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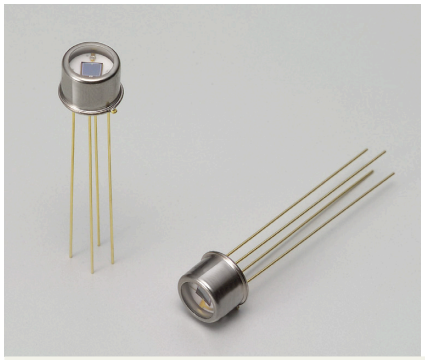
Two-color detectors



K11908-010K, K13085-010K

Two InGaAs PIN photodiodes with different wavelength regions have been installed above and below to provide a wide spectral response range

The K11908-010K and K13085-010K are two-color detectors with two InGaAs PIN photodiodes with different cutoff wavelengths installed along the same optical axis. They provide a wide spectral response range, and they make optical system design easy because their photosensitive areas are along the same optical axis.

Features

- **Two InGaAs PIN photodiodes with different cutoff wavelengths are installed along the same optical axis**
- **Wide spectral response range: 0.9 to 2.55 µm (K11908-010K)**
- **Low noise, low dark current**

Applications

- **Radiation thermometers**
- **Spectrophotometry**
- **Optical measurement equipment**

Option (sold separately)

- **Amplifier for infrared detector (Two amplifiers are required.)** **C4159-03**

Structure / Absolute maximum ratings

Type no.	Window material	Package	Cooling	Detector	Photosensitive area (mm)	Absolute maximum ratings		
						Reverse voltage V_R max (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
K11908-010K	Borosilicate glass	4-pin TO-5	Non-cooled	InGaAs (λc=1.7 µm)	2.4 × 2.4	2	-40 to +70*1	-55 to +85*1
				InGaAs (λc=2.55 µm)	φ1.0	1		
K13085-010K				InGaAs (λc=1.7 µm)	2.4 × 2.4	2		
				InGaAs (λc=1.85 µm)	φ1.0	1		

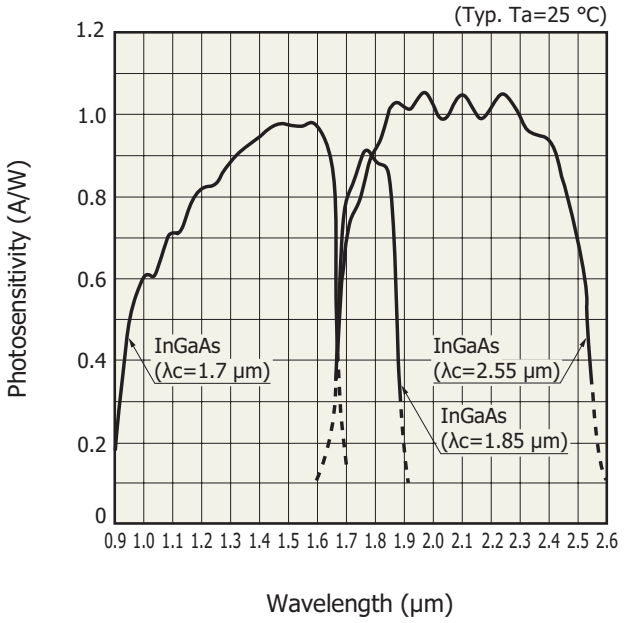
*1: No dew condensation
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Type no.	Detector	Spectral response range (µm)	Peak sensitivity wavelength λp (µm)	Photosensitivity S λ=λp (A/W)	Dark current I_D V_R=10 mV		Shunt resistance Rsh V_R=10 mV (MΩ)	Detectivity D* λ=λp (cm·Hz$^{1/2}$/W)	Cutoff frequency*2 fc (MHz)	Terminal capacitance*3 Ct (nF)
					Typ. (nA)	Max. (nA)				
K11908-010K	InGaAs (λc=1.7 µm)	0.9 to 1.7	1.55	0.95	1	10	10	5.0 × 10^{12}	2	1.5
	InGaAs (λc=2.55 µm)	1.7 to 2.55	2.1	1	700	3500	14 (kΩ)	7.0 × 10^{10}	6	0.5
K13085-010K	InGaAs (λc=1.7 µm)	0.9 to 1.7	1.55	0.95	1	10	10	5.0 × 10^{12}	2	1.5
	InGaAs (λc=1.85 µm)	1.7 to 1.85	1.75	0.8	2	10	5	1.0 × 10^{12}	10	0.23

