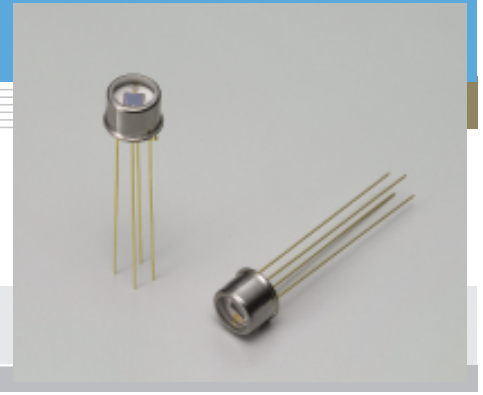


# Two-color detector K1713-05/-08/-09

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	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		

### ■ Electrical and optical characteristics (Typ. $T_a=25$ °C, unless otherwise noted)

Type No.	Detector element	Spectral response range (μm)	Peak sensitivity wavelength $\lambda_p$ (μm)	Photo sensitivity $S_{\lambda=\lambda_p}$ (A/W)	Dark current $I_D$ $V_R=10$ mV		Shunt Resistance $R_{sh}$ (MΩ)	$D^*$ $\lambda=\lambda_p$ (cm · Hz <sup>1/2</sup> /W)	Rise time $t_r$ $V_R=0$ V $R_L=1$ kΩ 10 to 90 % (ns)	Terminal capacitance $C_t$ $V_R=5$ V $f=1$ MHz (pF)
					Typ. (nA)	Max. (nA)				
K1713-05	Si	0.32 to 1.7	0.94	0.45	30 (pA)	150 (pA)	300	$1.4 \times 10^{13}$	200 *3	60 *5
	InGaAs		1.55	0.55	0.5 *1	2.5 *1	300	$3.5 \times 10^{12}$	1.5 *4	12
K1713-08	Si	0.32 to 2.6	0.94	0.45	30 (pA)	150 (pA)	300	$1.4 \times 10^{13}$	200 *3	60 *5
	InGaAs		2.30	0.60	15 (μA) *2	75 (μA) *2	3 (kΩ)	$2.3 \times 10^{10}$	23 *4	200 *2
K1713-09	Si	0.32 to 1.7	0.94	0.45	30 (pA)	150 (pA)	300	$1.4 \times 10^{13}$	200 *3	60 *5
	InGaAs		1.55	0.55	1 *1	5 *1	100	$3.5 \times 10^{12}$	7 *4	90

