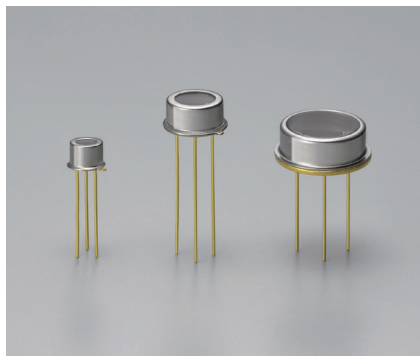


# InGaAs PIN photodiodes



G8370-81/-82/-83/-85

## Low PDL (Polarization Dependence Loss)

InGaAs PIN photodiodes G8370-81/-82/-83/-85 have low PDL at 1.55  $\mu\text{m}$ , large shunt resistance and very low noise. Hamamatsu provides various types of InGaAs PIN photodiodes with photosensitive areas from  $\phi 1$  to  $\phi 5$  mm.

### Features

- Low PDL
- Low noise, low dark current
- Large photosensitive area
- Various photosensitive area sizes available

### Applications

- Laser monitor
- Optical power meter
- Laser diode life test

### Structure/Absolute maximum ratings

Type no.	Dimensional outline/ Window material*1	Package	Photosensitive area (mm)	Absolute maximum ratings		
				Reverse voltage $V_R$ max (V)	Operating temperature $T_{opr}$ ( $^{\circ}\text{C}$ )	Storage temperature $T_{stg}$ ( $^{\circ}\text{C}$ )
G8370-81	(1)/A	TO-18	$\phi 1$	5	-40 to +85	-55 to +125
G8370-82	(2)/A	TO-5	$\phi 2$	2		
G8370-83			$\phi 3$			
G8370-85	(3)/A	TO-8	$\phi 5$	1		

\*1: A=Borosilicate glass with anti-reflective coating (optimized for 1.55  $\mu\text{m}$  peak)

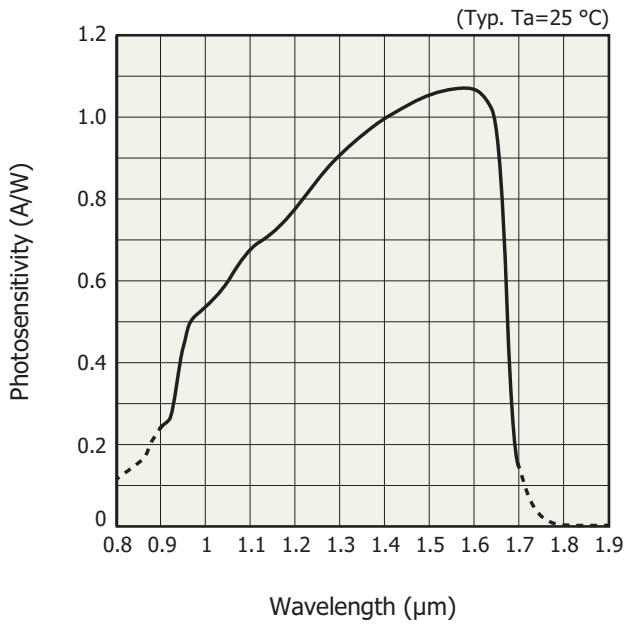
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

### Electrical and optical characteristics (Typ. $T_a=25^{\circ}\text{C}$ , unless otherwise noted)

Type no.	Spectral response range ( $\mu\text{m}$ )	Peak sensitivity wavelength $\lambda_p$ ( $\mu\text{m}$ )	Photosensitivity S				Dark current $I_D$ $V_R=1$ V		Cutoff frequency $f_c$ $V_R=1$ V $R_L=50$ $\Omega$ -3 dB (MHz)	Terminal capacitance $C_t$ $V_R=1$ V $f=1$ MHz (pF)	Shunt resistance $R_{sh}$ $V_R=10$ mV ( $M\Omega$ )	PDL $\lambda=\lambda_p$		$D^*$ $\lambda=\lambda_p$ ( $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$ )	NEP $\lambda=\lambda_p$ ( $\text{W}/\text{Hz}^{1/2}$ )
			1.3 $\mu\text{m}$		$\lambda=\lambda_p$		Typ. (nA)	Max. (nA)				Typ. (mdB)	Max. (mdB)		
			Min. (A/W)	Typ. (A/W)	Min. (A/W)	Typ. (A/W)									
G8370-81	0.9 to 1.7	1.55	0.8	0.9	0.85	1.1	1	5	35	90	100	5	10	$5 \times 10^{12}$	$2 \times 10^{-14}$
G8370-82							5	25	4	550	25				$4 \times 10^{-14}$
G8370-83							15	75	2	1000	10				$6 \times 10^{-14}$
G8370-85							25*2	125*2	0.6	3500	3				$1 \times 10^{-13}$

