Ambient Light Sensor
5mm T-1
ALS-PDT243-3C/L451

Features

· Light to Current, analog output
· Good output linearity across wide illumination range
· Operation temperature performance, -30°C to 85°C
· Wide supply voltage range, 3V to 24V
· High efficiency light current output
· Lower dark current 0.1uA
· Lower cost
· Size : 5mm Lamp (Flat lens)
· The product itself will remain within RoHS compliant version
· Compliance with EU REACH
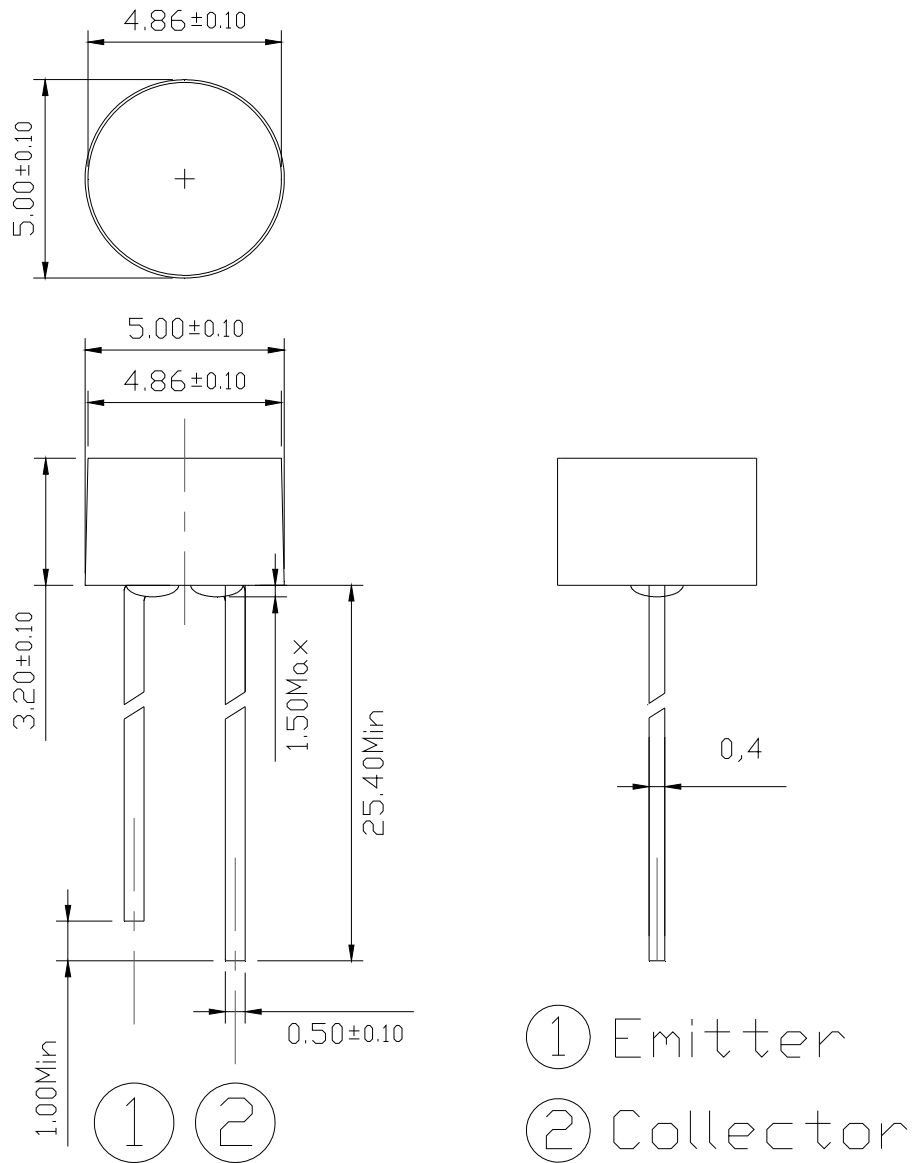· Compliance Halogen Free(Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm)

Description

· The ALS-PDT243-3C/L451 is an ambient light sensor using a photo transistor in a DIP package. It is used to replace traditional CdS sensors, since Cadmium is no longer allowed by RoHS.

