

Si PIN photodiodes

S9055 series



Flat response characteristics up to high frequency bands

The S9055 series Si PIN photodiodes deliver a high-speed response exceeding 1 GHz at low bias voltage ($V_R=2$ V). Their low capacitance (less than 1 pF) makes them ideal for combination with high-speed transimpedance amplifiers.

Features

- Flat response characteristics up to high frequency bands
Frequency flatness: -0.5 dB max.
($V_R=2$ V, $\lambda=830$ nm, $f=100$ MHz)
- High-speed response
S9055: 1.5 GHz ($V_R=2$ V, -3 dB)
S9055-01: 2 GHz ($V_R=2$ V, -3 dB)
- Low capacitance
S9055: 0.8 pF ($V_R=2$ V)
S9055-01: 0.5 pF ($V_R=2$ V)
- Highly reliable package: 3-pin TO-18 package

Applications

- Optical fiber communications
- High-speed measurement system
- Optical inter-connection

Structure / Absolute maximum ratings ($T_a=25$ °C)

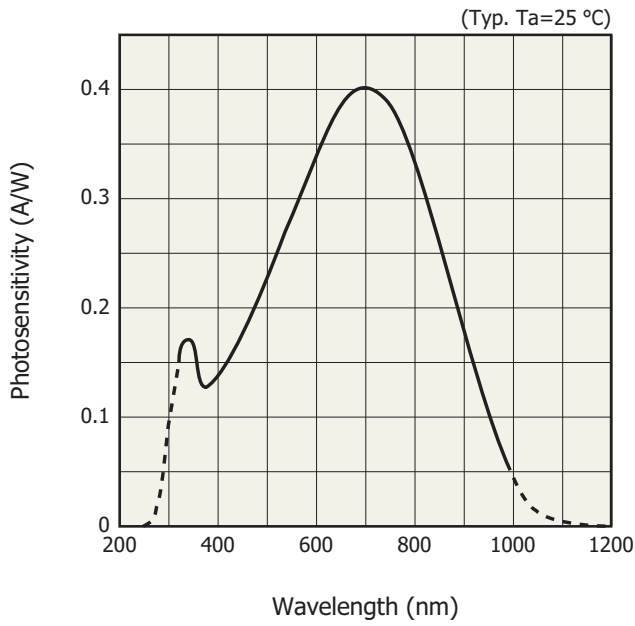
Parameter	Symbol	S9055	S9055-01	Unit
Photosensitive area	-	$\phi 0.2$	$\phi 0.1$	mm
Reverse voltage	V_R max	20		V
Operating temperature	T_{opr}	-40 to +100		°C
Storage temperature	T_{stg}	-55 to +125		°C

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics ($T_a=25$ °C)

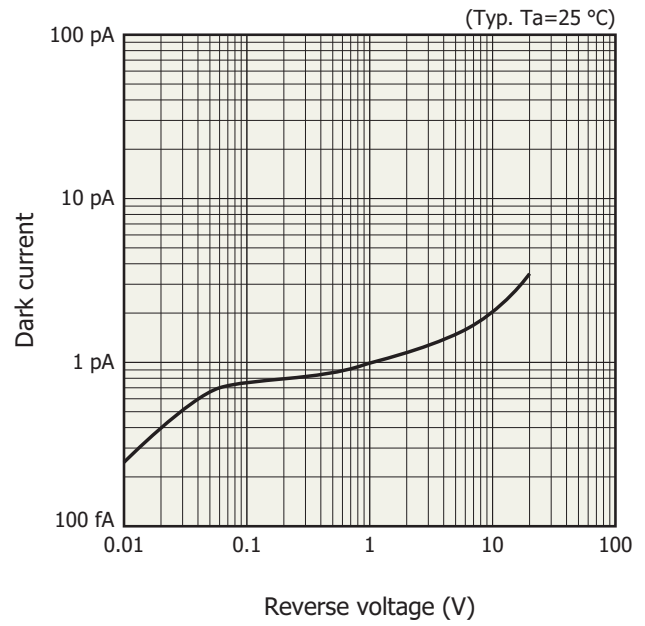
Parameter	Symbol	Condition	S9055			S9055-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		320 to 1000			320 to 1000			nm
Peak sensitivity wavelength	λ_p		-	700	-	-	700	-	nm
Photosensitivity	S	$\lambda=850$ nm	0.2	0.25	-	0.2	0.25	-	A/W
Dark current	I_D	$V_R=2$ V	-	1	100	-	1	100	pA
Terminal capacitance	C_t	$V_R=2$ V, $f=1$ MHz	-	0.8	1.2	-	0.5	0.75	pF
Cutoff frequency	f_c	$V_R=2$ V, $R_L=25$ Ω -3 dB	1.0	1.5	-	1.5	2	-	GHz
Frequency flatness	-	$V_R=2$ V, $\lambda=850$ nm $f=100$ MHz	-	-	-0.5	-	-	-0.5	dB

