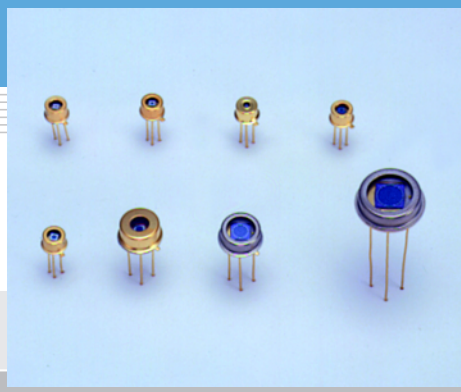


Si APD

S2381 to S2385, S5139, S3884

Low bias operation, for 800 nm band



Features

- Stable operation at low bias
- High-speed response
- High sensitivity and low noise

Applications

- Optical fiber communications
- Spatial light transmission
- Rangefinder

General ratings / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *1	Package	Active area size (mm)	Effective active area (mm ²)	Absolute maximum ratings	
					Operating temperature T _{opr} (°C)	Storage temperature T _{stg} (°C)
S2381	①/K	TO-18	φ0.2	0.03	-20 to +85	-55 to +125
S2382			φ0.5	0.19		
S5139	②/L		φ1.0	0.78		
S2383	①/K					
S2383-10 *3						
S3884	③/K	TO-5	φ1.5	1.77		
S2384	④/K		φ3.0	7.0		
S2385	⑤/K	TO-8	φ5.0	19.6		

Electrical and optical characteristics (Typ. T_a=25 °C, unless otherwise noted)

Type No.	Spectral response range λ (nm)	Peak *4 sensitivity wavelength λ _p (nm)	Photo sensitivity S M=1 λ=800 nm (A/W)	Quantum efficiency QE M=1 λ=800 nm (%)	Breakdown voltage V _{BR} I _D =100 μA		Temp. coefficient of V _{BR} (V/°C)	Dark current *4 I _D		Cut-off *4 frequency f _c R _L =50 Ω (MHz)	Terminal *4 capacitance C _t (pF)	Excess Noise figure *4 x λ=800 nm	Gain M λ=800 nm
					Typ. (V)	Max. (V)		Typ. (nA)	Max. (nA)				
S2381	400 to 1000	800	0.5	75	150	200	0.65	0.05	0.5	1000	1.5	0.3	100
S2382								0.1	1	900	3		
S5139								0.2	2	600	6		
S2383								0.5	5	400	10		
S2383-10 *3								1	10	120	40		60
S3884								3	30	40	95		40

*1: Window material K: borosilicate glass, L: lens type borosilicate glass

*2: Active area in which a typical gain can be obtained

*3: Variant type of S2383, with light-shield provided on the periphery of the element

*4: Measured with the gain listed in this specification table

Note) Three ranks of breakdown voltage are available for S2381, S2382, S2383 and S3884. These are designated by a suffix number as follows.

