



Ambient Light Sensor 5mm T-1 EAALST05RDMA1

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)
- RoHS compliant and Pb Free package

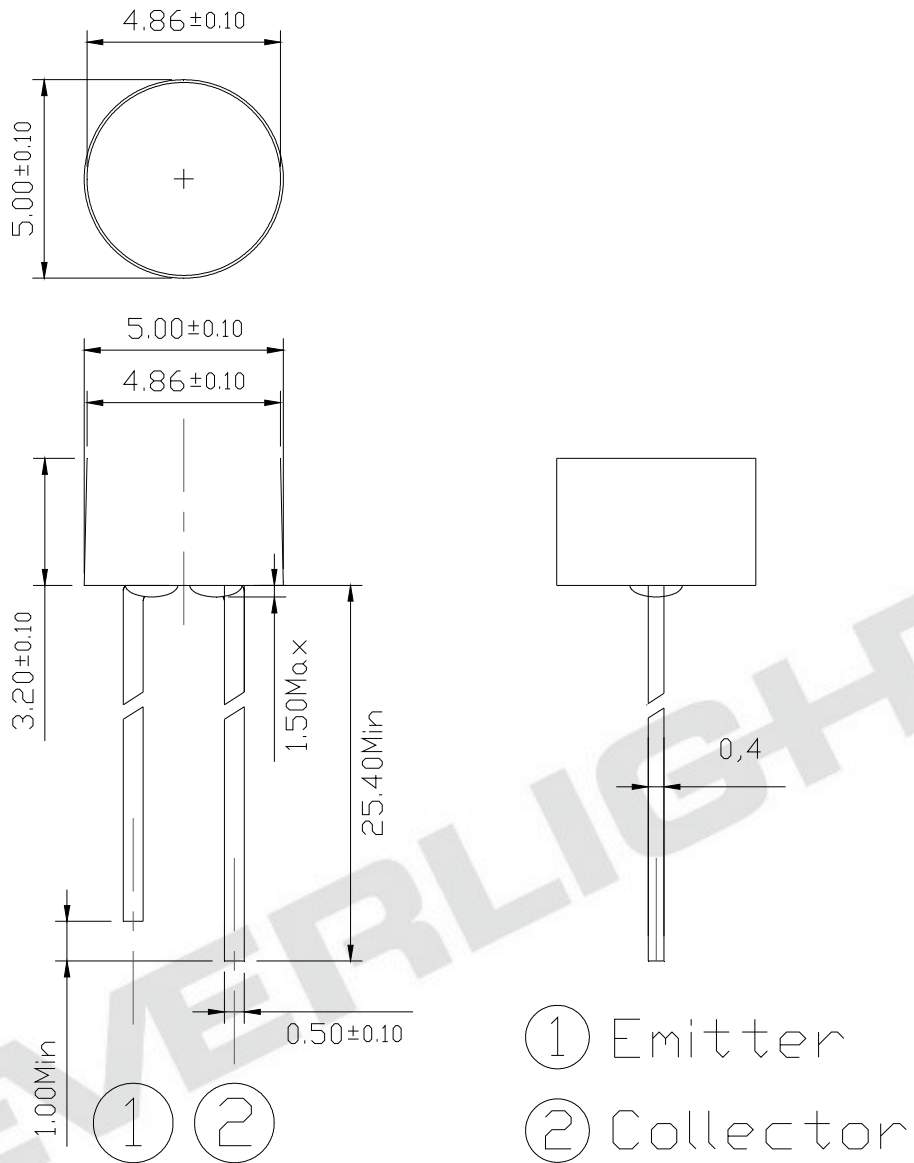
Description

- The EAALST05RDMA1 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



Notes:

1. All dimensions are in millimeters
2. Tolerances unless dimensions $\pm 0.1 \text{ mm}$

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Operating Temperature Range	T_{opr}	-30~85	°C
Storage Temperature Range	T_{stg}	-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	T_{opr}	-30	85	°C
Supply Voltage	V_{CC}	3	24	V

