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InGaAs APD

G14858-0020AA

InGaAs APD that greatly reduces dark current

This InGaAs APD (avalanche photodiode) greatly reduces dark current over existing products by the use of a new device structure and improved processing. The G14858-0020AA is used for distance measurement, low-light-level detection, and so on.

Features

- **Low dark current**
- **Low capacitance**
- **High sensitivity**

Applications

- **Distance measurement**
- **Low-light-level detection**

Structure

Parameter	Specification	Unit
Window material	Borosilicate glass (AR coated: 1.55 µm)	-
Package	TO-18	-
Photosensitive area	ϕ0.2	mm

Absolute maximum ratings

Parameter	Symbol	Specification	Unit
Reverse current	I_R max	2	mA
Forward current	I_F max	10	mA
Operating temperature*1	Topr	-40 to +85	°C
Storage temperature*1	Tstg	-55 to +125	°C

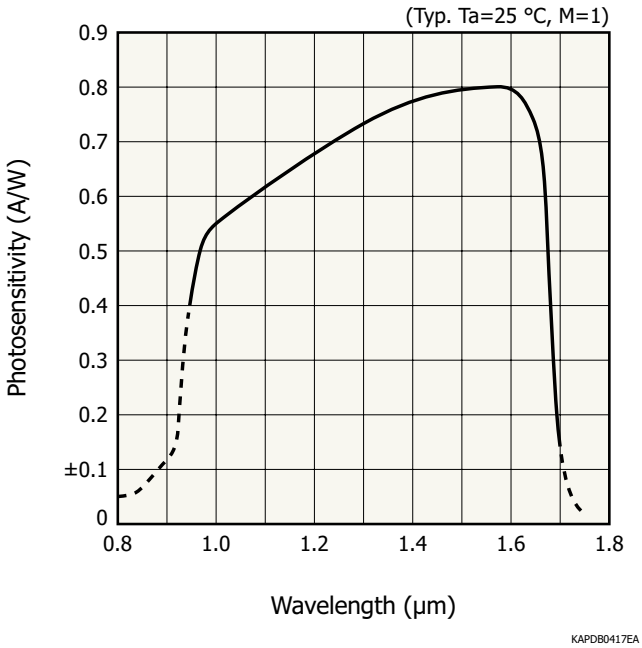
*1: No dew condensation
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C)

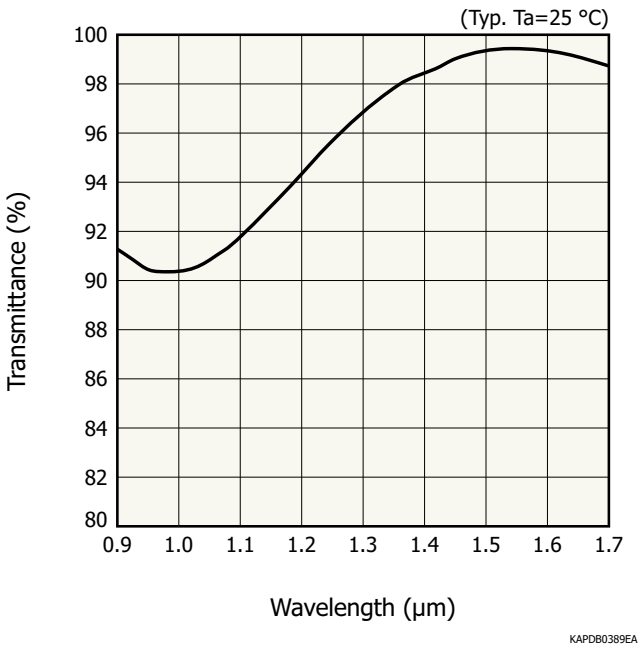
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	0.95 to 1.7	-	µm
Peak sensitivity wavelength	λp		-	1.55	-	µm
Photosensitivity	S	λ=1.55 µm, M=1	0.65	0.8	-	A/W
Dark current	I_D	V_R=V_{BR} × 0.95	-	20	50	nA
Temperature coefficient of dark current	ΔT_{ID}	V_R=V_{BR} × 0.95	-	1.07	-	times/°C
Terminal capacitance	Ct	V_R=V_{BR} × 0.95, f=1 MHz	-	2.0	-	pF
Cutoff frequency	fc	M=10, R_L=50 Ω	-	0.9	-	GHz
Breakdown voltage	V_{BR}	I_D=100 µA	50	65	80	V
Temperature coefficient of breakdown voltage	Γ	-40 to +85 °C	-	0.1	-	V/°C
Gain	M	λ=1.55 µm, -30 dBm	-	30	-	-

