DATASHEET

Ambient Light Sensor
3mm T-1
ALS-PDT144-6C/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 : 3mm 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-PDT144-6C/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.

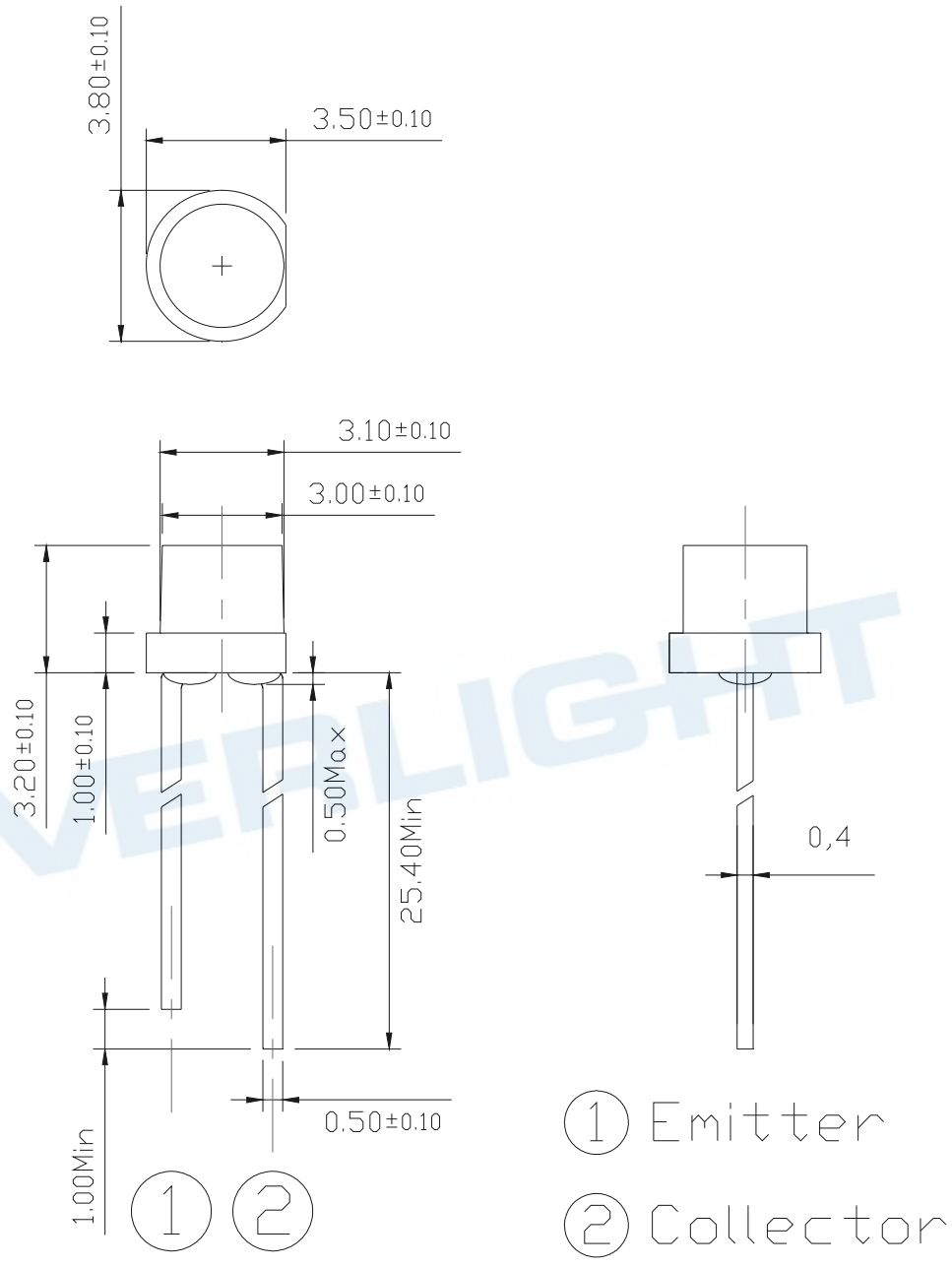
Applications

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

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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

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

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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	---	60	μA	V_{CE}=5V, Ev= 10Lux [Note1]
	I_{PH2}	0.28	---	0.7	mA	V_{CE}=5V, Ev= 100Lux [Note1]
	I_{PH3}	---	6	---	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	$2\theta_{1/2}$	---	110	---	Deg.	---

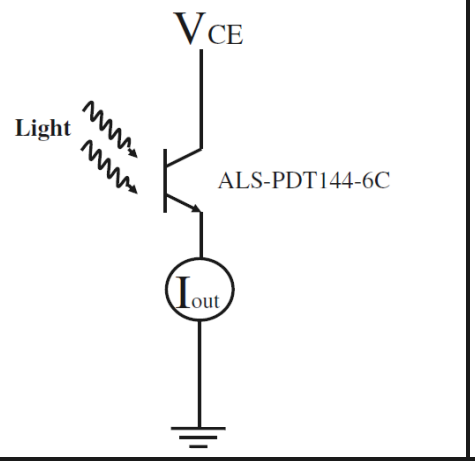
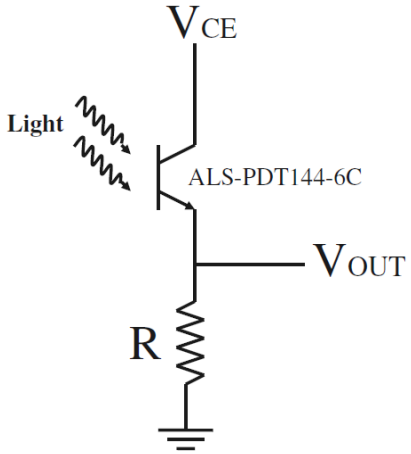
Notice:

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.

