

Si PIN photodiode

S9055 series

Flat response characteristics up to high frequency bands



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 trans-impedance 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

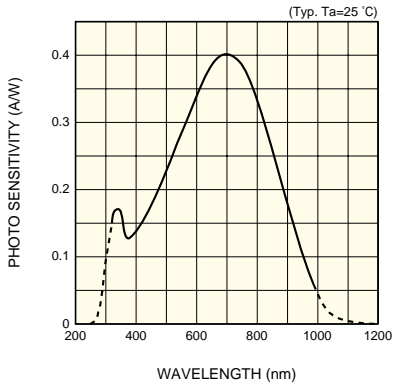
■ General rating / absolute maximum ratings ($T_a=25$ °C)

Parameter	Symbol	S9055	S9055-01	Unit
Active 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

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

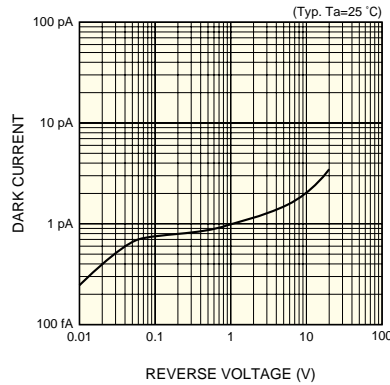
Parameter	Symbol	Condition	S9055			S9055-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		320 to 1000			320 to 1000			nm
Peak sensitivity wavelength	λ_p		-	700	-	-	700	-	nm
Photo sensitivity	S	$\lambda=850$ nm	0.2	0.25	-	0.2	0.25	-	A/W
Dark current	I_D	$V_R=2$ V	-	1	100	-	1	100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



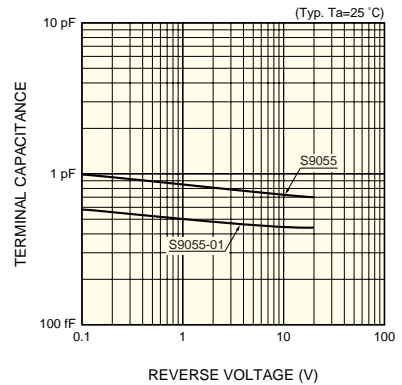
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Dark current vs. reverse voltage



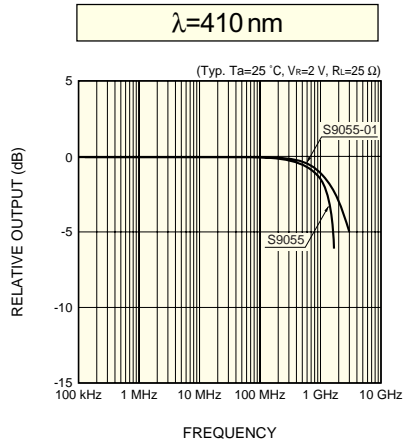
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Terminal capacitance vs. reverse voltage

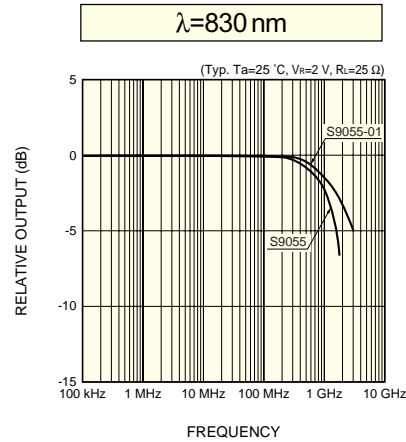


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Frequency characteristics

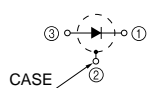
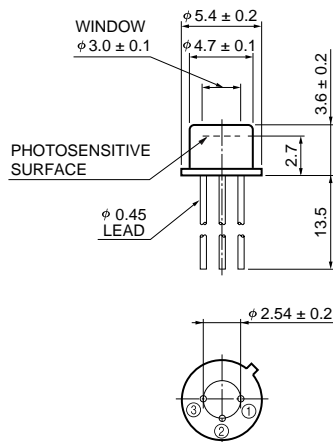


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Dimensional outline (unit: mm)



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.

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