

Si PIN photodiode S3071, S3072, S3399, S3883

Large area, high-speed Si PIN photodiodes



S3071, S3072, S3399 and S3883 are Si PIN photodiodes having a relatively large active area from $\phi 1.5$ to $\phi 5.0$ mm yet they offer excellent frequency response from 40 to 300 MHz. These photodiodes are suitable for spatial light transmission and high-speed pulsed light detection.

Features

- Active area size
S3071: $\phi 5.0$ mm
S3072: $\phi 3.0$ mm
S3399: $\phi 3.0$ mm
S3883: $\phi 1.5$ mm
- Cut-off frequency
S3071: 40 MHz ($V_R=24$ V)
S3072: 45 MHz ($V_R=24$ V)
S3399: 100 MHz ($V_R=10$ V)
S3883: 300 MHz ($V_R=20$ V)
- High reliability: TO-5/8 metal package

Applications

- Spatial light transmission
- High-speed pulsed light detection

■ General ratings / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *1	Package (mm)	Active area size (mm)	Effective active area (mm ²)	Absolute maximum ratings			
					Reverse voltage V_R Max. (V)	Power dissipation P (mW)	Operating temperature T_{opr} (°C)	Storage temperature T_{stg} (°C)
S3071	①/K	TO-8	$\phi 5.0$	19.6	50	50	-40 to +100	-55 to +125
S3072	②/K	TO-5	$\phi 3.0$	7.0				
S3399	③/K		$\phi 3.0$	7.0	30			
S3883	④/K		$\phi 1.5$	1.7				

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

Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λ_p (nm)	Photo sensitivity S (A/W)				Short circuit current I_{sc} 100 lx (μ A)	Dark current I_D (nA)		Temp. coefficient of I_D T_{CID} (times/°C)	Cut-off frequency f_c $R_L=50 \Omega$ (MHz)	Terminal capacitance C_t $f=1$ MHz (pF)	NEP $\lambda=\lambda_p$ (W/Hz ^{1/2})
			λ_p	660 nm	780 nm	830 nm		Typ.	Max.				
S3071	320 to 1060	920	0.6	0.47	0.54	0.56	17	0.5 ^{*3}	10 ^{*3}	1.15	40 ^{*3}	18 ^{*3}	2.1 × 10 ⁻¹⁴ ^{*3}
S3072								0.3 ^{*3}	10 ^{*3}				
S3399	320 to 1000	840	0.6	0.45	0.58	0.6	5.6	0.1 ^{*4}	1.0 ^{*4}	1.12	100 ^{*4}	20 ^{*4}	9.4 × 10 ⁻¹⁵ ^{*4}
S3883								0.05 ^{*2}	1.0 ^{*2}				

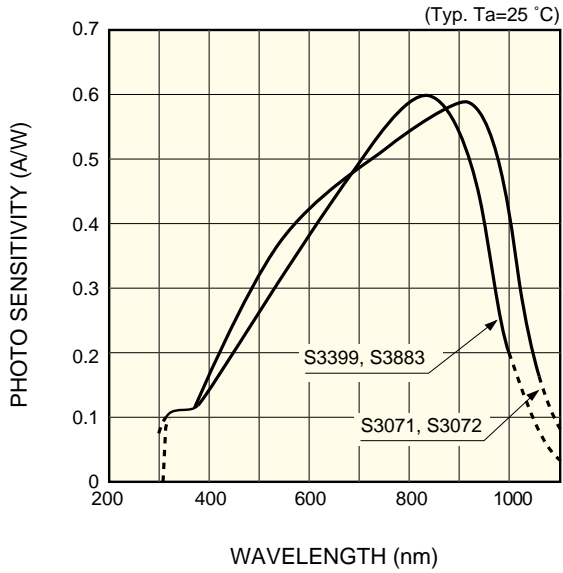
*1: Window material K: borosilicate glass