\*1:  $V_R=5$  V

\*2:  $V_R=1$  V

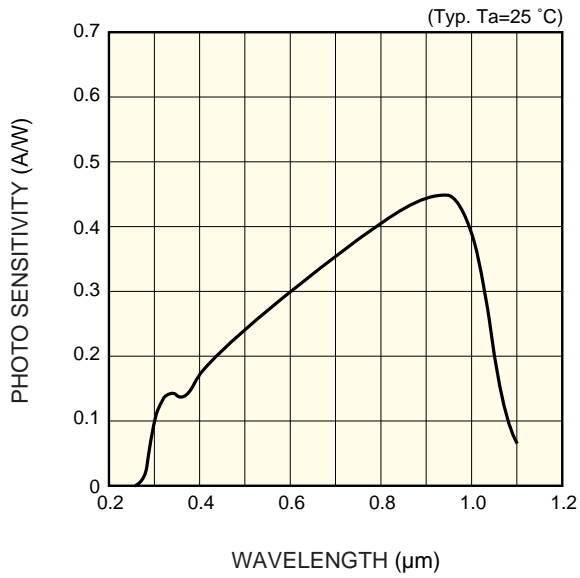
\*3:  $\lambda=655$  nm

\*4:  $V_R=5$  V,  $R_L=50$  Ω

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

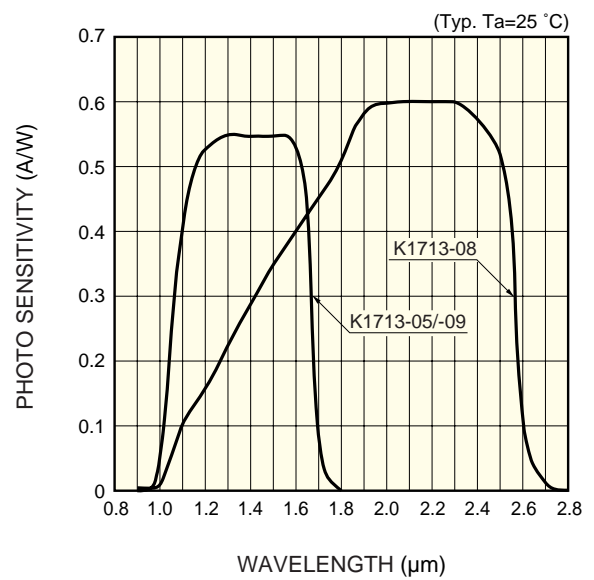
■ Spectral response

Si photodiode



KIRDB0199EA

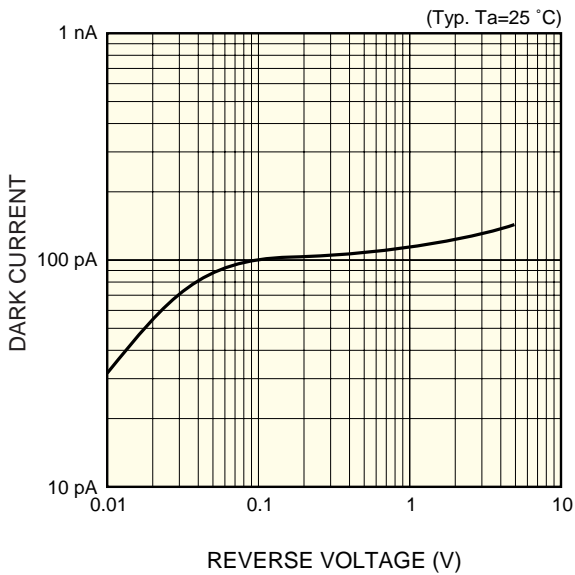
InGaAs PIN photodiode



KIRDB0211EA

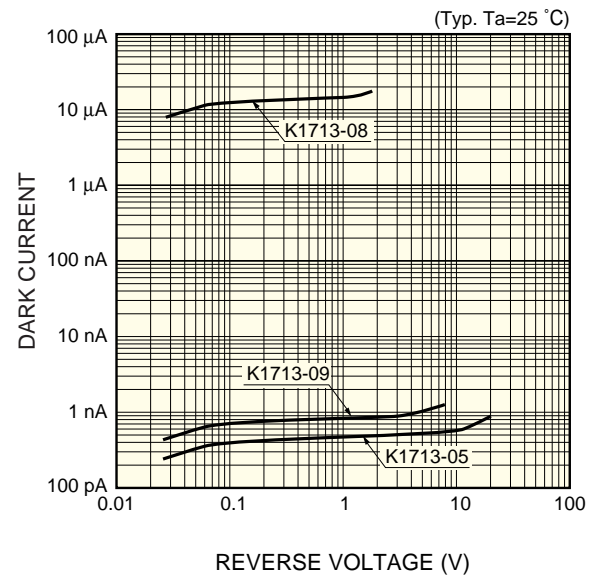
■ Dark current vs. reverse voltage

Si photodiode



KIRDB0200EA

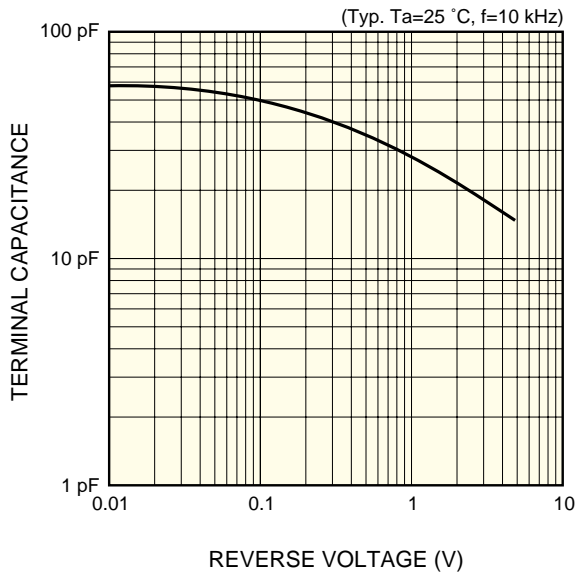