Applications

· Detection of ambient light to control electrical unit
    Lighting devices – Road lamp, Night lamp
    Consumer device – LCD TV, Toys, Gaming

Package Dimensions

4.86±0.10

5.00±0.10

+

5.00±0.10

4.86±0.10

3.20±0.10

1.50Max

25.40Min

0.4

1.00Min

0.50±0.10

① ②

① Emitter

② Collector

Notes:
1.All dimensions are in millimeters
2.Tolerances unless dimensions ±0.1mm

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Operating Temperature Range	Topr	-30~85	°C
Storage Temperature Range	Tstg	-30~100	°C
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60	V
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	8	V
Supply Voltage	V_{CC}	2~24	V
Soldering Temperature Range	T_{sol}	260	°C

Recommended Operating Conditions

Parameter	Symbol	Min.	Max.	Unit
Operating Temperature	Topr	-30	85	°C
Supply Voltage	V_{CC}	3	24	V

Electrical and Optical Characteristics (T$_a$=25℃)

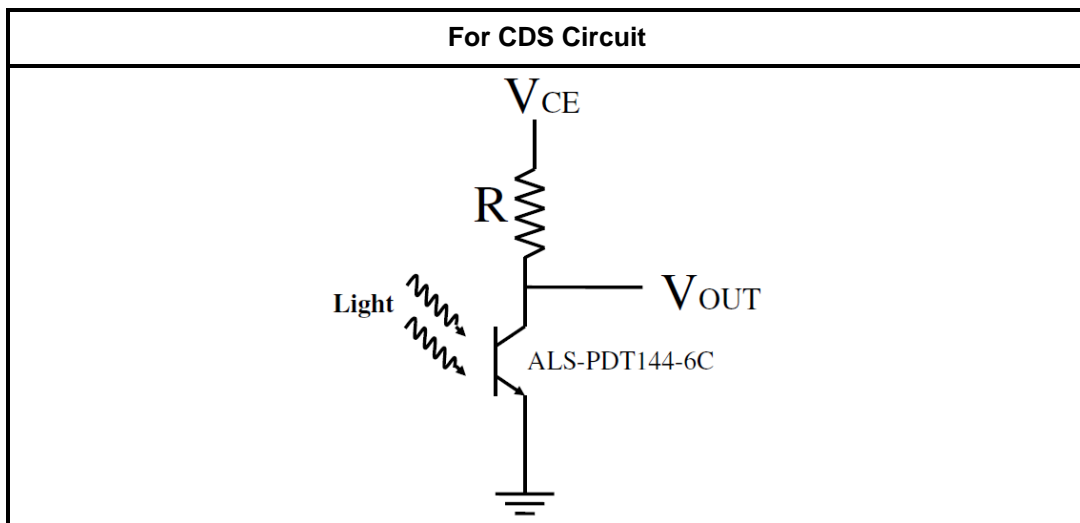| Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Test Condition
Collector –Emitter Breakdown Voltage	BV$_{CEO}$	---	60	---	V	Iceo=500uA
Dark Current	I$_{CEO}$	---	---	0.1	uA	V$_{CE}$=20V, Ev= 0Lux
Collector-Emitter Saturation Voltage	V$_{CE(sat)}$	---	---	1	V	I$_C$=50mA, Ev= 1000Lux
Light Current	I$_{PH1}$	20	---	55	μA	V$_{CE}$=5V, Ev= 10Lux [Note1]
	I$_{PH2}$	285	---	720	μA	V$_{CE}$=5V, Ev= 100Lux [Note1]
	I$_{PH3}$	---	13	---	mA	V$_{CE}$=5V, Ev= 100Lux [Note2]
Saturation Output Voltage	Vo	---	4.7	---	V	V$_{CE}$=5V, Ev= 1000Lux R$_L$=2KΩ [Note2]
Peak Sensitivity Wavelength	λ$_p$	---	790	---	nm	---
Sensitivity Wavelength Range	λ	400	---	1020	nm	---
Angle of half Sensitivity	2θ$_{1/2}$	---	110	---	Deg.	---

Notice:

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.

