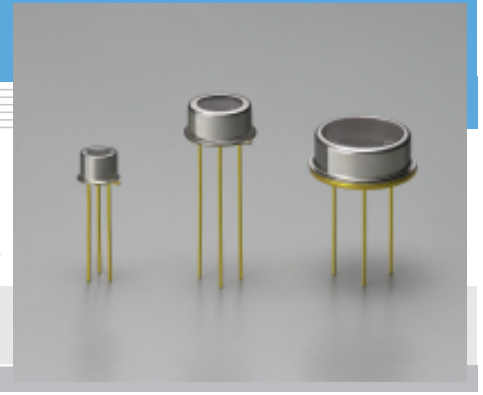


# InGaAs PIN photodiode

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

### Low PDL (Polarization Dependence Loss)



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

#### Features

- Low PDL (Polarization Dependence Loss)
- Low noise, low dark current
- Large active area
- Various active area sizes available

#### Applications

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

#### ■ Specifications / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *1	Package	Active area (mm)	Absolute maximum ratings		
				Reverse voltage VR Max. (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
G8370-81	①/K	TO-18	$\phi 1$	5	-40 to +85	-55 to +125
G8370-82	②/K	TO-5	$\phi 2$	2		
G8370-83			$\phi 3$			
G8370-85	③/K	TO-8	$\phi 5$	1		

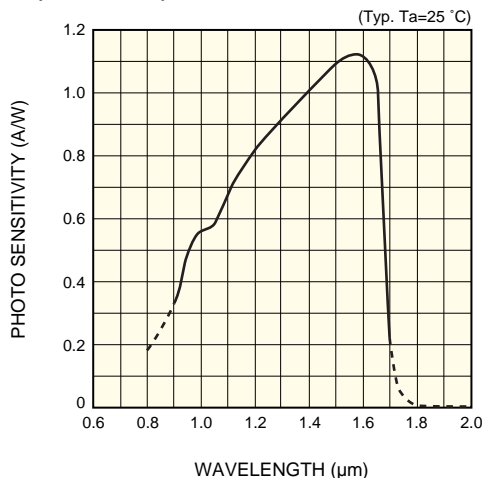
#### ■ Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Type No.	Spectral response range ( $\mu\text{m}$ )	Peak sensitivity wavelength $\lambda_p$ ( $\mu\text{m}$ )	Photo sensitivity S				Dark current ID VR=1 V (nA)		Cut-off frequency fc VR=1 V RL=50 $\Omega$ -3 dB (MHz)	Terminal capacitance Ct VR=1 V f=1 MHz (pF)	Shunt resistance Rsh VR=10 mV (M $\Omega$ )	PDL $\lambda=\lambda_p$		D* $\lambda=\lambda_p$ (cm $\cdot$ Hz $^{1/2}$ /W)	NEP $\lambda=\lambda_p$ (W/Hz $^{1/2}$ )
			1.3 $\mu\text{m}$		$\lambda=\lambda_p$		Typ.	Max.				Typ.	Max.		
			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				$1 \times 10^{-13}$

\*1: Window material K: borosilicate glass with anti-reflective coating (optimized for 1.55  $\mu\text{m}$  peak)

