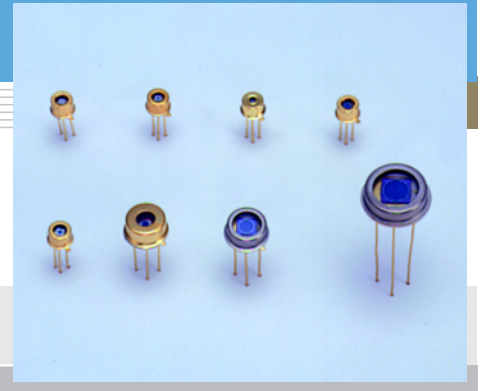


# Si APD

## 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 *2 size (mm)	Effective active area (mm <sup>2</sup> )	Absolute maximum ratings	
					Operating temperature T <sub>opr</sub> (°C)	Storage temperature T <sub>stg</sub> (°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		TO-5	φ1.5		
S2383-10 *3		φ3.0		7.0		
S3884	③/K	TO-8	φ5.0	19.6		

### ■ Electrical and optical characteristics (Typ. T<sub>a</sub>=25 °C, unless otherwise noted)

Type No.	Spectral response range λ (nm)	Peak *4 sensitivity wavelength λ <sub>p</sub> (nm)	Photo sensitivity S M=1 λ=800 nm (A/W)	Quantum efficiency QE M=1 λ=800 nm (%)	Breakdown voltage V <sub>BR</sub> I <sub>D</sub> =100 μA		Temp. coefficient of V <sub>BR</sub> (V/°C)	Dark current I <sub>D</sub>		Cut-off *4 frequency f <sub>c</sub> R <sub>L</sub> =50 Ω (MHz)	Terminal *4 capacitance C <sub>t</sub> (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		
S3884								3	30	40	95		

\*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

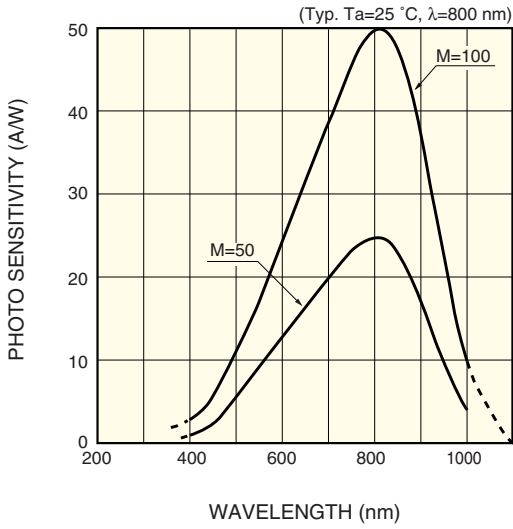
Note) Three ranks of breakdown voltage are available for S2381, S2382, S2383 and S3884. These are designated by a suffix number as follows.

