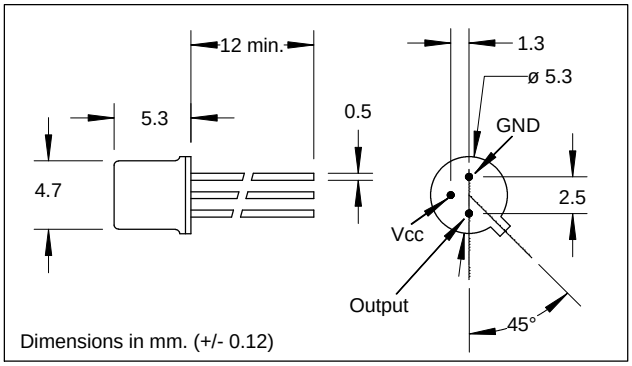
SLL-50HF2A

Photon Activated Logic - "PAL"

Photo Detector with Inverter Logic Output

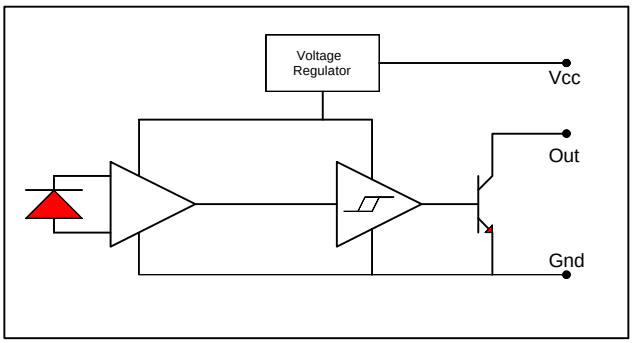
Features

- Supply voltage range 4.5V to 18V
- Schmitt Trigger provides Hysteresis
- Flat lens with wide receiving angle
- Spectrally matched to 880nm IRED
- Wide V_{CC} Range
- Hermetically Sealed TO-18 style Package
- Very sensitive even in low light levels
- Open collector Inverter output
- V_{OH} is high when input is dark



Description

The SLL-50HF2A series detector consists of a monolithic photodiode, voltage regulator, hysteresis amplifier, and NPN open collector output transistor on a single chip mounted in a hermetically sealed TO-18 flat lensed package. The flat lens provides a very high sensitivity within a wide field of view. The hermetic package provides high reliability in hostile environments. Under a dark condition the output transistor is not conducting. The Schmitt trigger provides immunity to noise on either irradiance or V_{CC}.



Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

Supply Voltage Range	-0.5V to 18V
Sink current (output on)	30 mA
Voltage at OUT (output off)	-0.5V to V_{CC} + 0.5V
Storage Temperature Range	-40°C to +125°C
Operating Temperature Range	-40°C to +85°C
Lead Soldering Temperature (1)	260°C
Power Dissipation (2)	250mW

Notes:
(1) >2 mm from case for <5 sec.
(2) derate @ 4.2 mW/°C above 25 °C
(3) "IRED=OFF" denotes dark condition, "IRED=ON" denotes optical input of 1µW/cm^2 @ 880nm unless otherwise noted.

Electrical Characteristics (T_A=25°C unless otherwise noted)

Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
V_{CC}	Supply Voltage	4.5		18	V	
$I_{CC(ON)}$	Supply Current, Output High, IRED=OFF	1.8	2.5	3.5	mA	V_{CC}=5V, Ee= 0µW/cm^2 (3)
$I_{CC(ON)}$	Supply Current, Output High, IRED=OFF	2.2	3.1	4.4	mA	V_{CC}=18V, Ee= 0µW/cm^2 (3)
$I_{CC(OFF)}$	Supply Current, Output Low, IRED=ON	1.1	1.6	2.3	mA	V_{CC}=5V, Ee= 1µW/cm^2 (3)
$I_{CC(OFF)}$	Supply Current, Output Low, IRED=ON	1.5	2.2	3.1	mA	V_{CC}=18V, Ee= 1µW/cm^2 (3)
$E_{T(+)}$	Positive-Going Threshold	320	480	720	nW	V_{CC}=5V (3)
$E_{T(+)}$	Positive-Going Threshold	320	520	790	nW	V_{CC}=18V (3)
HYS	Optical Hysteresis Ratio	1.20	1.33	1.50		
V_{OL}	Low Level Output, 5V		290	400	mV	V_{CC}=4.5 to 18V, IRED=ON
V_{OL}	Low Level Output, 18V		285	400	mV	V_{CC}=4.5 to 18V, IRED=ON
I_{OH}	High Level Output Current			10	µA	V_{CC}=4.5 to 18V, IRED=OFF
TP_{DL}	Propagation Delay, Dark to Light		1.8	3.6	µS	R_L=10K, V_{CC}=5V
TP_{LD}	Propagation Delay, Light to Dark		2.0	4.0	µS	R_L=10K, V_{CC}=5V
λ_P	Maximum Sensitivity Wavelength		880		nm	
λ_R	Sensitivity Spectral Range	400		1100	nm	
$\theta_{1/2}$	Acceptance Half Angle		40		deg	(off center-line)

Specifications subject to change without notice.

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