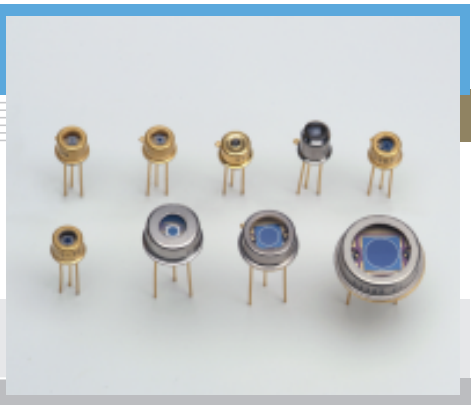
Si APD
S2381 to S2385, S5139, S8611, S3884, S4315 series

Low bias operation, for 800 nm band



Features

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

Applications

- Spatial light transmission
- Rangefinder

■ General ratings / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *1	Package	Active area *2 size (mm)	Effective active area (mm^2)	Absolute maximum ratings: Operating temperature Topr (°C)	Absolute maximum ratings: Storage temperature Tstg (°C)
S2381	①/K	TO-18	φ0.2	0.03	-20 to +85	-55 to +125
S2382			φ0.5	0.19		
S5139	②/L					
S8611	③/L					
S2383	①/K		φ1.0	0.78		
S2383-10 *3						
S3884	④/K	TO-5	φ1.5	1.77		
S2384	⑤/K		φ3.0	7.0		
S2385	⑥/K	TO-8	φ5.0	19.6		

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

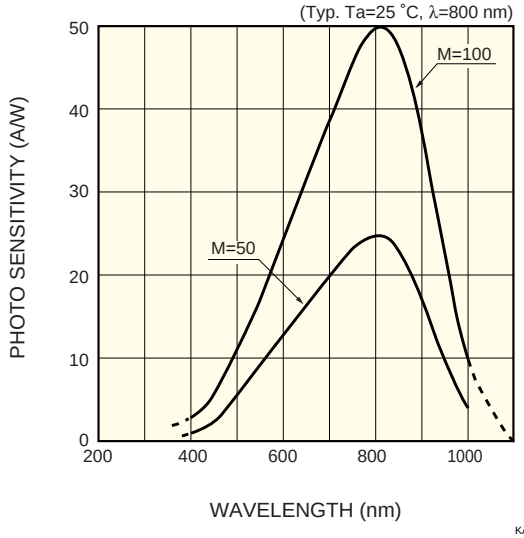
Type No.	Spectral response range λ (nm)	Peak *4 sensitivity wavelength λp (nm)	Photo sensitivity S M=1 λ=800 nm (A/W)	Quantum efficiency QE M=1 λ=800 nm (%)	Breakdown voltage VBR ID=100 μA Typ. (V)	Breakdown voltage VBR ID=100 μA Max. (V)	Temp. coefficient of VBR (V/°C)	Dark current *4 ID Typ. (nA)	Dark current *4 ID Max. (nA)	Cut-off *4 frequency fc RL=50 Ω (MHz)	Terminal *4 capacitance Ct (pF)	Excess Noise figure *4 x λ=800 nm	Gain M λ=800 nm
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													
S8611													
S2383								0.2	2	600	6		
S2383-10 *3													
S3884								0.5	5	400	10		
S2384								1	10	120	40		60
S2385								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: This is a variant of S2383 in which the device chip is light-shielded by aluminum coating except for the active area
*4: Measured under conditions that the device is operated at the gain listed in the specification table

Note) The following different breakdown voltage ranges are available.
S2381, S2382, S5139, S8611, S3884: -01 (80 to 120 V), -02 (120 to 160 V), -03 (160 to 200 V)
S2381-10: -10A (80 to 120 V), -10B (120 to 160 V), -10C (160 to 200 V)

