

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: $V_R=1\text{ V}$

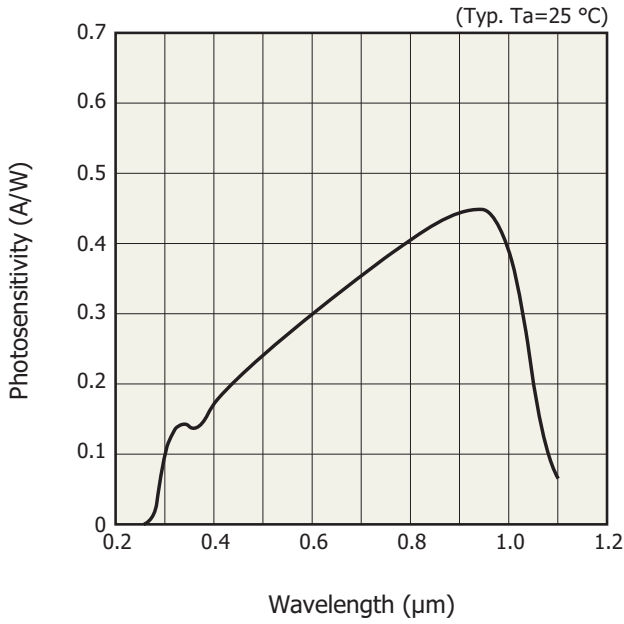
*3: λ=655 nm

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

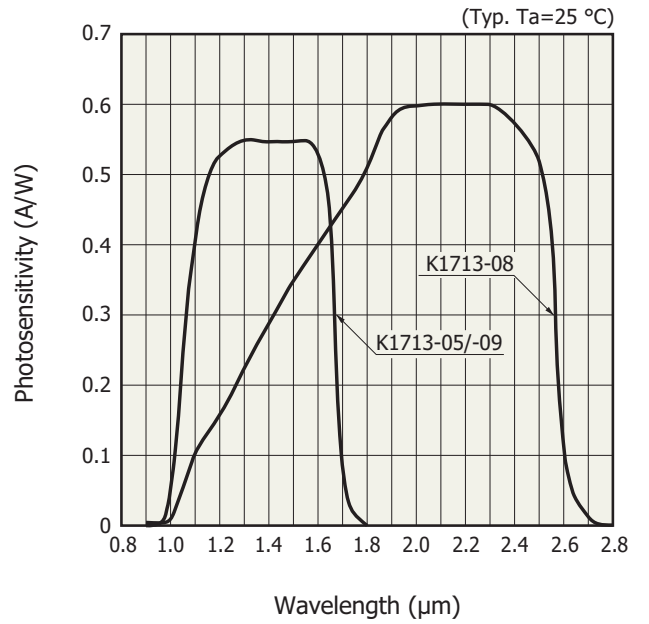
*5: $V_R=0\text{ V}$, $f=10\text{ kHz}$

Spectral response

Si photodiode

