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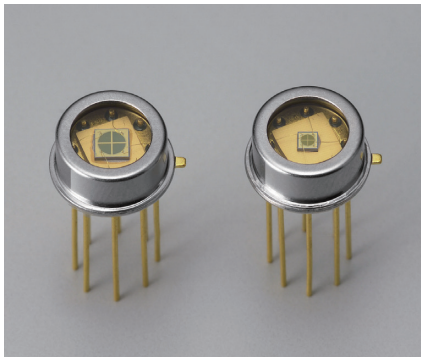
InGaAs PIN photodiodes

G6849 series



Quadrant type

Features

- **Photosensitive area**
  G6849 : ϕ2 mm quadrant element
  G6849-01: ϕ1 mm quadrant element
- **Low noise**
- **High reliability**

Applications

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

Structure

Parameter	G6849	G6849-01	Unit
Photosensitive area	ϕ2/quadrant	ϕ1/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_R	5	V
Operating temperature*1	Topr	-40 to +85	°C
Storage temperature*1	Tstg	-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.

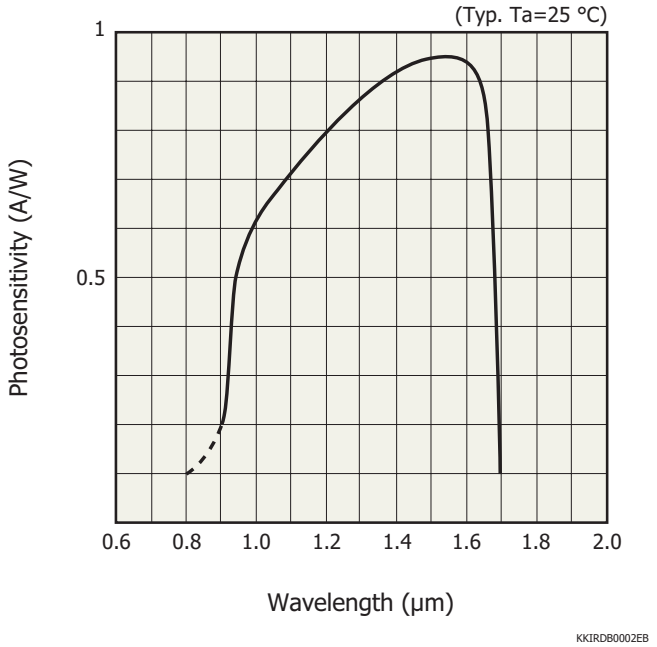
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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	λ		-	0.9 to 1.7	-	-	0.9 to 1.7	-	μm
Peak sensitivity wavelength	λp		-	1.55	-	-	1.55	-	μm
Photosensitivity	S	λ=1.3 μm	0.8	0.9	-	0.8	0.9	-	A/W
		λ=1.55 μm	0.85	0.95	-	0.85	0.95	-	
Dark current	I_D	V_R=1 V	-	0.5	5	-	0.15	1.5	nA
Temperature coefficient of I_D	ΔT_{ID}	V_R=1 V	-	1.09	-	-	1.09	-	times/°C
Cutoff frequency	fc	V_R=1 V, R_L=50 Ω λ=1.3 μm, -3 dB	15	30	-	80	120	-	MHz
Terminal capacitance	Ct	V_R=1 V, f=1 MHz	-	100	160	-	25	40	pF
Shunt resistance	Rsh	V_R=10 mV	10	50	-	80	200	-	MΩ
Detectivity	D*	λ=λp	1×10^{12}	5×10^{12}	-	1×10^{12}	5×10^{12}	-	cm·Hz$^{1/2}$/W
Noise equivalent power	NEP	λ=λp	-	2×10^{-14}	6×10^{-14}	-	1×10^{-14}	4×10^{-14}	W/Hz$^{1/2}$

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

Spectral response



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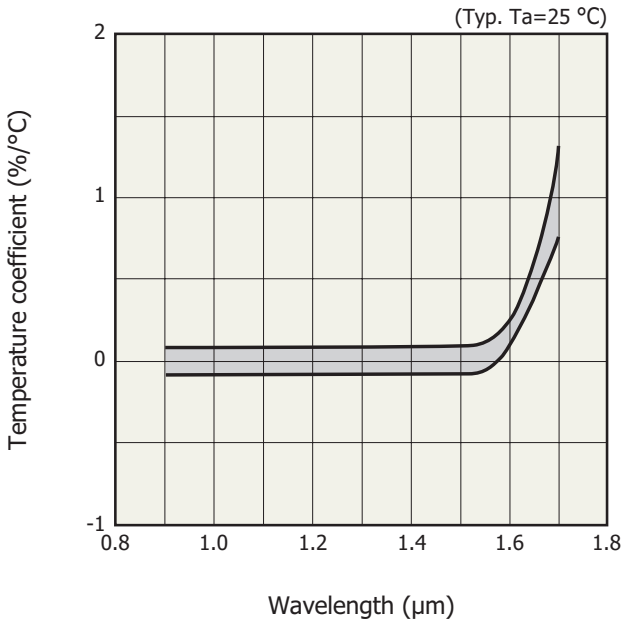
Photosensitivity temperature characteristics



