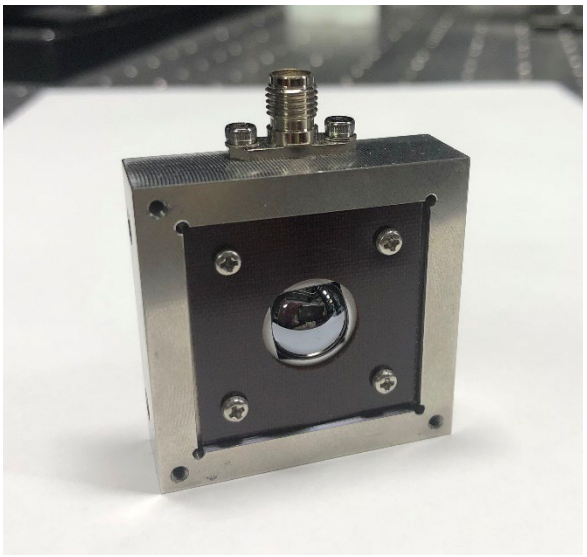
For THz wave generation/detection

LT-GaAs Photoconductive Antenna Emitter/Detector Module



- **Uses LT-GaAs substrate with sub-picosecond carrier life**
- **Excitation laser wavelength ＜ 850 nm**
- **The antenna type can be selected from dipole, bowtie, and spiral.**
- **Each antenna element can be selected with (-coat) or without a protective film that also serves as an anti-reflection coating.**
- **Use a high-resistance Si hemispherical or hyper-hemispherical lens with low loss and low wavefront distortion as a spatial coupling element (select one)**
- **Bias application/signal extraction SMA connector included**

This is a photoconductive antenna element module that efficiently generates and detects THz waves used in terahertz (THz) time domain spectroscopy. The device substrate uses low-temperature grown GaAs (LT-GaAs) whose characteristics are optimized for femtosecond laser excitation in the 800- nm band. You can choose from three antenna types: dipole, bowtie, and spiral, depending on the required band and polarization. In addition, as the free-space out-coupling element, a hemispherical or hyper-hemispherical substrate lens made of high-resistance Si, which is low loss in the THz frequency range, is installed.

Antenna Type	Features
Dipole-type	Broadband, Linearly polarized
Bowtie-type	High efficiency in low frequency range, Linearly polarized
Spiral-type	High efficiency in low frequency range, Circularly polarized

■ Please contact us for detailed antenna design and other specifications.

■We also sell PCA chips individually.

PCA Model	Product Name
PCAM-LTGaAs-D (-coat)	Photoconductive antenna emitter/detector module Antenna type: Dipole-type
PCAM-LTGaAs-B (-coat)	Photoconductive antenna emitter/detector module Antenna type: Bowtie-type
PCAM-LTGaAs-S (-coat)	Photoconductive antenna emitter/detector module Antenna type: Spiral-type

Common specifications	
Excitation wavelength	< 850 nm
Bandwidth	< 5 THz
Substrate	Photoconductive layer: LT-GaAs Substrate: semi-insulating GaAs Chip size: 6mm x 10mm Thickness approx. 0.35-0.4 mm
Si substrate lens	Diameter: 13.5mm Offset: Select from below (a) 0 mm (for hemisphere) (b) 1.6 mm (for super hemisphere)
Antenna holder	Material: Aluminum Size: 40mm x 40mm x 12mm Mounting screw holes: M4 x 2 locations
Input/output connector	SMA female