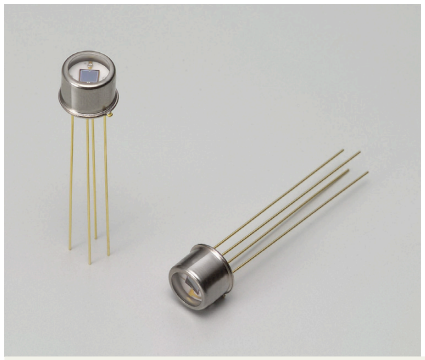
HAMAMATSU
PHOTON IS OUR BUSINESS

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*1 Topr (°C)	Storage temperature*1 Tstg (°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		

*1: No dew condensation
When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation may cause deterioration in characteristics and reliability.
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.

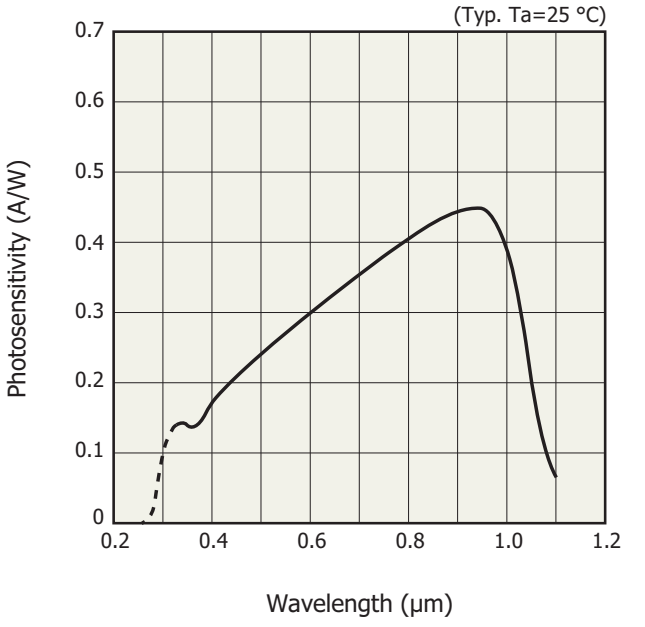
Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Type no.	Detector element	Spectral response range (μm)	Peak sensitivity wavelength λp (μm)	Photo sensitivity S λ=λp (A/W)	Dark current I_D V_R=10 mV		Shunt Resistance Rsh (MΩ)	D* λ=λp (cm · $Hz^{1/2}$/W)	Rise time tr V_R=0 V R_L=1 kΩ 10 to 90% (ns)	Terminal capacitance Ct V_R=5 V f=1 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*4	60*6
	InGaAs		1.55	0.55	0.5*2	2.5*2	300	3.5×10^{12}	1.5*5	12
K1713-08	Si	0.32 to 2.6	0.94	0.45	30 (pA)	100 (pA)	300	1.4×10^{13}	200*4	60*6
	InGaAs		2.30	0.60	15 (μA)*3	75 (μA)*3	3 (kΩ)	2.3×10^{10}	23*7	200*3
K1713-09	Si	0.32 to 1.7	0.94	0.45	30 (pA)	100 (pA)	300	1.4×10^{13}	200*4	60*6
	InGaAs		1.55	0.55	1*2	5*2	100	3.5×10^{12}	7*5	90

*2: V_R=5 V
*3: V_R=1 V
*4: λ=655 nm
*5: V_R=5 V, R_L=50 Ω
*6: V_R=0 V, f=10 kHz
*7: V_R=1 V, R_L=50 Ω

