

## Features

- Bondable electrodes for COB mounting
- Very high sensitivity
- High durability for rugged operation

## Applications

- Gas analysis
- Spectroscopy
- Process control
- Temperature control

## Specification

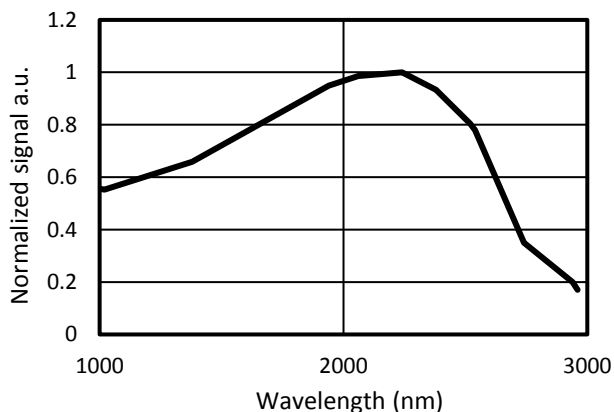
Type No.	Package	Active area [mm x mm]	Operating temperature [°C]	Storage temperature [°C]
PbS020020BC	Bare chip / thin film encapsulation	2 x 2	-30 to +70	-55 to +70

## Electrical and optical characteristics

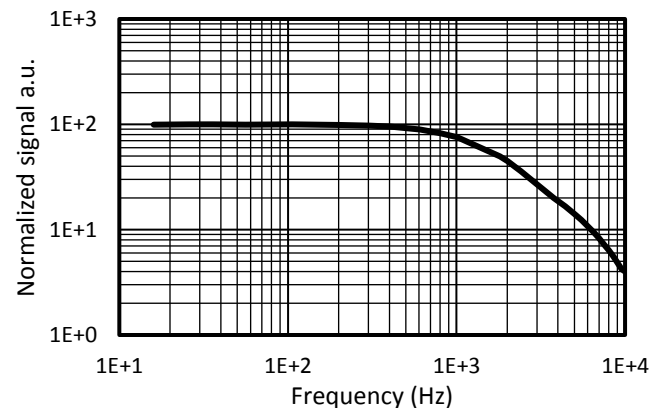
Type No.	Element temperature [°C]	Peak wavelength $\lambda_p$ [ $\mu\text{m}$ ]	20% cut-off wavelength $\lambda_c$ [ $\mu\text{m}$ ]	Peak responsivity S [V/W]		Peak D* (606 Hz, 1 Hz) [ $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$ ]		Time constant [ $\mu\text{s}$ ]	Dark resistance $R_D$ [M $\Omega$ ]
				Typ.	Min.	Typ.	Min.		
PbS020020BC	26	2.2	2.9	$4 \cdot 10^5$	$2 \cdot 10^5$	$1 \cdot 10^{11}$	$5 \cdot 10^{10}$	200	0.3 – 3

- Measured with 1550 nm LED, incident power 22  $\mu\text{W}/\text{cm}^2$
- Measured in a voltage divider circuit with 10 V/mm and linearly extrapolated to 50 V/mm
- Photo responsivity and detectivity are measured with matched load resistance ( $R_L = R_D$ )
- Without filter or window

## Typical spectral response



## Typical frequency response



Infrared detector  
PbS photoconductive detector  
Bondable bare chip

## Storage

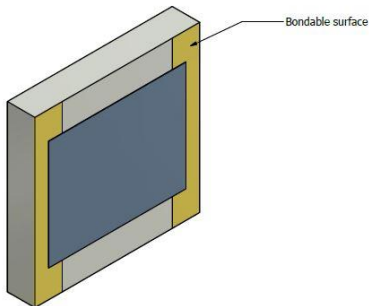
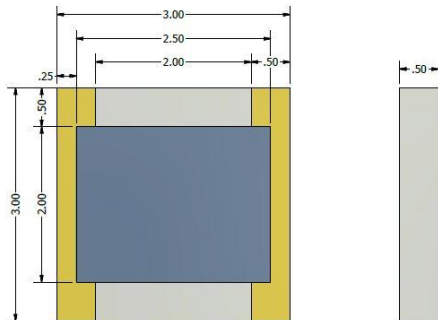
- Storage temperature: -55°C to 70°C
- Exposure to UV light results in permanent damage
- Prolonged exposure to visible light results in temporary low dark resistance

## Handling

- Active area is scratch sensitive, protect top surface from any mechanical contact
- Ensure dust-free environment for device handling

## Mechanical outline (dimensions in mm)

### PbS020020BC



## Die attach

- Use clean, soft rubber tip for pick-and place handling
- UV-curing is not suitable due to permanent damage by UV light exposure
- Element temperature should never exceed 70°C

## Wire bonding

- Electrodes are optimized for room temperature Al-wire bonding
- Element temperature should never exceed 70°C

## Regulatory

For the use of Hertzstück™ PbS and PbSe infrared photodetectors in medical devices, monitoring and control instruments and consumer applications RoHS exemptions apply.

For automotive applications Hertzstück™ PbS and PbSe infrared photodetectors fall under ELV exemption.