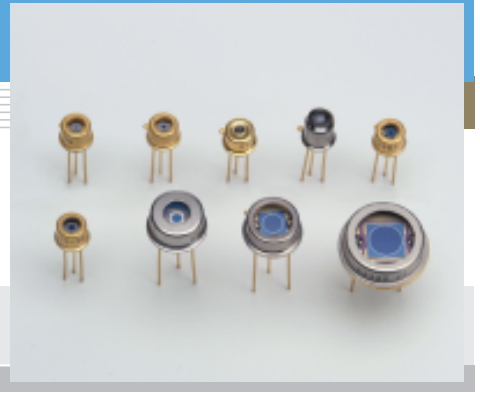


Si APD

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

顶点光电子商城
<https://www.vertex-icbuy.com/>

■ 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 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						
S8611			③/L			
S2383	①/K	TO-5		φ1.0		
S2383-10 *3			④/K	φ1.5		
S3884	⑤/K	TO-8				
S2384			⑥/K	φ5.0		
S2385						

■ 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													
S8611								0.2	2	600	6		
S2383													
S2383-10 *3								0.5	5	400	10		
S3884													
S2384								1	10	120	40		
S2385	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: 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

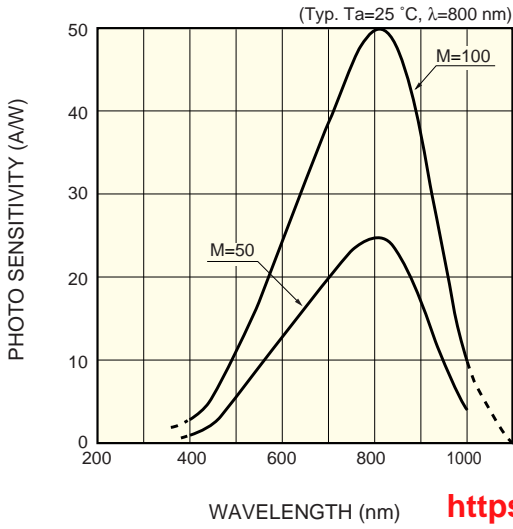
Note) The following different breakdown voltage ranges are available.

S2381, S2382, S5139, S8611, S3884: -01 (80 to 120 V), -02 (120 to 160 V), -03 (160 to 200 V)

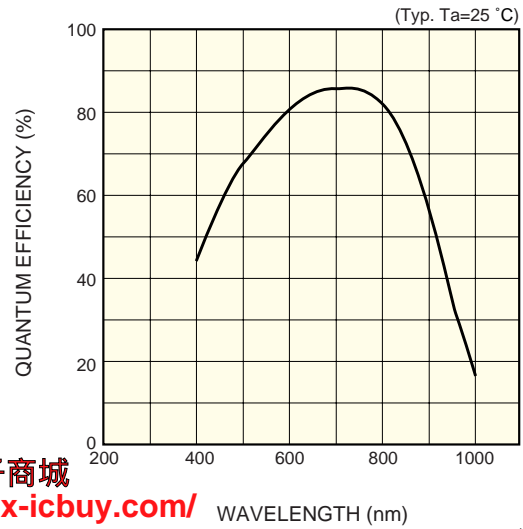
S2381-10: -10A (80 to 120 V), -10B (120 to 160 V), -10C (160 to 200 V)