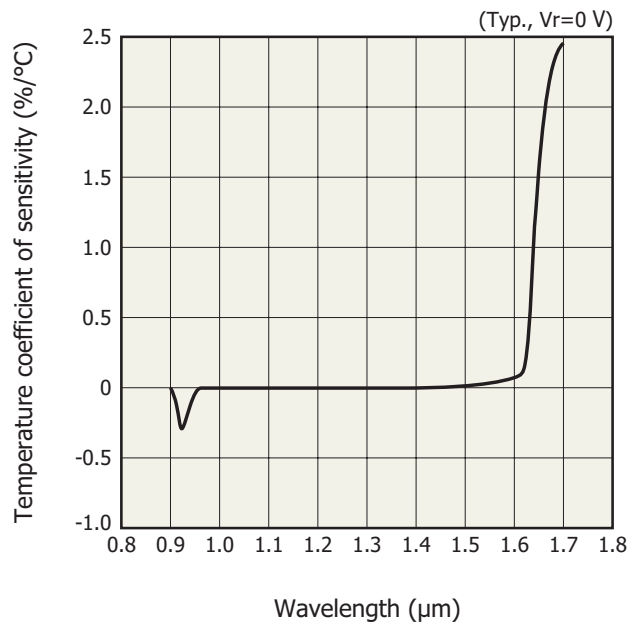
\*2:  $V_R=0.1$  V

**Spectral response**



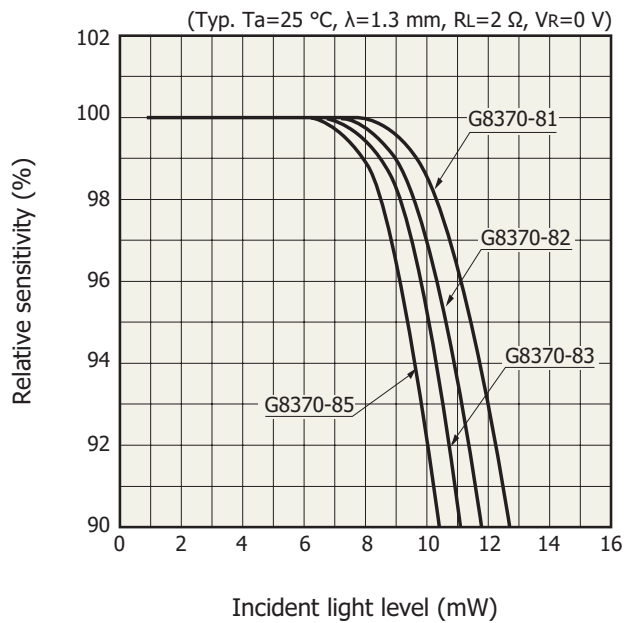
KIRDB0374EA

**Photosensitivity temperature characteristics**



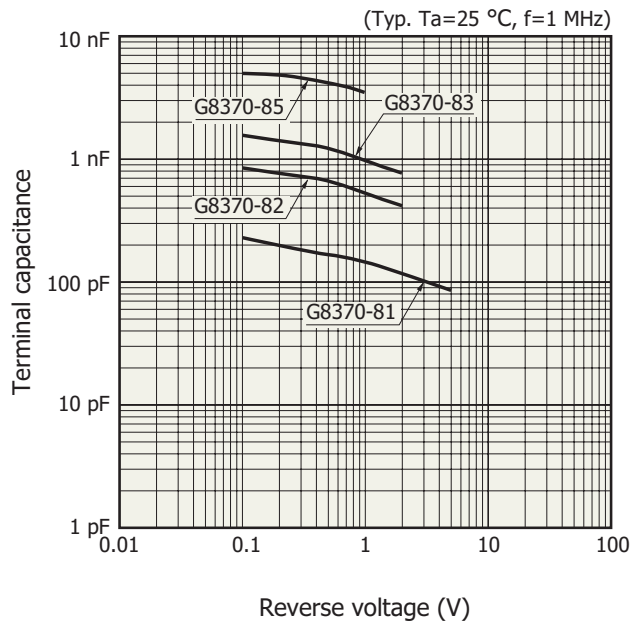
KIRDB0042EB

**Photosensitivity linearity**



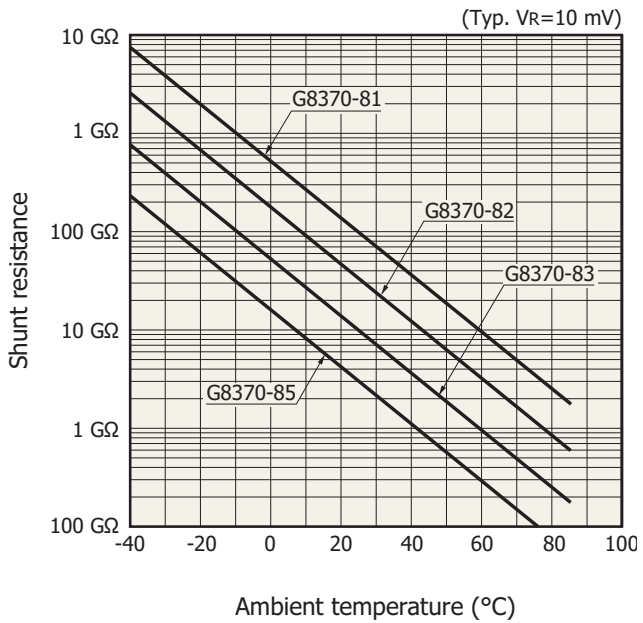
KIRDB0298EA

**Terminal capacitance vs. reverse voltage**



KIRDB0299EA

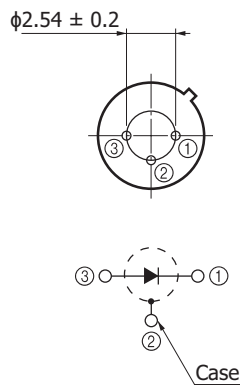
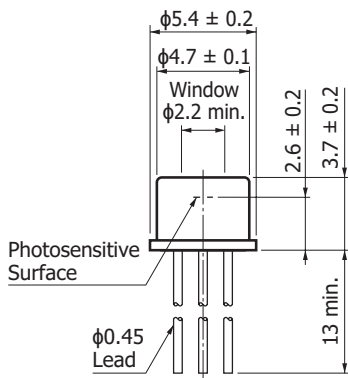
Shunt resistance vs. ambient temperature



