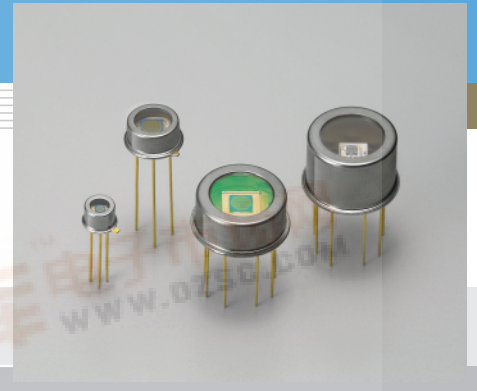


PHOTODIODE

# InGaAs PIN photodiode G8422/G8372/G5852 series

Long wavelength type (up to 2.1  $\mu\text{m}$ )



**Features**

- Cut-off wavelength: 2.1  $\mu\text{m}$
- 3-pin TO-18 package: low price
- TE-cooled type TO-8 package: low dark current
- Active area:  $\phi 0.3$  to  $\phi 3$  mm

**Applications**

- Gas analyzer
- Water content analyzer
- NIR (Near Infrared) photometry

■ Specifications / Absolute maximum ratings

Type No.	Dimensional outline	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 $T_{stg}$ ( $^{\circ}\text{C}$ )
G8422-03	①	TO-18	Non-cooled	$\phi 0.3$	-	-	2	-40 to +85	-55 to +125
G8422-05				$\phi 0.5$					
G8372-01				$\phi 1$					
G8372-03	②	TO-5		$\phi 3$					
G5852-103	③	TO-8	One-stage TE-cooled	$\phi 0.3$	0.2	1.5	2	-40 to +70	-55 to +85
G5852-11				$\phi 1$					
G5852-13				$\phi 3$					
G5852-203	④	TO-8	Two-stage TE-cooled	$\phi 0.3$	0.2	1.0	2	-40 to +70	-55 to +85
G5852-21				$\phi 1$					
G5852-23				$\phi 3$					

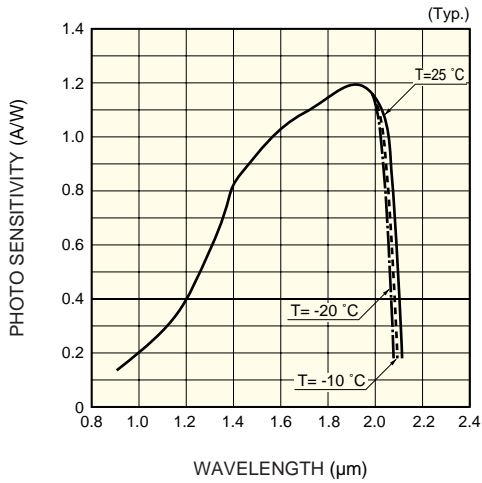
■ Electrical and optical characteristics (Typ. unless otherwise noted)

Type No.	Measurement condition Element Temperature T ( $^{\circ}\text{C}$ )	Spectral response range $\lambda$ ( $\mu\text{m}$ )	Peak sensitivity wavelength $\lambda_p$ ( $\mu\text{m}$ )	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 $R_L = 50 \Omega$ (MHz)	Terminal capacitance $C_t$ $V_R = 1$ V $f = 1$ MHz (pF)	Shunt resistance $R_{sh}$ $V_R = 10$ mV (M $\Omega$ )	$D^*$ $\lambda = \lambda_p$ (cm $\cdot$ Hz $^{1/2}$ /W)	NEP $\lambda = \lambda_p$ (W/Hz $^{1/2}$ )
					Typ. (nA)	Max. (nA)					
	G8422-03	25	0.9 to 2.1	1.95	1.2	55	550	100	8	0.9	$2.5 \times 10^{11}$
G8422-05	125					1250	80	20	0.3	$2.5 \times 10^{-13}$	
G8372-01	500					5000	40	80	0.1	$4 \times 10^{-13}$	
G8372-03	5 ( $\mu\text{A}$ )					50 ( $\mu\text{A}$ )	3	800	0.01	$1.5 \times 10^{-12}$	
G5852-103	-10	0.9 to 2.07	1.95	1.2	5.5	55	100	8	9	$8 \times 10^{11}$	$5 \times 10^{-14}$
G5852-11					50	500	40	80	1		$1 \times 10^{-13}$
G5852-13					500	5000	3	800	0.1		$4 \times 10^{-13}$
G5852-203	-20	0.9 to 2.05	1.95	1.2	3	30	100	8	18	$1.2 \times 10^{12}$	$3 \times 10^{-14}$
G5852-21					25	250	40	80	2		$8 \times 10^{-14}$
G5852-23					250	2500	3	800	0.2		$3 \times 10^{-13}$