-01: 80 to 120 V

-02: 120 to 160 V

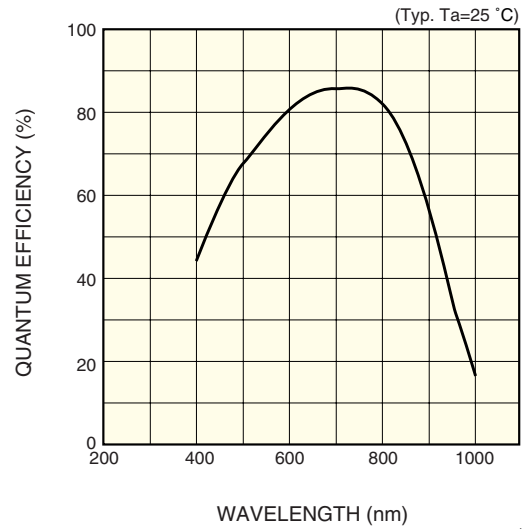
-03: 160 to 200 V

■ Spectral response



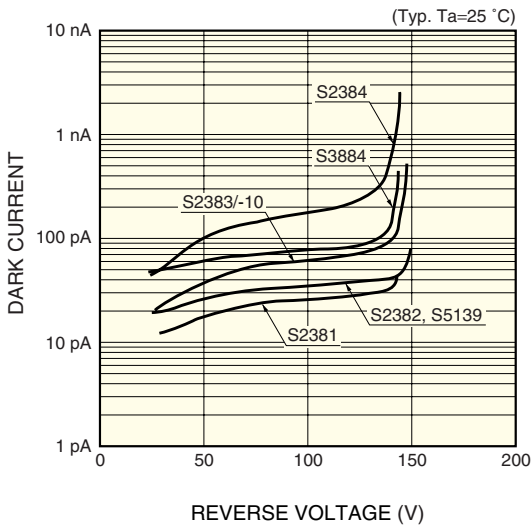
KAPDB0020EB

■ Quantum efficiency vs. wavelength



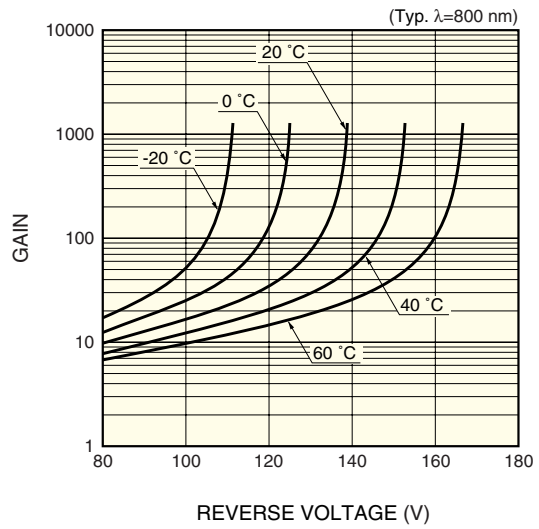
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■ Dark current vs. reverse voltage



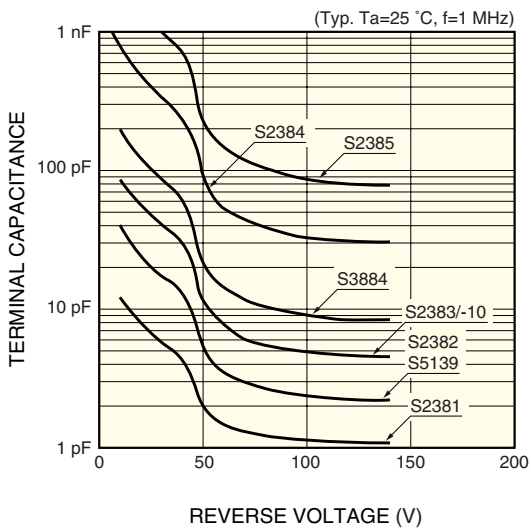
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■ Gain vs. reverse voltage



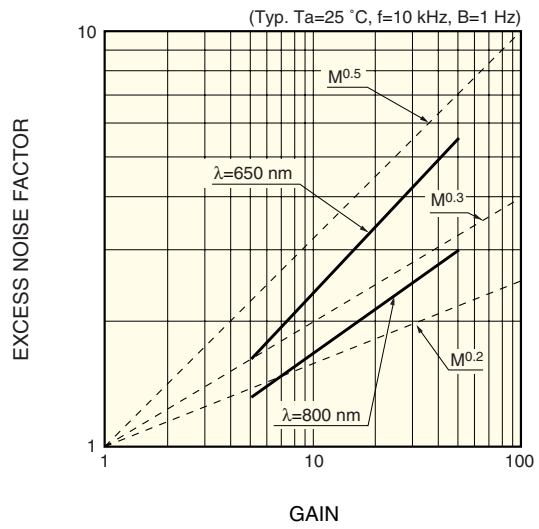
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■ Terminal capacitance vs. reverse voltage



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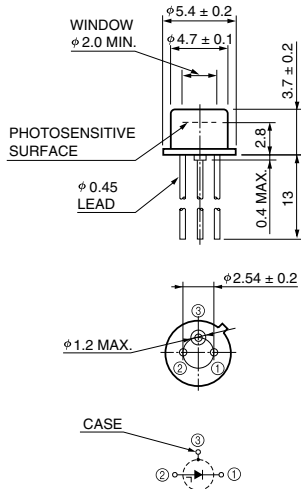
■ Excess noise factor vs. gain



