

PCA1 – photo conductive antenna

Emitter antenna with high efficiency at low frequencies ~ 150 GHz

BATOP GmbH
Wildenbruchstrasse 15
07745 Jena, Germany

Phone: +49 3641 634009 - 0
Fax: +49 3641 634009 - 20
URL: <http://www.batop.de>
e-mail: info@batop.de

- THz generation and detection
- time-domain-spectrometer
- cw photomixer
- **optional: with prealigned hyperhemispherical silicon lens !**

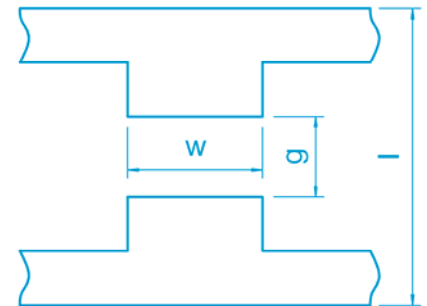
Product

Optical and electrical parameters

Geometrical parameters

PCA 800

laser wavelength	$\lambda < 850 \text{ nm}$
relaxation time	$\tau \sim 400 \text{ fs}$
dark resistance	$R_0 = 25 \text{ M}\Omega$
dark current @ 10 V	$I_0 = 400 \text{ nA}$
maximum voltage	$U_{\text{max}} = 50 \text{ V}$



PCA 1030

laser wavelength	$\lambda = 990 \dots 1060 \text{ nm}$
relaxation time	$\tau \sim 200 \text{ fs}$
dark resistance	$R_0 = 10 \text{ G}\Omega$
dark current @ 10 V	$I_0 = 2 \text{ nA}$
maximum voltage	$U_{\text{max}} = 50 \text{ V}$

l length of the antenna
g gap distance
w gap width

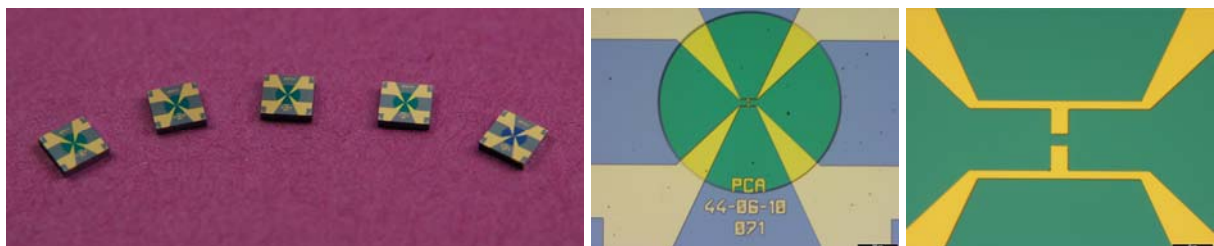
PCA 1040

laser wavelength	$\lambda = 1040 \text{ nm}$
relaxation time	$\tau \sim 200 \text{ fs}$
dark resistance	$R_0 = 10 \text{ G}\Omega$
dark current @ 10 V	$I_0 = 2 \text{ nA}$
maximum voltage	$U_{\text{max}} = 50 \text{ V}$

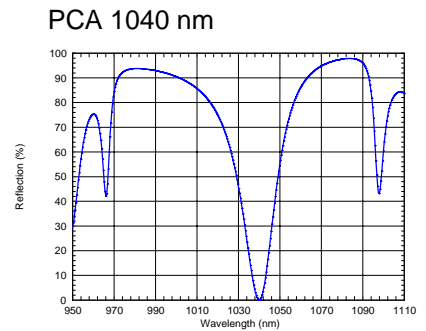
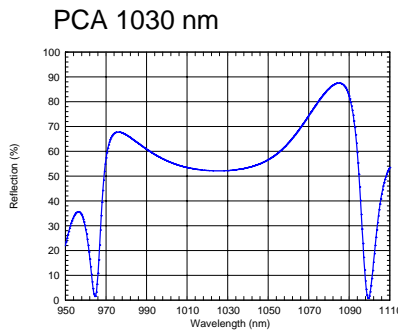
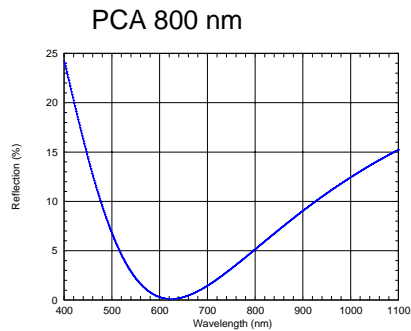
available antenna geometries:

l [μm]	g [μm]	w [μm]
44	06	10
44	16	16
44	34	100
30	10	10
30	14	14

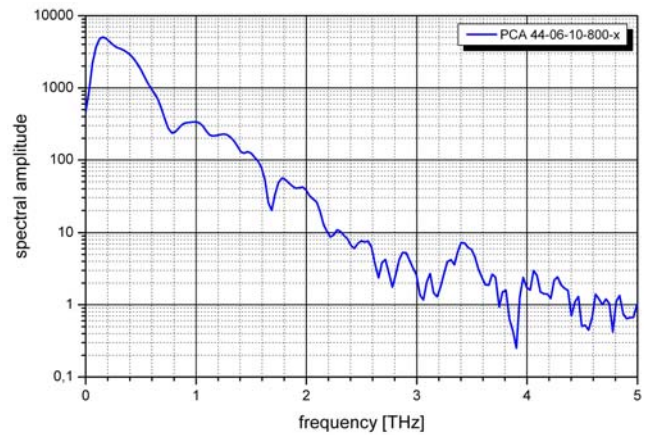
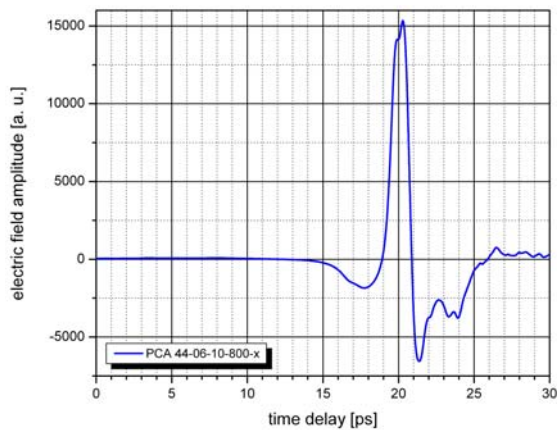
Other wavelengths and parameters on request.



Spectral reflection:



THz-spectrum:



THz pulse: measured by B. Pradarutti, Fraunhofer-Institut Angewandte Optik und Feinmechanik, Jena, Germany

Mounting:

1. unmounted chip, size 2 mm x 2 mm, thickness 625 μ m, with 300 μ m x 650 μ m Au bond pads
2. mounted on 25.4 mm diameter black aluminium mount with prealigned hyperhemispherical silicon lens \varnothing 12 mm and 1 m coaxial cable (RG 178) with BNC or SMA connector

front view on mounted PCA (laser side)

back view with silicon lens

complete PCA with BNC - connector

