

# 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

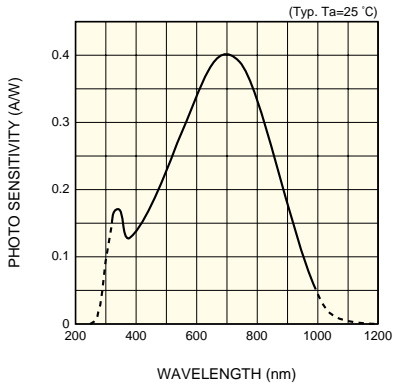
### ■ General rating / absolute maximum ratings ( $T_a=25$ °C)

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)

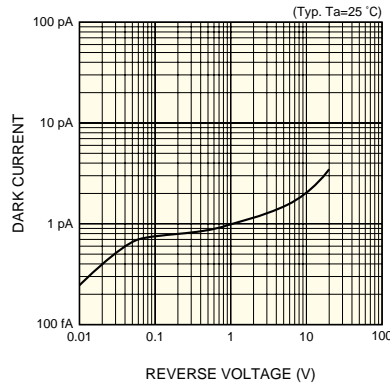
Parameter	Symbol	Condition	S9055			S9055-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	$\lambda$		320 to 1000			320 to 1000			nm
Peak sensitivity wavelength	$\lambda_p$		-	700	-	-	700	-	nm
Photo sensitivity	S	$\lambda=850$ nm	0.2	0.25	-	0.2	0.25	-	A/W
Dark current	$I_D$	$V_R=2$ 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, $R_L=25$ $\Omega$ -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



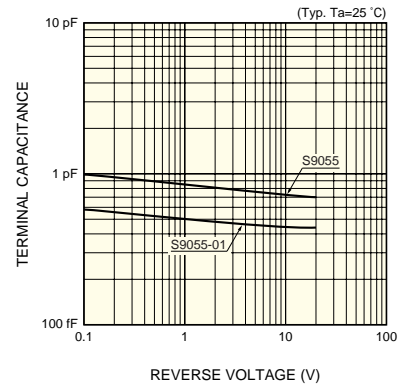
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## Dark current vs. reverse voltage



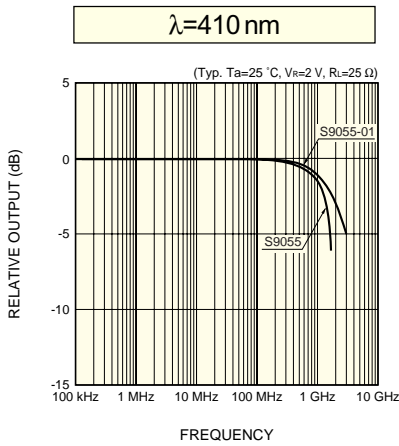
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## Terminal capacitance vs. reverse voltage

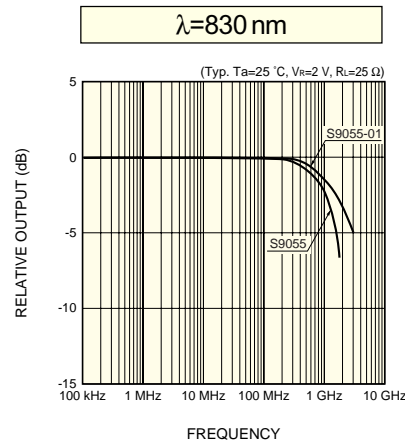


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## Frequency characteristics

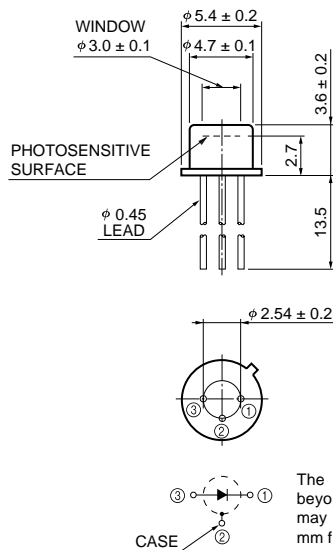


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## Dimensional outline (unit: mm)



KPINA0071EA

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