

Mounted photoconductive antenna on **aspheric** focusing silicon substrate lens Data sheet PCA-I-g-w- λ -a

Photoconductive antenna chip

Substrate	semi-insulating GaAs
Chip area	4 mm x 4 mm
Thickness t	600 μ m

Elliptic focusing silicon lens

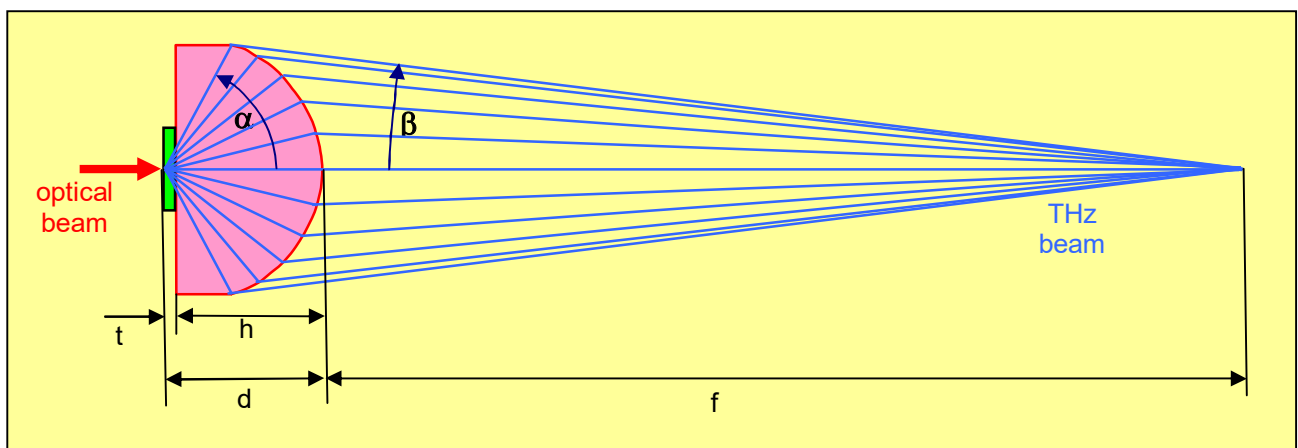
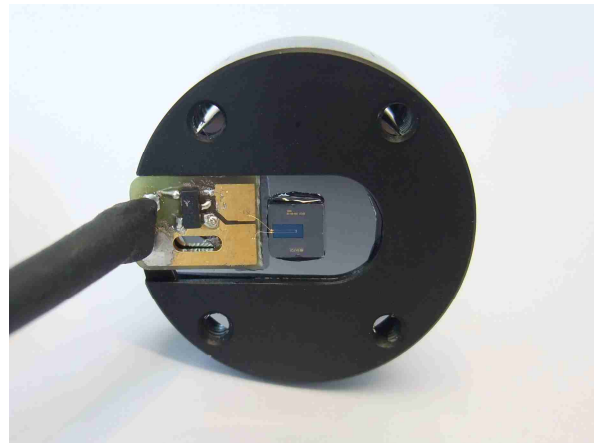
Diameter	20 mm
Focal length	50 mm
Height h	14 mm
Distance d	14.6 mm
Material	undoped HRFZ-silicon
Specific resistance ρ	>10 k Ω cm
Refractive index n	3.4

Terahertz beam

focal length f	50 mm
collection angle α	52.7°
convergence angle β	10°

Airy disc diameter

at 300 GHz	3.6 mm
at 1 THz	1.1 mm
at 3 THz	0.36 mm



Aluminum mount	25.4 mm diameter, 6 mm thick
Coaxial cable	type RG178 B/U, impedance 50 Ω , capacitance 96pF/m, 1 m long
Connector type	BNC or SMA

- The PCA chip is optically adjusted and glued on the aspheric silicon lens with thermal conducting glue.
- The silicon lens is fixed on the aluminum mount with thermal conducting glue.
- The two antenna contacts are wire bonded on a printed circuit board, which provides the connection to a 1m long coaxial cable with BNC or SMA connector
- A central hole in the aluminum mount allows the Terahertz radiation to escape from the aspheric silicon lens as a focused beam with a focus 50 mm away and an Airy disc diameter dependent on the THz frequency.

PCA with aspheric silicon lens, coaxial cable RG 178 and BNC connector

