

G7151-16

16-element InGaAs PIN photodiode array for near infrared detection

Features

- High sensitivity
- Low noise

Applications

- Near infrared (NIR) spectrophotometers

Structure

Parameter	Specification	Unit
Photosensitive area	0.08 × 0.2	mm
Element pitch	0.1	mm
Number of elements	16	-
Package	18-pin DIP	-
Window material	Borosilicate glass	-

Absolute maximum ratings (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Reverse voltage	VR	5	V
Operating temperature*	Topr	-25 to +70	°C
Storage temperature*	Tstg	-25 to +70	°C

* No dew condensation

When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

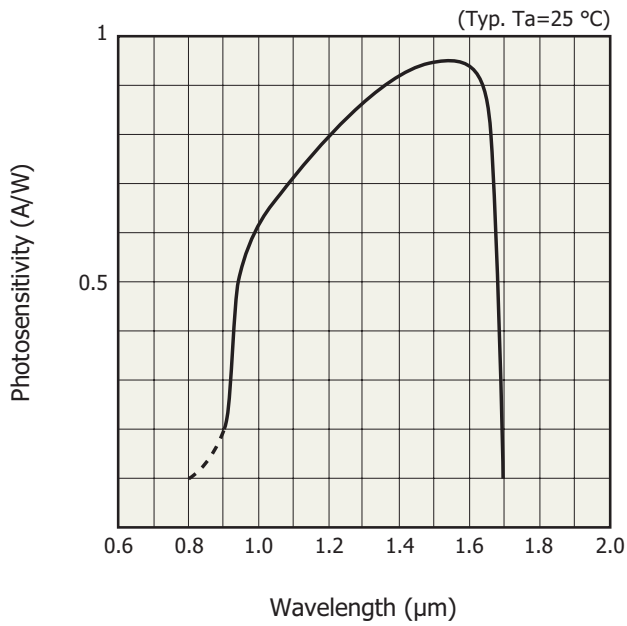
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C, per 1 element)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	0.9 to 1.7	-	μm
Peak sensitivity wavelength	λ_p		-	1.55	-	μm
Photosensitivity	S	$\lambda=1.3 \mu\text{m}$	0.8	0.9	-	A/W
		$\lambda=\lambda_p$	0.85	0.95	-	
Dark current	ID	VR=1 V	-	0.2	1	nA
Temperature coefficient of ID	ΔT_{ID}	VR=1 V	-	1.09	-	times/°C
Cutoff frequency	fc	VR=1 V, RL=50 Ω $\lambda=1.3 \mu\text{m}$, -3 dB	100	300	-	MHz
Terminal capacitance	Ct	VR=1 V, f=1 MHz	-	10	20	pF
Shunt resistance	Rsh	VR=10 mV	100	1000	-	M Ω
Detectivity	D*	$\lambda=\lambda_p$	1×10^{12}	5×10^{12}	-	$\text{cm} \cdot \text{Hz}^{1/2} / \text{W}$
Noise equivalent power	NEP	$\lambda=\lambda_p$	-	3×10^{-15}	2×10^{-14}	$\text{W} / \text{Hz}^{1/2}$

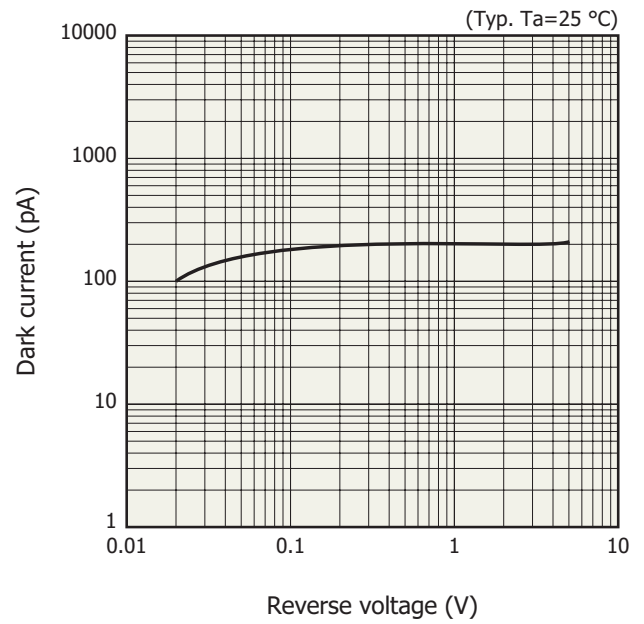
The G7151-16 may be damaged by electrostatic discharge, etc. Be careful when using the G7151-16.