Note: Attachment data: breakdown voltage (I_D=100 µA), dark current (V_R=V_{BR} × 0.95), terminal capacitance (V_R=V_{BR} × 0.95, f=1 MHz), dark current vs. reverse voltage (graph), gain vs. reverse voltage (graph)

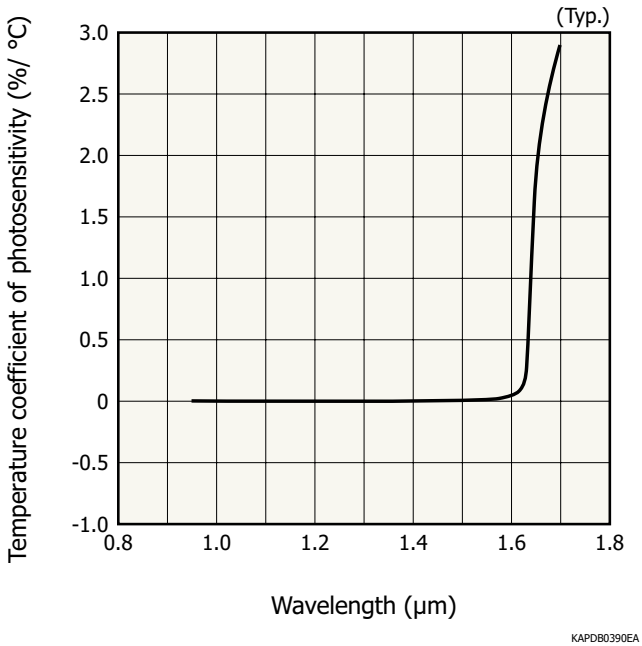
Spectral response



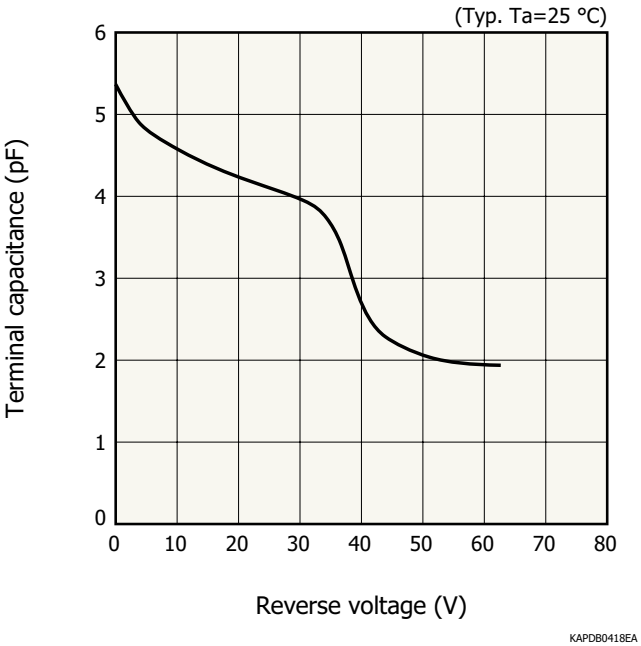
Spectral transmittance of window material



