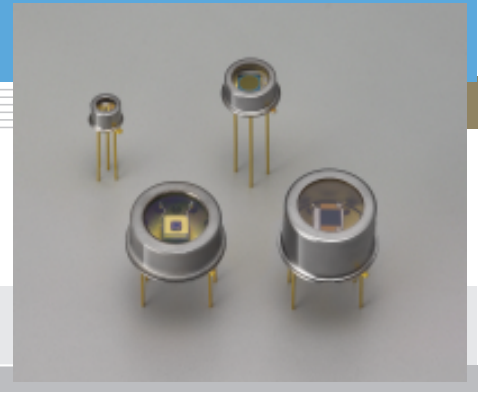


InGaAs PIN photodiode G8421/G8371/G5851 series

Long wavelength type



Features

- Long cut-off wavelength: 1.9 μm
- 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

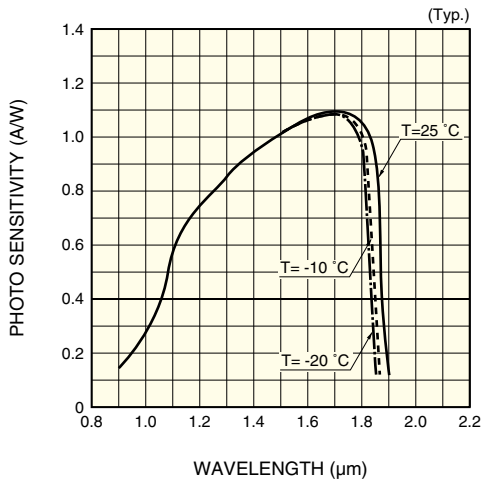
Specifications / Absolute maximum ratings

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)

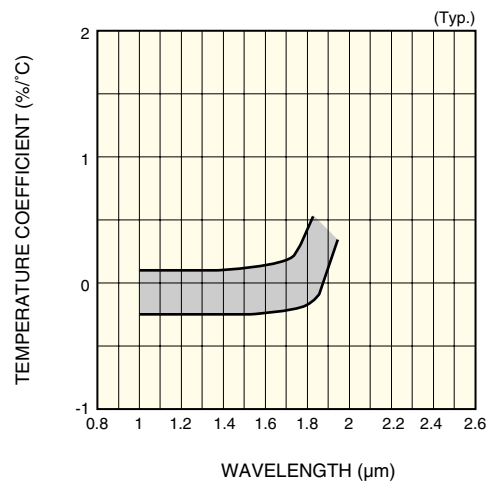
Type No.	Measurement Condition	Spectral response range λ (μm)	Peak sensitivity wavelength λ_p (μm)	Photo sensitivity S $\lambda = \lambda_p$ (A/W)	Dark current I_D $V_R = 1$ V		Cut-off frequency f_c $V_R = 1$ V $R_L = 50 \Omega$ -3 dB (MHz)	Terminal capacitance C_t $V_R = 1$ V $f = 1$ MHz (pF)	Shunt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

■ Spectral response



KIRDB0221EA

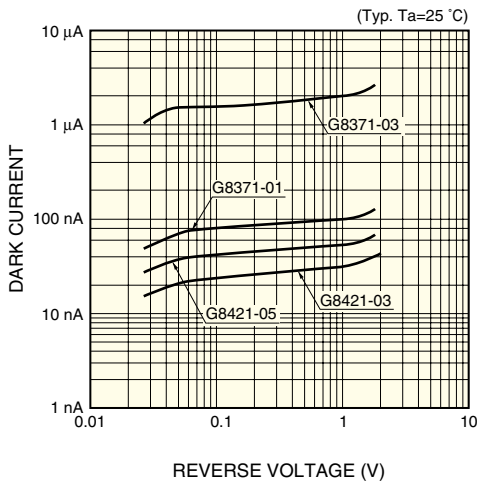
■ Photo sensitivity temperature characteristic