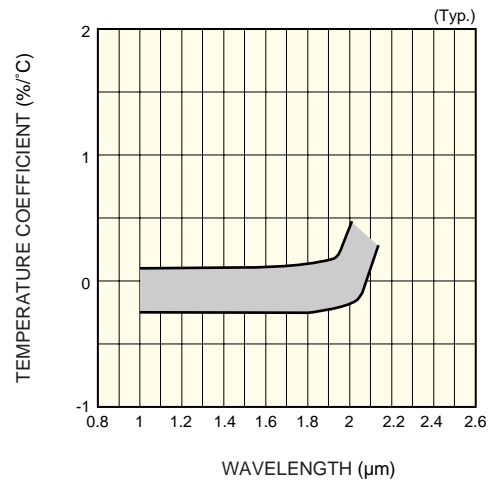
# InGaAs PIN photodiode G8422/G8372/G5852 series

## Spectral response



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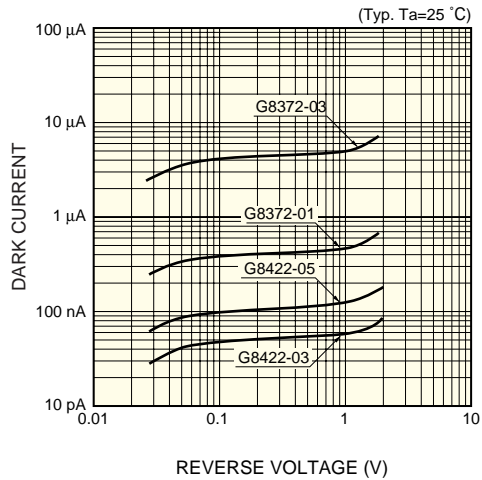
## Photo sensitivity temperature characteristic



KIRDB0207EA

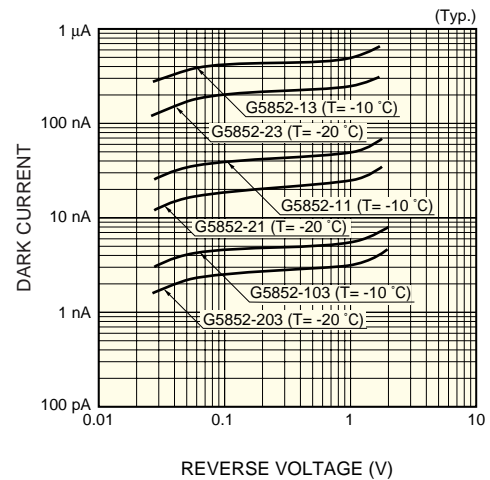
## Dark current vs. reverse voltage

### Non-cooled type



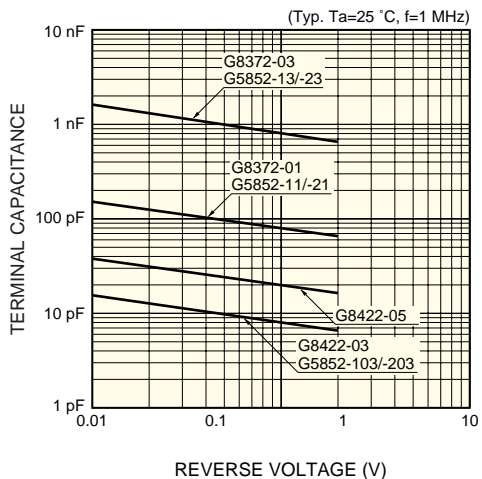
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### TE-cooled type



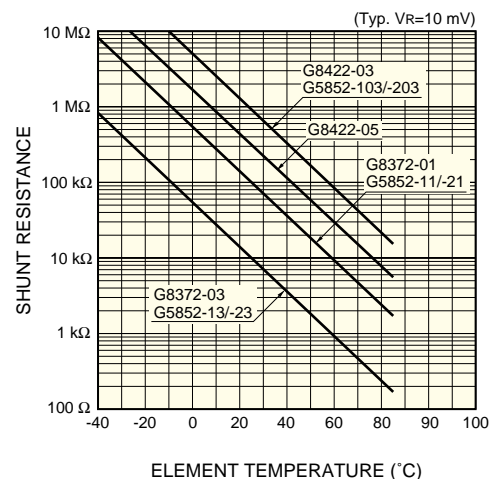
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## Terminal capacitance vs. reverse voltage



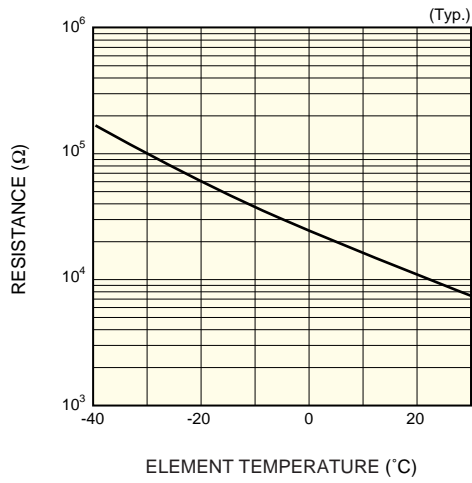
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## Shunt resistance vs. element temperature