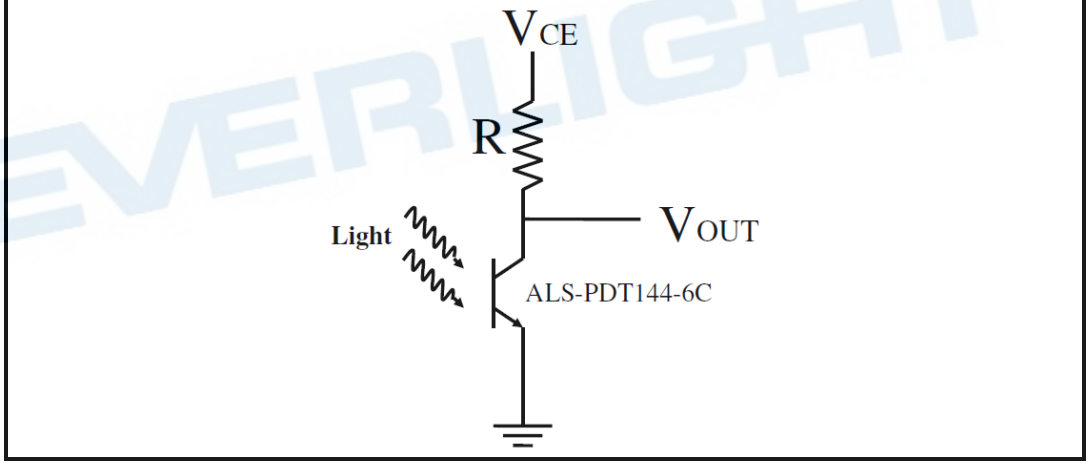
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Recommend Application Circuit (ALS)

Measurement Light Current	Measurement Voltage Output
	

Recommend Application Circuit (CDS)

For CDS Circuit


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Typical Electrical and Optical Characteristics Curves