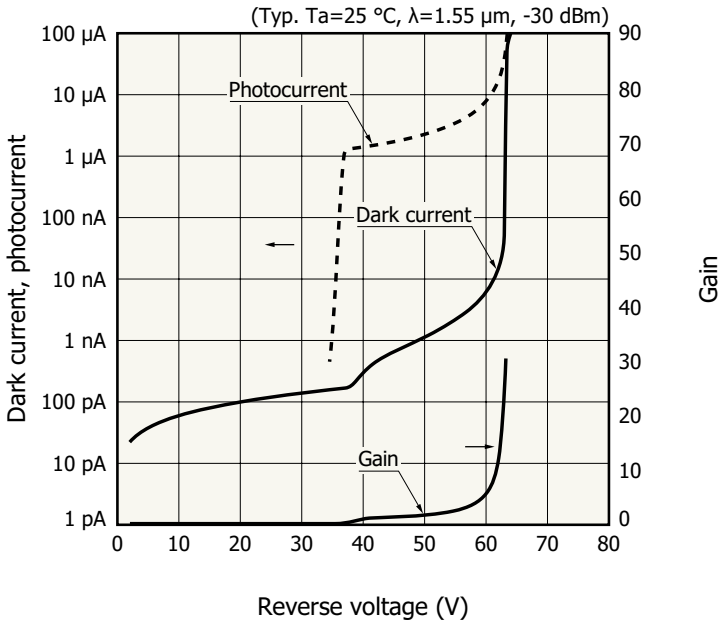
Photosensitivity temperature characteristics



Terminal capacitance vs. reverse voltage



Dark current, photocurrent, gain vs. reverse voltage



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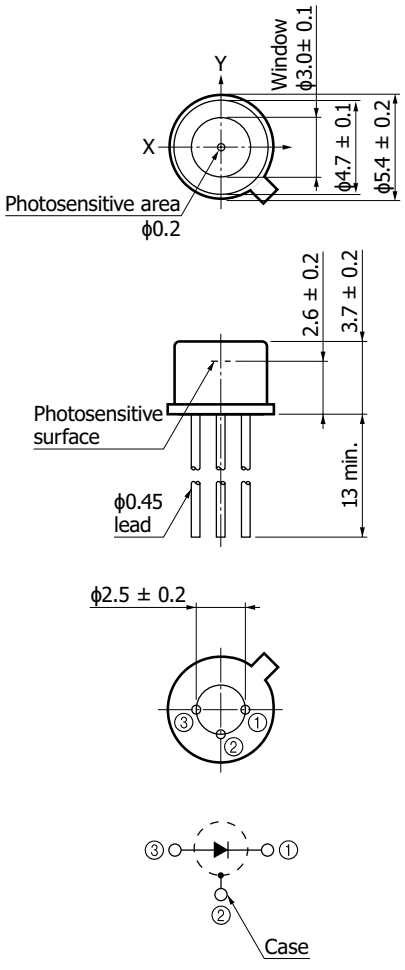
Dimensional outline (unit: mm)



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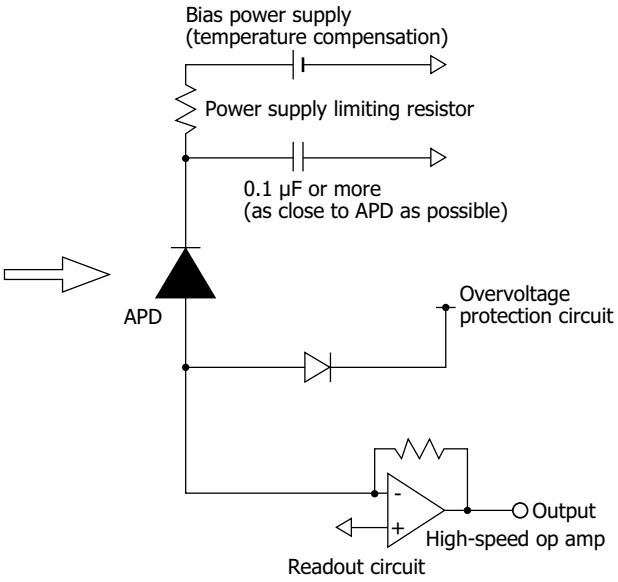
APD peripheral circuit example



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Related information

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

■ Precautions
· Disclaimer
· Safety consideration
· Metal, ceramic, plastic package products

Information described in this material is current as of December 2024.
Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.
The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.
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