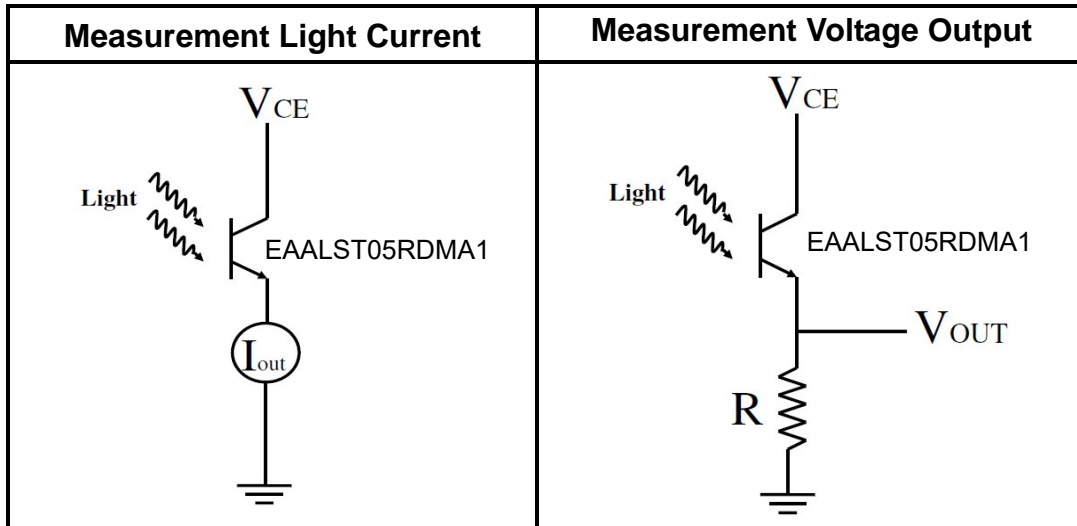
Electrical and Optical Characteristics (T_a=25°C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Test Condition
Collector –Emitter Breakdown Voltage	BV _{CEO}	---	60	---	V	I _{ceo} =500uA
Dark Current	I _{CEO}	---	---	0.1	uA	V _{CE} =20V, E _v = 0Lux
Collector-Emitter Saturation Voltage	V _{CE(sat)}	---	---	1	V	I _C =50mA, E _v = 1000Lux
Light Current	I _{PH1}	20	---	55	μA	V _{CE} =5V, E _v = 10Lux [Note1]
	I _{PH2}	285	---	720	μA	V _{CE} =5V, E _v = 100Lux [Note1]
	I _{PH3}	---	13	---	mA	V _{CE} =5V, E _v = 100Lux [Note2]
Saturation Output Voltage	V _O	---	4.7	---	V	V _{CE} =5V, E _v = 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.	---

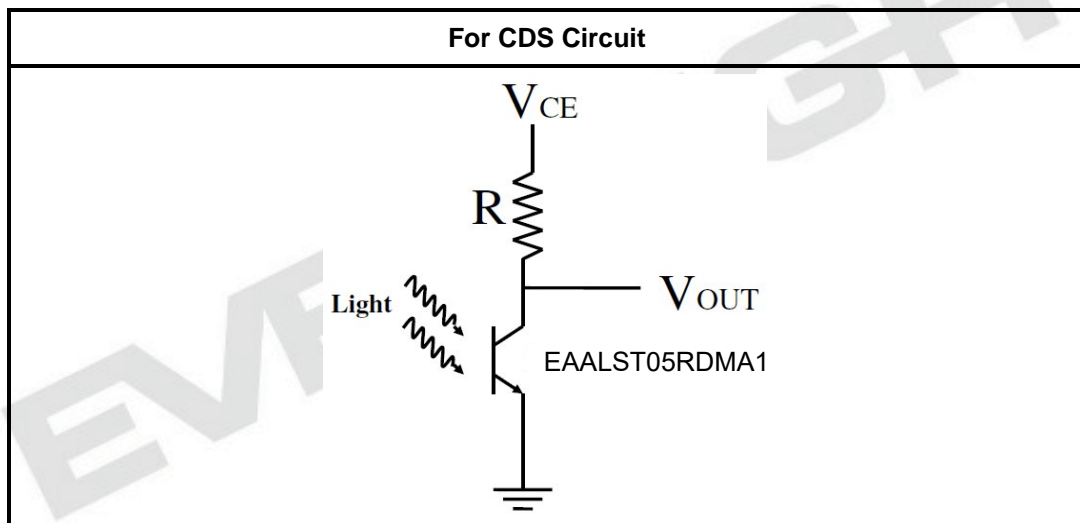
Notice:

