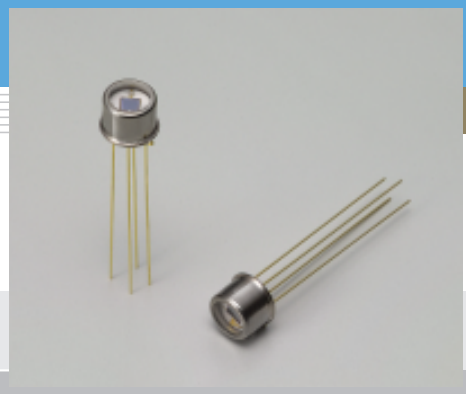


Two-color detector

K1713-05/-08/-09

Wide spectral response range from UV to IR



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

General ratings / Absolute maximum ratings

Type No.	Package	Cooling	Detector element	Active 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	$\phi 0.5$	20		
K1713-08			Si	2.4×2.4	5		
			InGaAs	$\phi 1$	2		
K1713-09			Si	2.4×2.4	5		
			InGaAs	$\phi 1$	10		

Electrical and optical characteristics (Typ. $T_a=25^\circ\text{C}$, unless otherwise noted)

Type No.	Detector element	Peak sensitivity wavelength λ_p (μm)	Photo sensitivity $S_{\lambda=\lambda_p}$ (A/W)	Dark current I_D $V_R=10\text{ mV}$		Shunt Resistance R_{sh} (M Ω)	$D^*_{\lambda=\lambda_p}$ (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	0.94	0.45	30 (pA)	150 (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	0.94	0.45	30 (pA)	150 (pA)	300	1.4×10^{13}	200 * ³	60 * ⁵
	InGaAs	2.30	0.60	15 (μA) * ²	75 (μA) * ²	3 (k Ω)	2.3×10^{10}	23 * ⁴	200 * ²
K1713-09	Si	0.94	0.45	30 (pA)	150 (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: $V_R=1\text{ V}$