**SOLID
STATE DIVISION**

■ Spectral response

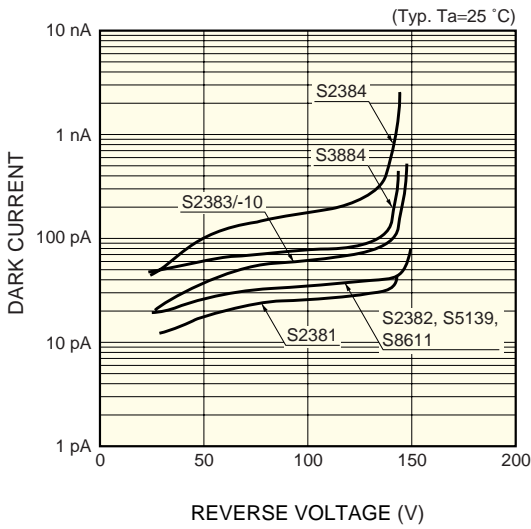


■ Quantum efficiency vs. wavelength

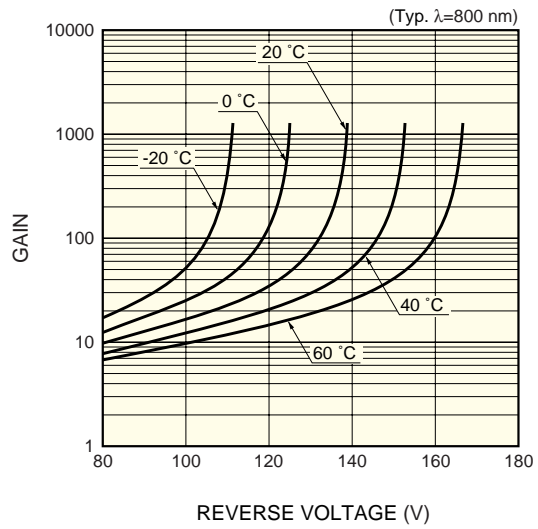


顶点光电子商城
<https://www.vertex-icbuy.com/>

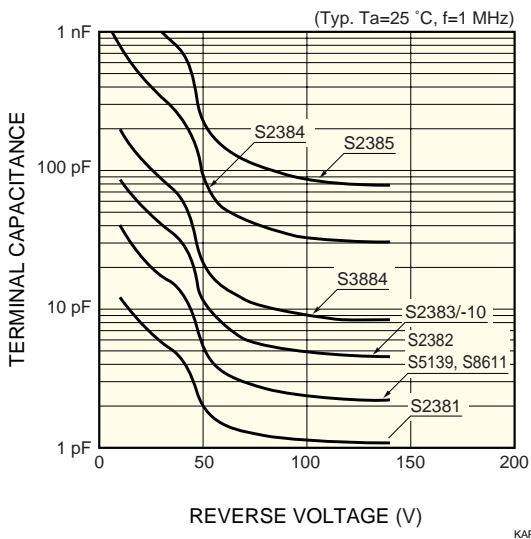
■ Dark current vs. reverse voltage



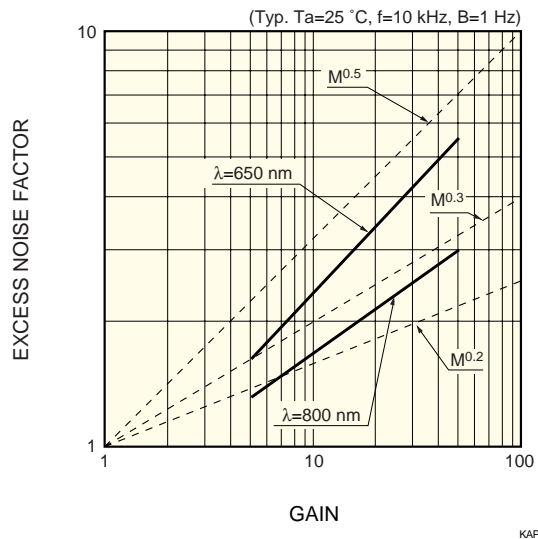
■ Gain vs. reverse voltage



■ Terminal capacitance vs. reverse voltage

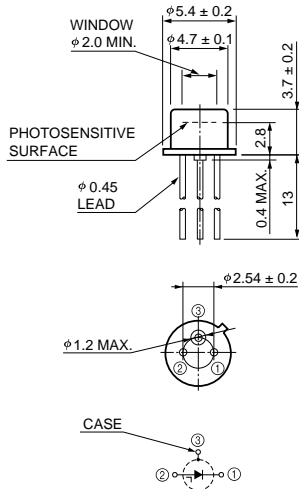


■ Excess noise factor vs. gain



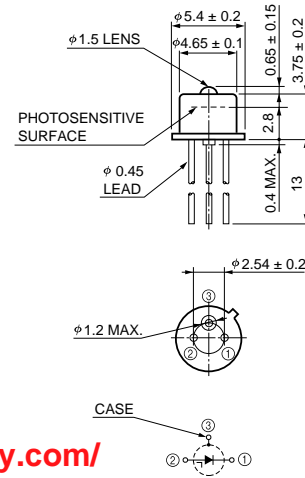
Dimensional outlines (unit: mm)