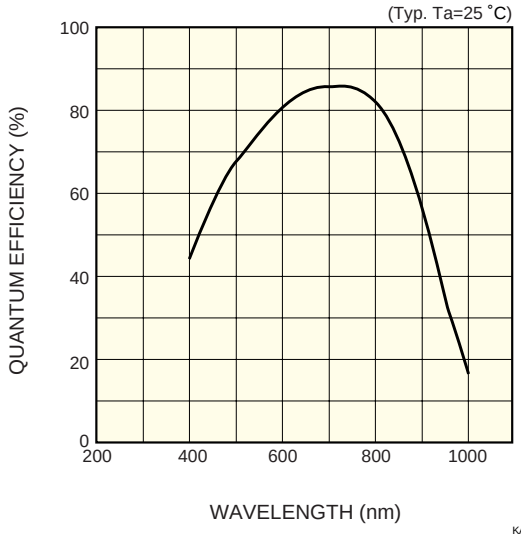
SOLID STATE DIVISION

■ Spectral response



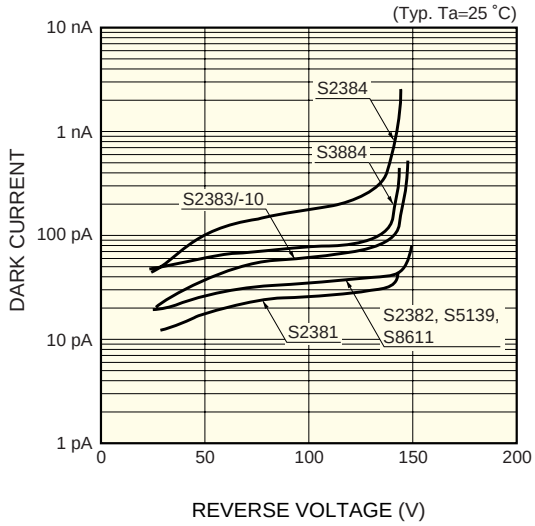
KAPDB0020EB

■ Quantum efficiency vs. wavelength



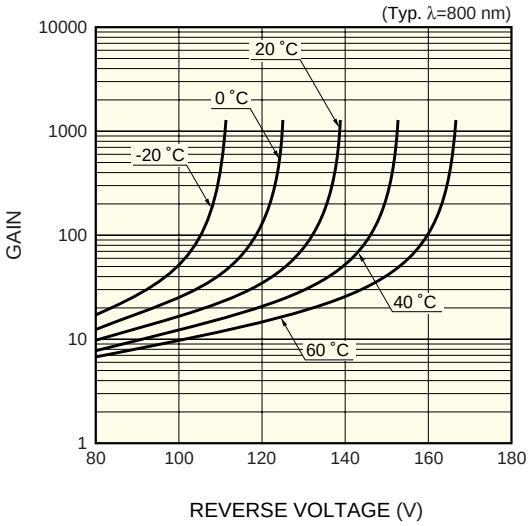
KAPDB0021EA

■ Dark current vs. reverse voltage



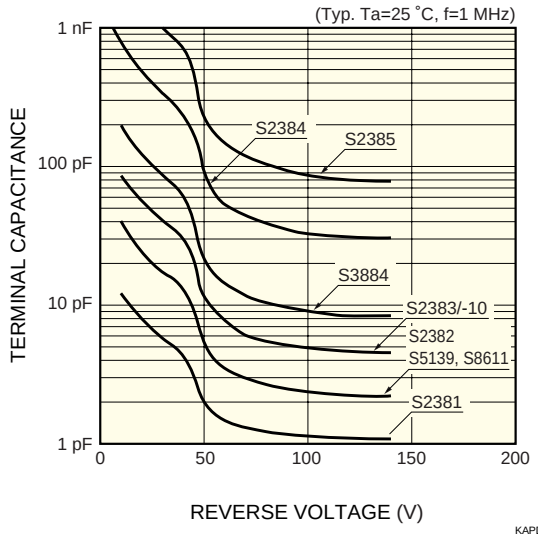
KAPDB0016EC

■ Gain vs. reverse voltage



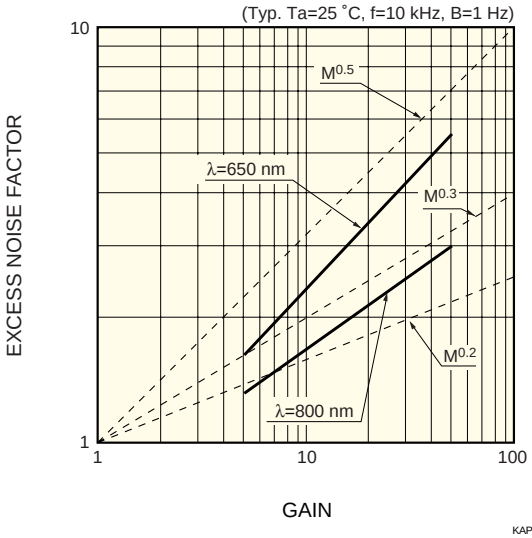
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■ Terminal capacitance vs. reverse voltage