*2: $V_R=20$ V

*3: $V_R=24$ V

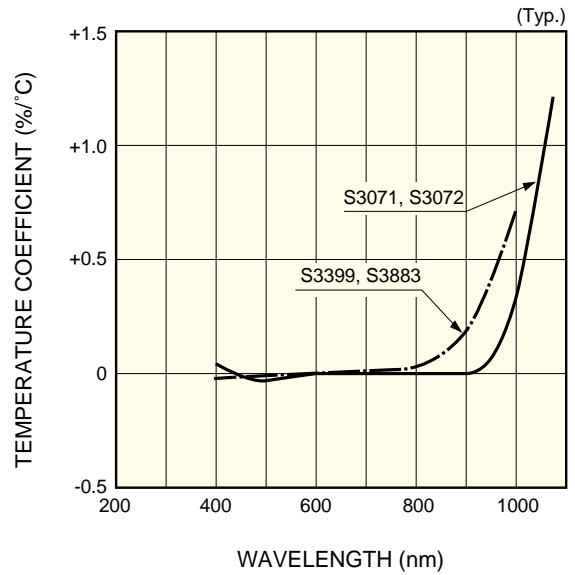
*4: $V_R=10$ V

■ Spectral response



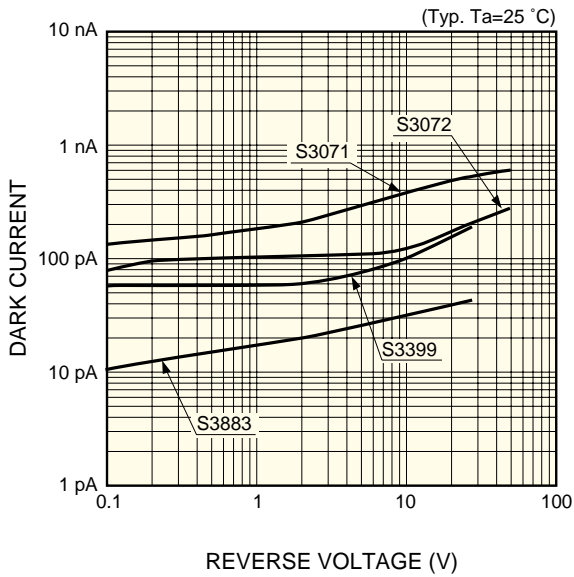
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■ Photo sensitivity temperature characteristics



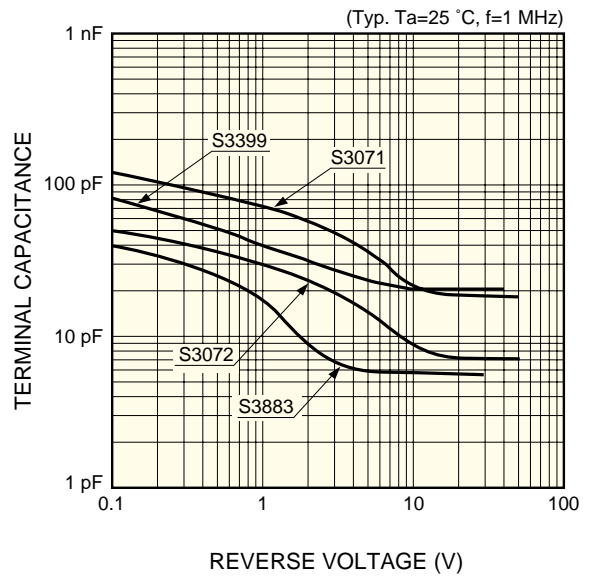
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■ Dark current vs. reverse voltage



