

InGaAs APD

G8931-04

Time response characteristics compatible with SONET and G/GE-PON



The G8931-04 is an InGaAs APD that delivers a high-speed response of 2.5 Gbps required for trunk line optical fiber communications such as SONET (synchronous optical network), G-PON (gigabit-capable passive optical network) and GE-PON (gigabit ethernet-passive optical network).

Features

- High-speed response: 2.5 Gbps
- Low dark current
- Low capacitance
- Active area: $\phi 0.04$ mm
- High sensitivity

Applications

- Optical fiber communications
- High-speed data links

General ratings

Parameter	Symbol	Value	Unit
Active area	-	$\phi 0.04$	mm

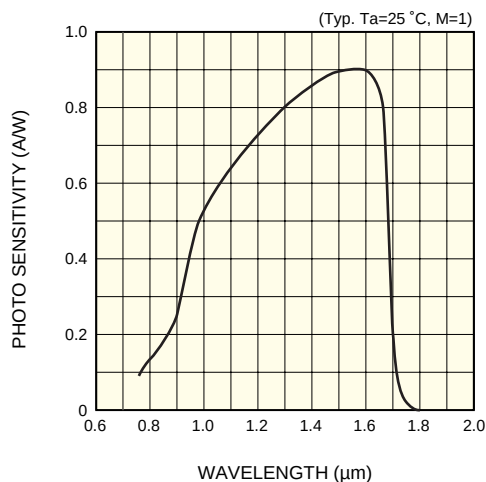
Absolute maximum ratings

Parameter	Symbol	Value	Unit
Forward current	I_F	2	mA
Reverse current	I_R	2	mA
Operating temperature	T_{opr}	-40 to +85	°C
Storage temperature	T_{stg}	-55 to +125	°C

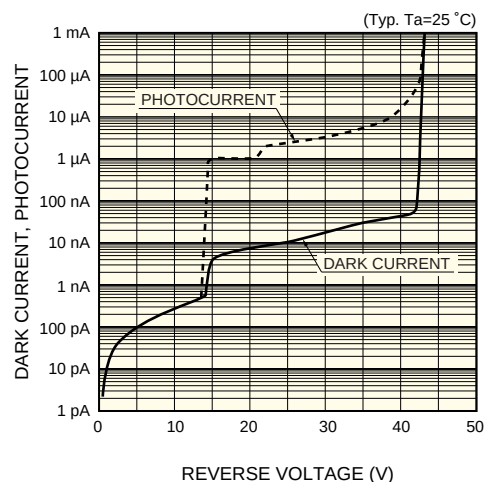
Electrical and optical characteristics ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	0.95 to 1.7	-	μm
Peak sensitivity wavelength	λ_p		-	1.55	-	μm
Photo sensitivity	S	$\lambda = 1.55 \mu\text{m}$, $M=1$	0.8	0.9	-	A/W
Breakdown voltage	V_{BR}	$I_D = 100 \mu\text{A}$	40	-	60	V
Temperature coefficient of V_{BR}	Γ	-40 to +85 °C	-	0.11	0.16	V/°C
Dark current	I_D	$V_R = V_{BR} \times 0.9$	-	40	65	nA
Cut-off frequency	f_c	$M=10$	3	4	-	GHz
Terminal capacitance	C_t	$V_R = V_{BR} \times 0.9$ $f=1 \text{ MHz}$	-	0.35	0.45	pF

Spectral response

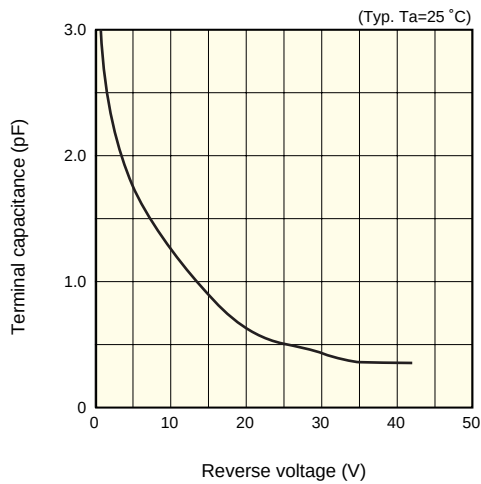


Dark current vs. reverse voltage



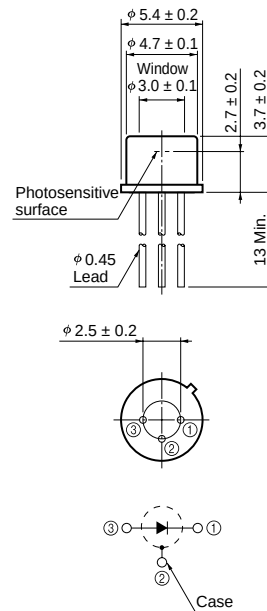
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■ Terminal capacitance vs. reverse voltage



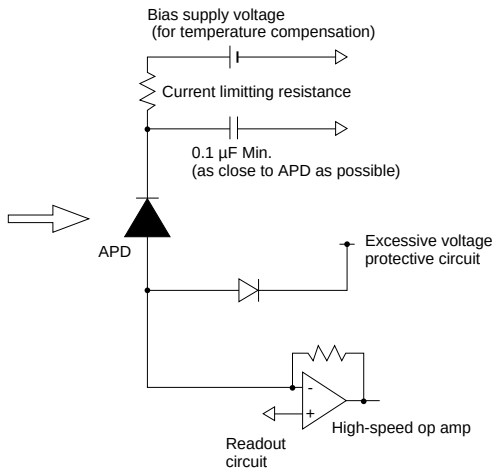
KAPDB0124EA

■ Dimensional outline (unit: mm)



KAPDA0034EA

■ Peripheral circuit example of APD



KAPDC0005EC

HAMAMATSU

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