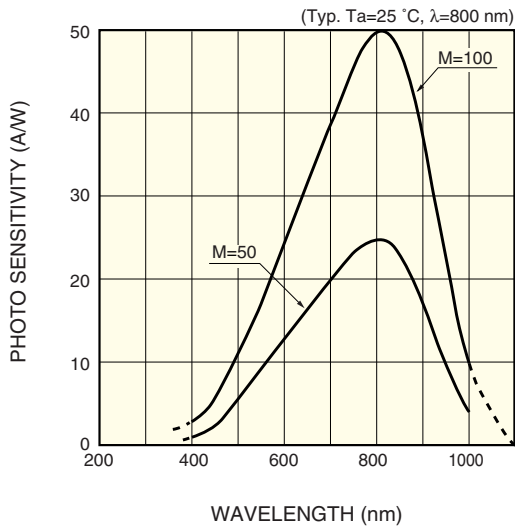
-01: 80 to 120 V

-02: 120 to 160 V

-03: 160 to 200 V

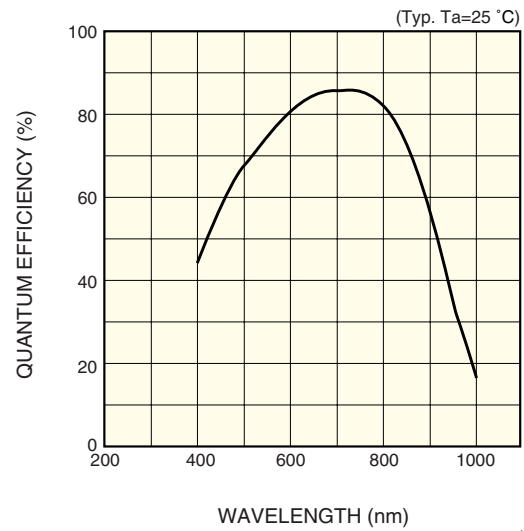
SOLID STATE DIVISION

Spectral response



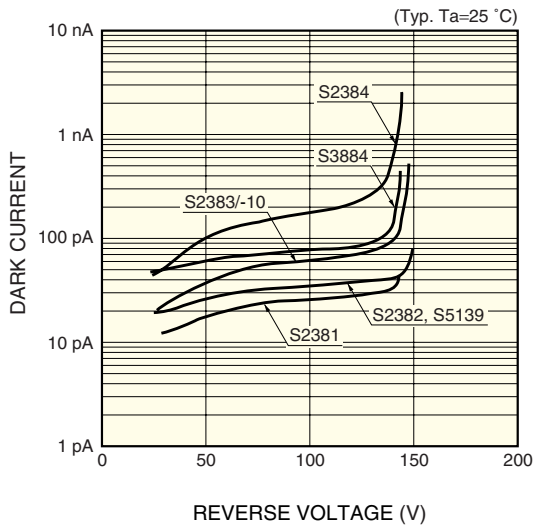
KAPDB0020EB

Quantum efficiency vs. wavelength



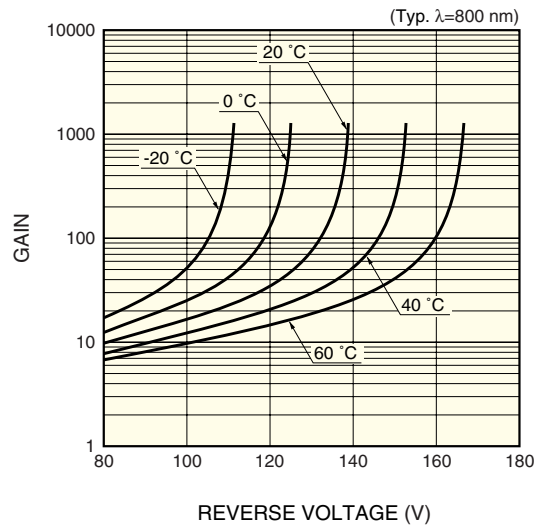
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Dark current vs. reverse voltage



