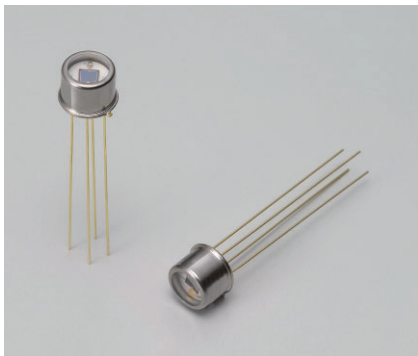


Two-color detectors



K1713-05/-08/-09

Wide spectral response range from UV to IR

The K1713 series incorporates an infrared-transmitting Si photodiode mounted over an InGaAs PIN photodiode, along the same optical axis.

Features

- Wide spectral response range
- Allows same optical path design
- 4-pin TO-5 package

Applications

- Spectrophotometers
- Laser monitors

Structure / Absolute maximum ratings

Type no.	Package	Cooling	Detector element	Photosensitive area (mm)	Absolute maximum ratings		
					Reverse voltage V_R (V)	Operating temperature T_{opr} (°C)	Storage temperature T_{stg} (°C)
K1713-05	TO-5	No-cooled	Si	2.4 × 2.4	5	-40 to +70	-55 to +85
			InGaAs	φ0.5	20		
K1713-08			Si	2.4 × 2.4	5		
			InGaAs	φ1	2		
K1713-09			Si	2.4 × 2.4	5		
			InGaAs	φ1	10		

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. $T_a=25\text{ }^\circ\text{C}$, unless otherwise noted)

Type no.	Detector element	Spectral response range (μm)	Peak sensitivity wavelength λp (μm)	Photo sensitivity S λ=λp (A/W)	Dark current I_D $V_R=10\text{ mV}$		Shunt Resistance R_{sh} (MΩ)	D^* λ=λp (cm · Hz ^{1/2} /W)	Rise time t_r $V_R=0\text{ V}$ $R_L=1\text{ k}\Omega$ 10 to 90% (ns)	Terminal capacitance C_t $V_R=5\text{ V}$ $f=1\text{ MHz}$ (pF)
					Typ. (nA)	Max. (nA)				
K1713-05	Si	0.32 to 1.7	0.94	0.45	30 (pA)	100 (pA)	300	1.4×10^{13}	200*3	60*5
	InGaAs		1.55	0.55	0.5*1	2.5*1	300	3.5×10^{12}	1.5*4	12
K1713-08	Si	0.32 to 2.6	0.94	0.45	30 (pA)	100 (pA)	300	1.4×10^{13}	200*3	60*5
	InGaAs		2.30	0.60	15 (μA)*2	75 (μA)*2	3 (kΩ)	2.3×10^{10}	23*4	200*2
K1713-09	Si	0.32 to 1.7	0.94	0.45	30 (pA)	100 (pA)	300	1.4×10^{13}	200*3	60*5
	InGaAs		1.55	0.55	1*1	5*1	100	3.5×10^{12}	7*4	90

