Instruction manual and data sheet PCA-30-10-10-800-x

Photoconductive THz antenna for laser excitation wavelengths $\lambda \sim 500 \text{ nm} \ldots 850 \text{ nm}$

PCA – Photoconductive Antenna

Table of contents:

1. Antenna parameters .................................................................................................................. 2
2. Antenna design .......................................................................................................................... 3
3. Order information.................................................................................................................... 4
1. **Antenna parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>minimum ratings</th>
<th>standard</th>
<th>maximum ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark resistance</td>
<td>10 MΩ</td>
<td>20 MΩ</td>
<td>30 MΩ</td>
</tr>
<tr>
<td>Voltage</td>
<td></td>
<td>30 V</td>
<td>40 V</td>
</tr>
<tr>
<td>Optical mean power</td>
<td></td>
<td>30 mW</td>
<td>40 mW</td>
</tr>
</tbody>
</table>

*Dark current voltage characteristic*
2. Antenna design

Main PCA data
- Laser excitation wavelength: 800 nm
- Antenna gap: 10 µm
- Antenna length: 30 µm
- Antenna chip size: 2 mm x 2 mm
3. **Order information**

PCA-30-10-10-800-x  
Photoconductive antenna

- length  \( l = 30 \, \mu m \)
- gap  \( g = 10 \, \mu m \)
- width  \( w = 10 \, \mu m \)
- laser wavelength  \( \lambda = 800 \, nm \)  
  
  \((500 \, nm \ldots 850 \, nm)\)

\(x\) denotes the type of mounting as follows:

- \(x = 0\)  unmounted chip 2 mm x 2 mm with 4 bond contact pads
- \(x = h\)  mounted on an Al disc with 25.4 mm \(\varnothing\) and **hyperhemispherical silicon substrate lens**, 1m coaxial cable with BNC or SMA connector
- \(x = a\)  mounted on an Al disc with 25.4 mm \(\varnothing\) and **aspheric focusing silicon substrate lens**, 1m coaxial cable with BNC or SMA connector
- \(x = c\)  mounted on an Al disc with 25.4 mm \(\varnothing\) and aspheric collimating silicon substrate lens CL-12 for 12 mm THz beam diameter, 1m coaxial cable with BNC or SMA connector
- \(x = h-f\)  **fiber coupled antenna** with hyperhemispherical silicon substrate lens
- \(x = l\)  with **aspheric focusing optical lens** for free space laser excitation
- \(x = p\)  with **preamplifier** for detector antenna

For information about THz beam guiding possibilities please [click here](http://www.batop.de).