

# InGaAs PIN photodiodes



G10899 series

## Wide spectral response range (0.5 to 1.7 $\mu\text{m}$ )

The G10899 series is an InGaAs PIN photodiode that covers a wide spectral response range from 0.5  $\mu\text{m}$  to 1.7  $\mu\text{m}$ . While standard InGaAs PIN photodiodes have spectral response ranging from 0.9  $\mu\text{m}$  to 1.7  $\mu\text{m}$ , the G10899 series has sensitivity extending to 0.5  $\mu\text{m}$  on the shorter wavelength side. A wide range of spectrum can be detected with a single detector. The G10899 series also features low noise and low dark current.

### Features

- Wide spectral response range
- Low noise, low dark current
- Large active area available

### Applications

- Spectroanalysis
- Thermometer

### Specifications / absolute maximum ratings

Type no.	Window material	Package	Active area (mm)	Absolute maximum ratings			
				Reverse voltage $V_R$ (V)	Forward current $I_f$ (mA)	Operating temperature $T_{opr}$ ( $^{\circ}\text{C}$ )	Storage temperature $T_{stg}$ ( $^{\circ}\text{C}$ )
G10899-003K	Borosilicate glass	TO-18	$\phi 0.3$	5	10	-40 to +85	-55 to +125
G10899-005K			$\phi 0.5$				
G10899-01K			$\phi 1$				
G10899-02K		TO-5	$\phi 2$	2			
G10899-03K			$\phi 3$				

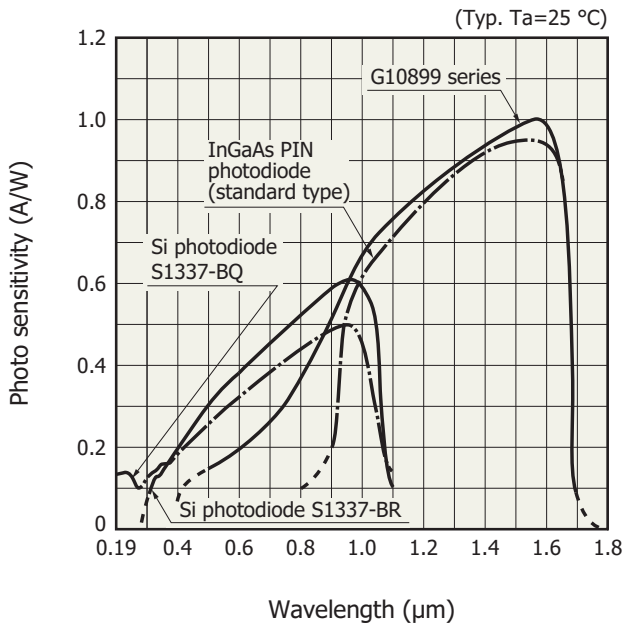
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

### Electrical and optical characteristics ( $T_a=25^{\circ}\text{C}$ )

Type no.	Spectral response range $\lambda$ ( $\mu\text{m}$ )	Peak sensitivity wave-length $\lambda_p$ ( $\mu\text{m}$ )	Photo sensitivity $S$								Dark current $I_D$ $V_R=1\text{ V}$		Cut-off frequency $f_c$ $V_R=1\text{ V}$ $R_L=50\ \Omega$ (MHz)	Terminal capacitance $C_t$ $V_R=1\text{ V}$ $f=1\text{ MHz}$ (pF)	Shunt resistance $R_{sh}$ $V_R=10\text{ mV}$ ( $\text{M}\Omega$ )	$D^*$ $\lambda=\lambda_p$ ( $\text{cm} \cdot \text{Hz}^{1/2}/\text{W}$ )	NEP $\lambda=\lambda_p$ ( $\text{W}/\text{Hz}^{1/2}$ )
			$\lambda=0.65\ \mu\text{m}$		$\lambda=0.85\ \mu\text{m}$		$\lambda=1.3\ \mu\text{m}$		$\lambda=\lambda_p$		Typ. (nA)	Max. (nA)					
			Min. (A/W)	Typ. (A/W)	Min. (A/W)	Typ. (A/W)	Min. (A/W)	Typ. (A/W)	Min. (A/W)	Typ. (A/W)							
G10899-003K	0.5 to 1.7	1.55	0.15	0.22	0.35	0.45	0.8	0.9	0.85	1	0.3	1.5	300	10	1000	$5 \times 10^{12}$	$5 \times 10^{-15}$
G10899-005K											0.5	2.5	150	20	300		$9 \times 10^{-15}$
G10899-01K											1	5	45	70	100		$2 \times 10^{-14}$
G10899-02K											5	25	10	300	25		$4 \times 10^{-14}$
G10899-03K											15	75	5	600	10		$6 \times 10^{-14}$

