

Photo IC for optical switch



S11049-02SB

Analog output photo IC for optical switch

The S11049-02SB photo IC is designed for optical switches and provides an analog waveform output proportional to the intensity of incident pulsed light.

Features

- Large allowable background light level: 4000 lx Min.
- High linearity
- Low noise: 1.8 mV rms Max.

Applications

- Optical switch
- Optical receivers in various sensor devices

Absolute maximum ratings (Ta=25 °C)

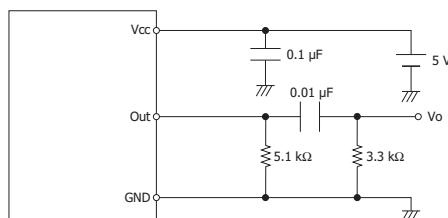
Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.5 to +7	V
Power dissipation *1	P	250	mW
Output voltage	Vout	-0.5 to +7	V
Operating temperature	Topr	-25 to +85	°C
Storage temperature	Tstg	-40 to +100	°C
Soldering	-	230 °C, 5 s	-

*1: Power dissipation decreases at a rate of 3.3 mW/°C above Ta=25 °C

Electrical and optical characteristics (Ta=25 °C, Vcc=5.0 V)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	380 to 1120	-	nm
Peak sensitivity wavelength	λ_p		-	760	-	nm
Supply voltage	Vcc		4.5	-	5.5	V
Current consumption	Icc		-	-	2.2	mA
Photo sensitivity	A	$\lambda=950$ nm *2 Input signal=100 kHz Including diffused reflection inside package	120	200	300	V/mW
AC photoelectric sensitivity linearity	Alin	Input pulse signal 0.01 μ W to 4.0 μ W *2	-10	-	+10	%
		Input pulse signal 4.0 μ W to 7.5 μ W *2	-50	-	+50	
Cut-off frequency	Low band	*2	-	-	50	kHz
	High band		1250	1450	1650	
Allowable background light level *3	Pdc	Input pulse signal 2.5 μ W *2	4000	6000	-	lx
Output noise voltage (with no input)	VON	*2	-	-	1.8	mV rms

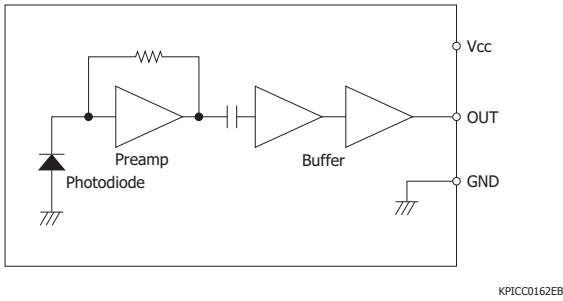
*2: Measurement circuit (Waveform at terminal Vo is measured)



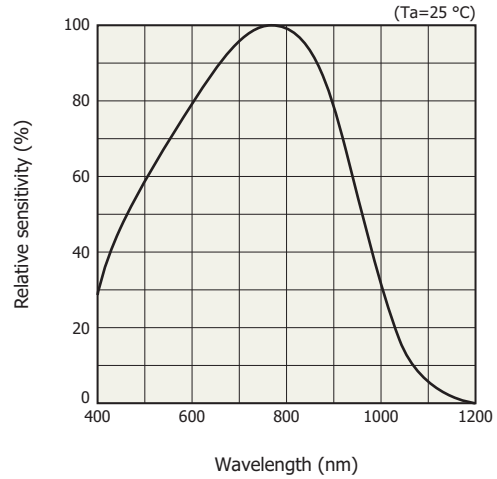
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*3: This is defined as the background light level in the active area at which the photo IC sensitivity drops by 20%

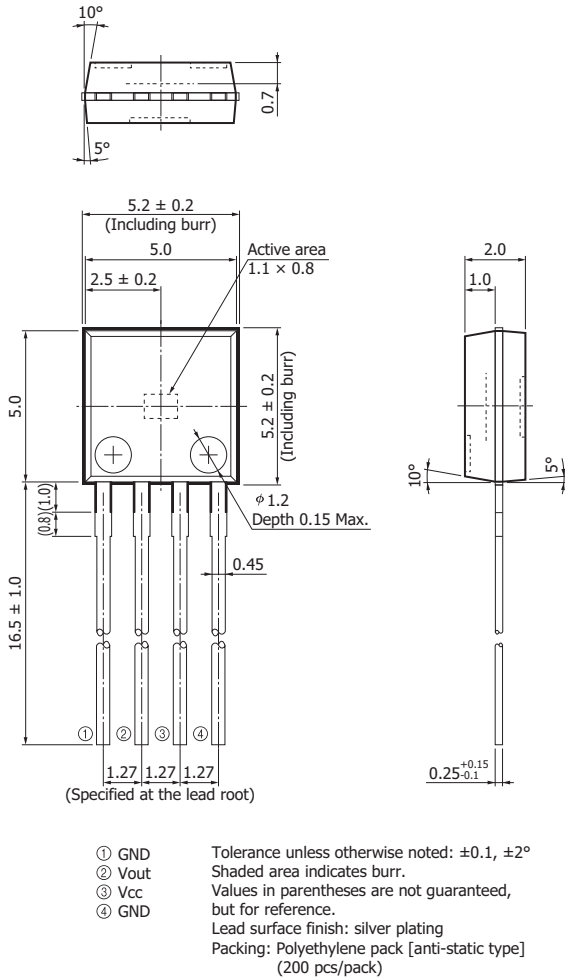
Block diagram



Spectral response (measurement example)



Dimensional outline (unit: mm)



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