Fig.1 Light Current vs. Illuminance

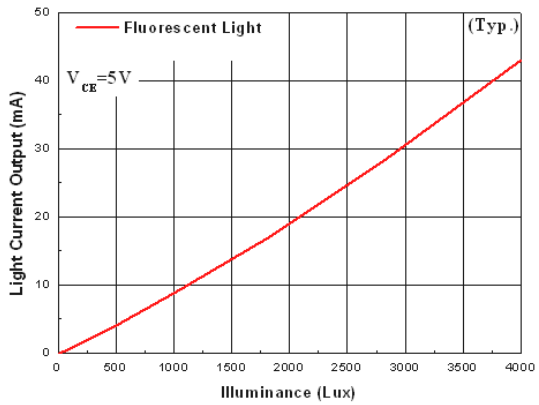


Fig.2 Dark Current vs. Temperature

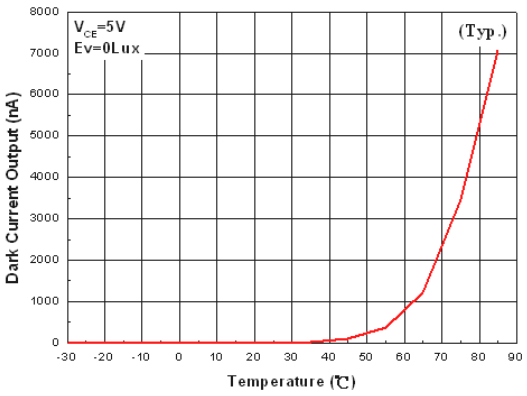


Fig.3 Light current vs. Temperature

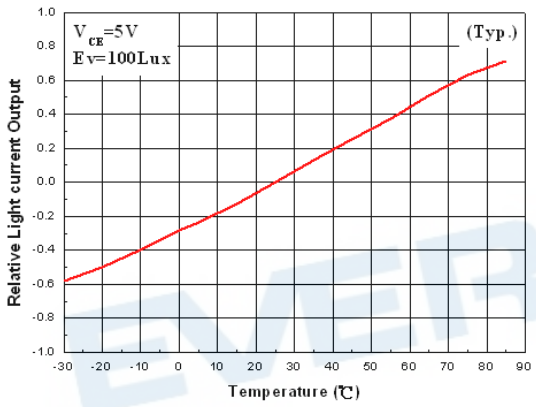


Fig.4 Light current vs. Supply Voltage

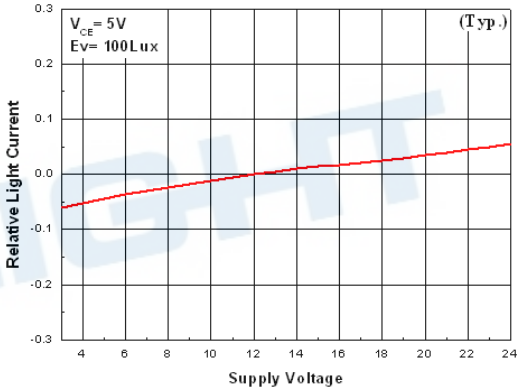


Fig.5 Spectral Response

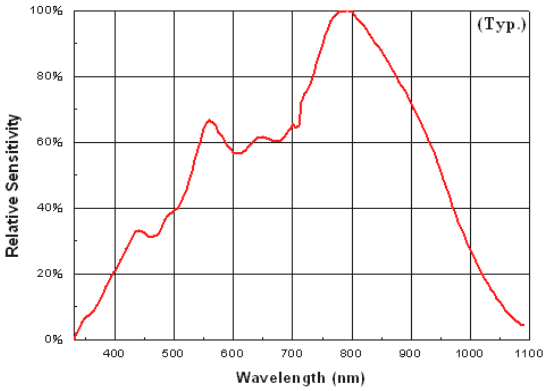
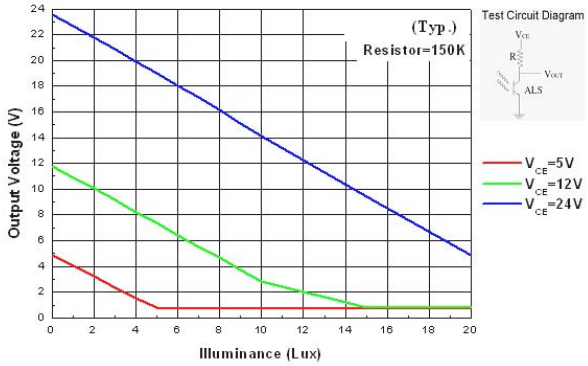


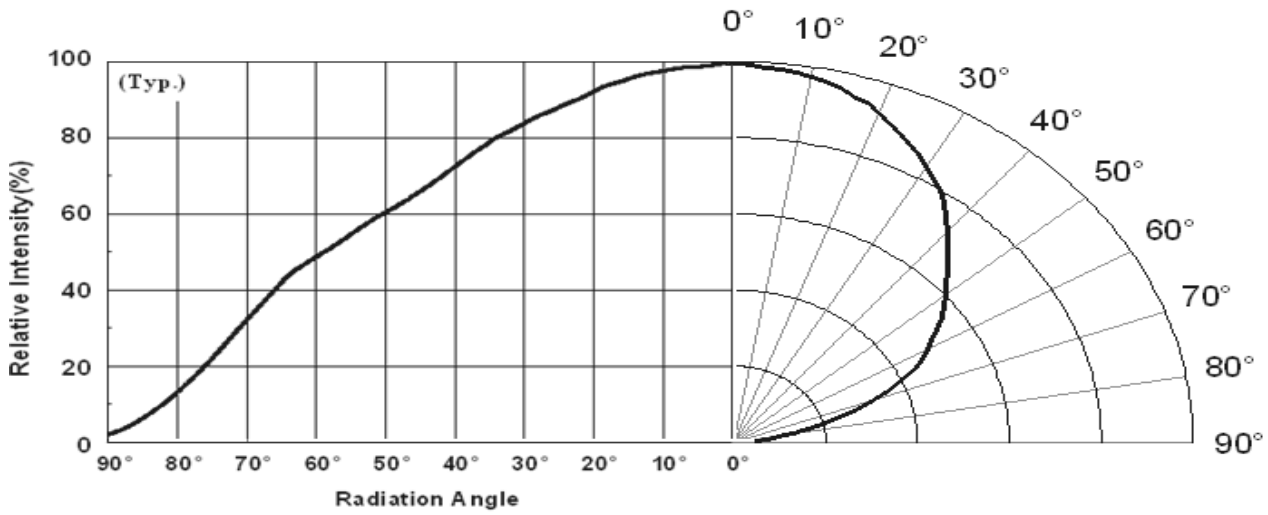
Fig.6 Voltage Output vs. Illuminance



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Fig.7 Relative Intensity vs. Angle Displacement



Packing Quantity Specification

1.1000PCS/1Bag，4Bags/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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12-215/BHC-ZK1L2B18X/3C EL3H7(B)(TA)-VG ELM406A(TA)-G IRM-3638JF ITR1205ST11A/TR
45-21UMC/404589E/TR8-T ALS-PDIC15-21C/L230/TR8 12-215SYGC/S530-E1/TR8
19-213/Y2C-CQ2R2L/3T(CY) CNY17-2 EL817S2(C)(TU)-FG ELM440A(TA)(BMS)-VG H11L1S(TA)
PT334-6B 6N137S(TA) ALS-PDT243-3C/L451 19-213SURC/S530-A3/5T 19-21SURC/S530-A2/4T
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