

## Mounted PCA on patented\* **aspheric** silicon substrate lens data sheet PCA-I-g-w- $\lambda$ -a

**Photoconductive antenna**

substrate	semi-insulating GaAs
chip area	2 mm x 2 mm
thickness t	600 $\mu$ m

**Aspheric lens**

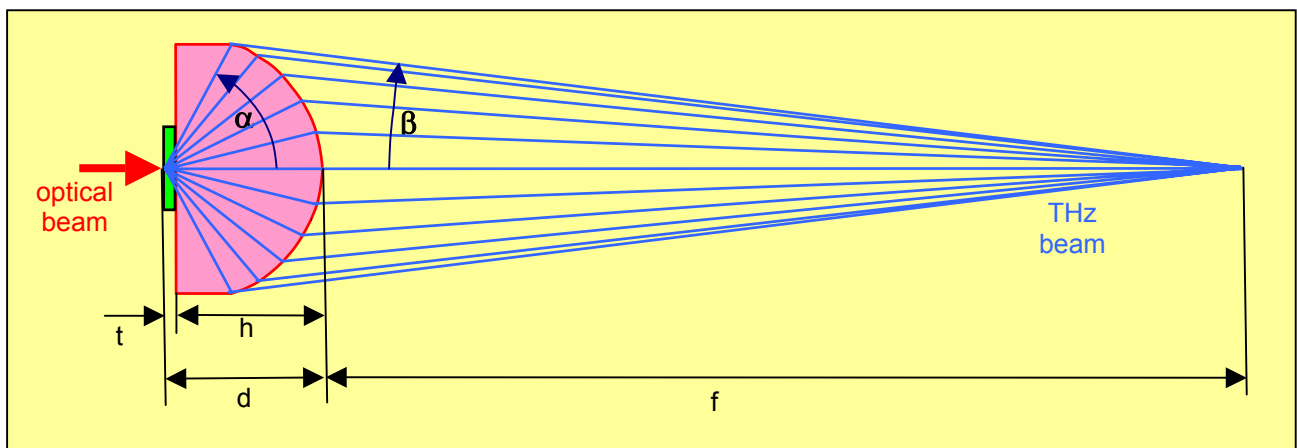
material	undoped HRFZ-silicon
specific resistance $\rho$	>10 k $\Omega$ cm
refractive index n	3.4
diameter	12 mm
height h	8 mm
distance d	8.6 mm
rough AR surface	

**Terahertz beam**

focal length f	50 mm
collection angle $\alpha$	57.6°
convergence angle $\beta$	6.8°

**Airy disc diameter**

at 300 GHz	5 mm
at 1 THz	1.5 mm
at 3 THz	0.5 mm



\* Patent DE 10 2006 037 470 A1

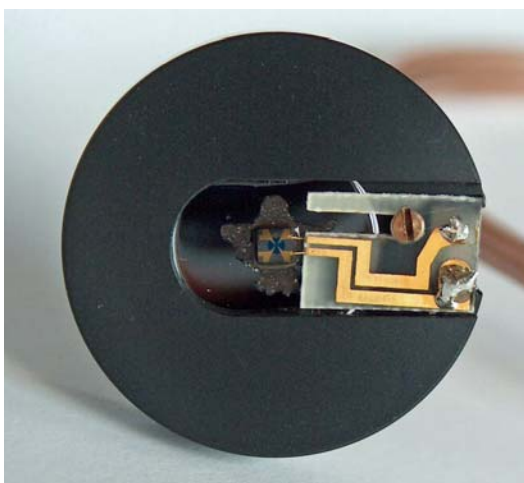
<b>Aluminum mount</b>	25.4 mm diameter, 6 mm thick
<b>Coaxial cable</b>	type RG178 B/U, impedance 50Ω, capacitance 96pF/m, 1 m long
<b>Connector type</b>	BNC or SMA

- The PCA chip is optically adjusted and glued on an patented aspheric focusing silicon lens
- The silicon lens is fixed on the 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.

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



Front view on mounted PCA (laser side)



Back view on mounted PCA (THz side)