① S2381, S2382, S2383/-10



KAPDA0010EA

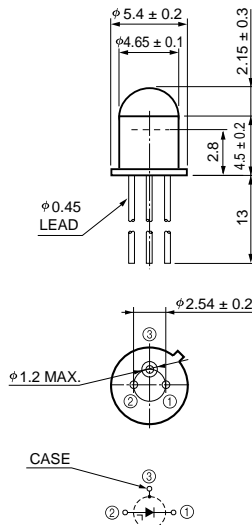
② S5139



KAPDA0018EA

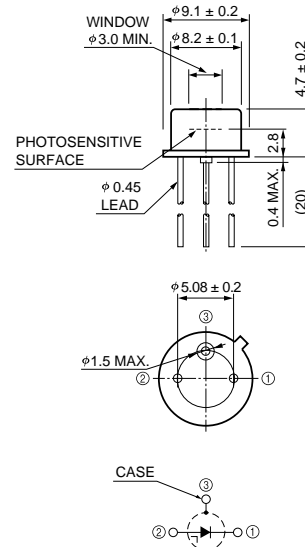
顶点光电子商城
<https://www.vertex-icbuy.com/>

③ S8611



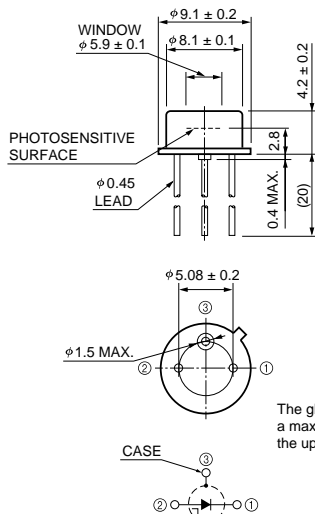
KAPDA0031EA

④ S3884



KAPDA0011EB

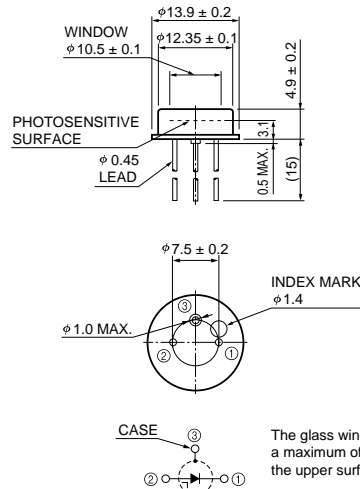
⑤ S2384



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

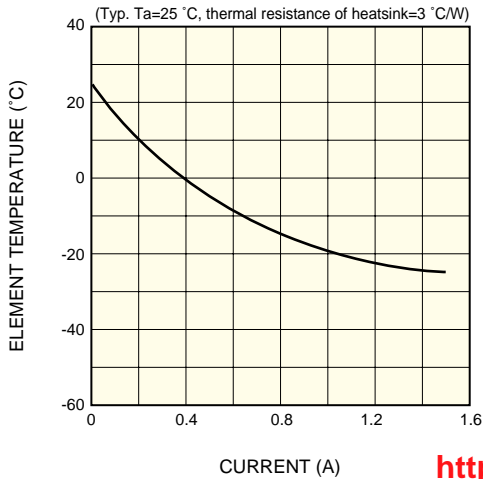
TE-cooled type APD S4315 series

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	λ_p	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.

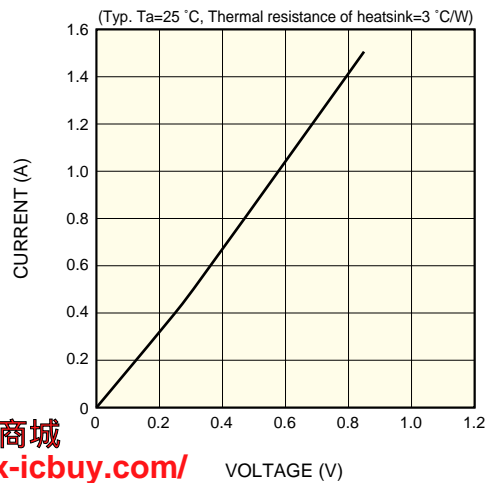
We welcome your request for active areas different from those listed above.

■ Cooling characteristic of TE-cooler



KAPDB008EA

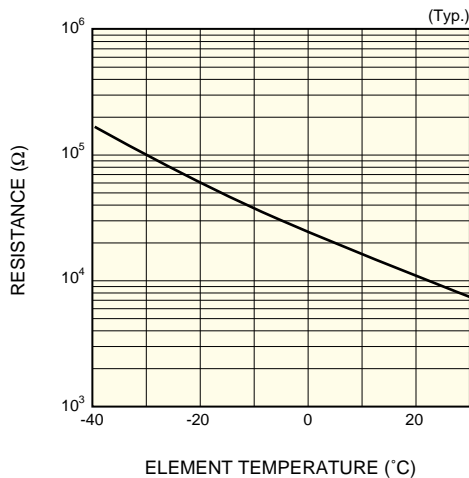
■ Current vs. voltage characteristic of TE-cooler



KAPDB0100EA

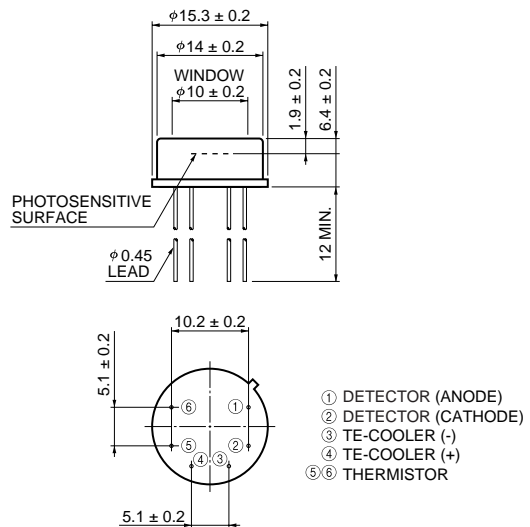
顶点光电子商城
<https://www.vertex-icbuy.com/>

■ Thermistor temperature characteristic



KIRD80116EA

■ Dimensional outline (unit: mm)



KAPDA0020EB



Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. Type numbers of products listed in the specification sheets or supplied as samples may have a suffix "(X)" which means tentative specifications or a suffix "(Z)" which means developmental specifications. ©2010 Hamamatsu Photonics K.K.

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184, www.hamamatsu.com

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 8152-375-0, Fax: (49) 8152-265-8

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1 int. 6, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741