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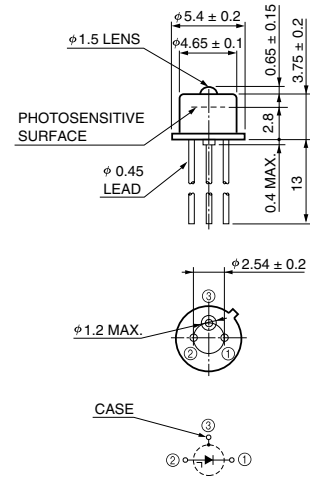
## Dimensional outlines (unit: mm)

### ① S2381, S2382, S2383/-10



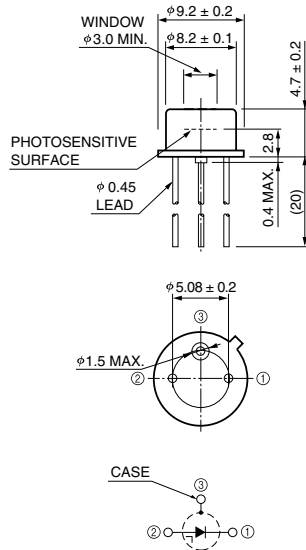
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### ② S5139



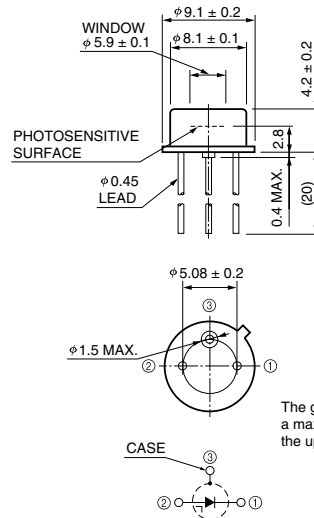
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### ③ S3884



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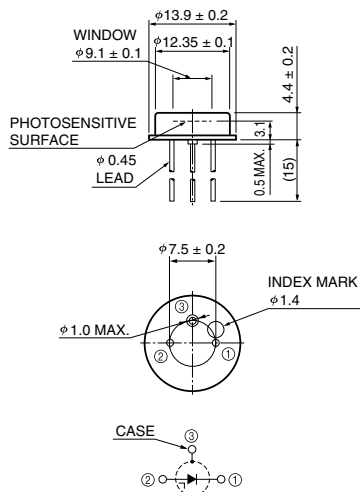
### ④ S2384



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

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### ⑤ S2385



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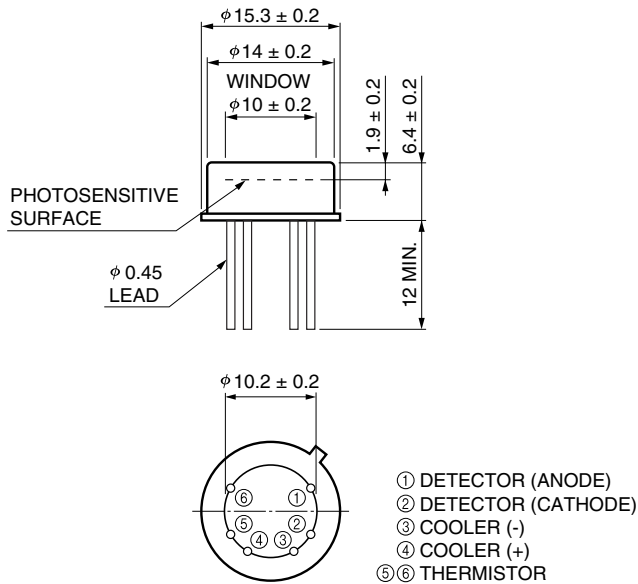
## TE-cooled type APD S4315 series

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	$\lambda$		400 to 1000			nm
Peak sensitivity wavelength	$\lambda_p$	M=100	800			nm
Cooling temperature	$\Delta T$		35			$^{\circ}\text{C}$
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)



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