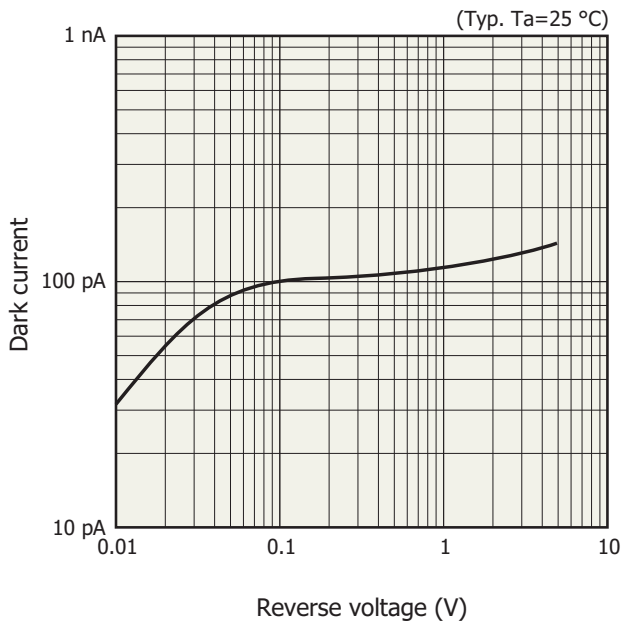


InGaAs PIN photodiode

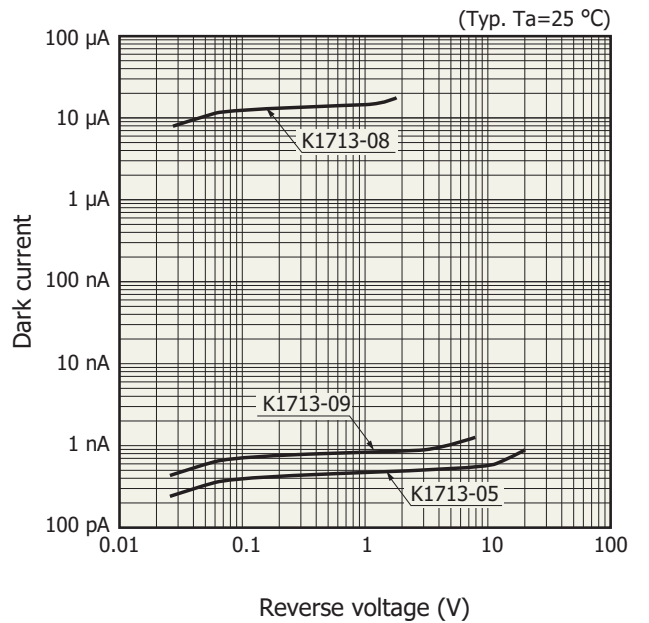


Dark current vs. reverse voltage

Si photodiode

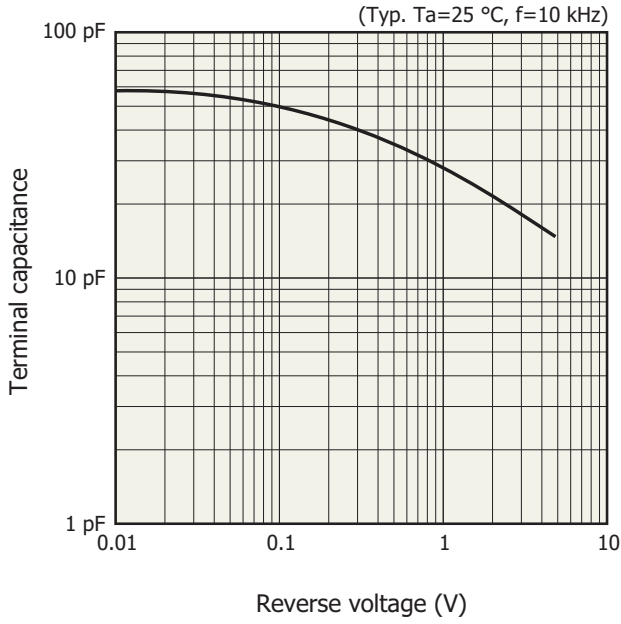


InGaAs PIN photodiode



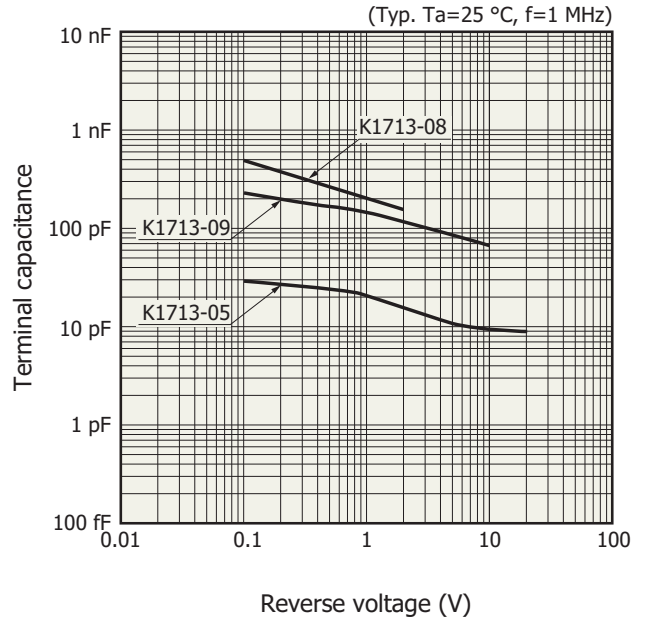
Terminal capacitance vs. reverse voltage

