Silicon Photodetectors

Si:Ga
Si:B

Features

- Si:Ga Spectral Range: $5\mu m < \lambda < 17\mu m$
  Si:B Spectral Range: $5\mu m < \lambda < 30\mu m$
- Si:Ga Operating Temperature: < 20 K
  Si:B Operating Temperature: 4.2 K
- Background limited noise performance
- Array Configurations Available

Overview

Both detectors are extrinsic silicon photoconductors. Background limited noise performance is achievable over an extremely wide range of background levels. NEP follows the relation:

$$NEP = (8 \times 10^{-19} Q / \lambda DQE)^{1/2}$$

where Q (w) is the background and λ (μm) is wavelength.

Detectors of both types are available in element sizes ranging from 0.2 mm to 2.0 mm. It is also possible to construct small linear and bi-linear arrays.

Contact Infrared Laboratories for performance parameters on specific applications or for information on array configurations.

Detectors are mounted on standard heat sinking substrates manufactured from gold plated copper. Custom mountings are also available.

Ordering Information

DP-SIGA For Si:Ga detector
DP-SIB For Si:B detector
The following items are specified at time of order: Area, thermal time constant, operating background or spectral response.

	Si:Ga Detector	Si:B Detector
Type	Extrinsic	Extrinsic
Spectral Response	5 - 17 µm	5 - 30 µm
Detective QE	0.15*	0.10*
R (Amps / Watt)	0.9	2
Operating temperature:	4.2 - 20 K	4.2 K
Chopping Frequency	dc - 5 KHz	dc - 5 KHz
Element Size	0.2 - 2.0 mm	0.2 - 2.0 mm

Table 1-6. Si Photodetector Specifications

* DQE may decrease as background increases