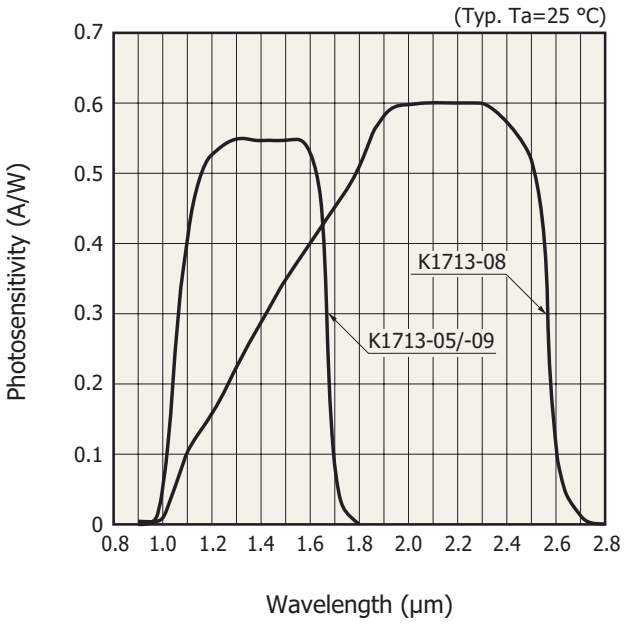
Spectral response

Si photodiode



KIRDB0199EA

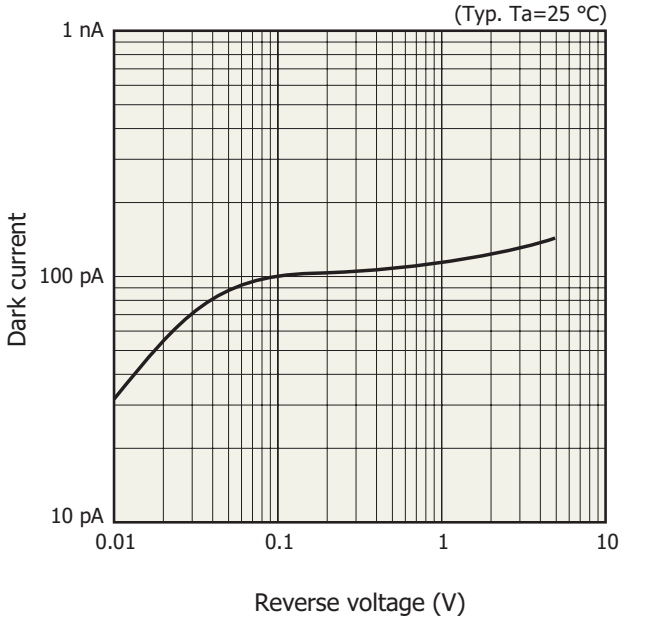
InGaAs PIN photodiode



KIRDB0211EA

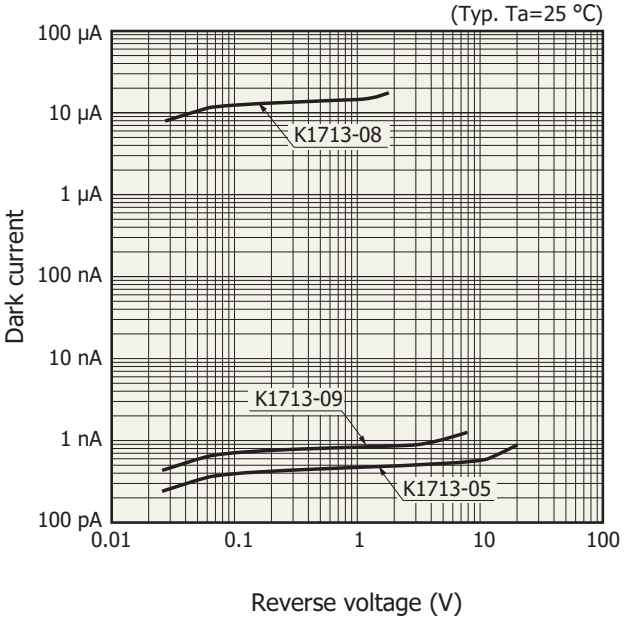
Dark current vs. reverse voltage

Si photodiode



KIRDB0200EA

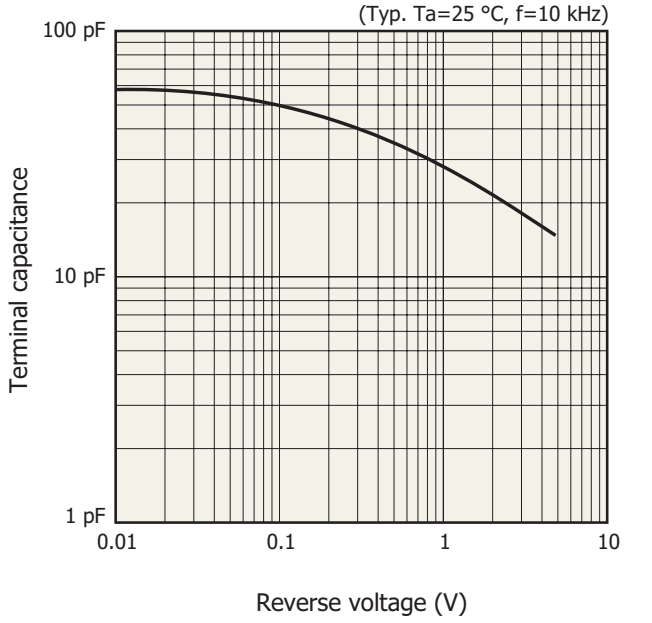
InGaAs PIN photodiode



KIRDB0201EA

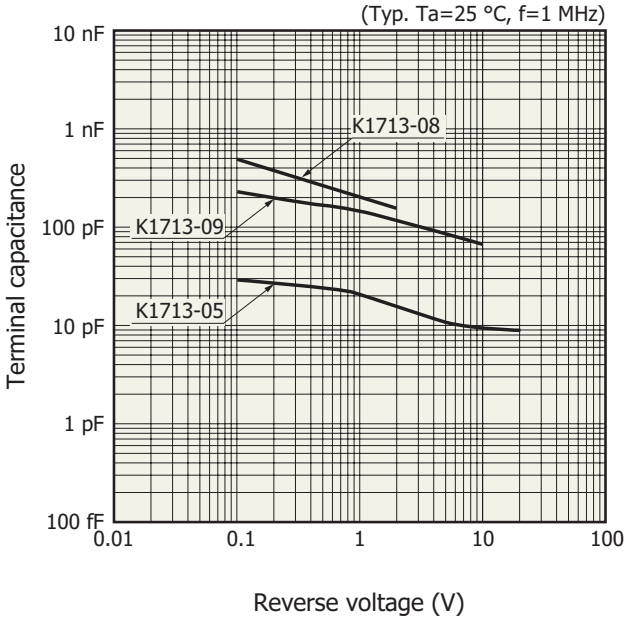
Terminal capacitance vs. reverse voltage