Si photodiode



KIRDB0202EA

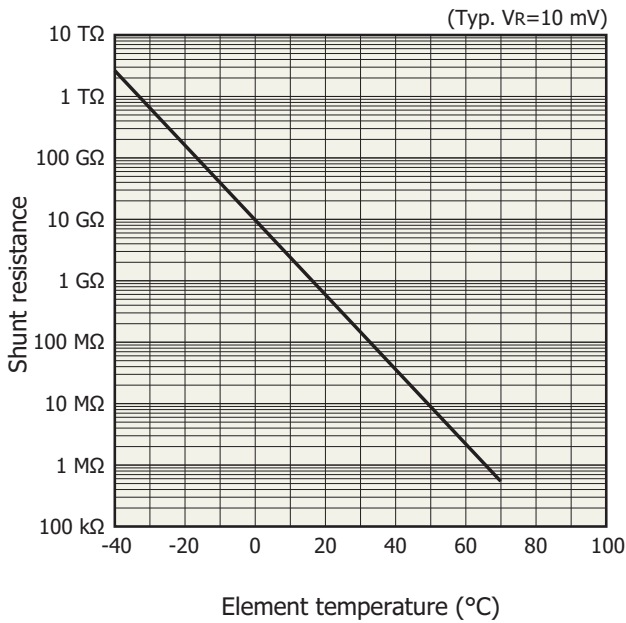
InGaAs PIN photodiode



KIRDB0203EA

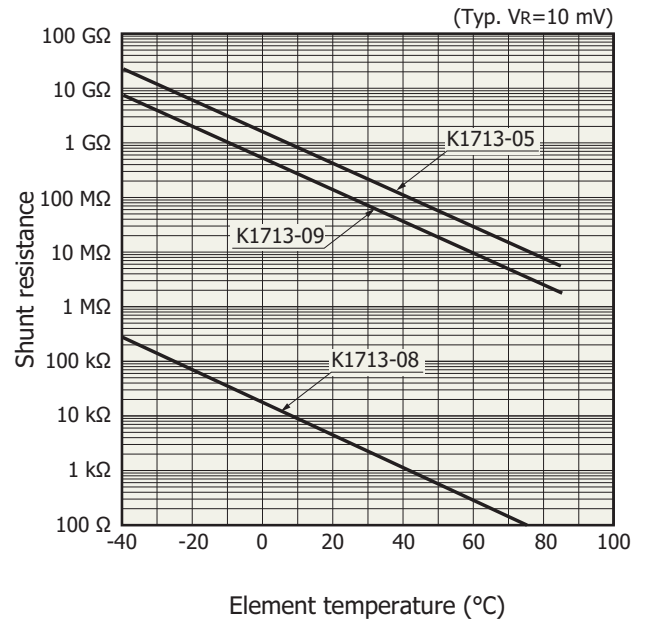
Shunt resistance vs. element temperature

Si photodiode



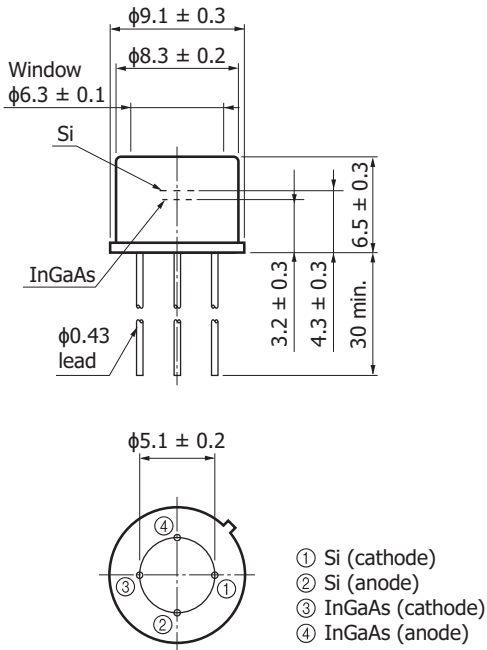
KIRDB0204EA

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.

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Type numbers of products listed in the delivery specification sheets or supplied as samples may have a suffix "(X)" which means preliminary specifications or a suffix "(Z)" which means developmental 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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