

Si PIN PHOTODIODE WITH PREAMP

S7516/-01

For high-speed detector in spatial light communication



FEATURES

- 5-pin TO-8 package, S7516-01 with lens
- Large active area
S7516: 3 mm diameter
S7516-01: 9 mm diameter (lens)
- Wide bandwidth: $f_c=170$ MHz

APPLICATIONS

- Spatial light communication

The S7516 series is a silicon PIN photodiode combined with a wideband ($f_c=170$ MHz) preamplifier. The photodiode and op amp chips are encapsulated in a 5-pin TO-8 package. Its large active area (3 mm diameter) and wide bandwidth make the S7516 ideal for detectors in spatial light communication. As a new variant, the S7516-01 with a lens window of 9 mm diameter is also available.

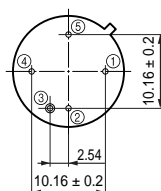
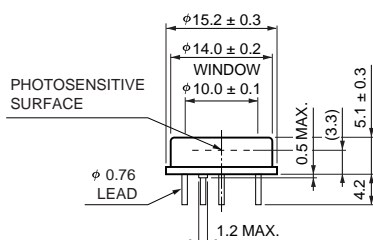
■ ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Supply Voltage (OP amp)	V_{CC}	± 6	V
Reverse Voltage (Photodiode)	V_R	50	V
Operating Temperature	T_{opr}	-30 to $+60$	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to $+80$	$^\circ\text{C}$

■ ELECTRICAL AND OPTICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$, $V_{CC}=\pm 5$ V, $V_R=30$ V, $R_L=50\ \Omega$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Spectral Response Range	λ		-	320 to 1060	-	nm
Peak Sensitivity Wavelength	λ_p		-	840	-	nm
Photo Sensitivity	S	$\lambda=\lambda_p$	-	85	-	V/W
Cutoff Frequency	f_c	-3 dB	140	170	-	MHz
Output Noise Voltage	V_n	Dark state, $f=170$ MHz	-	9	-	$\text{nV}_{\text{rms}}/\text{Hz}^{1/2}$
		Dark state, $f=100$ kHz to 170 MHz	-	130	-	μV_{rms}
Noise Equivalent Power	NEP	$f=170$ MHz	-	0.14	-	$\text{nW}/\text{Hz}^{1/2}$
Supply Current	I_s	Dark state	-	5	15	mA

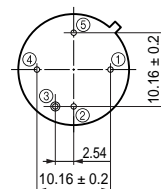
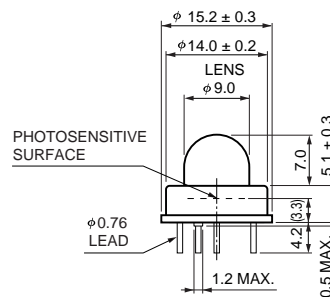
■ DIMENSIONAL OUTLINES (Unit: mm)



- ① OUT
- ② V_{CC-}
- ③ GND
- ④ PD (CATHODE)
- ⑤ V_{CC+}

The glass window may extend a maximum of 0.3 mm above the upper surface of the cap.

KPINA0057EA



- ① OUT
- ② V_{CC-}
- ③ GND
- ④ PD (CATHODE)
- ⑤ V_{CC+}

KPINA0064EA

HAMAMATSU