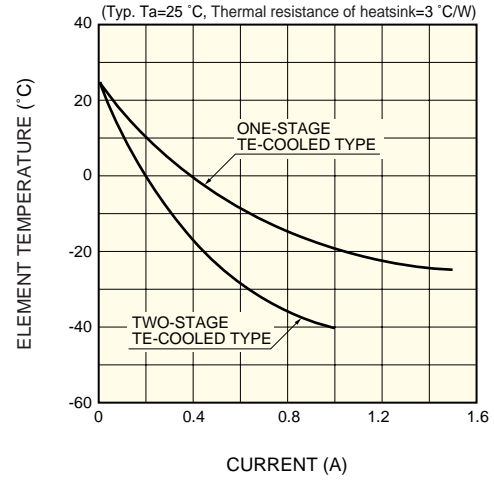
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■ Thermistor temperature characteristic



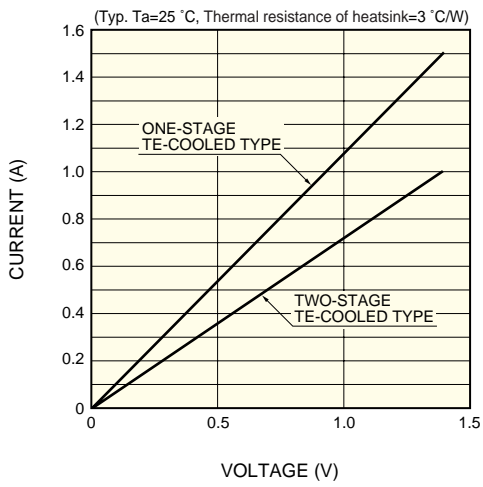
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■ Cooling characteristics of TE-cooler



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■ Current vs. voltage characteristics of TE-cooler

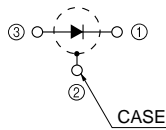
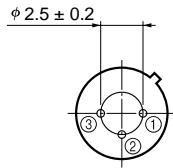
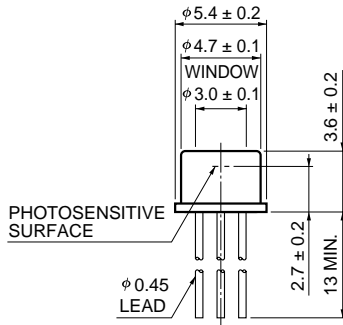


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# InGaAs PIN photodiode G8422/G8372/G5852 series

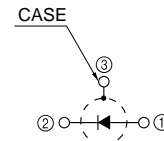
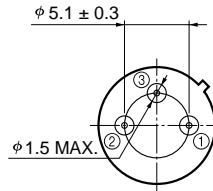
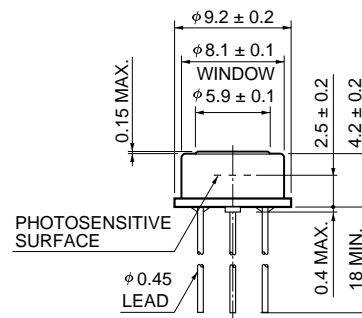
## Dimensional outline (unit: mm)

① G8422-03/-05, G8372-01



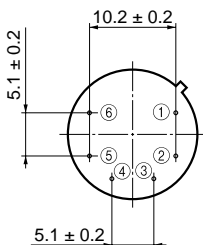
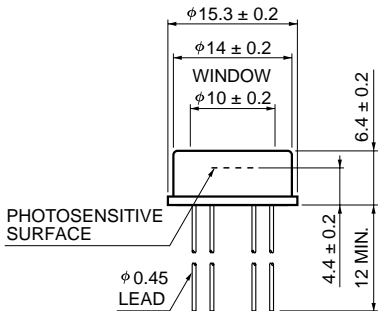
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② G8372-03



KIRDA0151EA

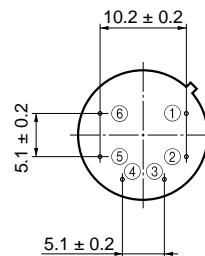
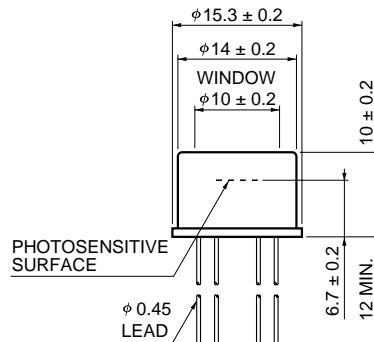
③ G5852-103/-11/-13



- ① DETECTOR ELEMENT (ANODE)
- ② DETECTOR ELEMENT (CATHODE)
- ③ TE-COOLER (-)
- ④ TE-COOLER (+)
- ⑤ ⑥ THERMISTOR

KIRDA0029EB

④ G5852-203/-21/-23



- ① DETECTOR ELEMENT (ANODE)
- ② DETECTOR ELEMENT (CATHODE)
- ③ TE-COOLER (-)
- ④ TE-COOLER (+)
- ⑤ ⑥ THERMISTOR

KIRDA0031EB

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