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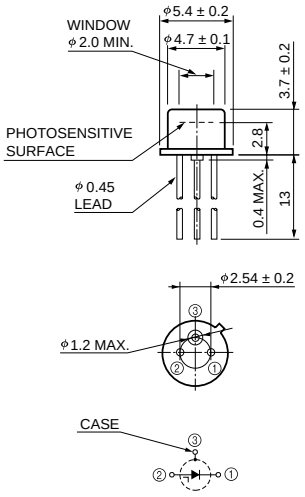
■ Excess noise factor vs. gain



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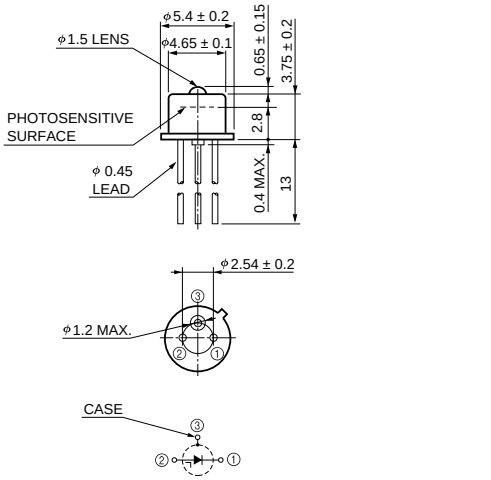
■ Dimensional outlines (unit: mm)

① S2381, S2382, S2383/-10



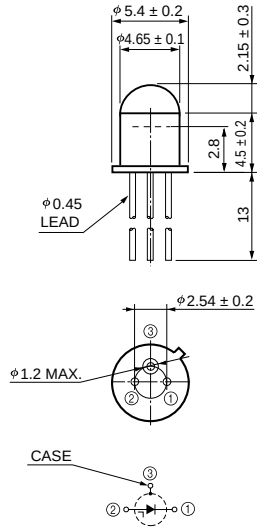
KAPDA0010EA

② S5139



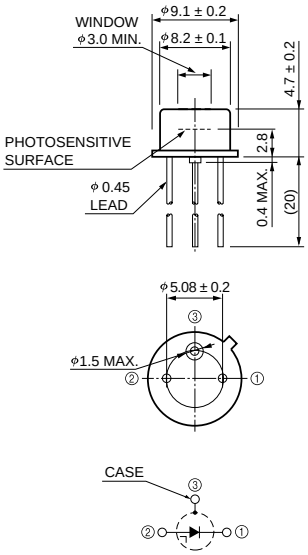
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③ S8611