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 (EAALST05RDMA1)



Recommend Application Circuit (CDS)



Typical Electrical and Optical Characteristics Curves

Fig.1 Light Current vs. Illuminance

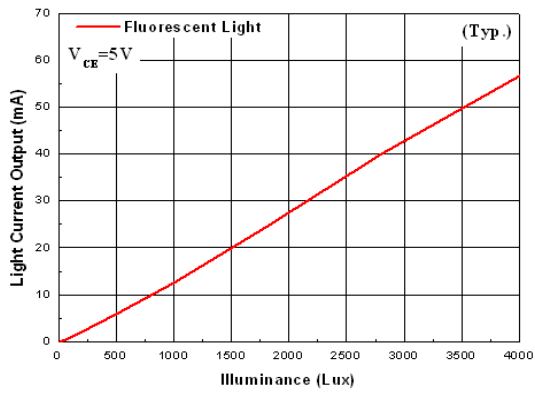


Fig.2 Dark Current vs. Temperature

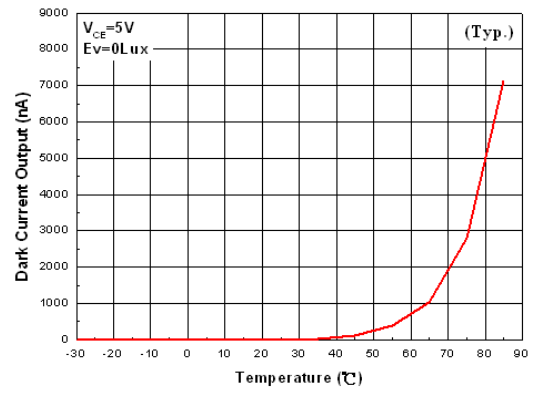


Fig.3 Light current vs. Temperature

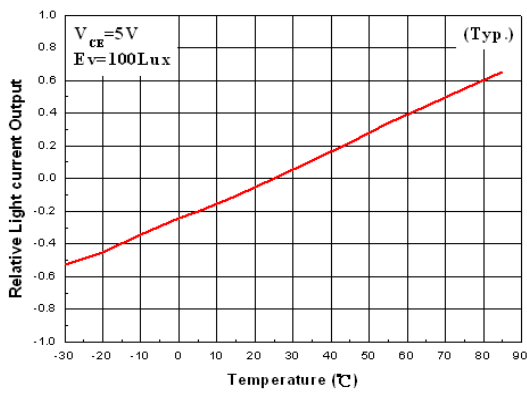


Fig.4 Light current vs. Supply Voltage

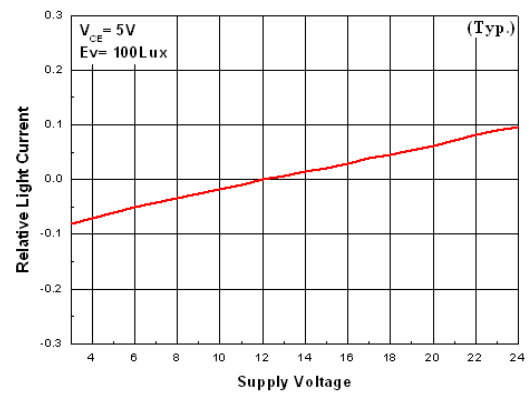


Fig.5 Spectral Response

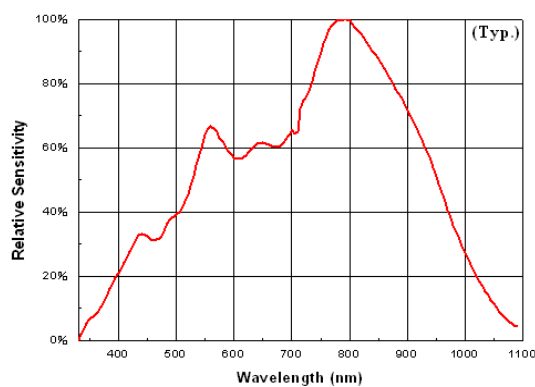