*1: $V_R=5\text{ V}$

*2: $V_R=1\text{ V}$

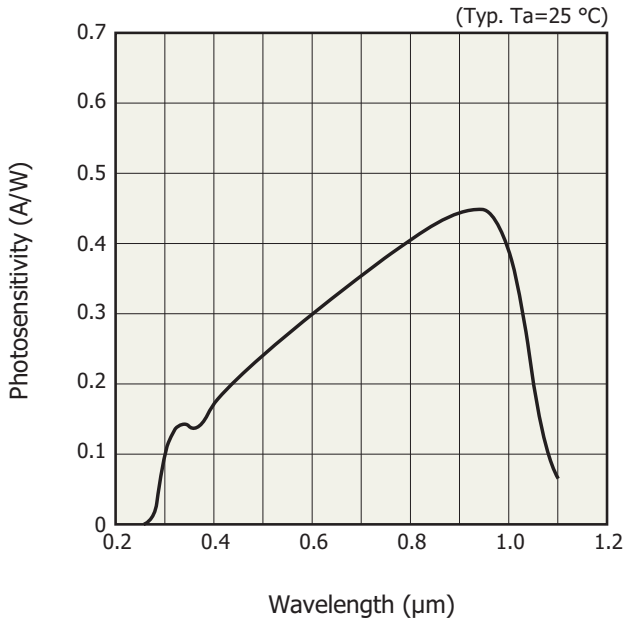
*3: λ=655 nm

*4: $V_R=5\text{ V}$, $R_L=50\ \Omega$

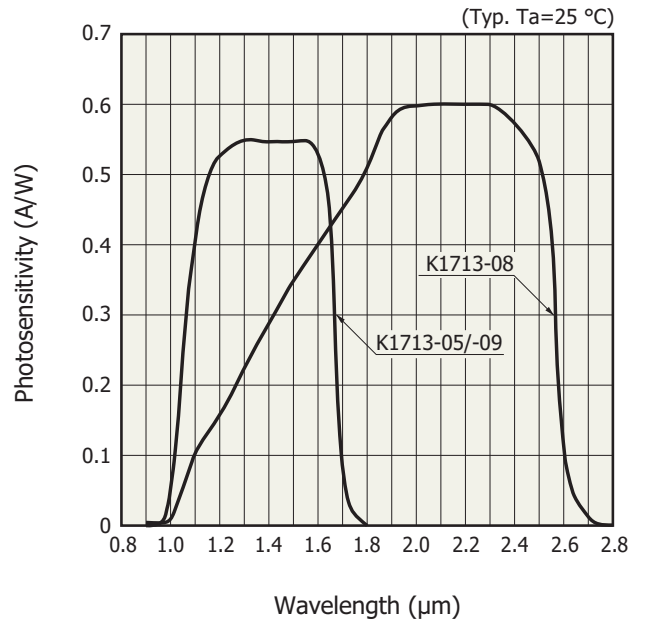
*5: $V_R=0\text{ V}$, $f=10\text{ kHz}$

Spectral response

Si photodiode

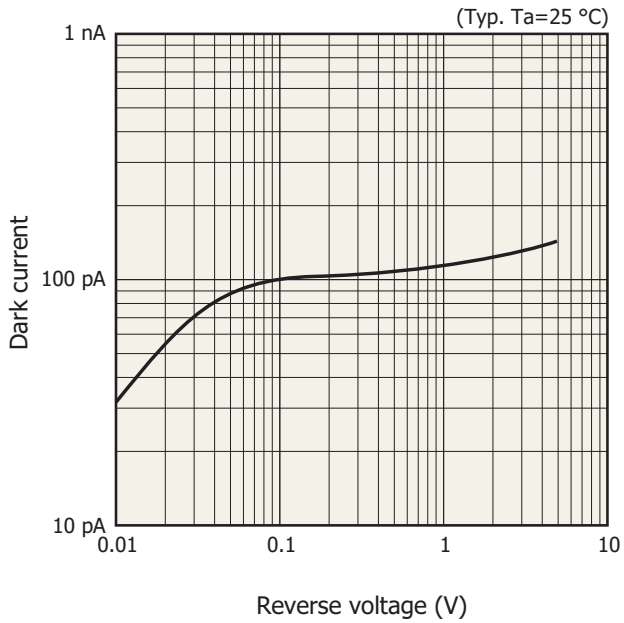