Recommend Application Circuit (ALS)

Measurement Light Current	Measurement Voltage Output
V_{CE} Light ALS-PDT144-6C I_{out}	V_{CE} Light ALS-PDT144-6C V_{OUT} R

Recommend Application Circuit (CDS)

For CDS Circuit
V_{CE} R   Light V_{OUT} ALS-PDT144-6C

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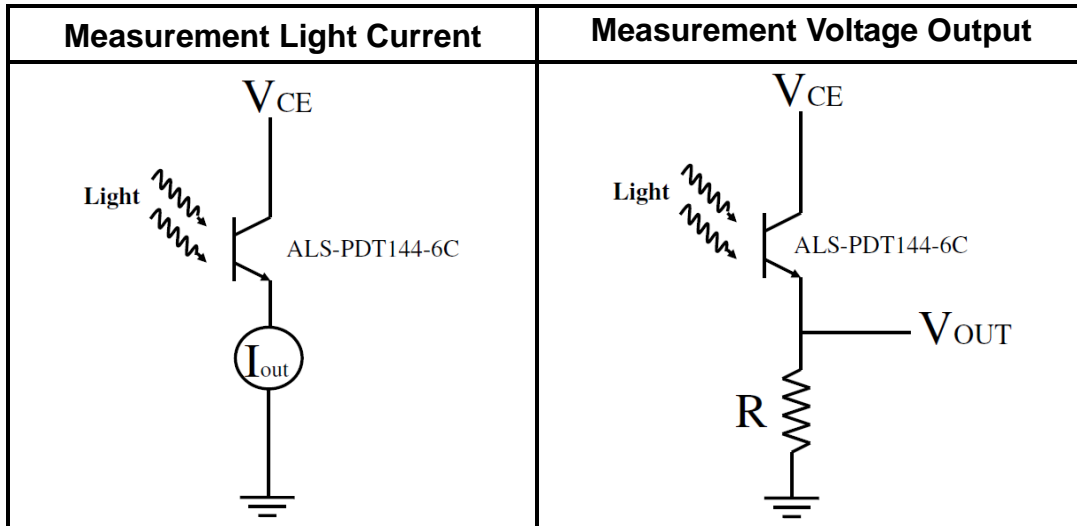
Typical Electrical and Optical Characteristics Curves

