

ALS-PDIC243-3B

#### **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-PDIC243-3B 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, such as the mobile phones, NB and PDAs. 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

Everlight Electronics Co., Ltd.

Document No: DLS-0000010 Rev.3

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Approved

Sep.5, 2012 Release Date:2012-09-06 17:48:50.0

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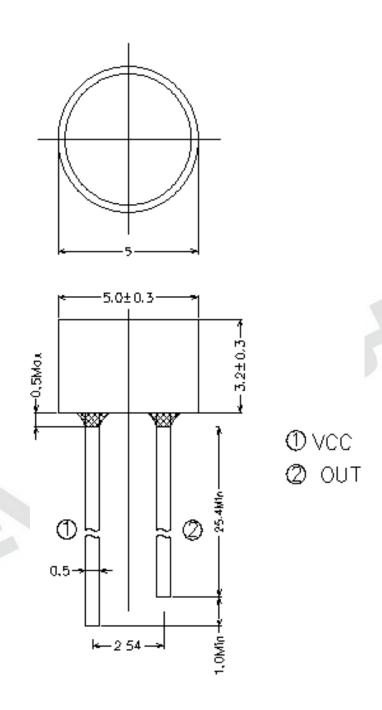
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## **Package Dimensions**



Notes: 1.All dimensions are in millimeters

2.Tolerances unless dimensions ±0.1mm

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## Absolute Maximum Ratings (Ta=25)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	-0.7~6.5	V
Operating Temperature Range	Topr	-40 ~ +85	°C
Storage Temperature Range	Tstg	-40 ~ +100	°C
Soldering Temperature Range	T <sub>sol</sub>	260	°C

### Recommended Operating Conditions (Ta=25)

Parameter	Symbol	Min.	Max.	Unit
Operating Temperature	Topr	-40	+85	°C
Supply Voltage	Vcc 1.8		5.5	V
Rankings				

### **Rankings**

BIN	Symbol	Min.	Max.	Unit	Test Condition
1	lph2	10	16	uA	
2	lph2	14	23	uA	Vcc=3V
3	lph2	20	30	uA	Ev = 100Lux
4	lph2	26	35	uA	

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## **Electrical and Optical Characteristics (Ta=25)**

Parameter	Symbol	MIN	TYP	MAX.	Unit	Test Condition	
Dark Current	I <sub>D</sub>		0.05	0.1	uA	V <sub>cc</sub> =3V, E <sub>v</sub> = 0Lux	
Light Current	I <sub>PH1</sub>	1		3.5	uA	V <sub>CC</sub> =3V, E <sub>V</sub> = 10Lux [Note1]	
	I <sub>PH2</sub>	10		35	uA	V <sub>CC</sub> =3V, E <sub>V</sub> = 100Lux [Note1]	
	I <sub>PH3</sub>	100		350	uA	V <sub>CC</sub> =3V, E <sub>V</sub> = 1000Lux [Note1]	
	I <sub>PH4</sub>	100	300		uA	V <sub>CC</sub> =3V, E <sub>V</sub> = 1000Lux [Note2]	
Photocurrent Ratio	I <sub>PH4</sub> / I <sub>PH3</sub>		1.2			V <sub>cc</sub> =3V, E <sub>v</sub> = 1000Lux	
Peak Sensitivity Wavelength	λ <sub>p</sub>		560		nm		
Sensitivity Wavelength Range	λ	390		700	nm		
Rise time	tr		0.36		ms	V <sub>CC</sub> = 3 V	
Fall time	tf	-	1.13		ms	$R_L = 27K\Omega$	
Angle of half Sensitivity	20 <sub>1/2</sub>		143		Deg.	V <sub>CC</sub> = 3 V	

#### Note:

1. White Fluorescent light (Color Temperature = 6500K) is used as light source. However, White LED is substituted in mass production.

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2. Illuminance by CIE standard illuminant-A / 2856K, incandescent lamp.

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Typical Electrical and Optical Characteristics Curves Fig.2 Output Voltage vs. Illuminance **Light Current vs. Illuminance** (typ.) (typ.) 1000 10  $T_{a} = 25$  $V_{cc} = 3V$ Vcc = 3V -ight current (uA) Output voltage (V) 0.01 Fluorence light  $R_L = 1 \text{ K}\Omega$ Fluorence light  $R_L = 7.5 \text{ K}\Omega$ Fluorence light  $R_L = 27 \text{ K}\Omega$ Fluorence light  $R_L = 75 \text{ K}\Omega$ 1E-3 1000 1F-4 Illuminance (Lux) 1000 10000 10 100 Illuminance (Lux) Fig.4 Light current vs. Supply Voltage Fig.3 Spectral Response (typ.) (typ.) 100 1000 90  $E_v = 100 \text{ Lux}$ 80 70 Light current (uA) б0 50 40 30 20 10 0 420 520 720 920 1020 320 620 820 Supply voltage (V) **Light Current vs. Temperature** Fig.5 Dark Current vs. Temperature (typ.) (typ.) 1.8 V<sub>cc</sub> = 3V 10000 E<sub>v</sub> = 100 Lux E\_ = 0 Lux 1.6 V<sub>cc</sub>= 3 V Relative light current 1.4 1.2 Relative dark current 100 1.0 10 0.8 0.6 0.4 0.1 0.2 0.0 <del>|</del> -60 -20 20 80 Temperature ( )

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**Revision**: 3

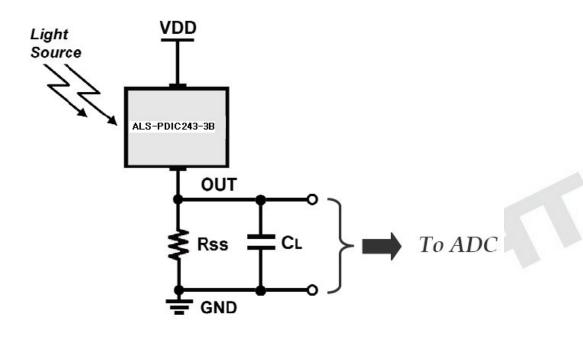
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Sep.5, 2012

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### **Converting Photocurrent to Voltage**



#### Note:

- 1. The output voltage (Vout) is the product of photocurrent (IPH) and loading resistor (RL)
- 2. A right loading resistor shall be chosen to meet the requirement of maximum ambient light, and output saturation voltage:

 $Vout(max.) = Iout(max.) \times RL$  Vout(saturation) = Vcc - 0.4V



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### **Packing Quantity Specification**

- 1.500PCS/1Bag, 5Bags/1Box
- 2.10Boxes/1Carton

#### **Label Format**



CPN: Customer's Production Number

P/N: Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

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#### Note

- 1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and instructions included in these specification sheets.
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