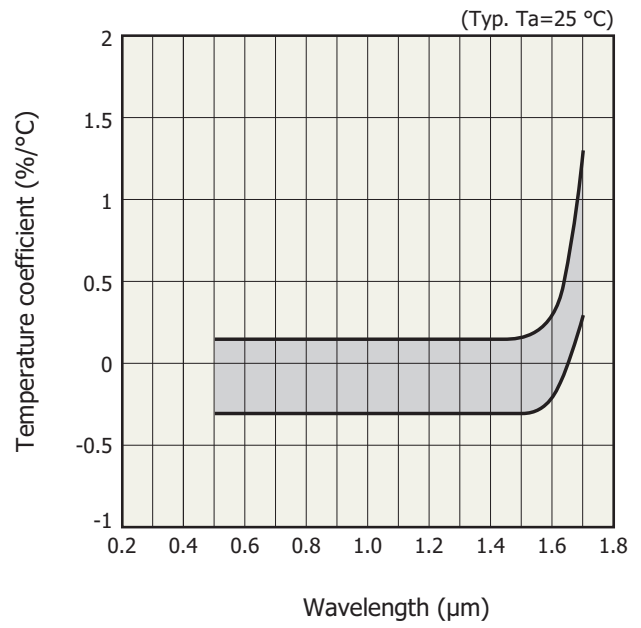
The G10899 series may be damaged by electrostatic discharge, etc. Be careful when using the G10899 series.

