

NEW

PHOTODIODE

Si PIN photodiode with preamp

S6468-52

PIN photodiode/preamp device with enhanced violet sensitivity



S6468-52 is a high-speed sensor incorporating a violet sensitivity-enhanced Si PIN photodiode and a preamplifier in the same package. S6468-52 is suitable for optical pickups using a violet laser and receivers in optical communications.

Features

- Cut-off frequency: 70 MHz ($\lambda=400$ nm)
- Low noise: 25 nV/Hz^{1/2} (f=1 MHz)
- 3-pin TO-18 package
- Active area: $\phi 0.4$ mm

Applications

- Optical pickup
- Optical fiber communications
- Video signal transmission

■ Absolute maximum ratings

Parameter	Symbol	Value	Unit
Supply voltage	V _{cc}	-0.5 to 7	V
Power dissipation	P	300	mW
Operating temperature	T _{opr}	-20 to 70	°C
Storage temperature	T _{stg}	-40 to 100	°C

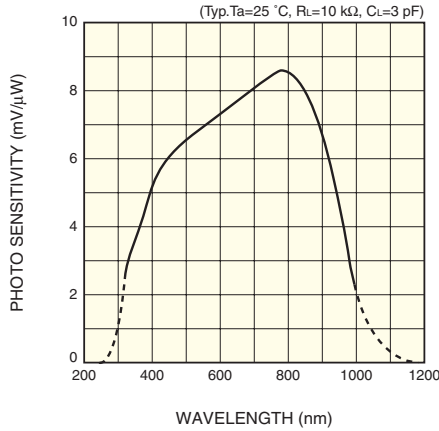
■ Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	V _{cc}	4.75	5	5.25	V
Load resistance	R _L	10	-	-	k Ω
Load capacitance	C _L	-	-	3	pF

■ Electrical and optical characteristics (T_a=25 °C, V_{cc}=5 V, C_L=3 pF)

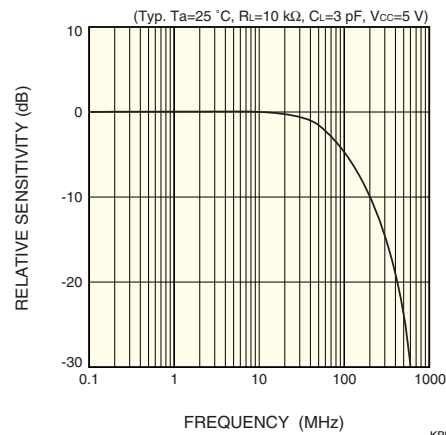
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ			320 to 1000		nm
Peak sensitivity wavelength	λ_p		-	740	-	nm
Photo sensitivity	S	$\lambda=400$ nm	-	5.4	-	mV/ μ W
Trans-impedance	R _t		-	18	-	k Ω
Power supply current	I _{cc}	R _L = ∞	-	-	6.5	mA
Output bias voltage	V _o	R _L = ∞ , P _{in} =0 μ W	1.25	1.55	1.85	V
Cut-off frequency	f _c	$\lambda=400$ nm, R _L =10 k Ω , P _{in} =10 μ W (Peak)	60	70	-	MHz
Output noise voltage	V _n	f=1 MHz, R _L =500 Ω , P _{in} =0 μ W	-	25	-	nV/Hz ^{1/2}
Overshoot	-	P _{in} =10 μ W (Peak)	-	-	10	%

Spectral response



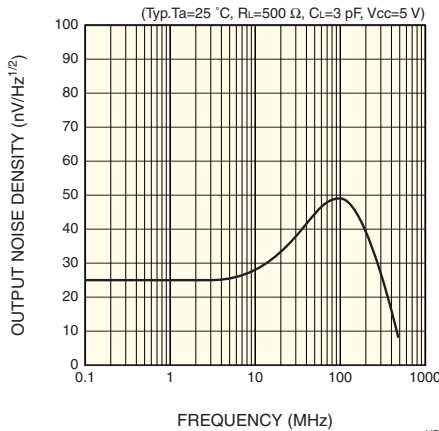
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Frequency response



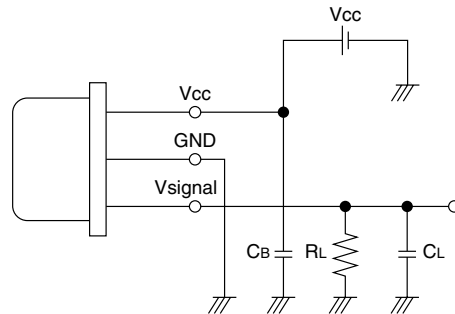
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Output noise density characteristic



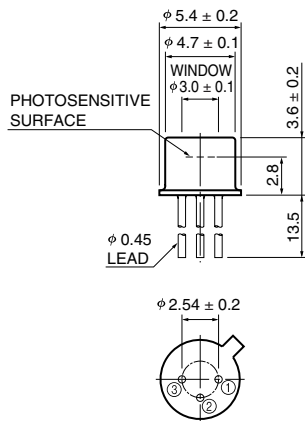
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Basic circuit connection



KPINC0001EA

Dimensional outline (unit: mm)



- ① VCC
- ② GND (CASE)
- ③ V signal

KPINA0001EF

RL and CL are the total resistive load and capacitive load, as seen from the OUT terminal. When connecting a cable or circuit to the latter stage of the basic connection diagram, the cable or circuit resistance and capacitance should also be taken into account. Use $RL \geq 10 \text{ k}\Omega$ and $CL \leq 3 \text{ pF}$ according to the recommended operating conditions. Also connect a bypass capacitor ($CB = 0.01 \text{ }\mu\text{F}$ to $0.1 \text{ }\mu\text{F}$ ceramic capacitor) between the VCC lead and GND lead. The lead length should be less than 5 mm.

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