*2: V_R=0 V, R_L=50 Ω
*3: V_R=0 V, f=1 MHz

Spectral response



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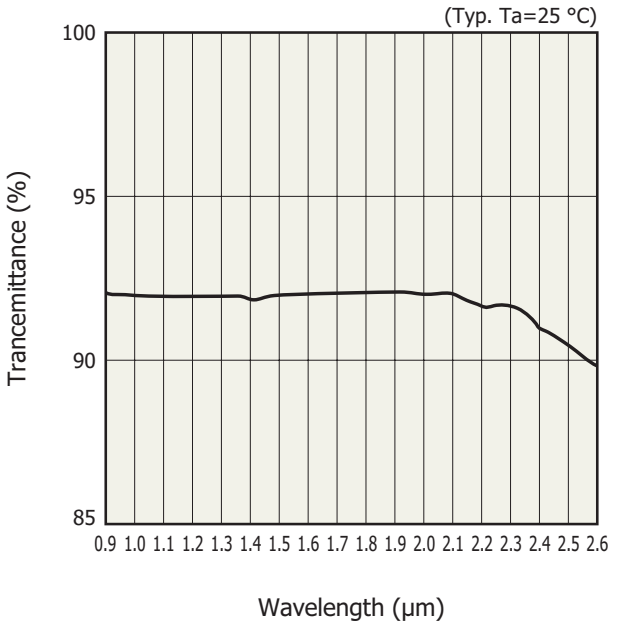
Spectral transmittance of window material



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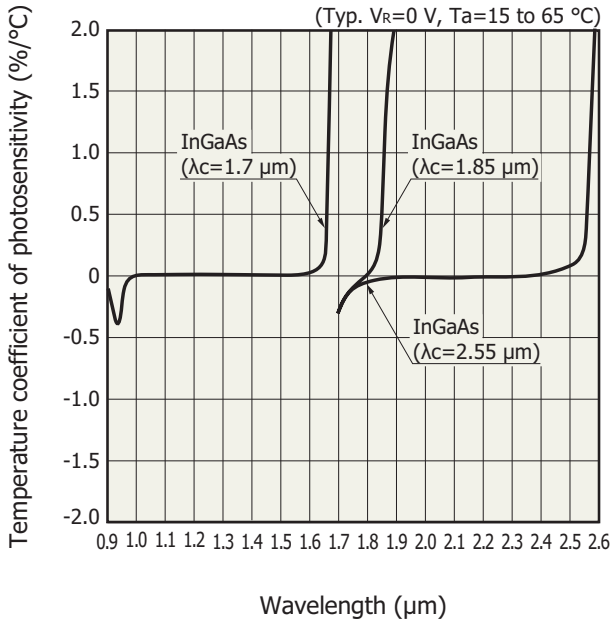
Photosensitivity temperature characteristics



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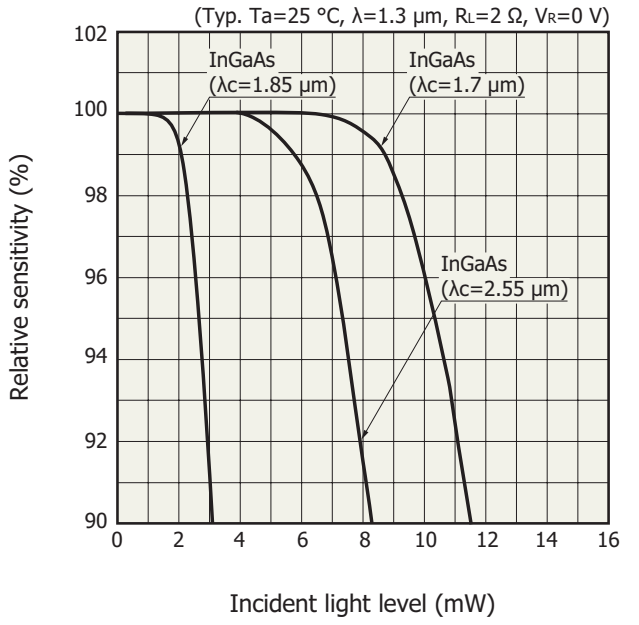
Linearity