Fig.6 Voltage Output vs. Illuminance

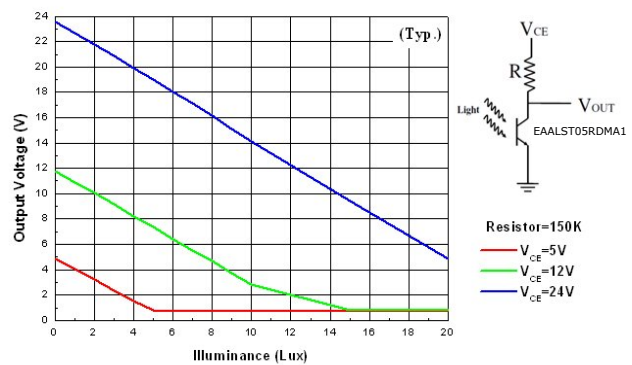
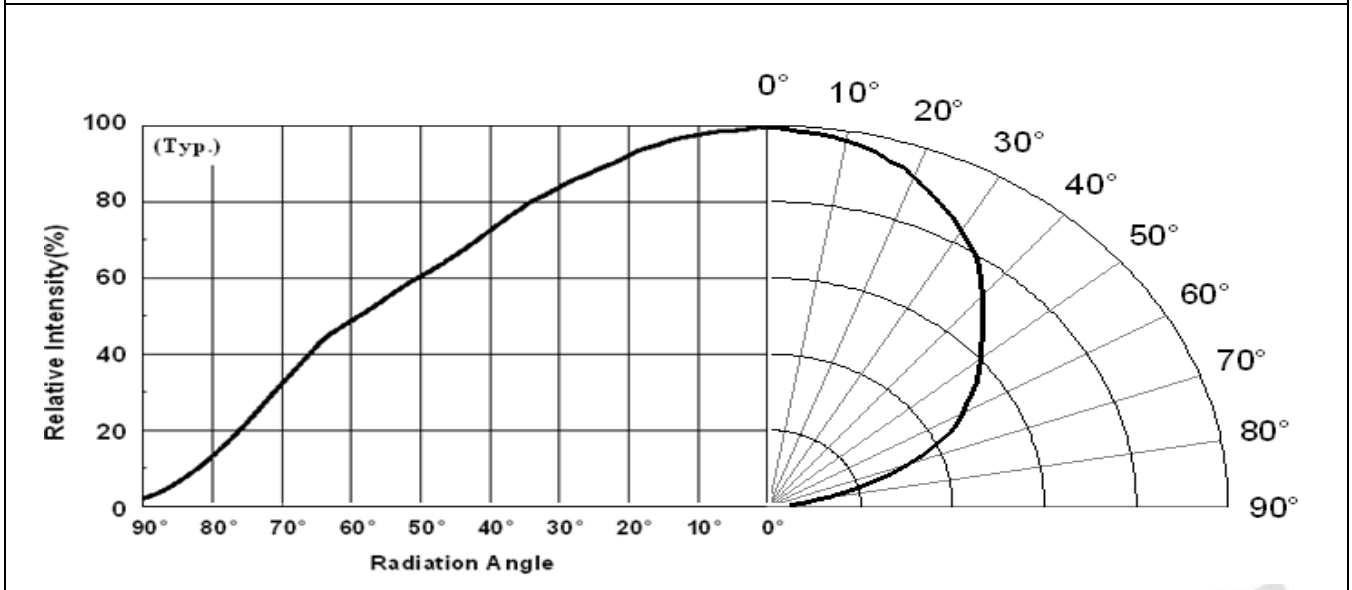


Fig.7 Relative Intensity vs. Angle Displacement



Packing Quantity Specification

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

Label Format



EVERLIGHT

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CPN:



P/N:



RoHS

QTY:



LOT NO:



Reference:



CAT:

HUE:

REF:

CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

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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