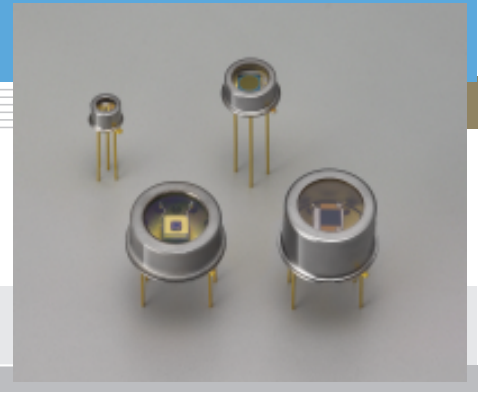


# InGaAs PIN photodiode G8421/G8371/G5851 series

## Long wavelength type



### Features

- Long cut-off wavelength: 1.9  $\mu\text{m}$
- 3-pin TO-18 package: low price
- Thermoelectrically cooled TO-18 package: low dark current
- Active area:  $\phi 0.3$  to  $\phi 3$  mm

### Applications

- Optical power meter
- Gas analyzer
- NIR (near infrared) photometry

### Accessories (Optional)

- Heatsink for one-stage TE-cooled type A3179
- Heatsink for two-stage TE-cooled type A3179-01
- Temperature controller for TE-cooled type C1103-04

### ■ Specifications / Absolute maximum ratings

Type No.	Dimensional outline/ Window material	Package	Cooling	Active area (mm)	Absolute maximum ratings				
					Thermistor power dissipation (mW)	TE-cooler allowable current (A)	Reverse voltage $V_R$ (V)	Operating temperature $T_{opr}$ ( $^{\circ}\text{C}$ )	Storage temperature $T_{stg}$ ( $^{\circ}\text{C}$ )
G8421-03	①	TO-18	Non-cooled	$\phi 0.3$	-	-	2	-40 to +85	-55 to +125
G8421-05				$\phi 0.5$					
G8371-01				$\phi 1$					
G8371-03				$\phi 3$					
G5851-103	③	TO-8	One-stage TE-cooled	$\phi 0.3$	0.2	1.5	2	-40 to +70	-55 to +85
G5851-11				$\phi 1$					
G5851-13				$\phi 3$					
G5851-203	④	TO-8	Two-stage TE-cooled	$\phi 0.3$	0.2	1.0	2	-40 to +70	-55 to +85
G5851-21				$\phi 1$					
G5851-23				$\phi 3$					

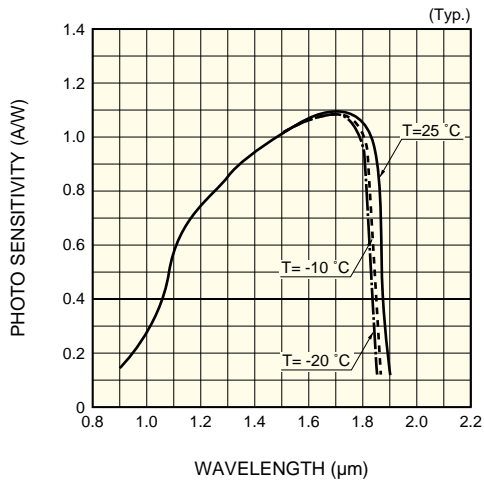
### ■ Electrical and optical characteristics (Typ. unless otherwise noted)