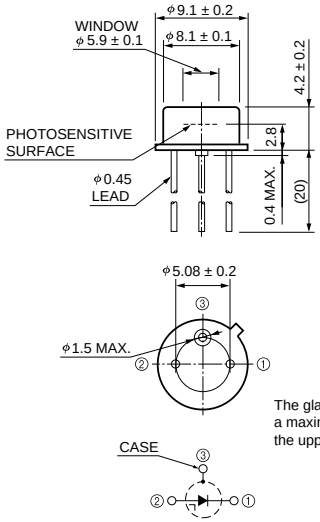
KAPDA0031EA

④ S3884



KAPDA0011EB

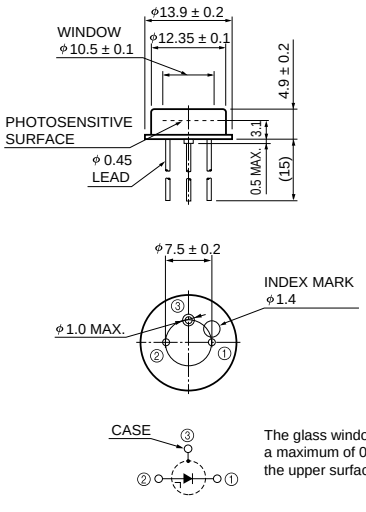
⑤ S2384



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

KAPDA0012EA

⑥ S2385



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

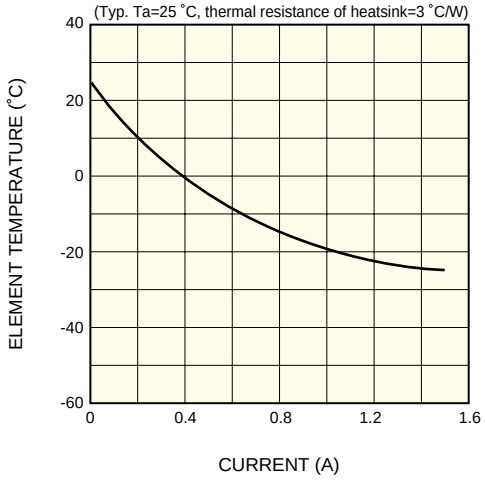
KAPDA0013ED

TE-cooled type APD S4315 series

Parameter	Symbol	Condition	S4315	S4315-01	S4315-02	S4315-04	Unit
APD	-		S2381	S2382	S2383	S2384	-
Effective active area *5	-		φ0.2	φ0.5	φ1.0	φ3.0	mm
Spectral response range	λ		400 to 1000				nm
Peak sensitivity wavelength	λp	M=60	-			800	nm
		M=100	800			-	
Cooling temperature	ΔT		35				°C
Package	-		TO-8				-

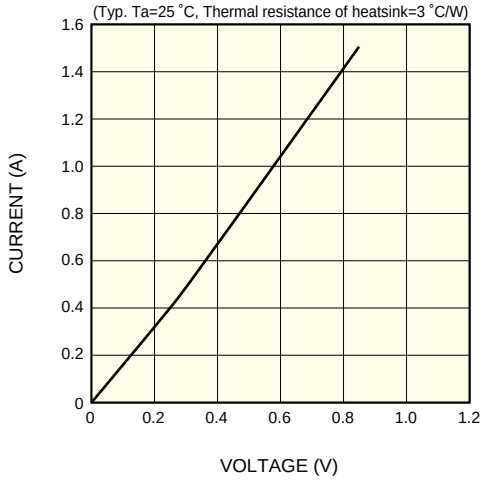
*5: Active area in which a typical gain can be obtained.
We welcome your request for active areas different from those listed above.

■ Cooling characteristic of TE-cooler



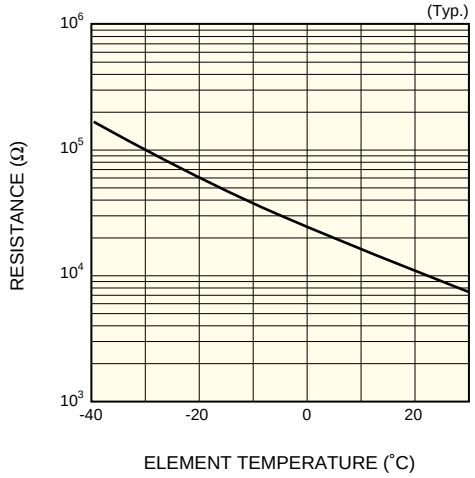
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■ Current vs. voltage characteristic of TE-cooler



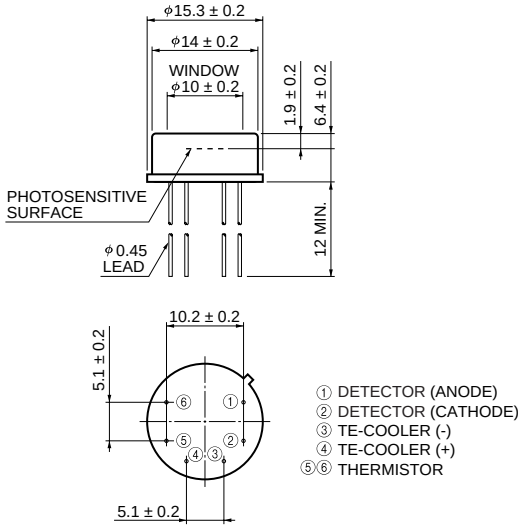
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■ Thermistor temperature characteristic



KIRDB0116EA

■ Dimensional outline (unit: mm)



KAPDA0020EB

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