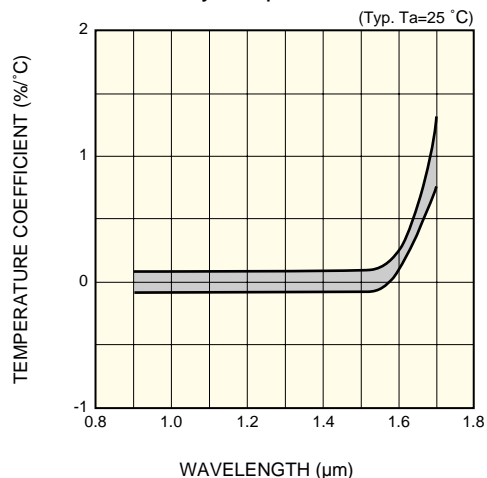
\*2: VR=0.1 V

■ Spectral response



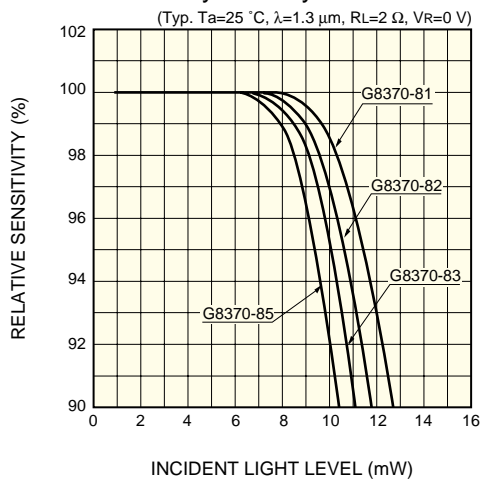
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■ Photo sensitivity temperature characteristic



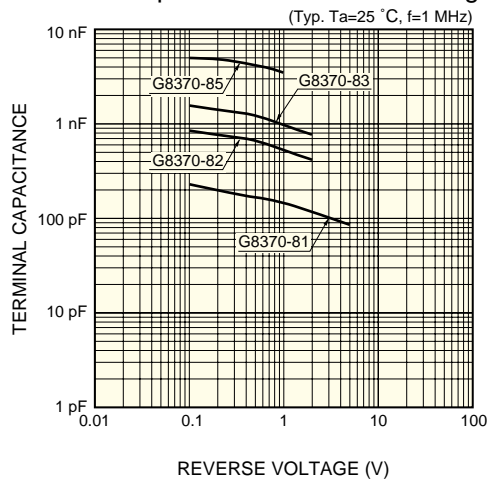
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■ Photo sensitivity linearity



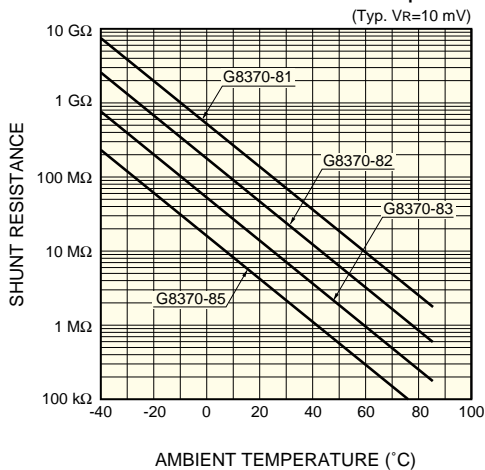
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■ Terminal capacitance vs. reverse voltage



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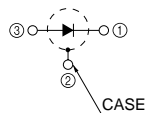
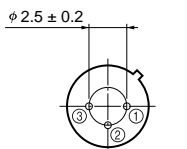
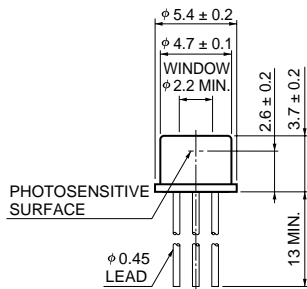
■ Shunt resistance vs. ambient temperature



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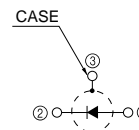
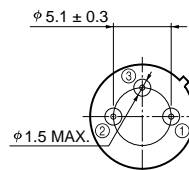
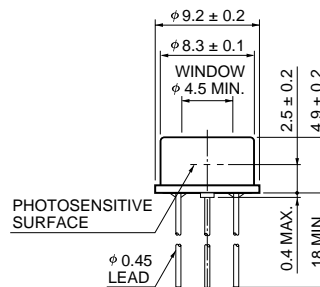
## Dimensional outlines (unit: mm)

① G8370-81



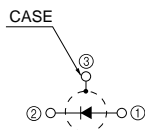
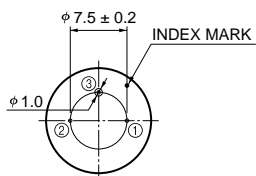
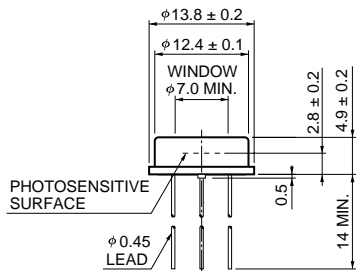
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② G8370-82/-83



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③ G8370-85



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