Si photodiode



KIRDB0202EA

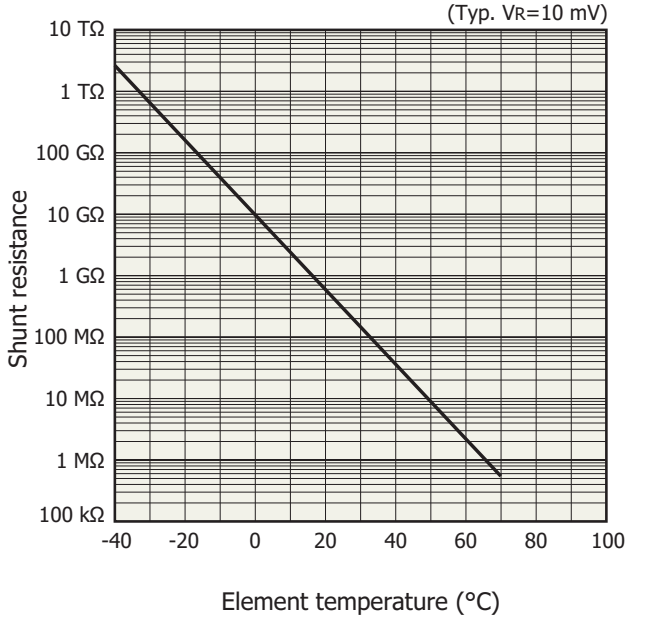
InGaAs PIN photodiode



KIRDB0203EA

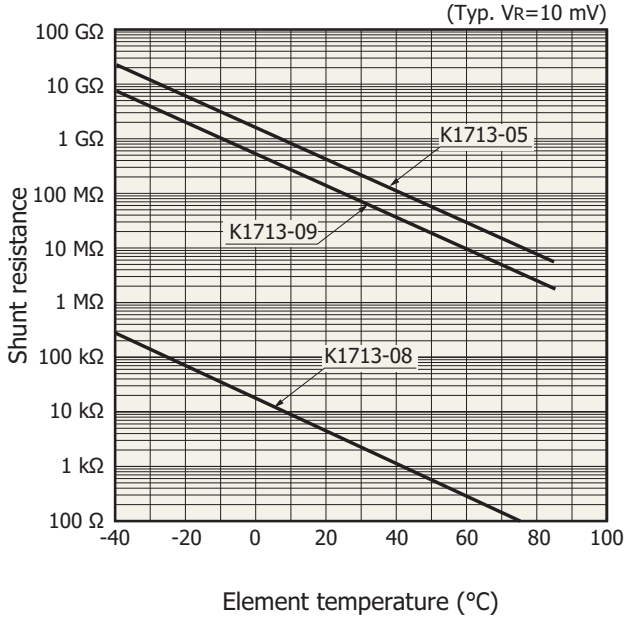
Shunt resistance vs. element temperature

Si photodiode



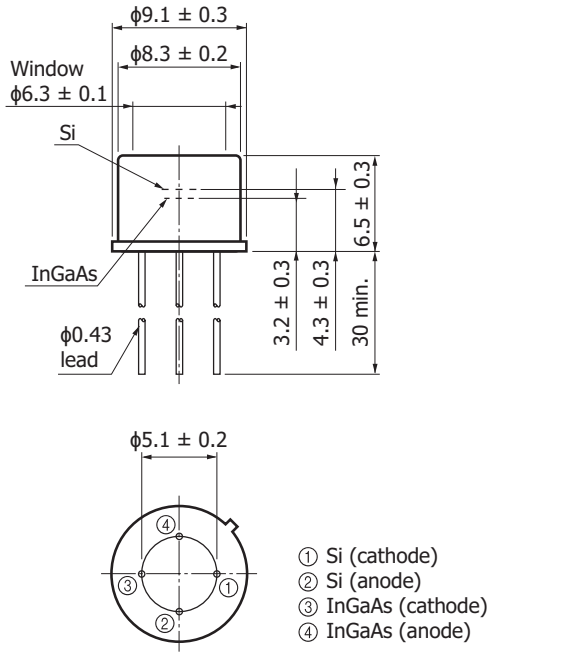
KIRDB0204EA

InGaAs PIN photodiode



KIRDB0205EA

Dimensional outline (unit: mm)



KIRDA0147EB

Related information

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

■Precautions
· Disclaimer
· Safety consideration
· Compound opto-semiconductors (photosensors, light emitters)

■ Technical note
· Compound semiconductor photosensors

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