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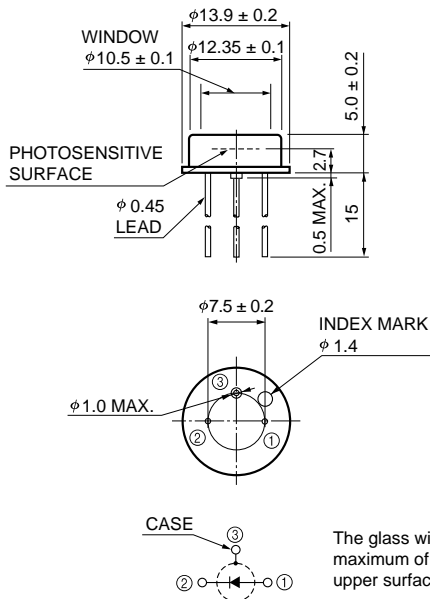
■ Terminal capacitance vs. reverse voltage



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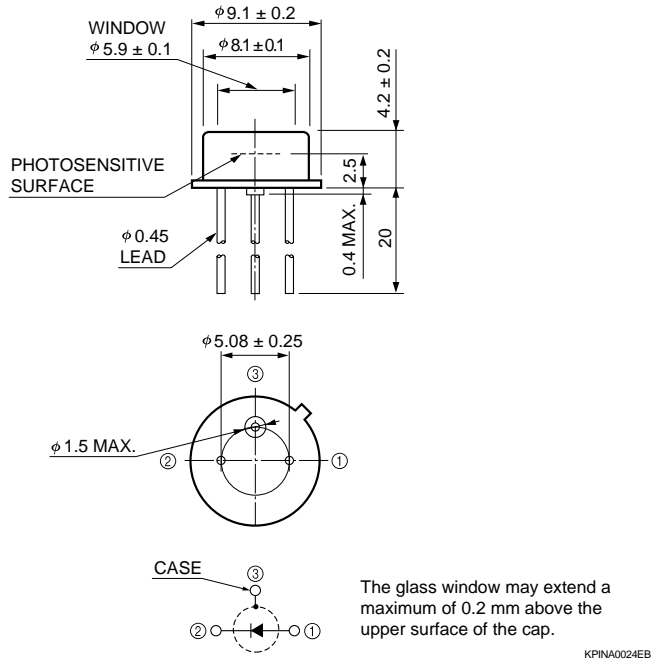
■ Dimensional outline (unit: mm)

① S3071



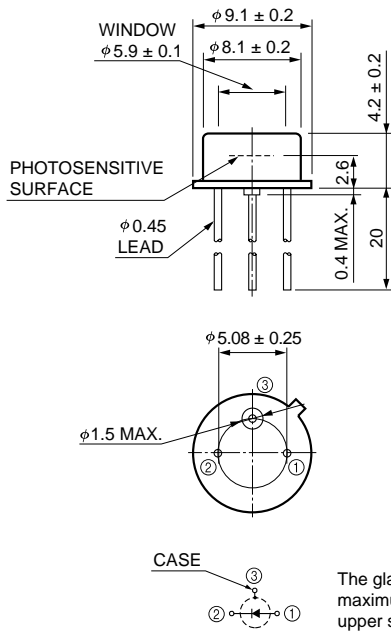
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② S3072



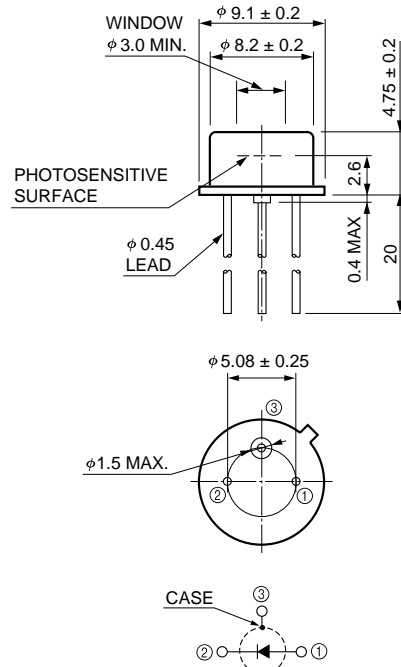
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③ S3399



KPINA0026EA

④ S3883



KPINA0025EB

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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) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trape, 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/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741