InGaAs PIN photodiode

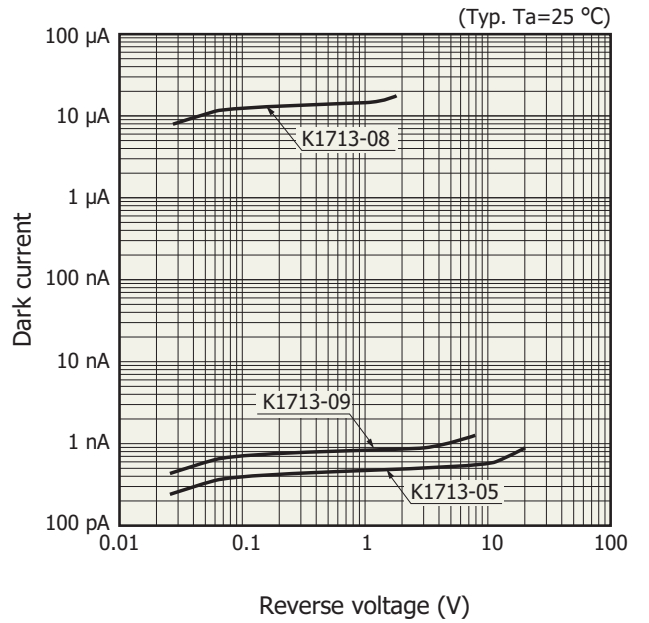


Dark current vs. reverse voltage

Si photodiode

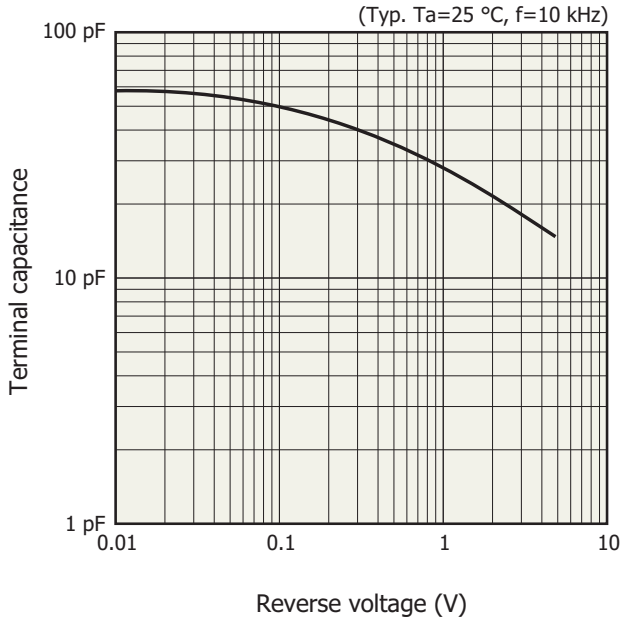


InGaAs PIN photodiode



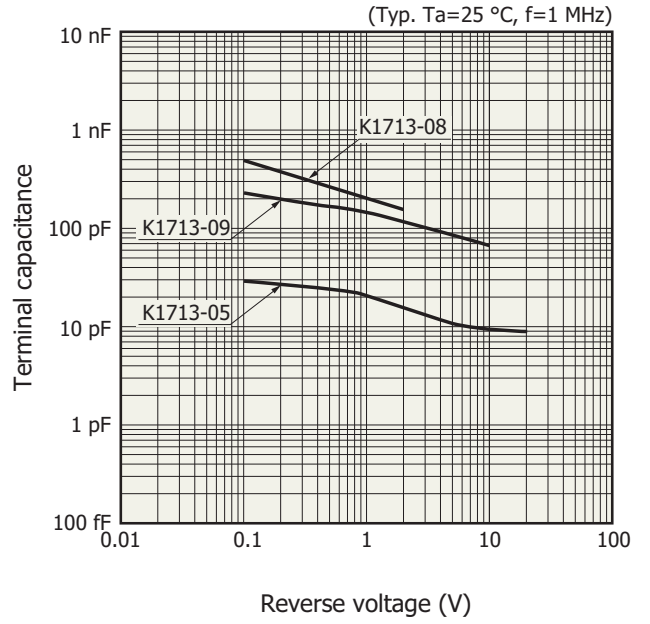
Terminal capacitance vs. reverse voltage

