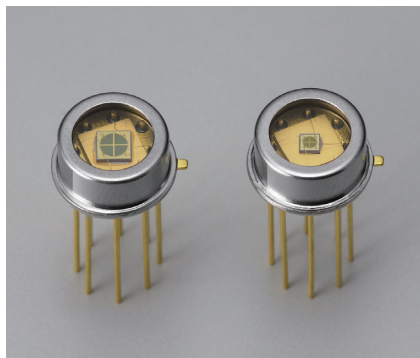


# InGaAs PIN photodiodes



G6849 series

## Quadrant type

### Features

- **Photosensitive area**  
G6849 :  $\phi$ 2 mm quadrant element  
G6849-01:  $\phi$ 1 mm quadrant element
- **Low noise**
- **High reliability**

### Applications

- **Light spot position detection**
- **Measurement equipment**

### Structure

Parameter	G6849	G6849-01	Unit
Photosensitive area	$\phi$ 2/quadrant	$\phi$ 1/quadrant	mm
Number of elements	4		-
Package	TO-5		-
Window material	Borosilicate glass		-

### Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Reverse voltage	V <sub>R</sub>	5	V
Operating temperature*1	T <sub>opr</sub>	-40 to +85	°C
Storage temperature*1	T <sub>stg</sub>	-55 to +125	°C
Soldering condition	-	260 °C or less, within 10 s	-

\*1: 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.

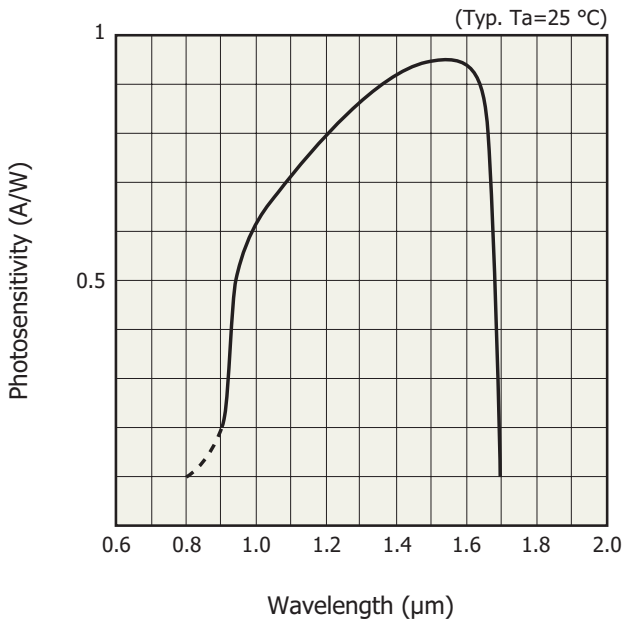
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

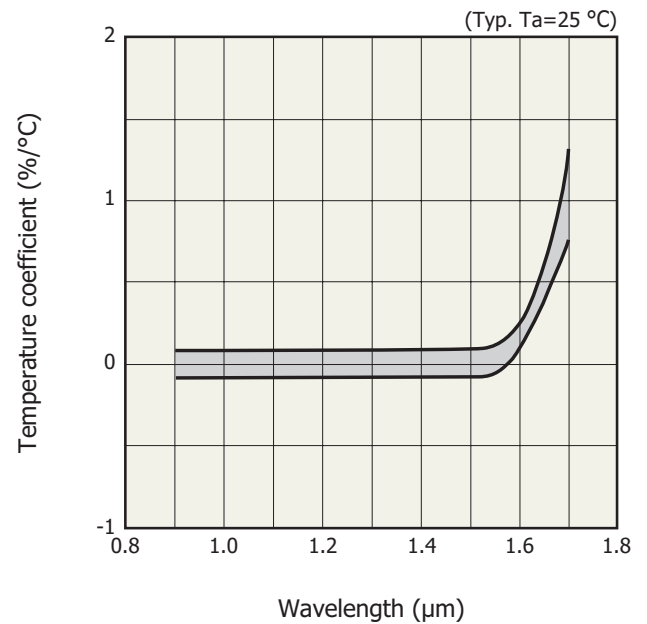
Parameter	Symbol	Condition	G6849			G6849-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	$\lambda$		-	0.9 to 1.7	-	-	0.9 to 1.7	-	$\mu$ m
Peak sensitivity wavelength	$\lambda_p$		-	1.55	-	-	1.55	-	$\mu$ m
Photosensitivity	S	$\lambda=1.3 \mu$ m	0.8	0.9	-	0.8	0.9	-	A/W
		$\lambda=1.55 \mu$ m	0.85	0.95	-	0.85	0.95	-	
Dark current	I <sub>D</sub>	V <sub>R</sub> =1 V	-	0.5	5	-	0.15	1.5	nA
Temperature coefficient of I <sub>D</sub>	$\Delta$ T <sub>ID</sub>	V <sub>R</sub> =1 V	-	1.09	-	-	1.09	-	times/°C
Cutoff frequency	f <sub>c</sub>	V <sub>R</sub> =1 V, R <sub>L</sub> =50 $\Omega$ $\lambda=1.3 \mu$ m, -3 dB	15	30	-	80	120	-	MHz
Terminal capacitance	C <sub>t</sub>	V <sub>R</sub> =1 V, f=1 MHz	-	100	160	-	25	40	pF
Shunt resistance	R <sub>sh</sub>	V <sub>R</sub> =10 mV	10	50	-	80	200	-	M $\Omega$
Detectivity	D*	$\lambda=\lambda_p$	$1 \times 10^{12}$	$5 \times 10^{12}$	-	$1 \times 10^{12}$	$5 \times 10^{12}$	-	cm <sup>2</sup> ·Hz <sup>1/2</sup> /W
Noise equivalent power	NEP	$\lambda=\lambda_p$	-	$2 \times 10^{-14}$	$6 \times 10^{-14}$	-	$1 \times 10^{-14}$	$4 \times 10^{-14}$	W/Hz <sup>1/2</sup>

