

Ambient Light Sensor

5mm T-1 3/4

ALS-PDIC243-3C/F405

Features

- Excellent IR-Cut performance
- Close responsively to the human eye spectrum
- Light to Current, analog output
- Good output linearity across wide illumination range
- Low sensitivity variation across various light sources
- Operation temperature performance, -40°C to 85°C
- Wide supply voltage range, 1.8V to 5.5V
- Size: 5mm Lamp (Flat lens)
- RoHS compliant package



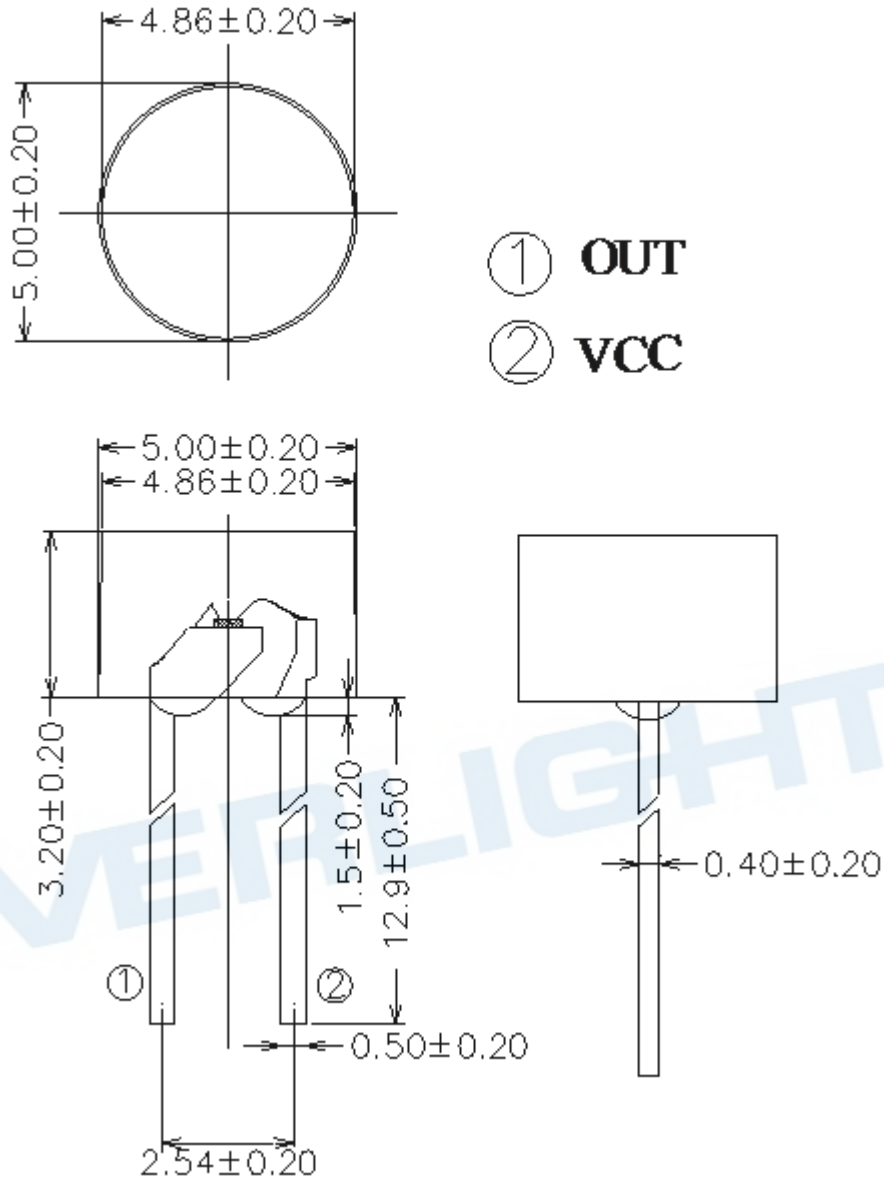
Description

The ALS-PDIC243-3C/F405 is an ambient light sensor, which incorporates a photodiode and a current amplifier IC in DIP package. EVERLIGHT ALS series products are a good effective solution to the power saving of display backlighting of mobile appliances. Due to the high rejection ratio of infrared radiation, the spectral response of the ambient light sensor is close to human eyes. Also, it is very suitable to use ALS product for opto-switch application.