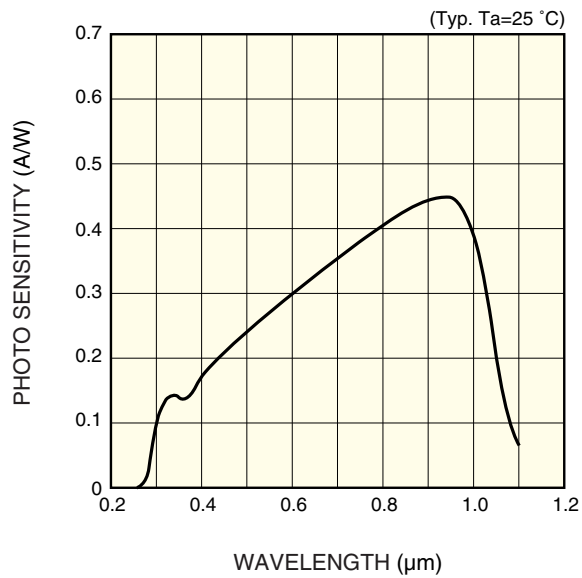
*3: $\lambda=655\text{ nm}$

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

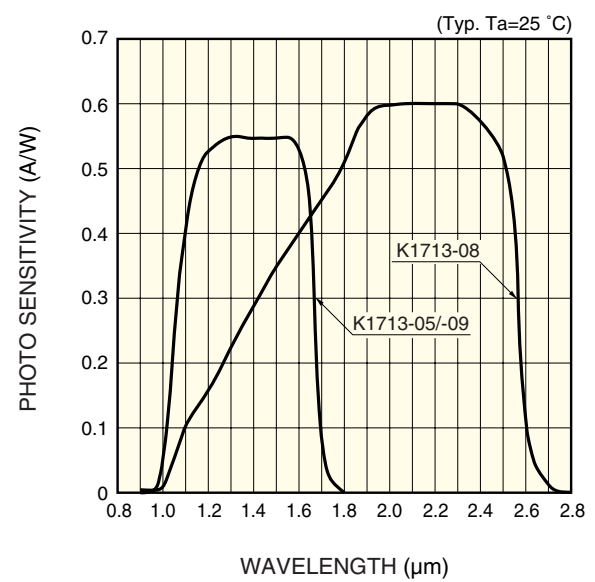
*5: $V_R=0\text{ V}$, $f=10\text{ kHz}$

■ Spectral response

Si photodiode

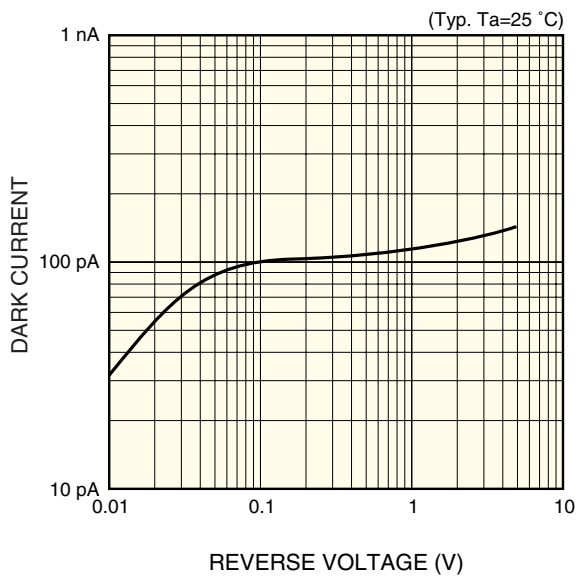


InGaAs PIN photodiode

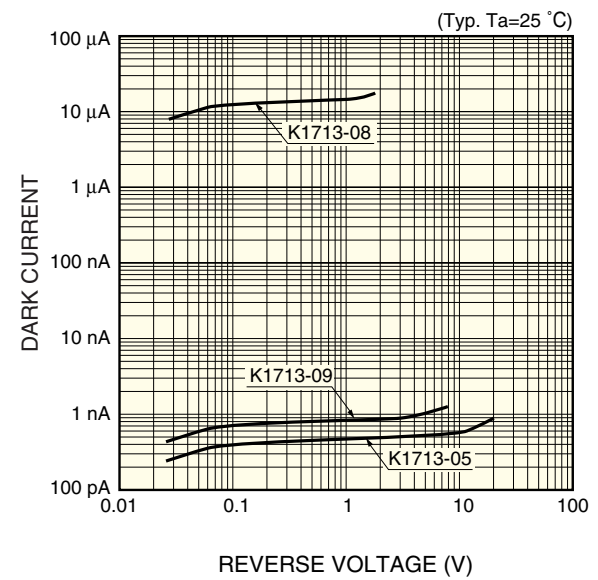


■ Dark current vs. reverse voltage

Si photodiode

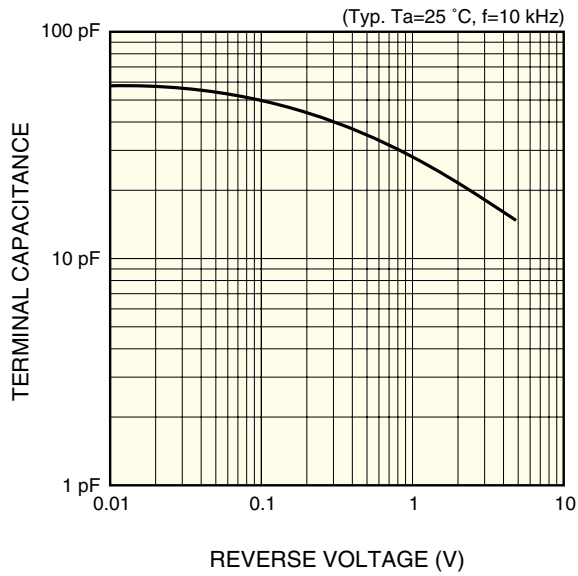