The G6849 series may be damaged by Electro Static Discharge. Be careful when using the G6849 series.

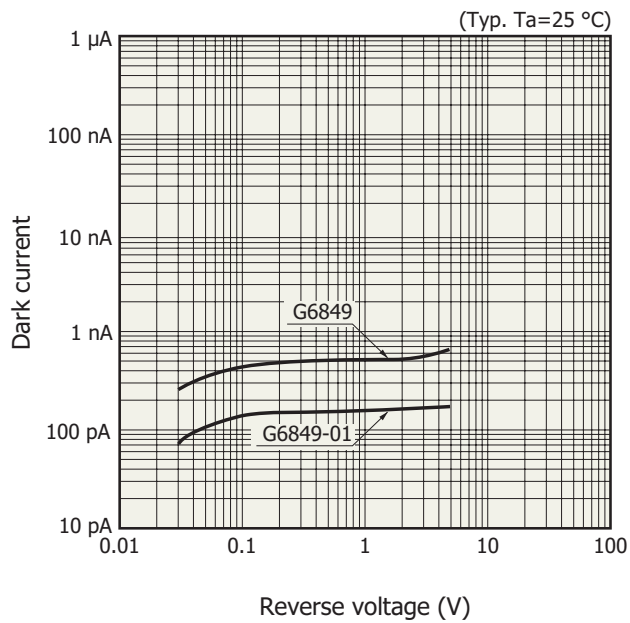
**Spectral response**



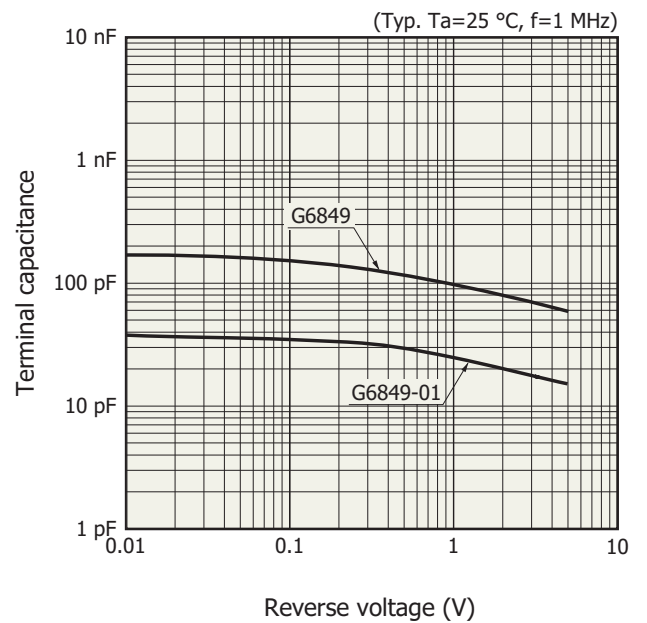
**Photosensitivity temperature characteristics**