Spectral response



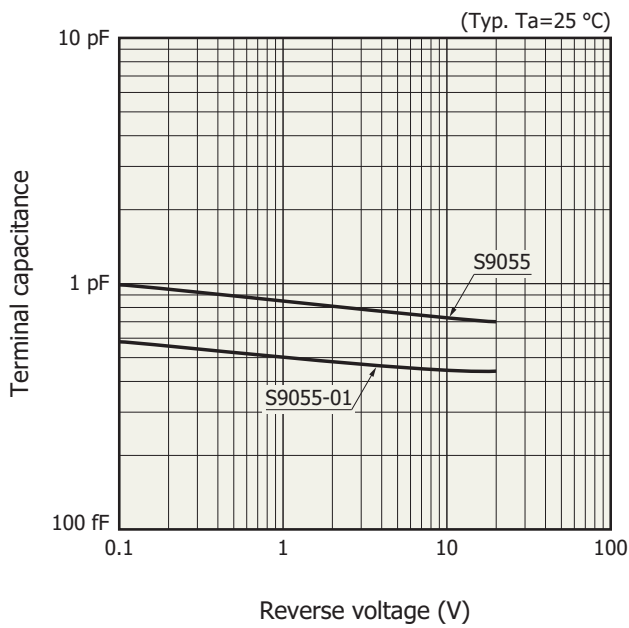
KPINB0274EB

Dark current vs. reverse voltage



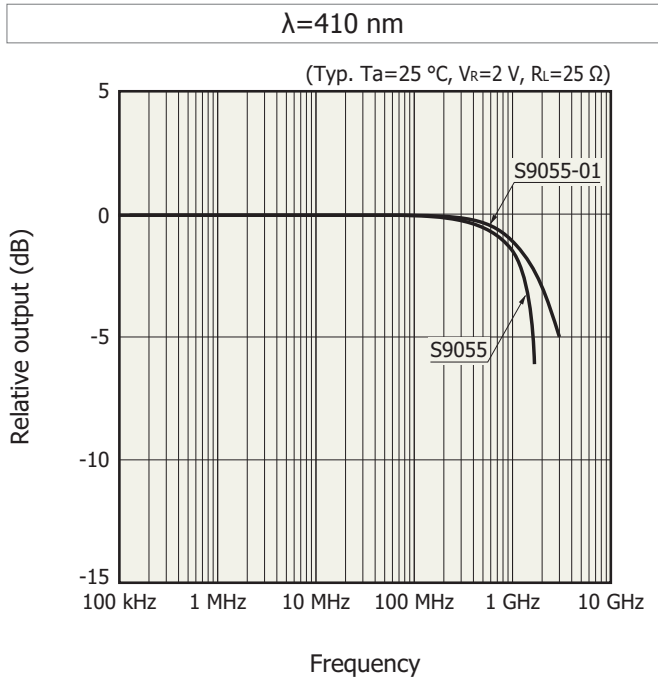
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Terminal capacitance vs. reverse voltage

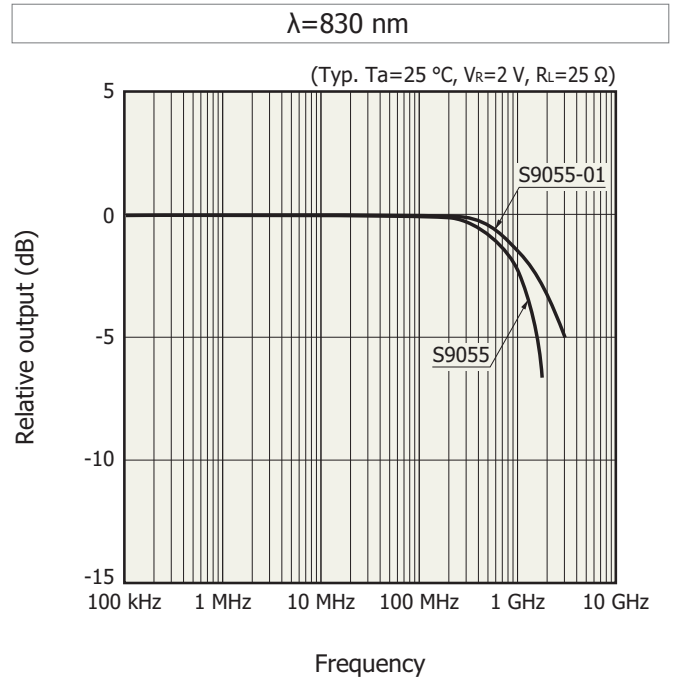


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Frequency characteristics

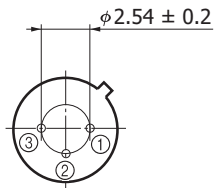
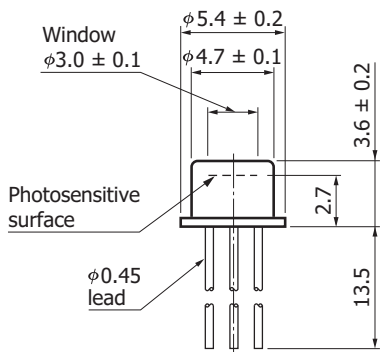


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KPINB0278EC

Dimensional outline (unit: mm)



The glass window does not extend beyond the upper edge of cap but may be recessed a maximum of 0.1 mm from the cap edge.

KPINA0071EB

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

- Disclaimer
- Metal, ceramic, plastic package products

■ Technical information

- Si photodiode/Application circuit examples

Information described in this material is current as of September 2017.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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