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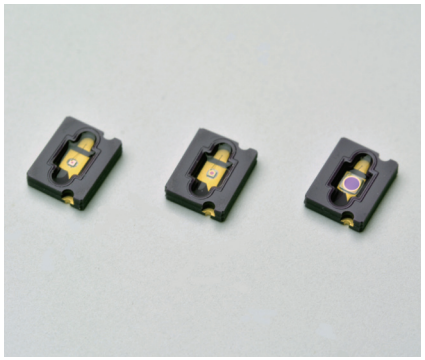
InGaAs PIN photodiodes



G11193 series

Small package, surface mount type

Features

- **Small SMD (surface mount device) package**
- **Low noise, low dark current**
- **Low price**

Applications

- **Optical power meter**
- **Measurement/analytical instruments**

Structure

Parameter	G11193-02R	G11193-03R	G11193-10R	Unit
Package	SMD			-
Photosensitive area	ϕ0.2	ϕ0.3	ϕ1.0	mm
Window	Resin			-

Absolute maximum ratings

Parameter	Symbol	Condition	G11193-02R	G11193-03R	G11193-10R	Unit
Reverse voltage	V_R Max.		10			V
Operating temperature	Topr	No dew condensation*1	-25 to +85			°C
Storage temperature	Tstg	No dew condensation*1	-40 to +100			°C
Reflow soldering conditions	-		Peak temperature 240 °C, one time			-

*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
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 (Ta=25 °C)

Parameter	Symbol	Condition	G11193-02R			G11193-03R			G11193-10R			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ	Higher than 10% of peak	-	0.9 to 1.7	-	-	0.9 to 1.7	-	-	0.9 to 1.7	-	μm
Peak sensitivity wavelength	λp		-	1.55	-	-	1.55	-	-	1.55	-	μm
Photo sensitivity	S	λ=1.3 μm	0.75	0.85	-	0.75	0.85	-	0.75	0.85	-	A/W
		λ=1.55 μm	0.77	1.0	-	0.77	1.0	-	0.77	1.0	-	
Dark current	I_D	V_R=5 V	-	40	800	-	100	1200	-	800	4000	pA
Temperature coefficient of dark current	ΔT_{ID}	V_R=1 V	-	1.09	-	-	1.09	-	-	1.09	-	times/°C
Cut-off frequency	fc	V_R=5 V, R_L=50 Ω, -3 dB	0.6	1	-	0.2	0.5	-	0.025	0.06	-	GHz
Terminal capacitance	Ct	V_R=5 V, f=1 MHz	-	3	5	-	5	8	-	55	120	pF
Shunt resistance	Rsh	V_R=10 mV	0.25	1.4	-	0.2	1	-	0.025	0.125	-	GΩ
Detectivity	D*	λ=λp	1×10^{12}	5×10^{12}	-	1×10^{12}	5×10^{12}	-	1×10^{12}	5×10^{12}	-	$cm \cdot Hz^{1/2}/W$
Noise equivalent power	NEP	λ=λp	-	3×10^{-15}	1×10^{-14}	-	4×10^{-15}	1×10^{-14}	-	1.4×10^{-14}	4×10^{-14}	$W/Hz^{1/2}$

The G11193 series may be damaged by electrostatic discharge, etc. Be careful when using the G11193 series.