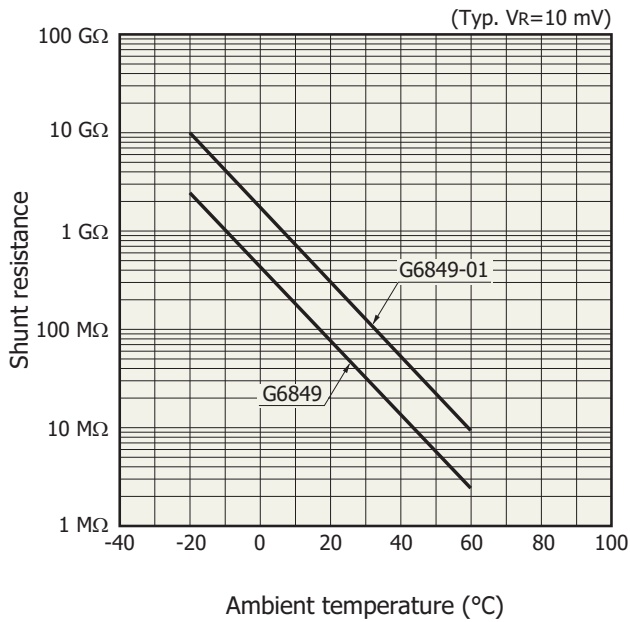
**Dark current vs. reverse voltage**



**Terminal capacitance vs. reverse voltage**



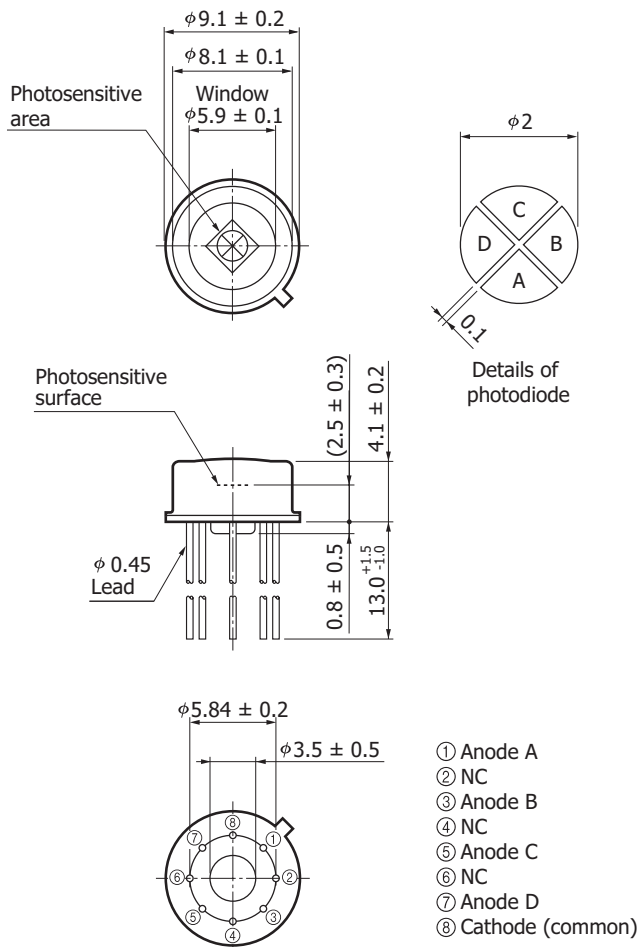
Shunt resistance vs. ambient temperature



KMIRB0014EA

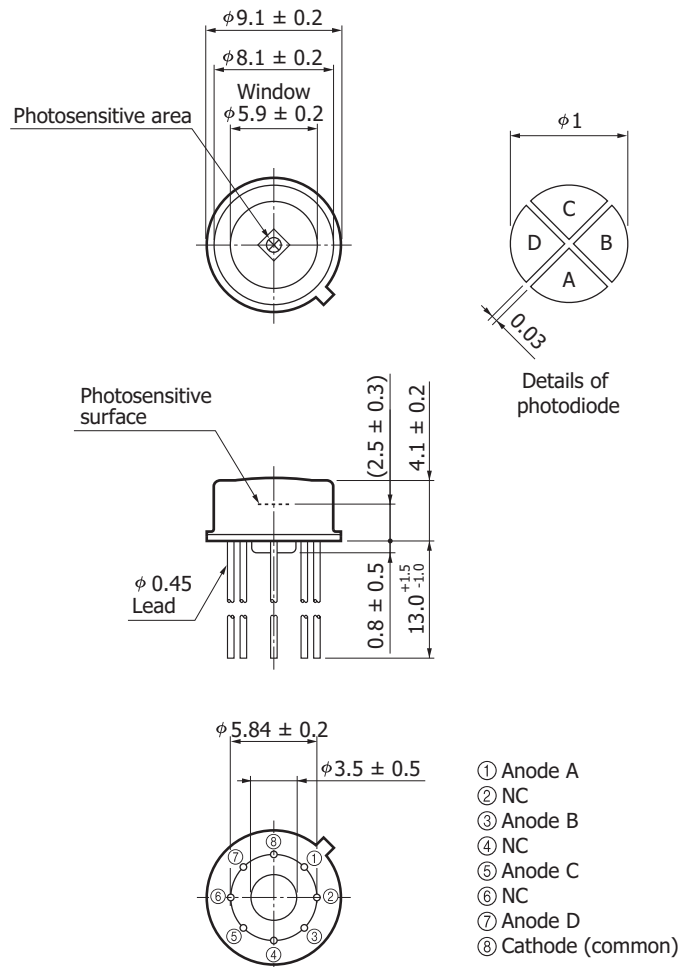
Dimensional outlines (unit: mm)

G6849



KIRDA0059EB

G6849-01



KIRDA0143EB

## Related information

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

### ■ Precautions

- Notice
- Metal, ceramic, plastic products

### ■ Technical information

- Compound semiconductor photosensors / Technical note

Information described in this material is current as of July, 2021.

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