Applications

- Ambient light monitoring device for daylight and artificial light
 - CCD camera/CCTV security equipment, Street light
- Detection of ambient light to control display backlighting
 - Computing device – TFT LCD monitor for Notebook computer
 - Consumer device – TFT LCD TV, video camera, digital camera, toys

Package Dimensions



Notes:

1. All dimensions are in millimeters
2. Tolerances unless dimensions ± 0.2 mm

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{cc}	-0.7~6.5	V
Operating Temperature Range	T _{opr}	-40 ~ +85	°C
Storage Temperature Range	T _{stg}	-40 ~ +100	°C
Soldering Temperature Range	T _{sol}	260	°C

Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Max.	Unit
Operating Temperature	T _{opr}	-40	+85	°C
Supply Voltage	V _{cc}	1.8	5.5	V

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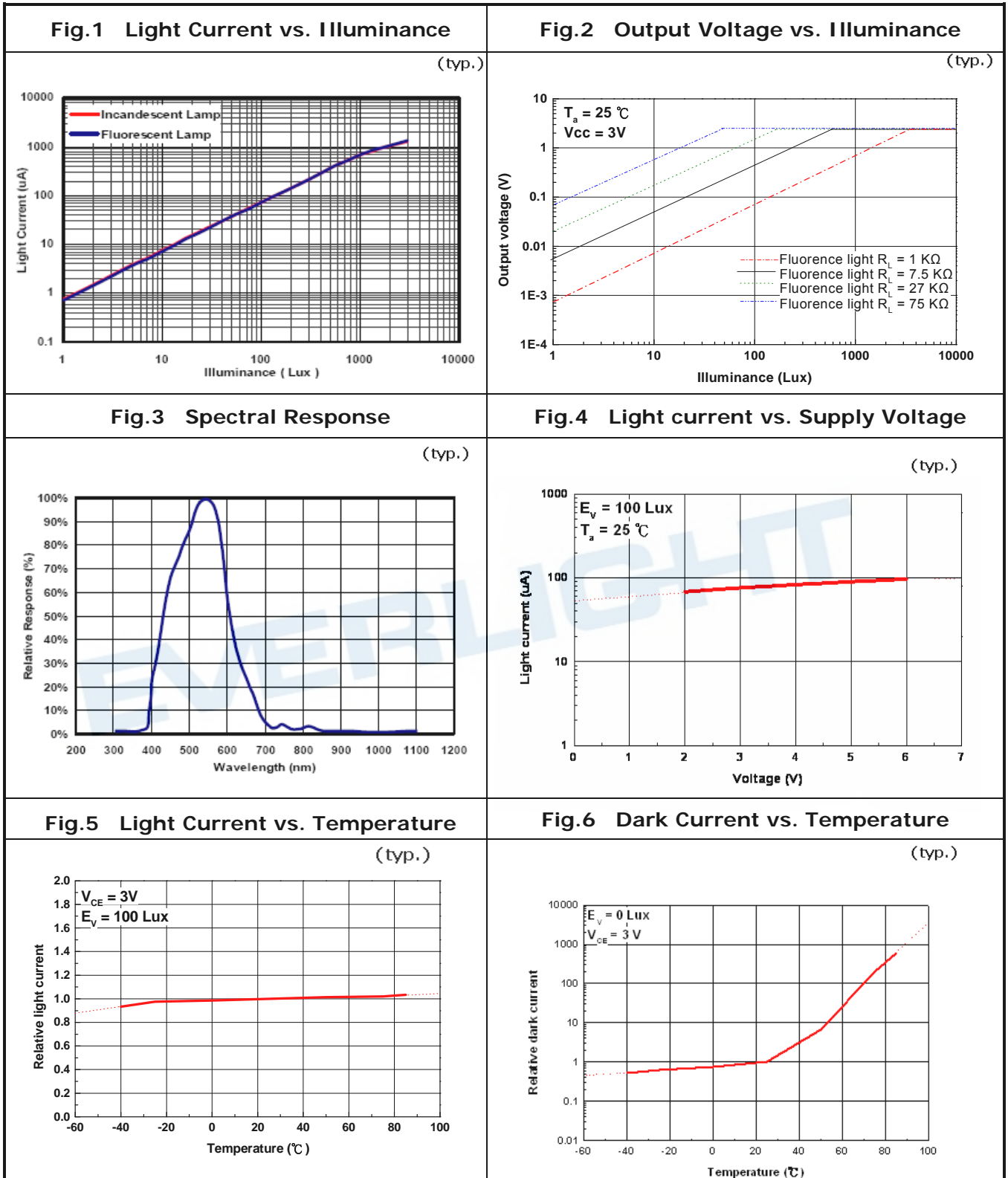
Electrical and Optical Characteristics (Ta=25°C)