Spectral response

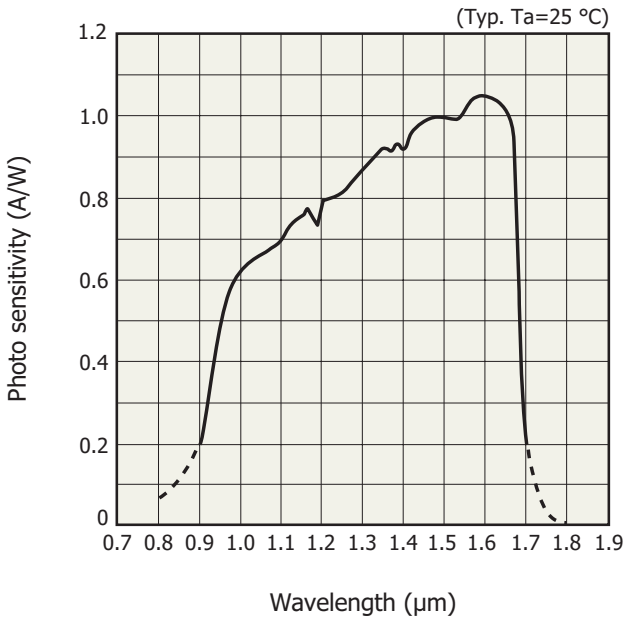


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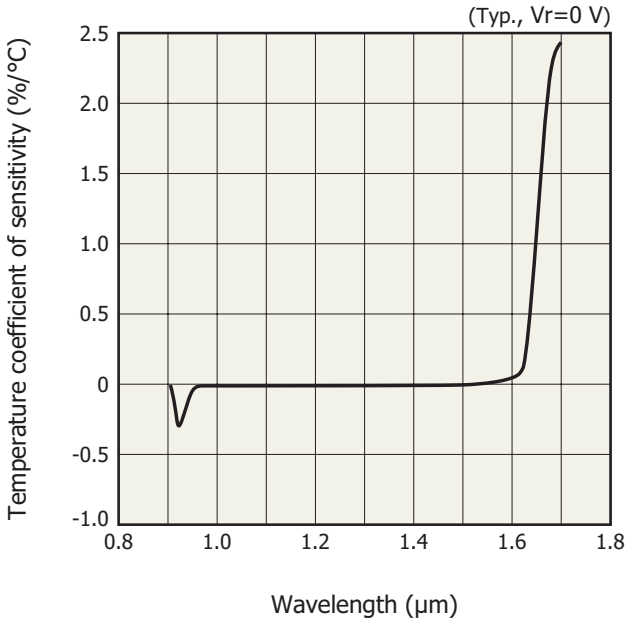
Photo sensitivity temperature characteristic



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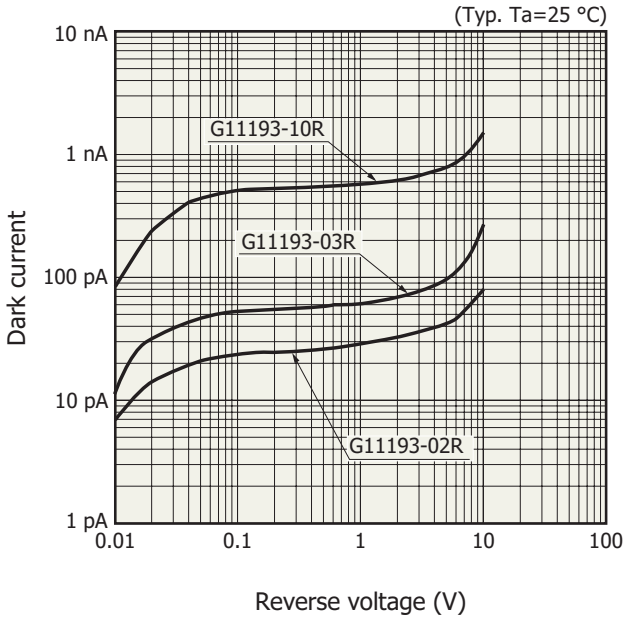
Dark current vs. reverse voltage



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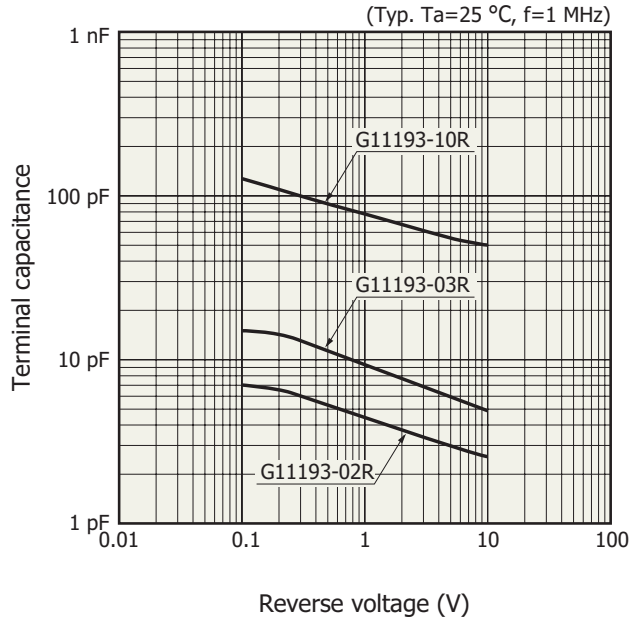
Terminal capacitance vs. reverse voltage