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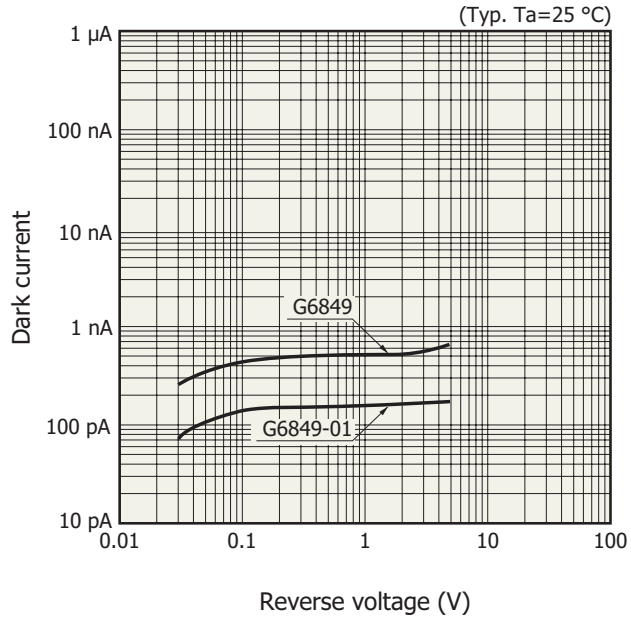
Dark current vs. reverse voltage



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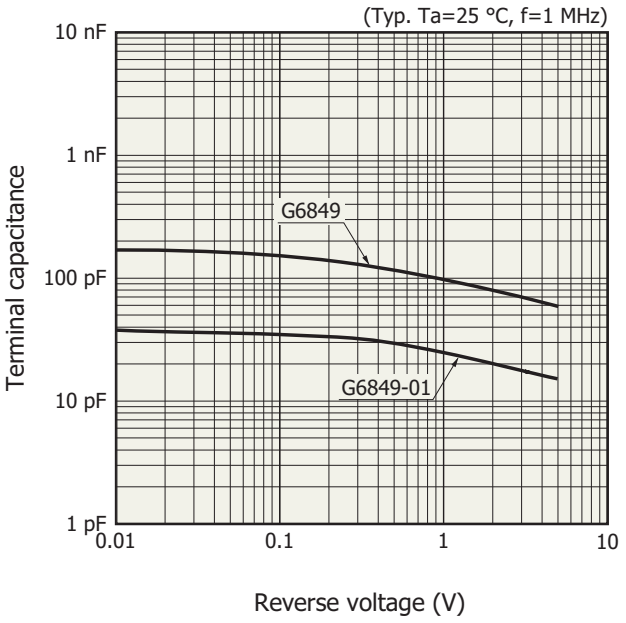
Terminal capacitance vs. reverse voltage



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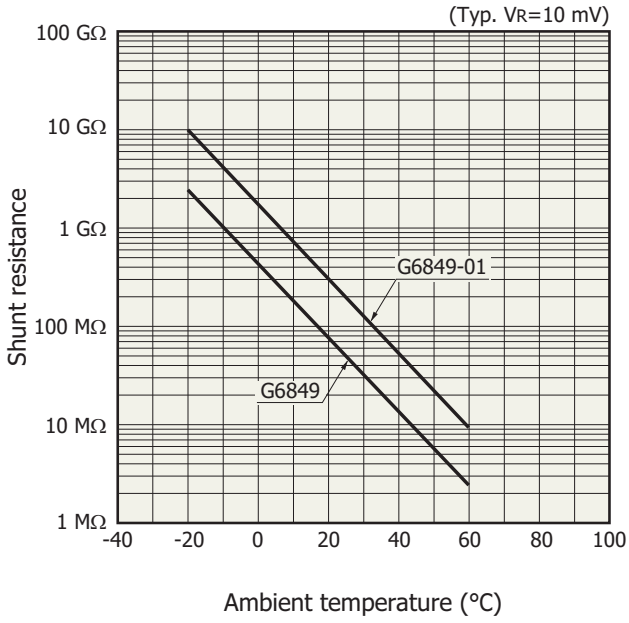
Shunt resistance vs. ambient temperature