Spectral response



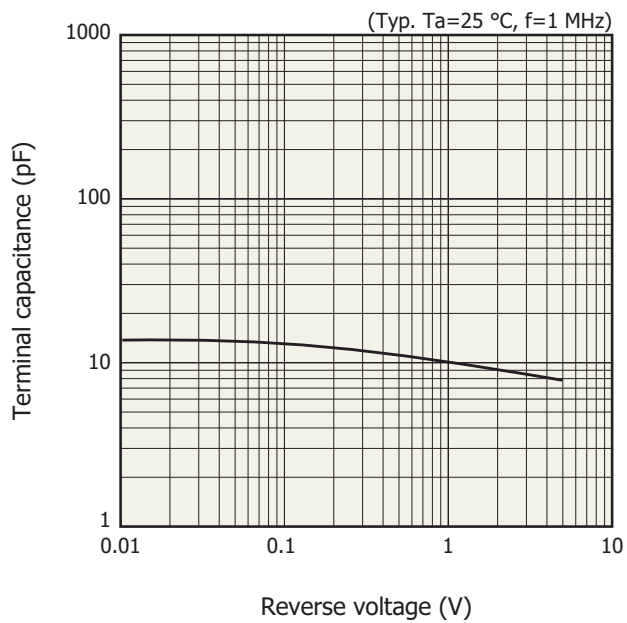
KIRDB0002EB

Dark current vs. reverse voltage



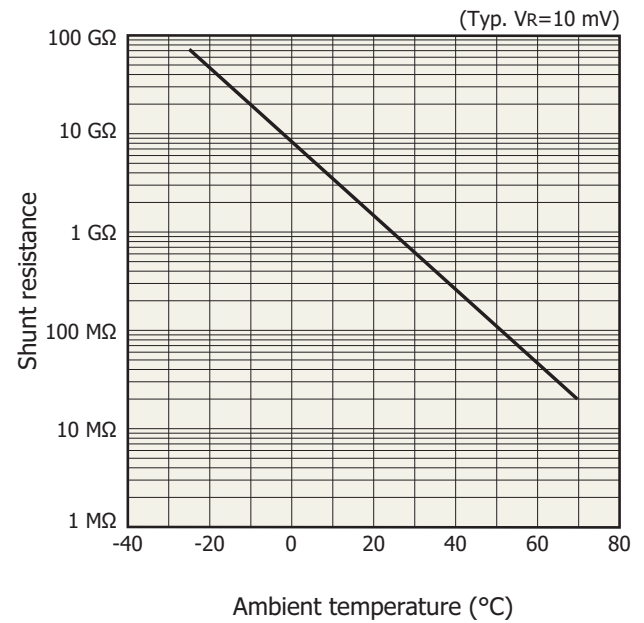
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Terminal capacitance vs. reverse voltage



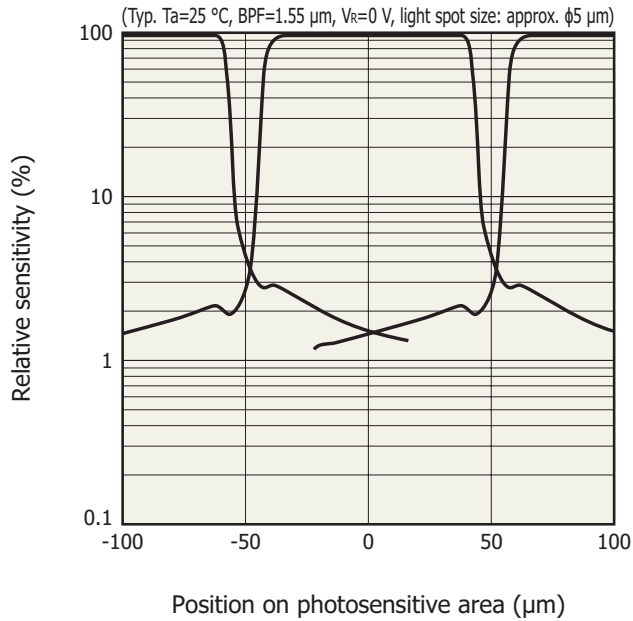
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Shunt resistance vs. ambient temperature



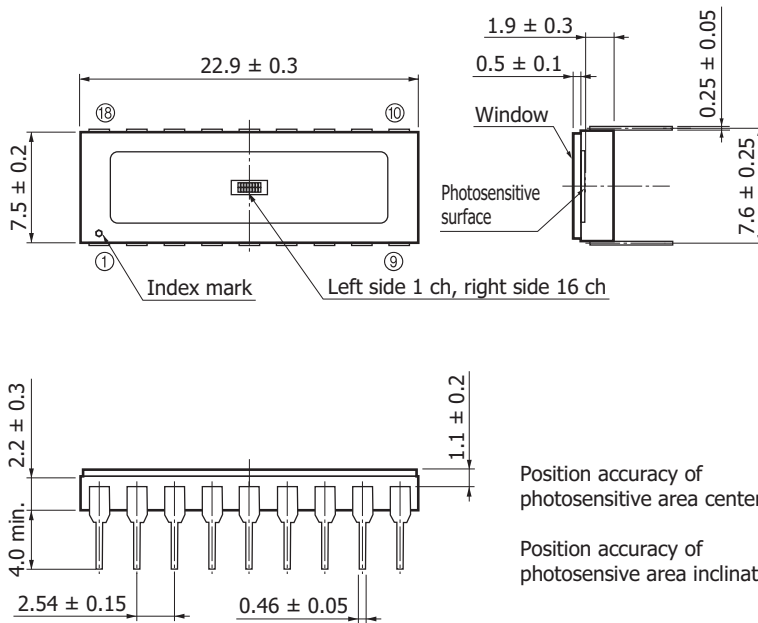
KMIRB0013EC

Crosstalk characteristics



KIRDB0710EA

Dimensional outline (unit: mm)



KIRDA0030EF

Pin connections

Pin no.	Function
1	1 ch (anode)
2	3 ch (anode)
3	5 ch (anode)
4	7 ch (anode)
5	9 ch (anode)
6	Common (cathode)
7	11 ch (anode)
8	13 ch (anode)
9	15 ch (anode)
10	16 ch (anode)
11	14 ch (anode)
12	12 ch (anode)
13	Common (cathode)
14	10 ch (anode)
15	8 ch (anode)
16	6 ch (anode)
17	4 ch (anode)
18	2 ch (anode)

Recommended soldering conditions

Solder temperature: 260 °C (5 s or less, once)

Solder the leads at a point at least 1.5 mm away from the package body.

Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

- Disclaimer
- Safety consideration
- Compound opto-semiconductors (photosensors, light emitters)

Information described in this material is current as of January 2021.

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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