**Spectral response**



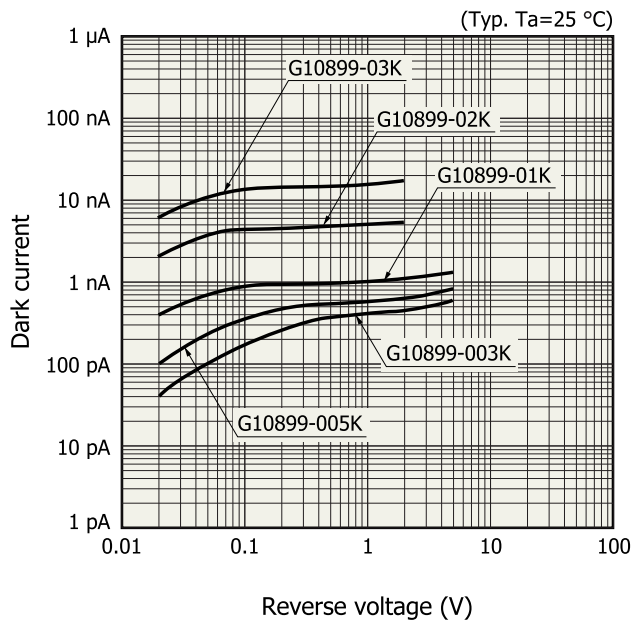
KIRDB0408EA

**Photo sensitivity temperature characteristic**



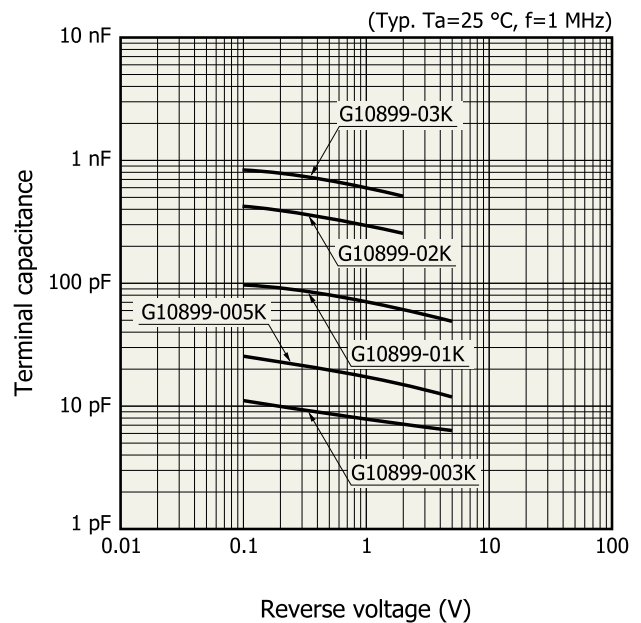
KIRDB0409EA

**Dark current vs. reverse voltage**



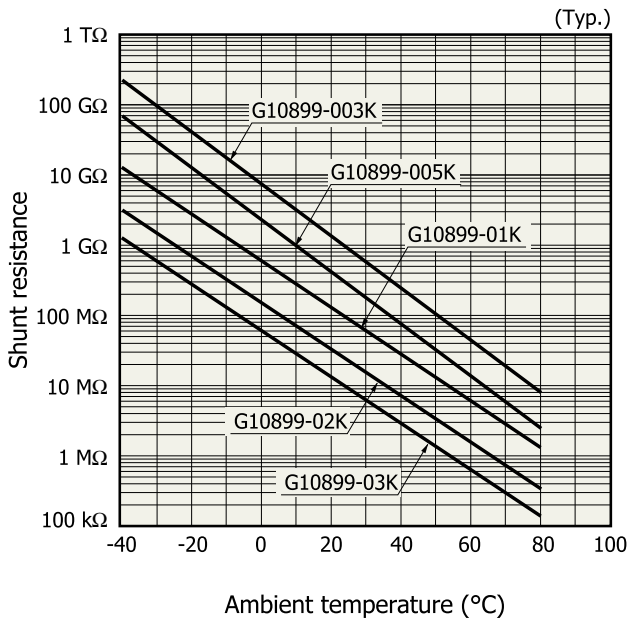
KIRDB0414EC

**Terminal capacitance vs. reverse voltage**



KIRDB0410EC

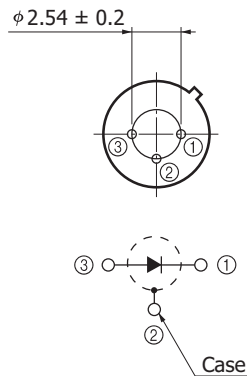
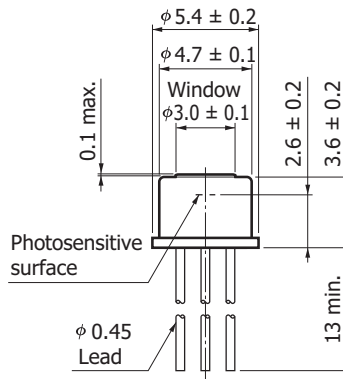
Shunt resistance vs. ambient temperature



KIRD80411EC

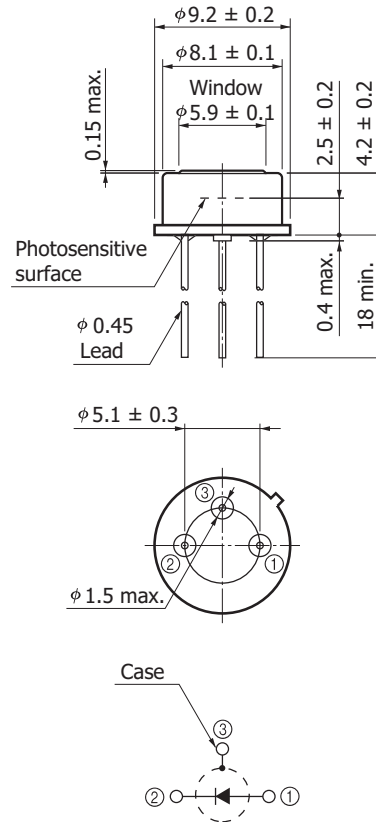
Dimensional outlines (unit: mm)

G10899-003K/-005K/-01K



KIRDA0220EA

G10899-02K/-03K



KIRDA0221EA

## Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

### ■ Precautions

- Disclaimer
- Metal, ceramic, plastic package products

### ■ Technical information

- Infrared detectors

Information described in this material is current as of December, 2015.

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.

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