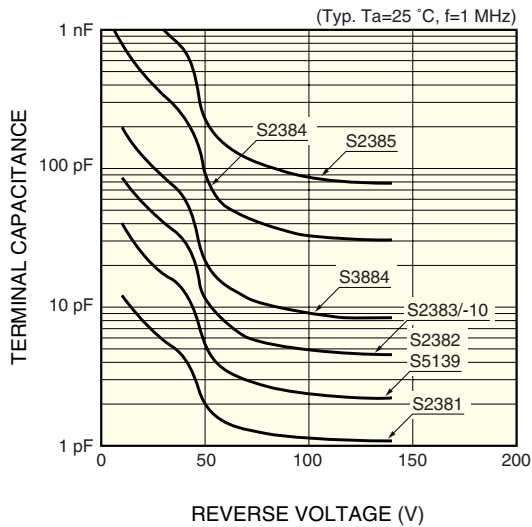
KAPDB0016EB

Gain vs. reverse voltage



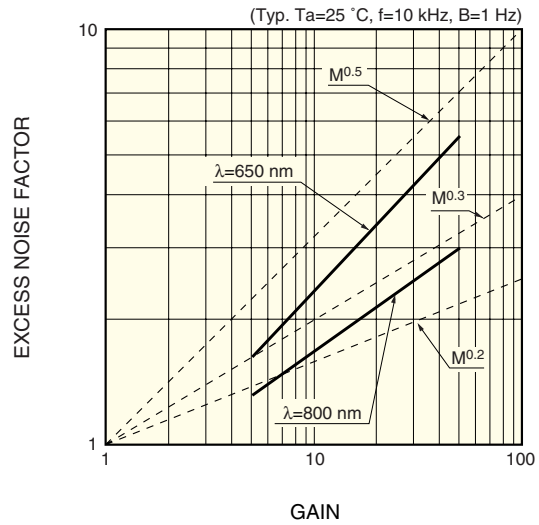
KAPDB0017EC

Terminal capacitance vs. reverse voltage



KAPDB0018EB

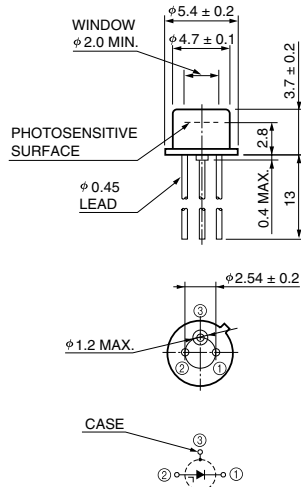
Excess noise factor vs. gain



KAPDB0022EA

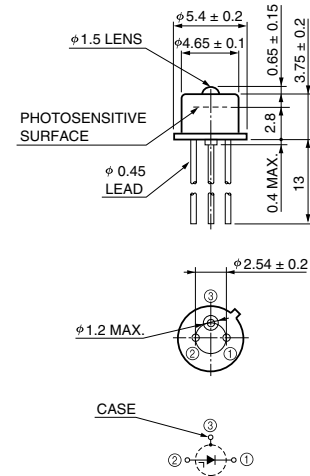
Dimensional outlines (unit: mm)

① S2381, S2382, S2383/-10



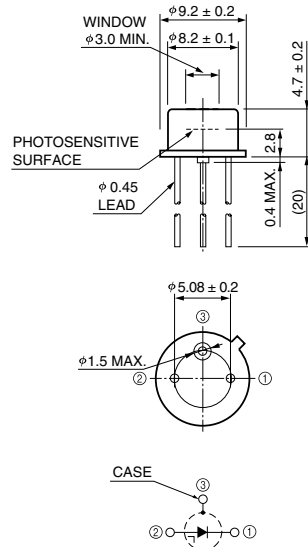
KAPDA0010EA

② S5139



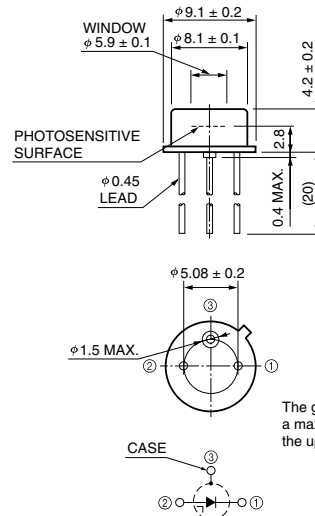
KAPDA0018EA

③ S3884



KAPDA0011EA

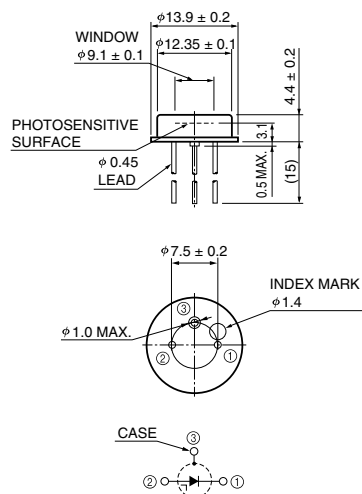
④ S2384



The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

KAPDA0012EA

⑤ S2385



KAPDA0013EB

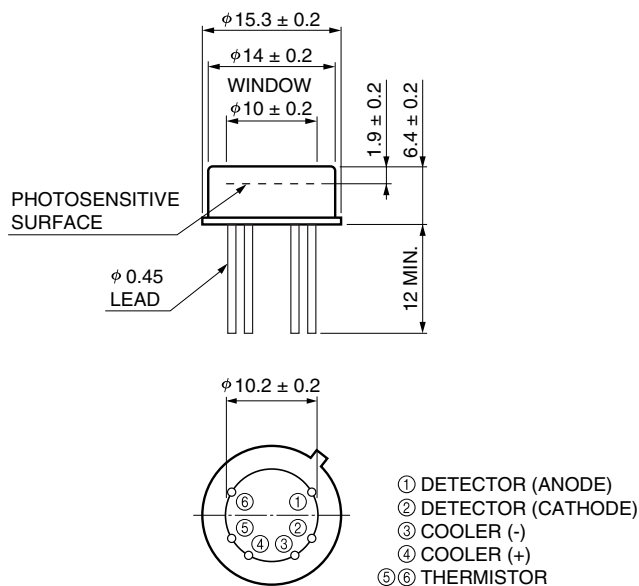
TE-cooled type APD S4315 series

Parameter	Symbol	Condition	S4315	S4315-01	S4315-02	Unit
APD	-		S2381	S2382	S2383	-
Effective active area *5	-		$\phi 0.2$	$\phi 0.5$	$\phi 1.0$	mm
Spectral response range	λ		400 to 1000			nm
Peak sensitivity wavelength	λ_p	M=100	800			nm
Cooling temperature	ΔT		35			°C
Package	-		TO-8			-

*5: Active area in which a typical gain can be obtained.

We welcome your request for active areas different from those listed above.

■ Dimensional outline (unit: mm)



KAPDA0020EA