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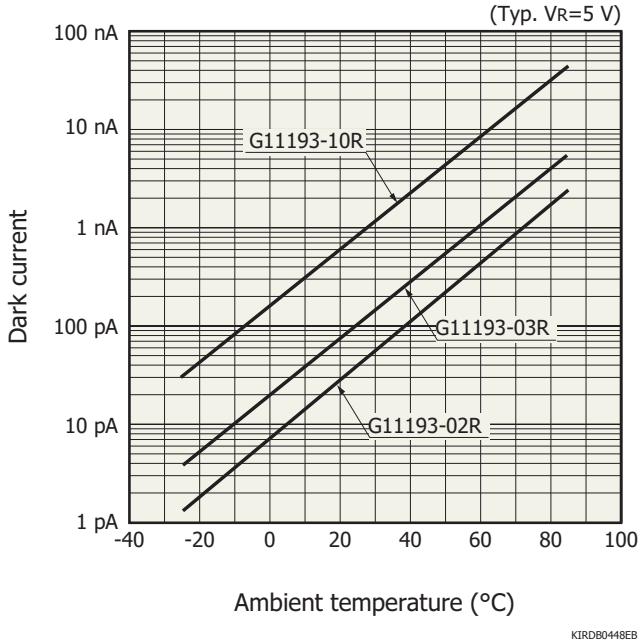
Dark current vs. ambient temperature



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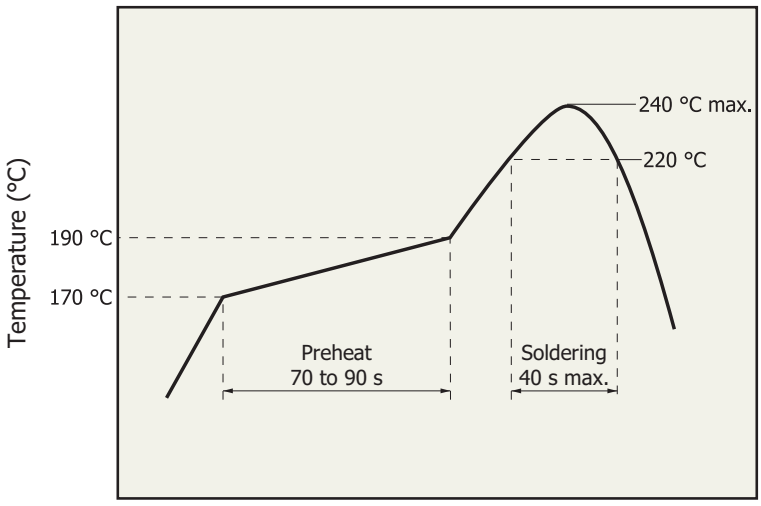
Recommended solder reflow conditions



- After unpacking, store the device in an environment at a temperature range of 5 to 30 °C and a humidity of 60% or less, and perform reflow soldering within 1 year.
- Therminal stress applied to the device during reflow soldering differs depending on the PC board and reflow oven being used.
- When setting the reflow conditions, make sure that the reflow soldering process does not degrade device reliability.

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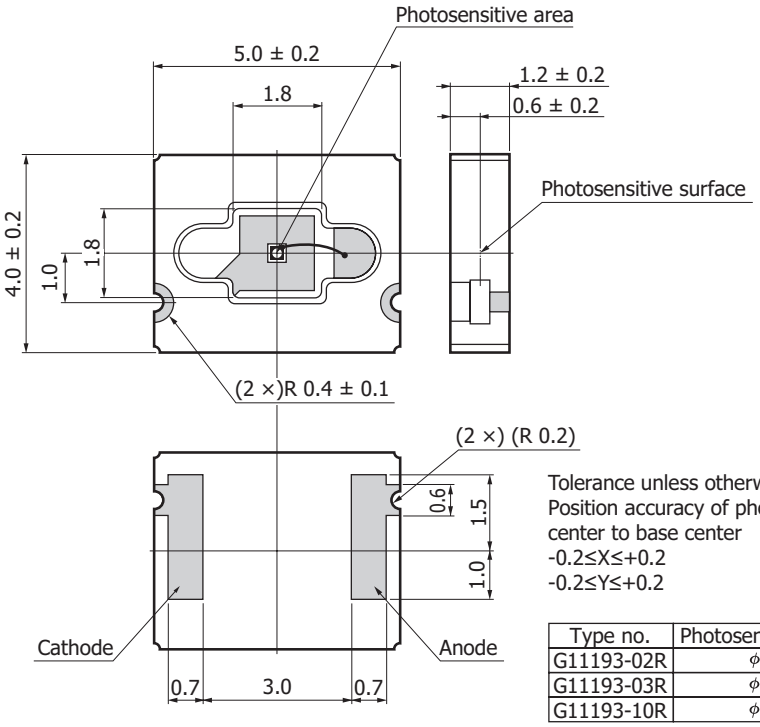
Dimensional outline (unit: mm)



Tolerance unless otherwise noted: ±0.1
Position accuracy of photosensitive area center to base center
-0.2≤X≤+0.2
-0.2≤Y≤+0.2

Type no.	Photosensitive area
G11193-02R	φ0.2
G11193-03R	φ0.3
G11193-10R	φ1.0

KIRDA0210EC

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions
· Disclaimer
· Safety consideration
· Surface mount type products

■ Technical information
· Infrared detectors

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