KIRDB0208EA

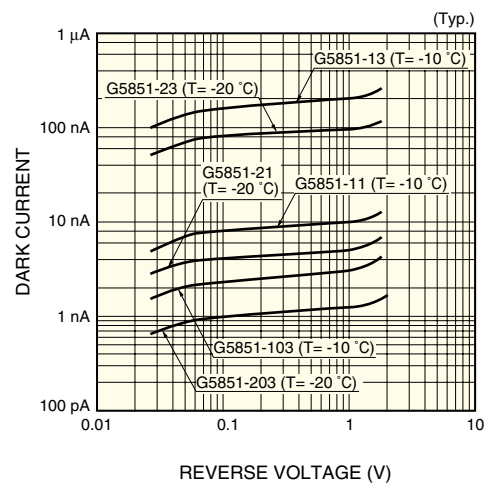
■ Dark current vs. reverse voltage

Non-cooled type



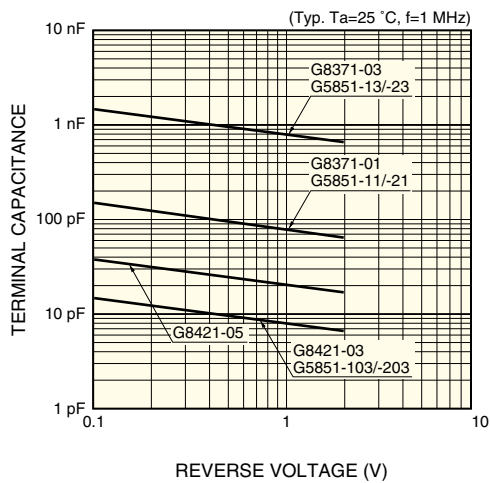
KIRDB0232EB

TE-cooled type



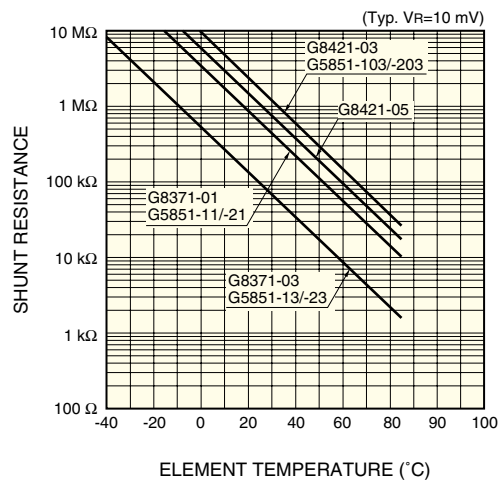
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■ Terminal capacitance vs. reverse voltage



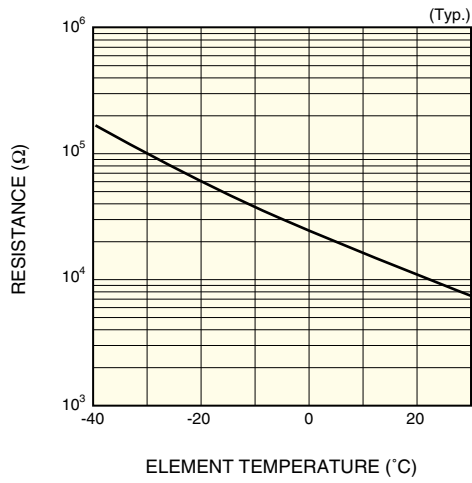
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■ Shunt resistance vs. element temperature



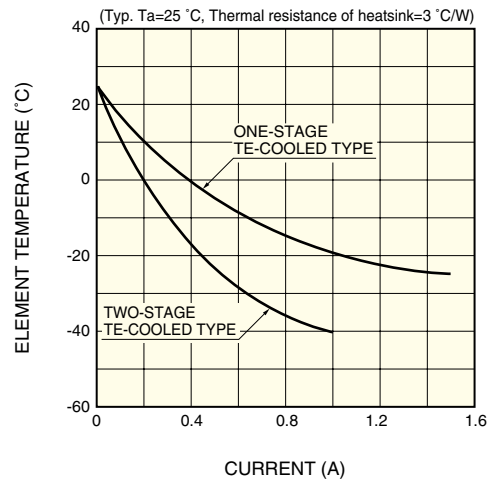
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■ Thermistor temperature characteristic



