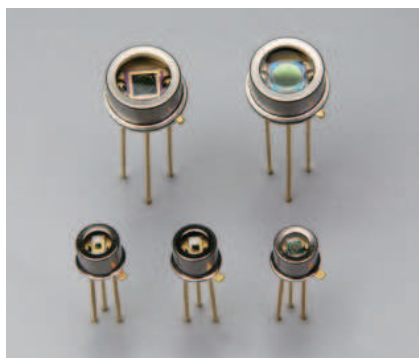


InGaAs PIN photodiode

G12181 series



**Long wavelength type
(cutoff wavelength: 1.9 μm)**

Features

- Cutoff wavelength: 1.9 μm
- Low cost
- Photosensitive area: $\phi 0.3$ to $\phi 3$ mm
- Low noise
- High sensitivity
- High reliability
- High-speed response

Applications

- Optical measurement
- Analytical instruments
- Optical monitors

Options

- Preamp for InGaAs PIN photodiode **C4159-03**

Structure / Absolute maximum ratings

Type no.	Dimensional outline /Window material*1	Package	Photosensitive area (mm)	Absolute maximum ratings		
				Reverse voltage VR max Ta=25 °C (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
G12181-003K	①/B	TO-18	$\phi 0.3$	1	-40 to +85*2	-55 to +125*2
G12181-005K			$\phi 0.5$			
G12181-010K			$\phi 1$			
G12181-020K	②/B	TO-5	$\phi 2$			
G12181-030K			$\phi 3$			

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.