Si photodiode



KIRDB0202EA

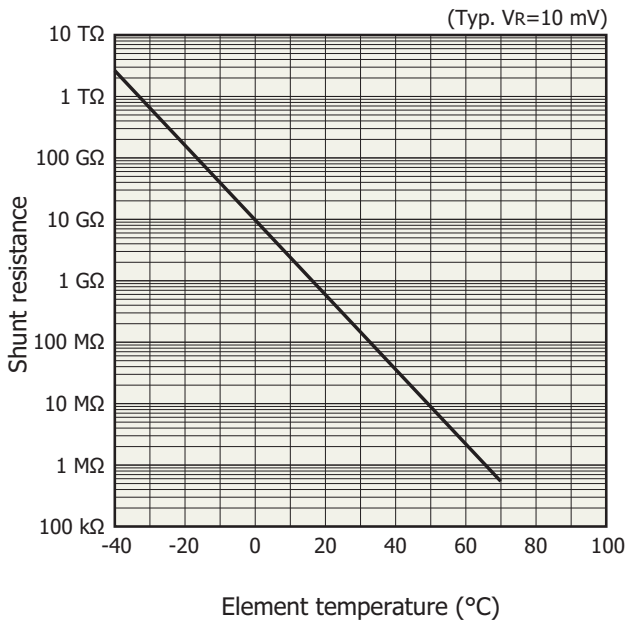
InGaAs PIN photodiode



KIRDB0203EA

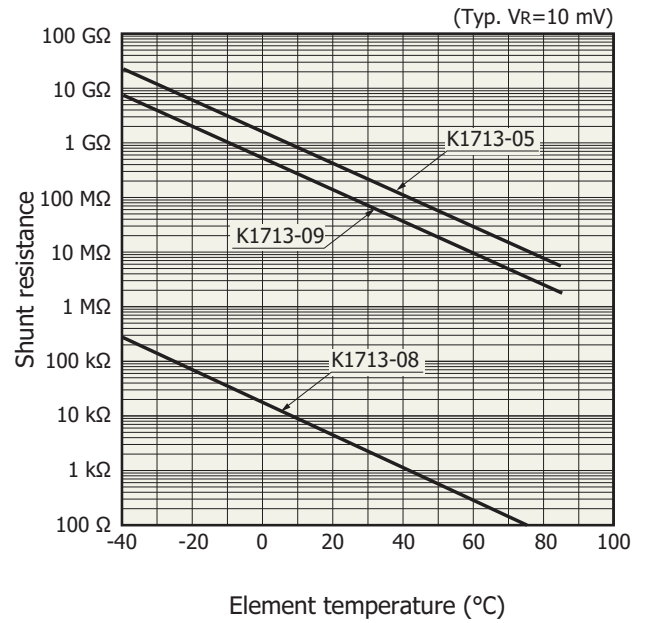
Shunt resistance vs. element temperature

Si photodiode



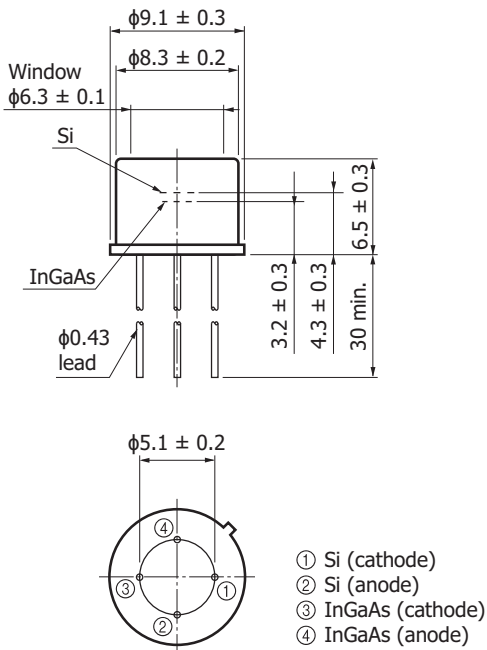
KIRDB0204EA

InGaAs PIN photodiode



KIRDB0205EA

Dimensional outline (unit: mm)



KIRDA0147EB

Related information

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

Precautions

- Notice
- Metal, ceramic, plastic packages

Technical information

- Infrared detector / Technical information

Information described in this material is current as of August, 2014.

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.

Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.

HAMAMATSU

www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, N.J. 08807, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 8152-375-0, Fax: (49) 8152-265-8

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39) 02-93581733, Fax: (39) 02-93581741

China: Hamamatsu Photonics (China) Co., Ltd.: B1201, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86) 10-6586-6006, Fax: (86) 10-6586-2866