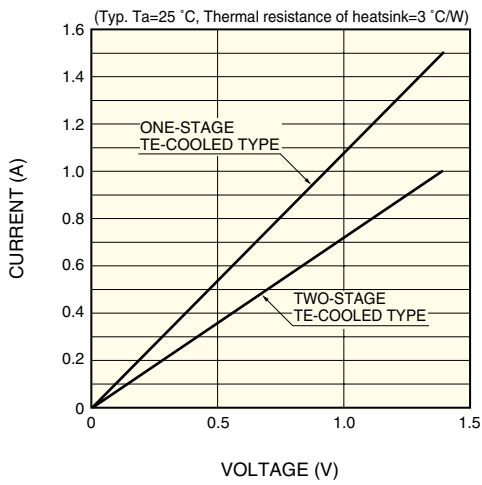
KIRDB0116EA

■ Cooling characteristics of TE-cooler



KIRDB0231EA

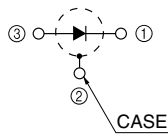
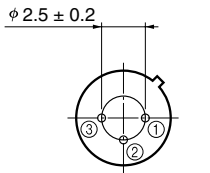
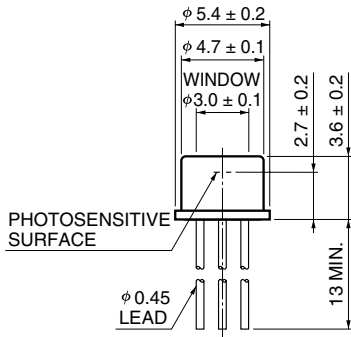
■ Current vs. voltage characteristics of TE-cooler



KIRDB0115EA

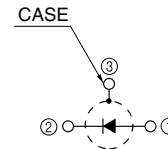
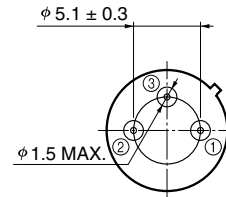
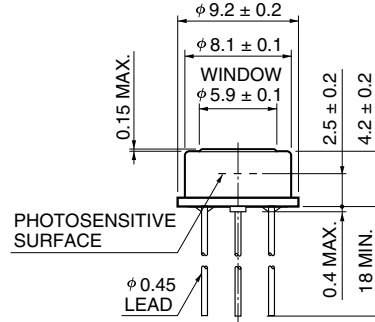
Dimensional outlines (unit: mm)

① G8421-03/-05, G8371-01



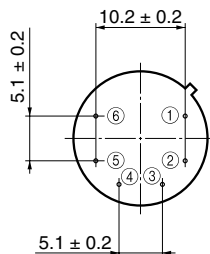
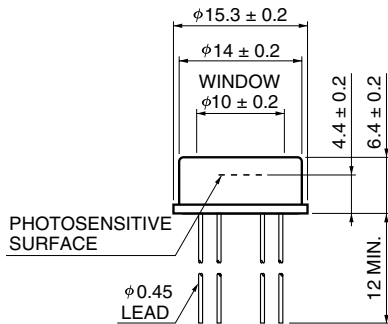
KIRDA0150EA

② G8371-03



KIRDA0151EA

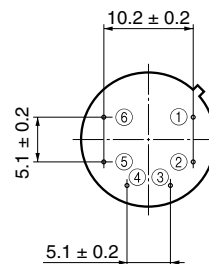
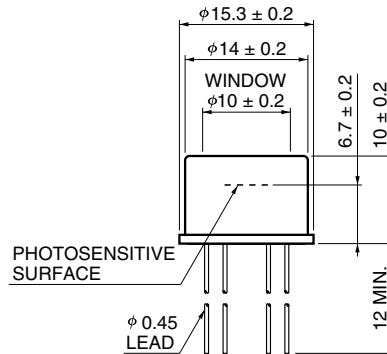
③ G5851-103/-11/-13



- 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, Hamamatsu City, 435-8558 Japan, Telephone: (81) 053-434-3311, Fax: (81) 053-434-5184, <http://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.: 8, Rue du Saule Trapu, 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