*1: Borosilicate glass

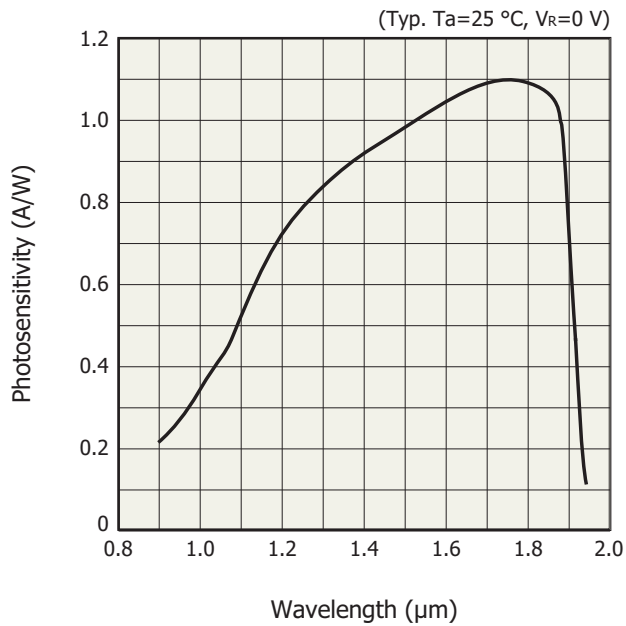
*2: No condensation

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

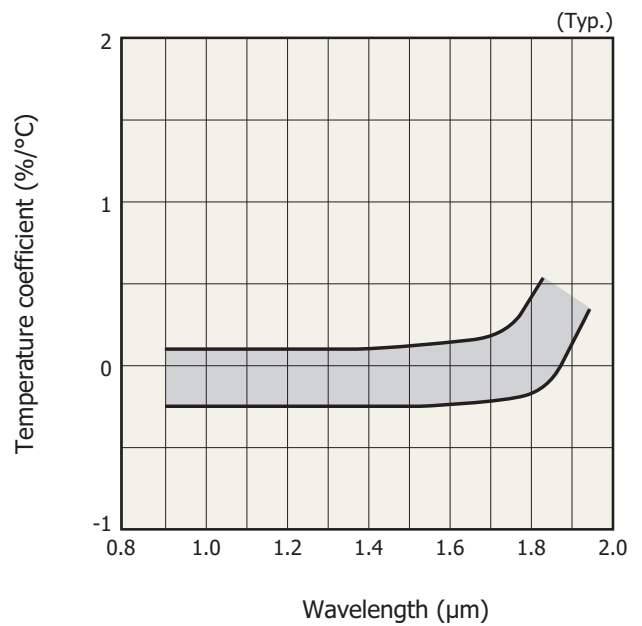
Type no.	Spectral response range λ (μm)	Peak sensitivity wavelength λ_p (μm)	Photosensitivity S $\lambda = \lambda_p$		Dark current ID VR=0.5 V		Cutoff frequency fc VR=0 V RL=50 Ω		Terminal capacitance Ct VR=0 V f=1 MHz		Shunt resistance Rsh VR=10 mV		Detectivity D* $\lambda = \lambda_p$		Noise equivalent power NEP $\lambda = \lambda_p$	
			Min. (A/W)	Typ. (A/W)	Typ. (nA)	Max. (nA)	Min. (MHz)	Typ. (MHz)	Typ. (pF)	Max. (pF)	Min. (M Ω)	Typ. (M Ω)	Min. (cm ² Hz ^{1/2} /W)	Typ. (cm ² Hz ^{1/2} /W)	Typ. (W/Hz ^{1/2})	Max. (W/Hz ^{1/2})
G12181-003K	0.9 to 1.9	1.75	0.9	1.1	1	10	40	90	25	50	10	50	3×10^{11}	1×10^{12}	2×10^{-14}	5×10^{-14}
G12181-005K					3	30	15	35	70	150	4	20			3×10^{-14}	8.5×10^{-14}
G12181-010K					10	100	5	10	230	500	1	5			6×10^{-14}	2×10^{-13}
G12181-020K					50	500	1.2	2.5	1000	2000	0.2	1			1.5×10^{-13}	4×10^{-13}
G12181-030K					100	1000	1	1.5	2000	3000	0.1	0.5			2×10^{-13}	5×10^{-13}

The G12181 series may be damaged by electrostatic discharge, etc. Be carefull when using the G12181 series.

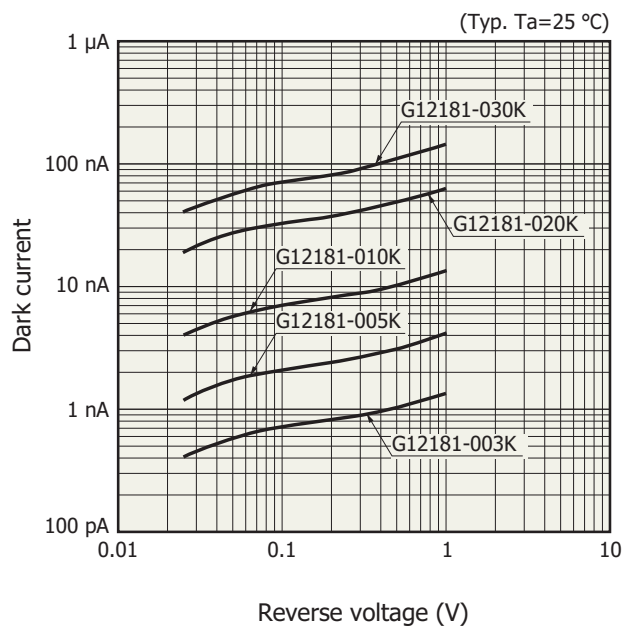
Spectral response



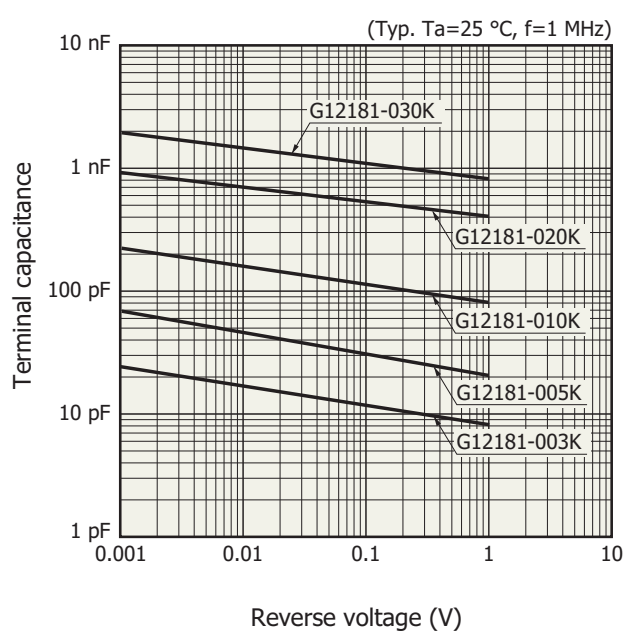
Photosensitivity temperature characteristic