Parameter	Symbol	MIN	TYP	MAX.	Unit	Test Condition
Dark Current	I_D	1	---	100	nA	$V_{CC}=3V, E_v= 0Lux$
Light Current	I_{PH2}	24	---	48	uA	$V_{CC}=3V, E_v= 100Lux$ [Note1]
	I_{PH3}	240	---	480	uA	$V_{CC}=3V, E_v= 1000Lux$ [Note1]
	I_{PH4}	---	430	---	uA	$V_{CC}=3V, E_v= 1000Lux$ [Note2]
Photocurrent Ratio	I_{PH4} / I_{PH3}	---	1.2	---	---	$V_{CC}=3V, E_v= 1000Lux$
Peak Sensitivity Wavelength	λ_p	---	560	---	nm	---
Sensitivity Wavelength Range	λ	390	---	700	nm	---
Rise time	t_r	---	0.36	---	ms	$V_{CC} = 3 V$ $R_L = 27K\Omega$
Fall time	t_f	---	1.13	---	ms	
Angle of half Sensitivity	$2\theta_{1/2}$	---	143	---	Deg.	$I_F=20mA$

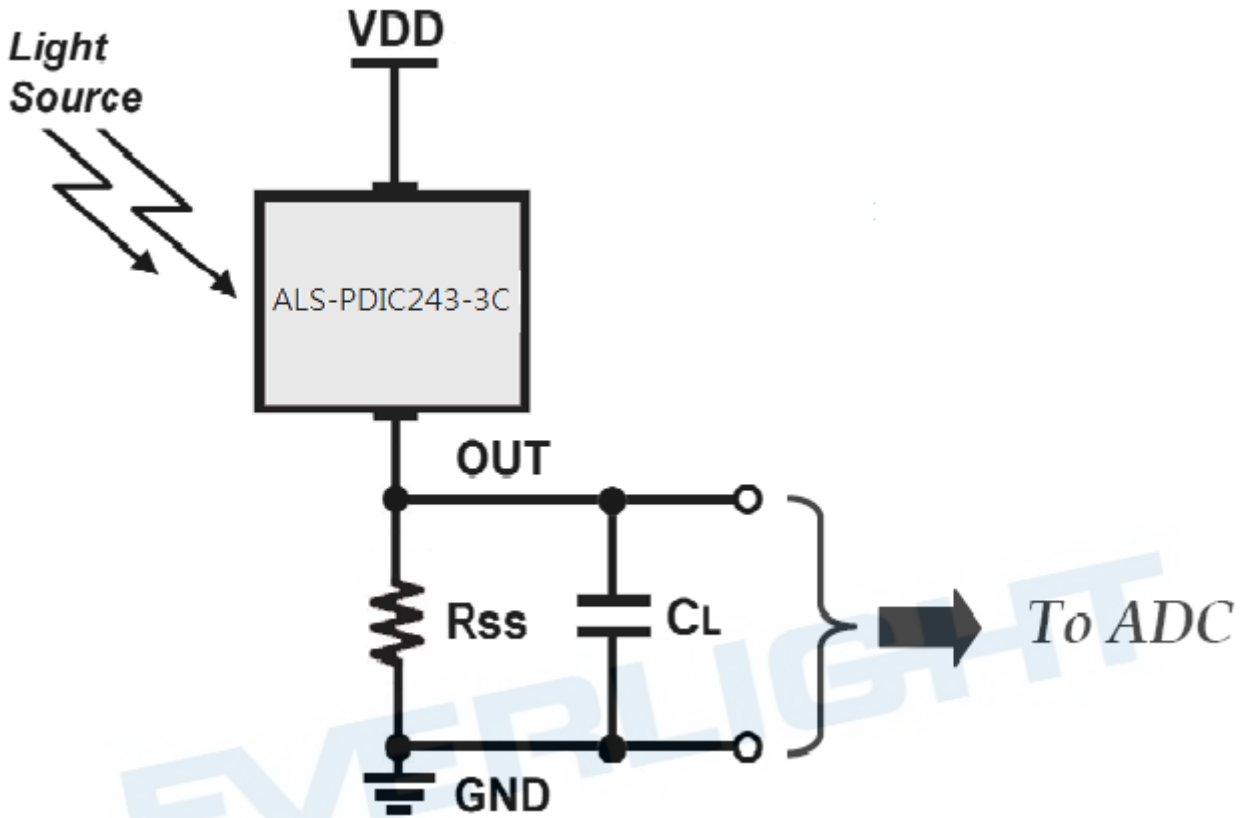
Note:

1. White Fluorescent light (Color Temperature = 6500K) is used as light source. However, White LED is substituted in mass production.
2. Illuminance by CIE standard illuminant-A / 2856K, incandescent lamp.

Typical Electrical and Optical Characteristics Curves



Converting Photocurrent to Voltage



Note:

1. The output voltage (V_{out}) is the product of photocurrent (I_{PH}) and loading resistor (R_L)
2. A right loading resistor shall be chosen to meet the requirement of maximum ambient light, and output saturation voltage:

$$V_{out(max.)} = I_{out(max.)} \times R_L \leq V_{out(saturation)} = V_{cc} - 0.4V$$

Packing Quantity Specification