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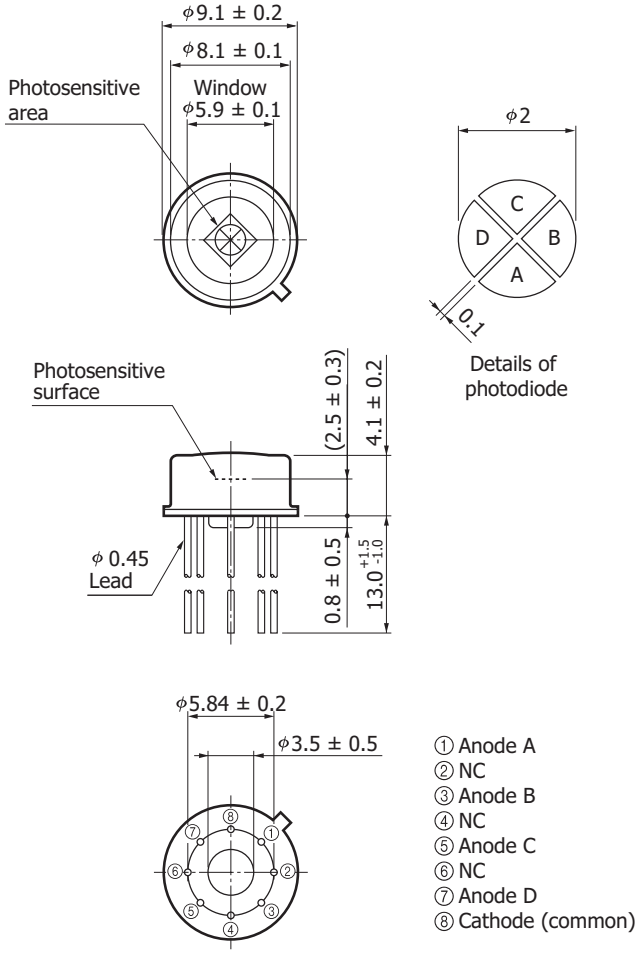
Dimensional outlines (unit: mm)

G6849



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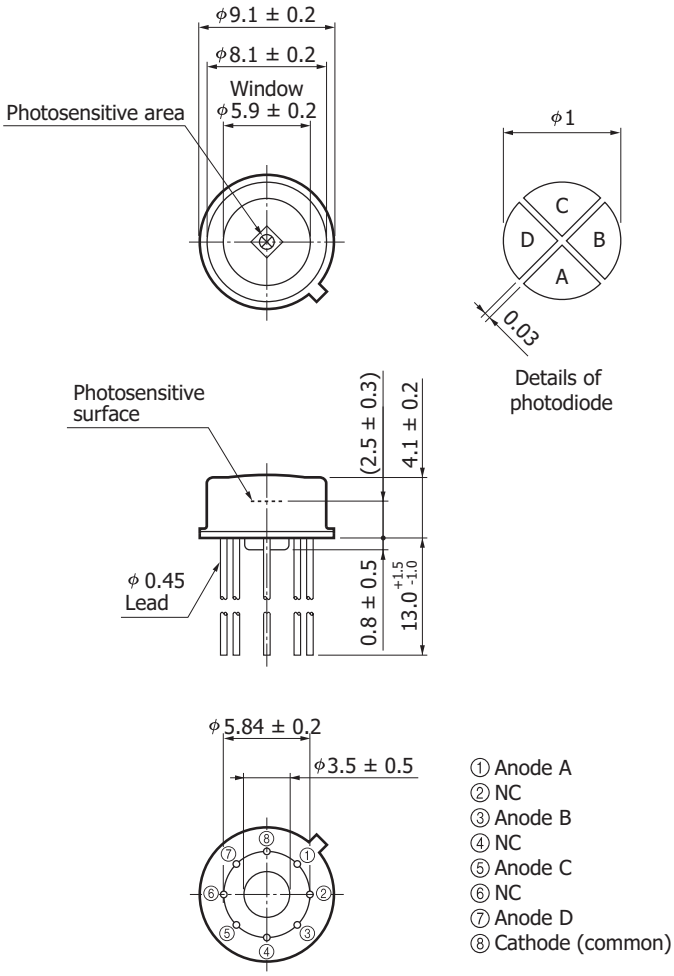
G6849-01



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Related information

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

■ Precautions
- Notice
- Metal, ceramic, plastic products

■ Technical information
- Compound semiconductor photosensors / Technical note

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