Type No.	Measurement Condition	Spectral response range $\lambda$ ( $\mu\text{m}$ )	Peak sensitivity wavelength $\lambda_p$ ( $\mu\text{m}$ )	Photo sensitivity $S$ $\lambda = \lambda_p$		Dark current $I_D$ $V_R = 1 \text{ V}$		Cut-off frequency $f_c$ $V_R = 1 \text{ V}$ $R_L = 50 \Omega$ -3 dB (MHz)	Terminal capacitance $C_t$ $V_R = 1 \text{ V}$ $f = 1 \text{ MHz}$ (pF)	Shunt resistance $R_{sh}$ $V_R = 10 \text{ mV}$ (M $\Omega$ )	$D^*$ $\lambda = \lambda_p$ ( $\text{cm} \cdot \text{Hz}^{1/2}/\text{W}$ )	NEP $\lambda = \lambda_p$ ( $\text{W}/\text{Hz}^{1/2}$ )
	Element temperature			Min. (A/W)	Typ. (A/W)	Typ. (nA)	Max. (nA)					
	( $^{\circ}\text{C}$ )											
G8421-03	25	0.9 to 1.9	1.75	0.9	1.1	30	300	100	8	1.5	$5 \times 10^{11}$	$9 \times 10^{-14}$
G8421-05						50	500	80	20	1		$1.5 \times 10^{-13}$
G8371-01						100	1000	40	80	0.5		$2 \times 10^{-13}$
G8371-03						2000	20000	3	800	0.05		$8 \times 10^{-13}$
G5851-103	-10	0.9 to 1.87	1.75	0.9	1.1	3	30	100	8	15	$1.5 \times 10^{12}$	$3 \times 10^{-14}$
G5851-11						10	100	40	80	5		$6 \times 10^{-14}$
G5851-13						200	2000	3	800	0.5		$2 \times 10^{-13}$
G5851-203	-20	0.9 to 1.85	1.75	0.9	1.1	1.5	15	100	8	35	$2.5 \times 10^{12}$	$2 \times 10^{-14}$
G5851-21						5	50	40	80	10		$4 \times 10^{-14}$
G5851-23						100	1000	3	800	1		$1.5 \times 10^{-13}$

G8421/G8371/G5851 series may be damaged by Electro Static Discharge, etc. Be carefull when using G8421/G8371/G5851 series.

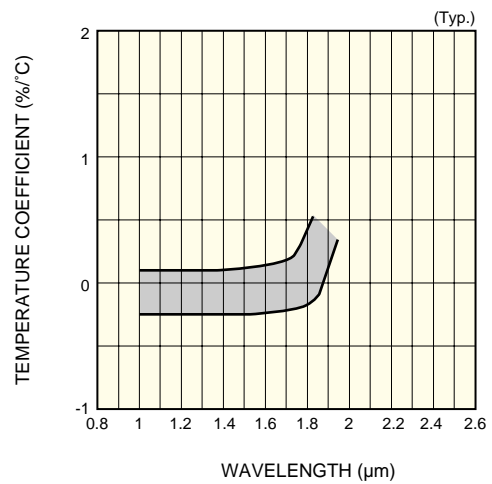
**SOLID STATE DIVISION**

■ Spectral response



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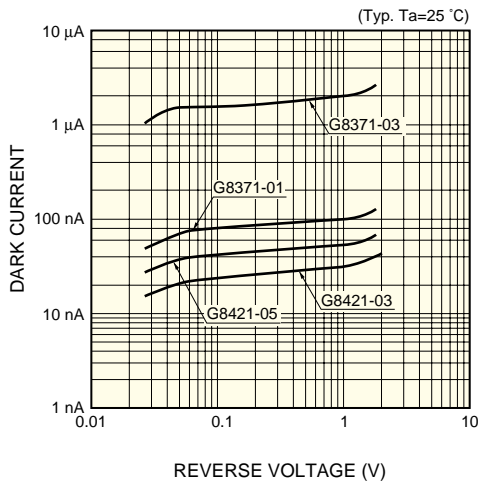
■ Photo sensitivity temperature characteristic



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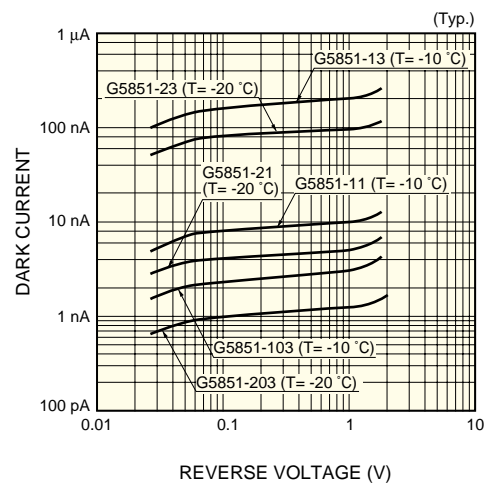
■ Dark current vs. reverse voltage