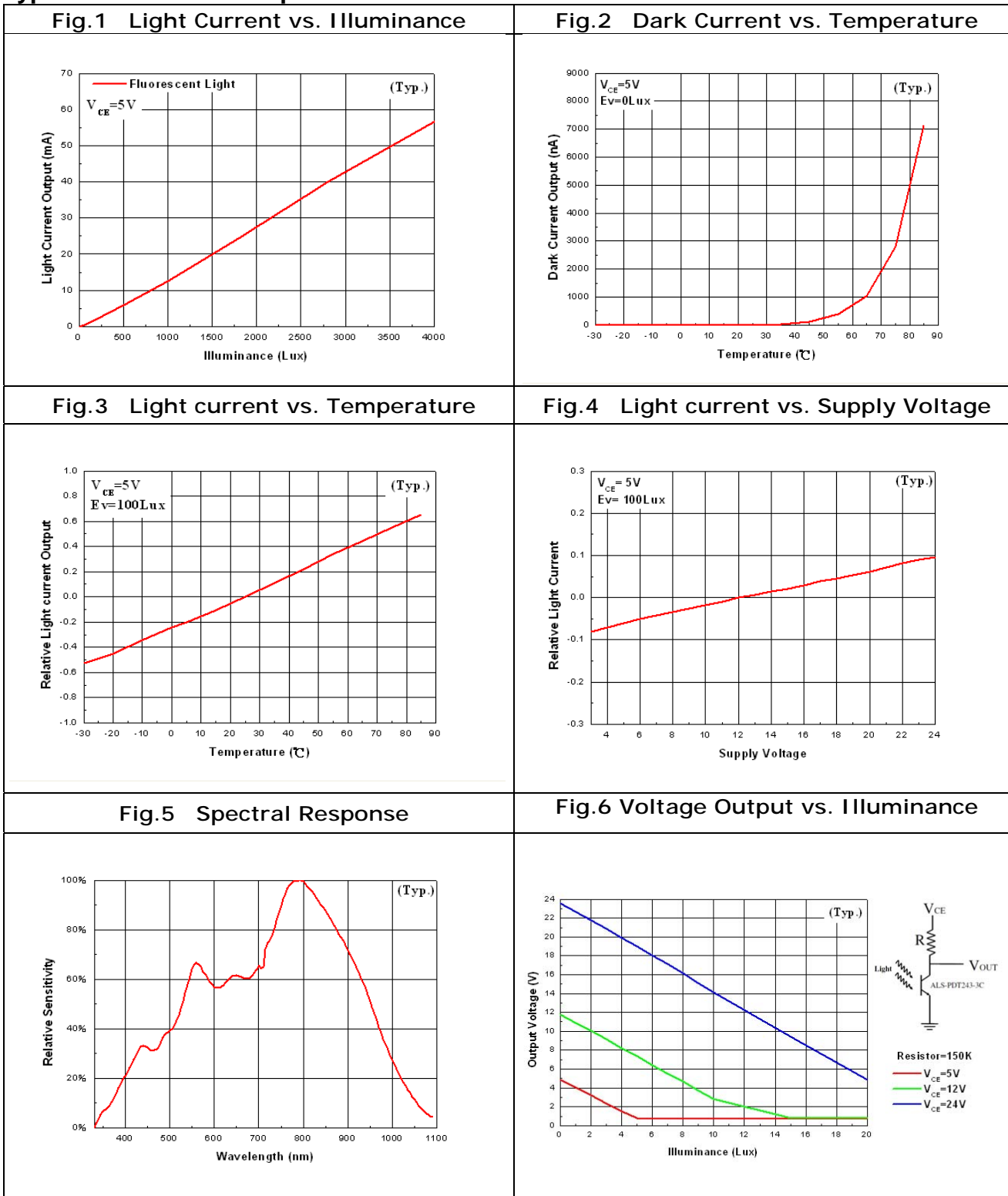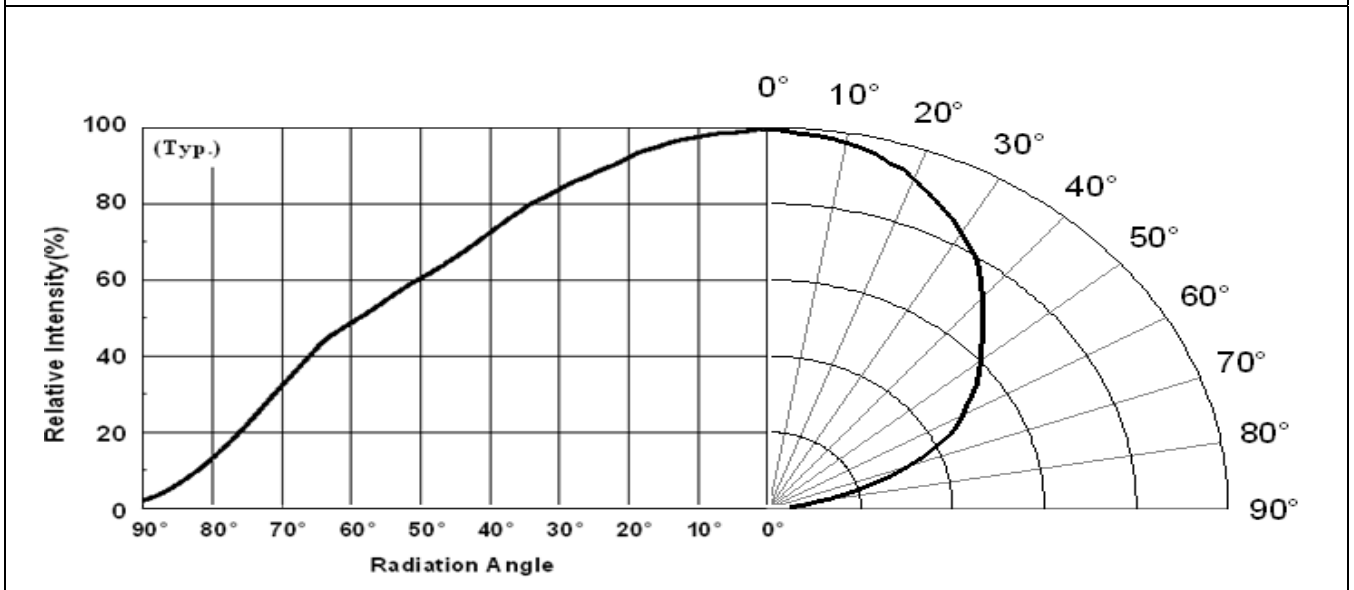| Fig.1 Light Current vs. Illuminance	Fig.2 Dark Current vs. Temperature
Fig.3 Light current vs. Temperature	**Fig.4 Light current vs. Supply Voltage**
Fig.5 Spectral Response	**Fig.6 Voltage Output vs. Illuminance**

Fig.7 Relative Intensity vs. Angle Displacement

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

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.

2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.

3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.

4. 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 the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.

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