Mounted PCA on aspheric silicon substrate lens and optical lens
data sheet PCA-I-g-w-λ-a-l

Photoconductive antenna	substrate	semi-insulating GaAs
	chip area	2 mm x 2 mm or 6 mm x 6 mm
	thickness t	600 µm
Aspheric THz lens	material	undoped HRFZ-silicon
	specific resistance ρ	>10 kΩcm
	refractive index n	3.4
	diameter	12 mm
	height h	8 mm
	distance d	8.6 mm
	surface	rough antireflective
Terahertz beam	focal length f	50 mm
	collection angle α	57.6°
	convergence angle ß	6.8°
Airy disc diameter	at 300 GHz	5 mm
	at 1 THz	1.5 mm
	at 3 THz	0.5 mm

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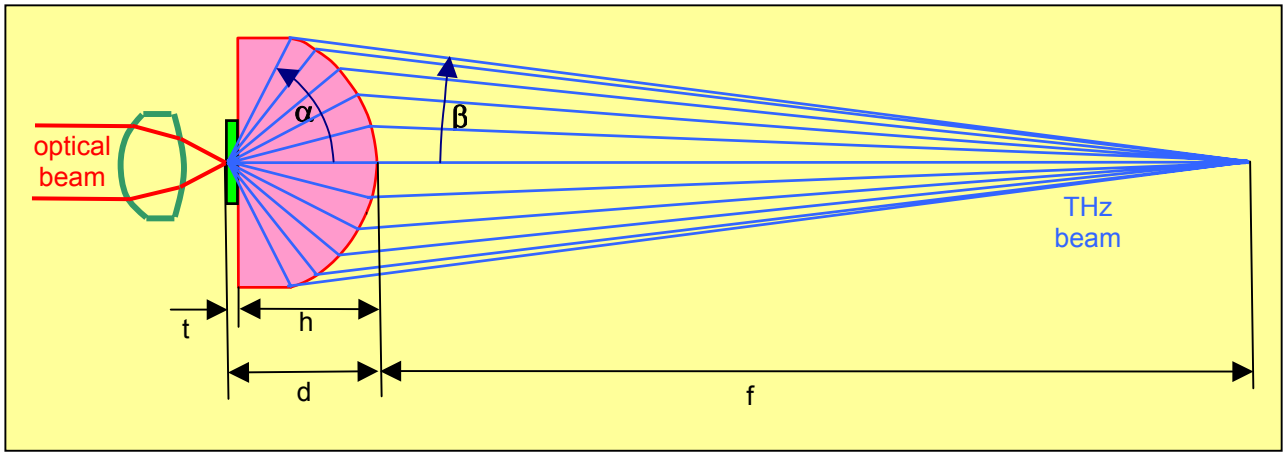

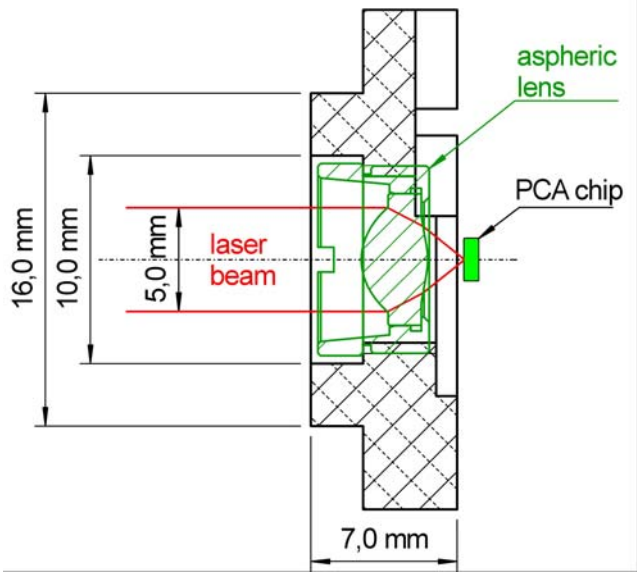

Aspheric optical lens

focal length	3.1 mm
free aperture	5 mm

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

- An adjusted optical aspheric lens focused the optical beam onto the PCA chip
- The PCA chip is glued on an aspheric focusing silicon substrate lens
- The silicon lens is glued on an aluminium mount
- 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 aluminium mount allows the Terahertz radiation to escape from the aspheric silicon lens as a collimated beam with a focus 50 mm away and an Airy disc diameter dependent on the THz frequency.

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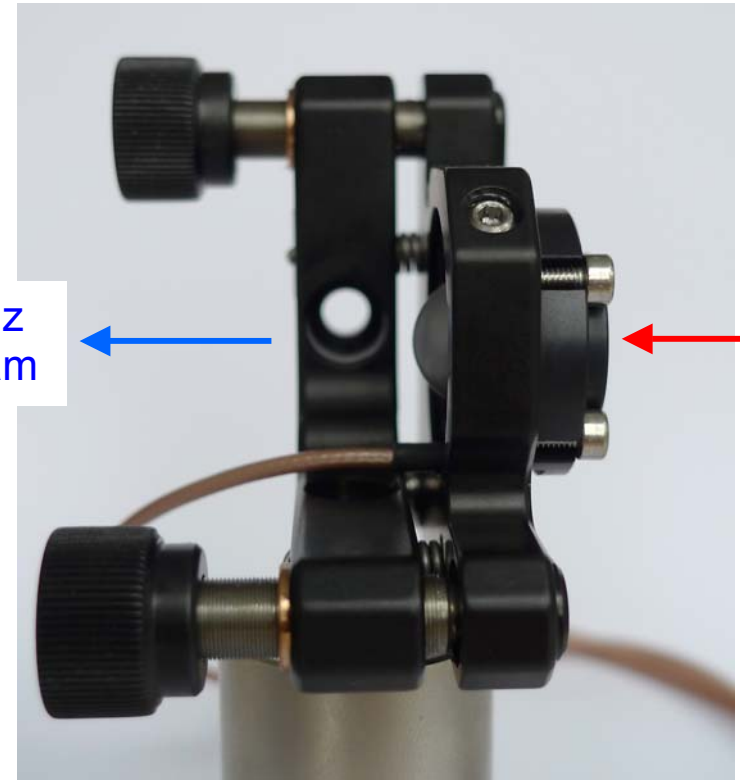
PCA with aspheric silicon lens, aspheric optical lens and coaxial cable



Front view on mounted aspheric optical lens (laser side)

Back view on aspheric silicon substrate lens (THz side)

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