Non-cooled type



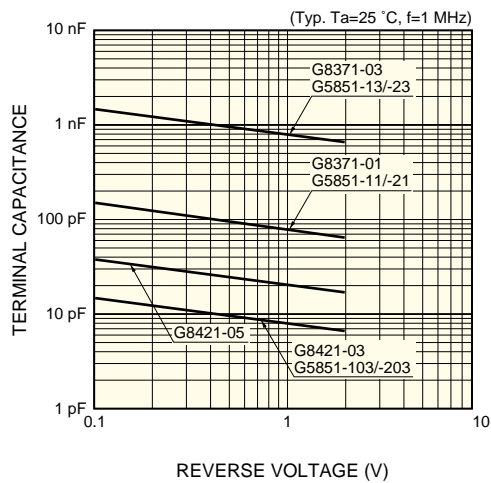
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TE-cooled type



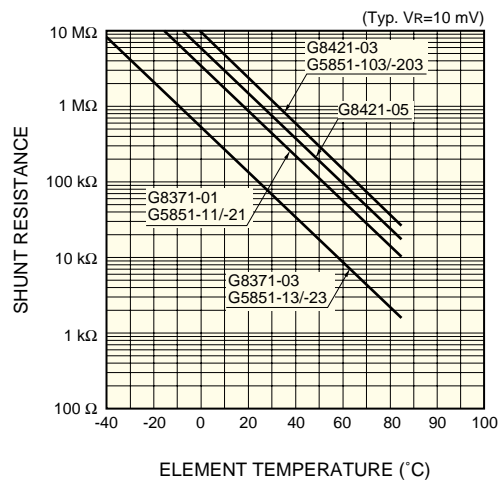
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■ Terminal capacitance vs. reverse voltage



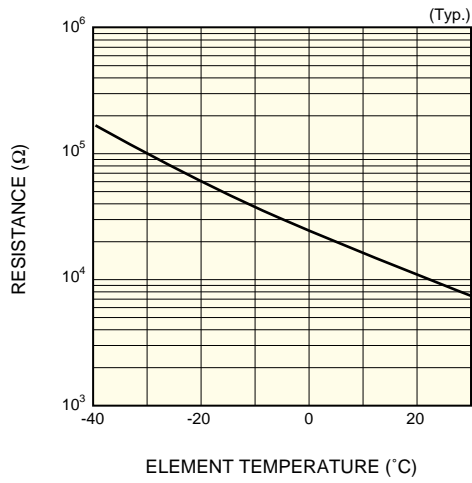
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■ Shunt resistance vs. element temperature



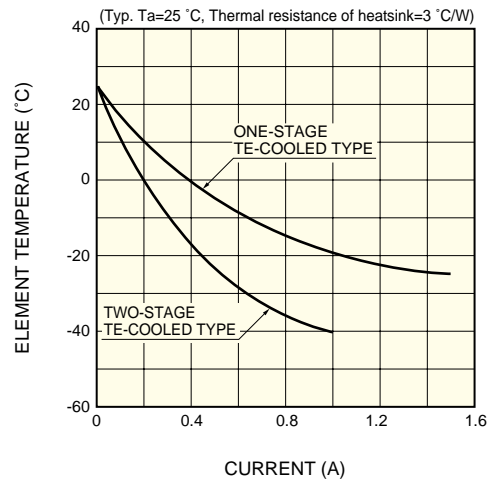
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■ Thermistor temperature characteristic