InGaAs PIN photodiode

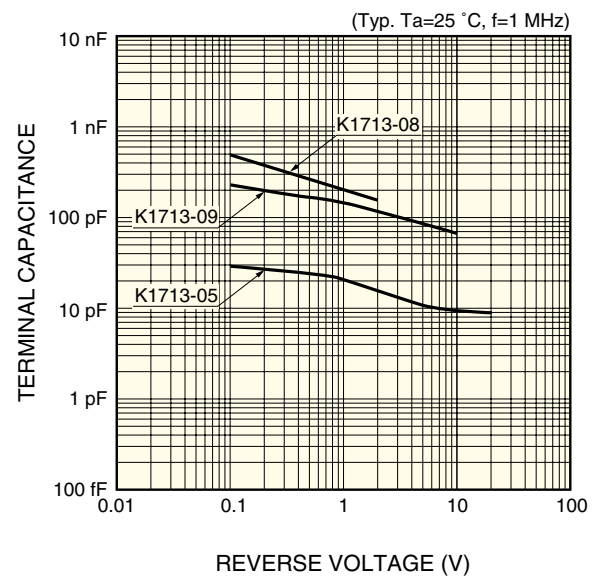


■ Terminal capacitance vs. reverse voltage

Si photodiode

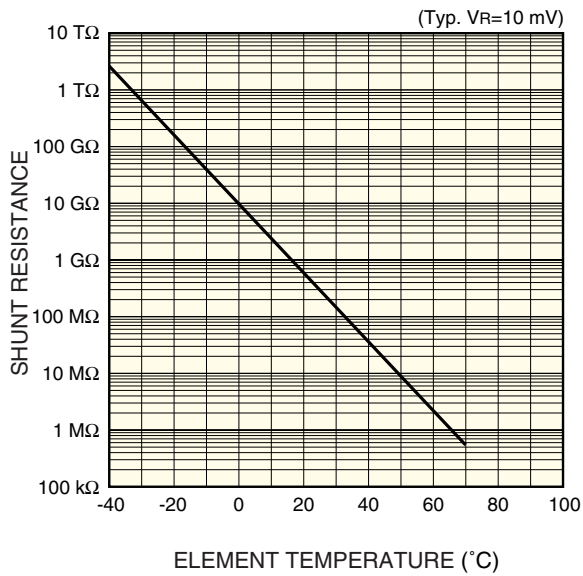


InGaAs PIN photodiode

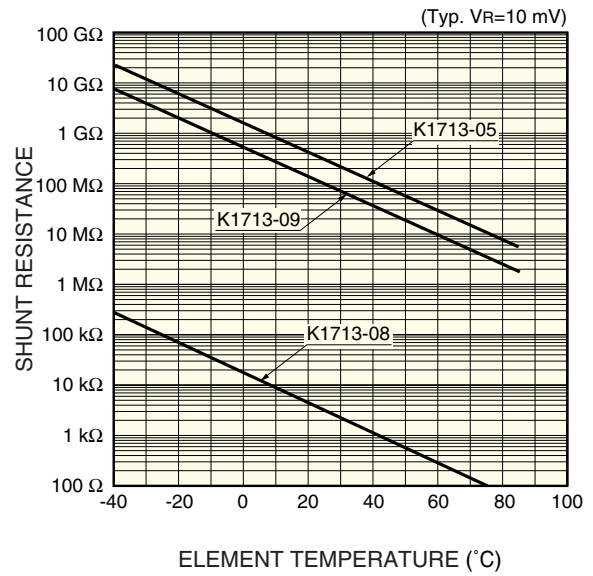


■ Shunt resistance vs. element temperature

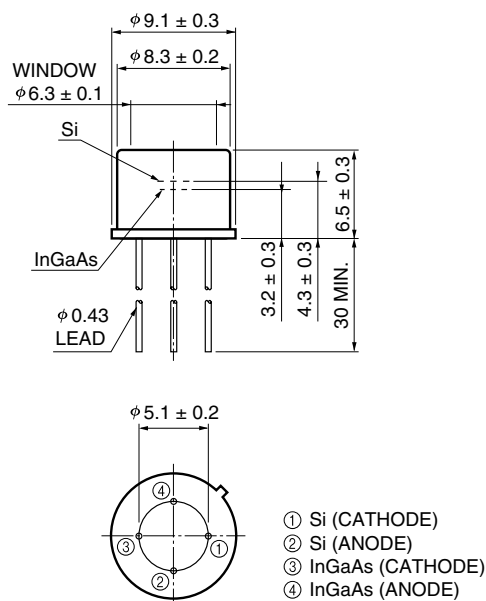
Si photodiode



InGaAs PIN photodiode



■ Dimensional outline (unit: mm)



KIRD0A0147EB

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