InGaAs PIN photodiode



KIRDB0201EA

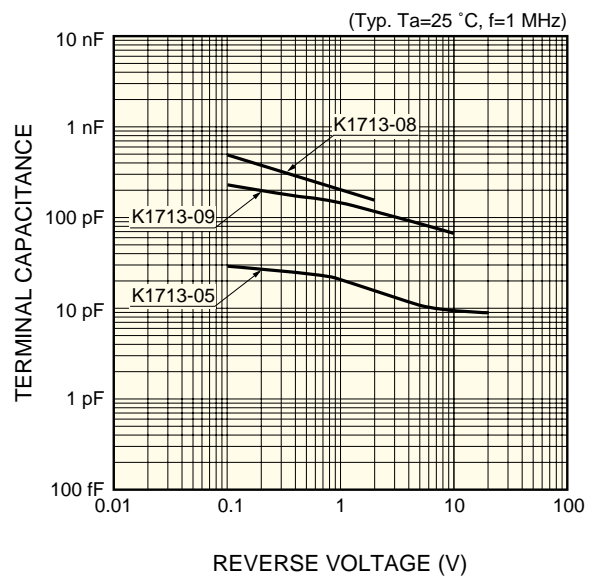
■ Terminal capacitance vs. reverse voltage

Si photodiode



KIRDB0202EA

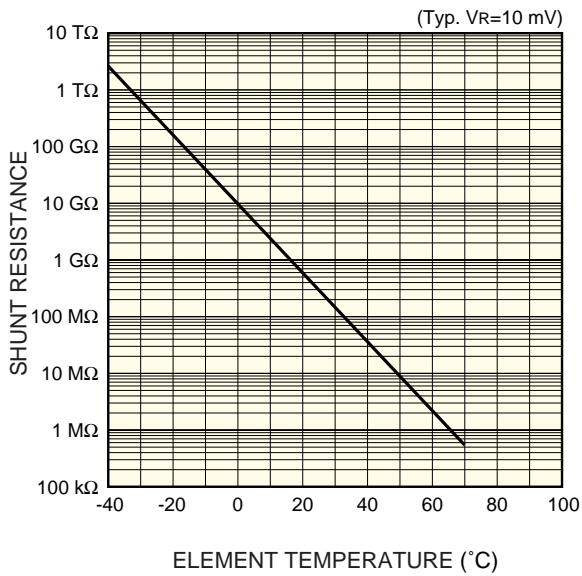
InGaAs PIN photodiode



KIRDB0203EA

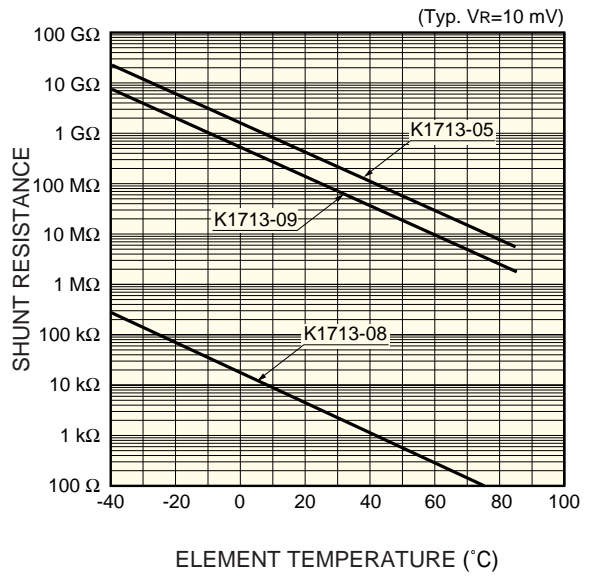
■ Shunt resistance vs. element temperature

Si photodiode



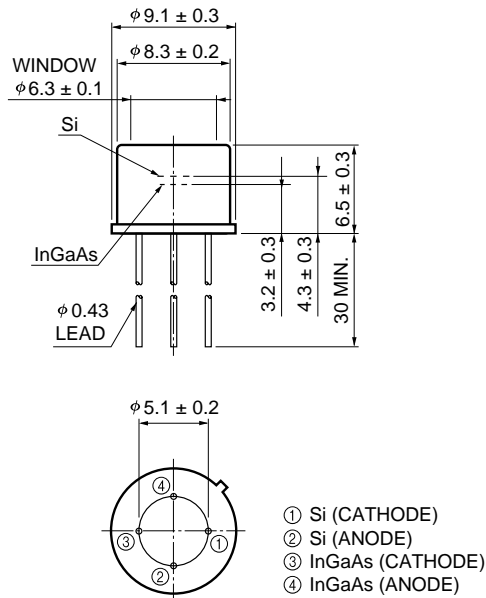
KIRDB0204EA

InGaAs PIN photodiode



KIRDB0205EA

■ Dimensional outline (unit: mm)



KIRDA0147EB

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