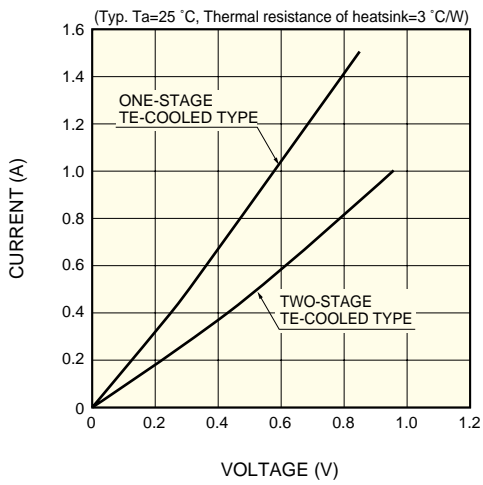
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■ Cooling characteristics of TE-cooler



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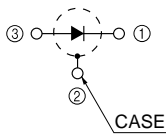
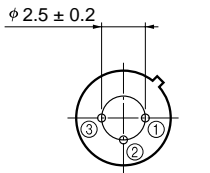
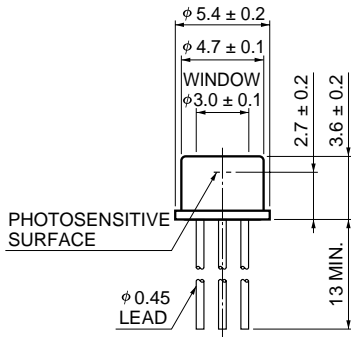
■ Current vs. voltage characteristics of TE-cooler



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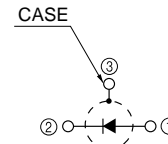
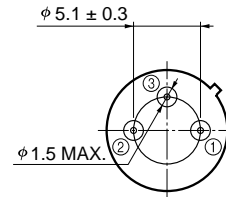
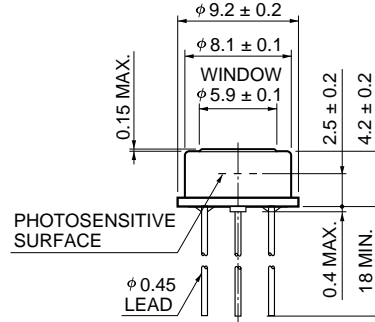
■ Dimensional outlines (unit: mm)

① G8421-03/-05, G8371-01



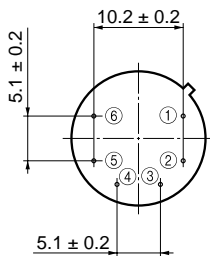
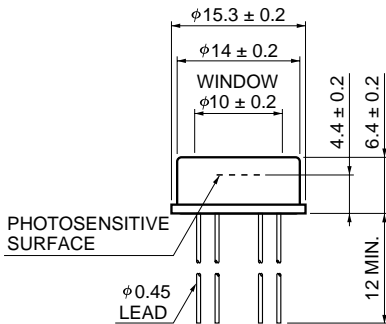
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② G8371-03



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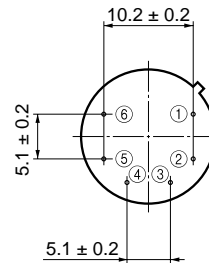
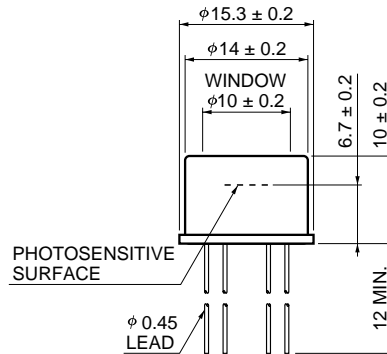
③ G5851-103/-11/-13



- ① DETECTOR (ANODE)
- ② DETECTOR (CATHODE)
- ③ TE-COOLER (-)
- ④ TE-COOLER (+)
- ⑤⑥ THERMISTOR

KIRDA0029EB

④ G5851-203/-21/-23



- ① DETECTOR (ANODE)
- ② DETECTOR (CATHODE)
- ③ TE-COOLER (-)
- ④ TE-COOLER (+)
- ⑤⑥ THERMISTOR

KIRDA0031EB

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HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184, www.hamamatsu.com

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Traçu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741