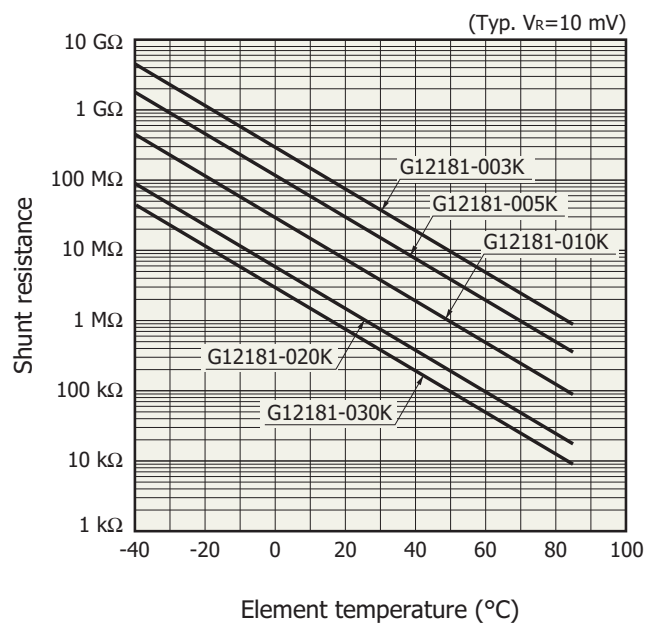


Dark current vs. reverse voltage



Terminal capacitance vs. reverse voltage

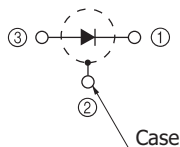
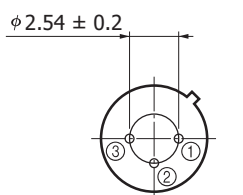
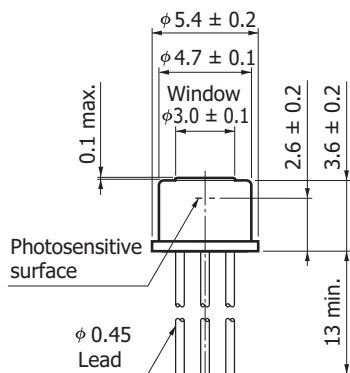


Shunt resistance vs. element temperature

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Dimensional outline (unit: mm)

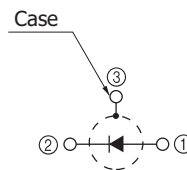
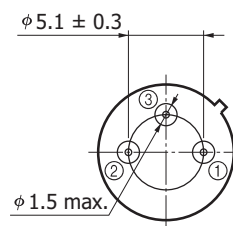
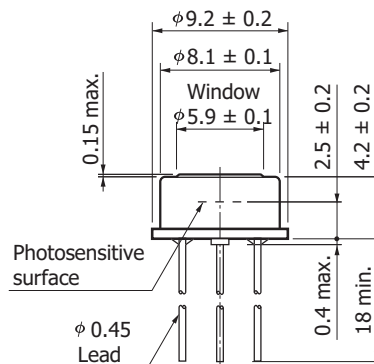
① G12181-003K/-005K/-010K



Distance from photosensitive
area center to cap center
 $-0.2 \leq X \leq +0.2$
 $-0.2 \leq Y \leq +0.2$

KIRDA0220EA

② G12181-020K/-030K



Distance from photosensitive
area center to cap center
 $-0.2 \leq X \leq +0.2$
 $-0.2 \leq Y \leq +0.2$

KIRDA0221EA

Information described in this material is current as of July, 2012.

Product specifications are subject to change without prior notice due to improvements or other reasons. Before assembly into final products, please contact us for the delivery specification sheet to check the latest information.

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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