KIRD80300EA

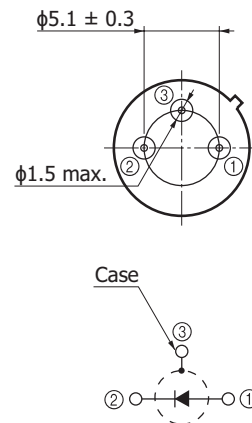
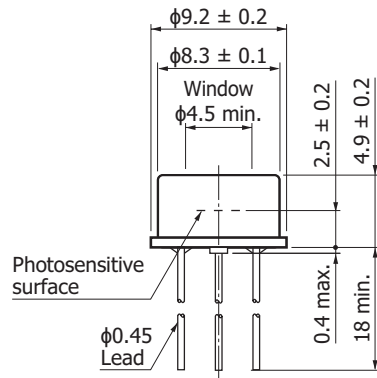
Dimensional outlines (unit: mm)

(1) G8370-81



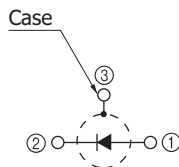
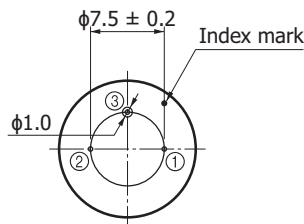
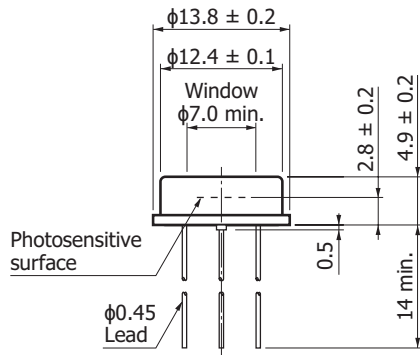
KIRDA0189EB

(2) G8370-82/-83



KIRDA0155EB

## (3) G8370-85



KIRDA0052EC

## ■ 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

Information described in this material is current as of March, 2019.

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