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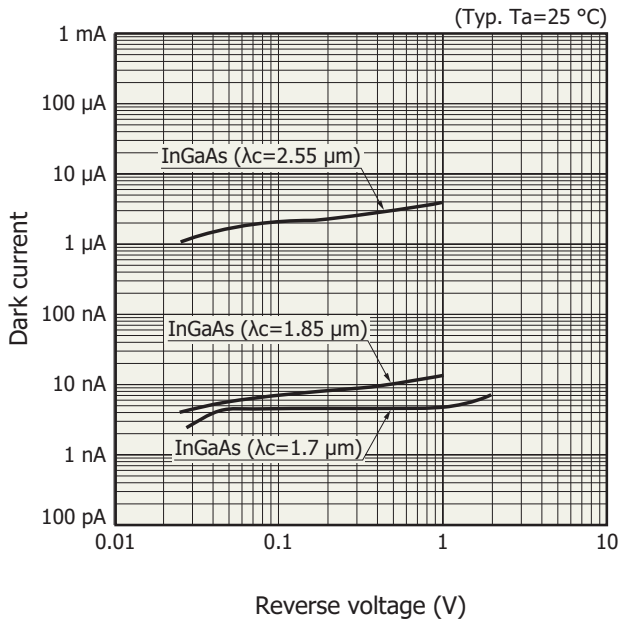
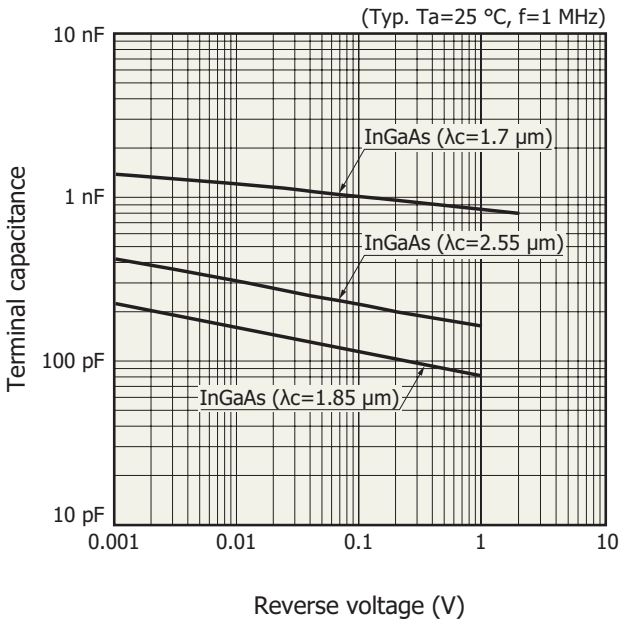
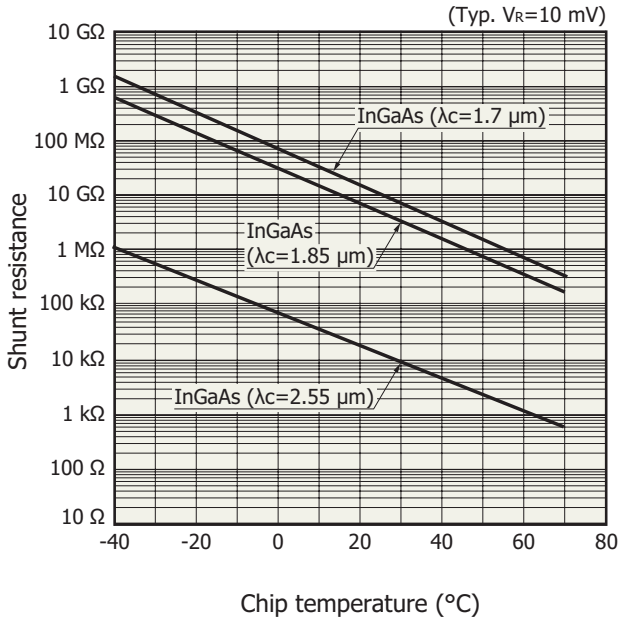
Dark current vs. reverse voltage



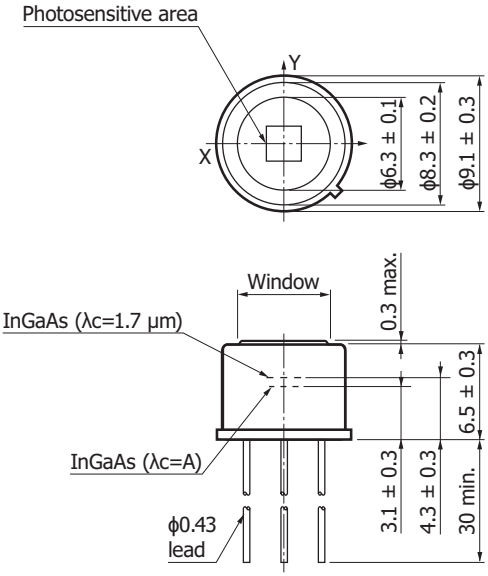
Terminal capacitance vs. reverse voltage

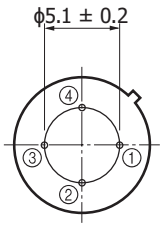


Shunt resistance vs. chip temperature



Dimensional outline (unit: mm)





	K11908-010K	K13085-010K
A	2.55 μm	1.85 μm

Chip position accuracy:
with respect to package center
-0.3≤X≤+0.3
-0.3≤Y≤+0.3

① InGaAs (λc=1.7 μm) cathode
② InGaAs (λc=1.7 μm) anode
③ InGaAs (λc=A) cathode
④ InGaAs (λc=A) anode

KIRDA0218EB

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions
· Disclaimer
· Safety consideration
· Metal, ceramic, plastic package products

Information described in this material is current as of September 2018.
Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.
The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.
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