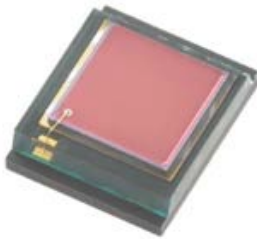


### Ambient Light Sensor – Surface Mount ALS-PD50-42C/TR8



#### Features

- Close to the human eye's response
- Low sensitivity variation across various light sources
- Operating temperature performance, -40°C to 85°C
- Size : 5.0mm(L)×4.2mm(W)×1.1mm(H)
- Radiant sensitive area (in mm<sup>2</sup>): 8.0
- The product itself will remain within RoHS compliant version
- Compliance with EU REACH
- Compliance Halogen Free (Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm).

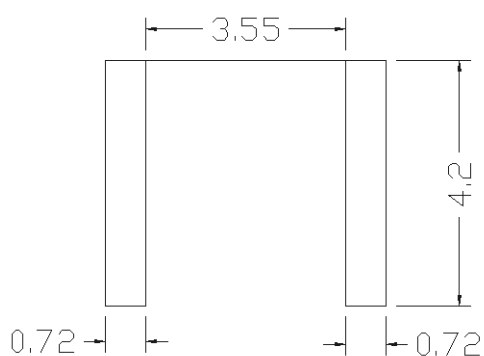
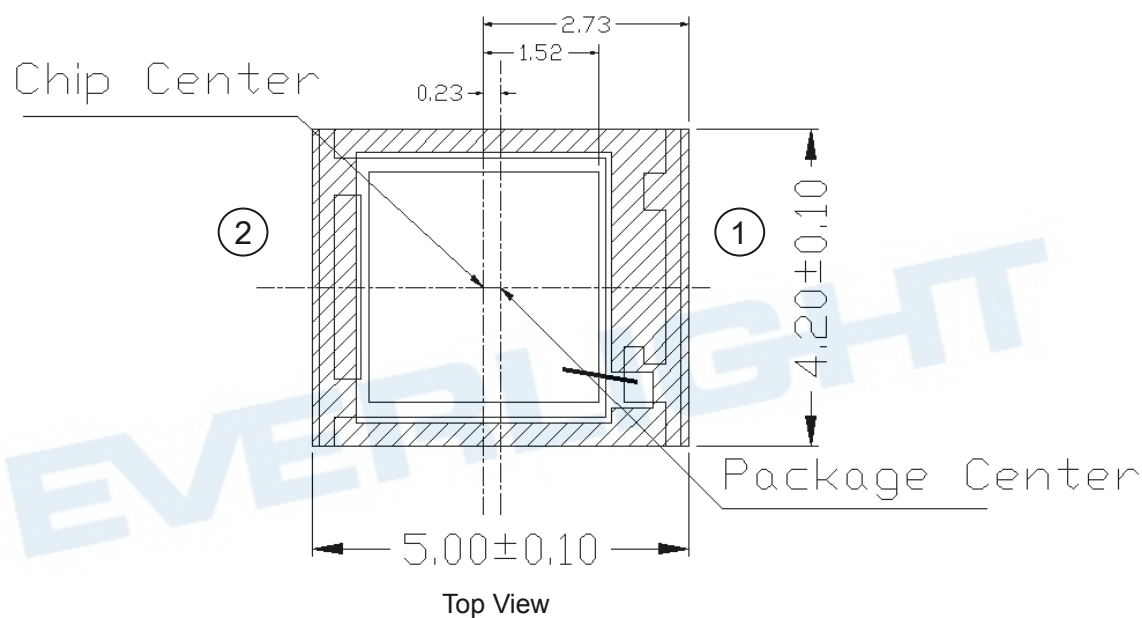
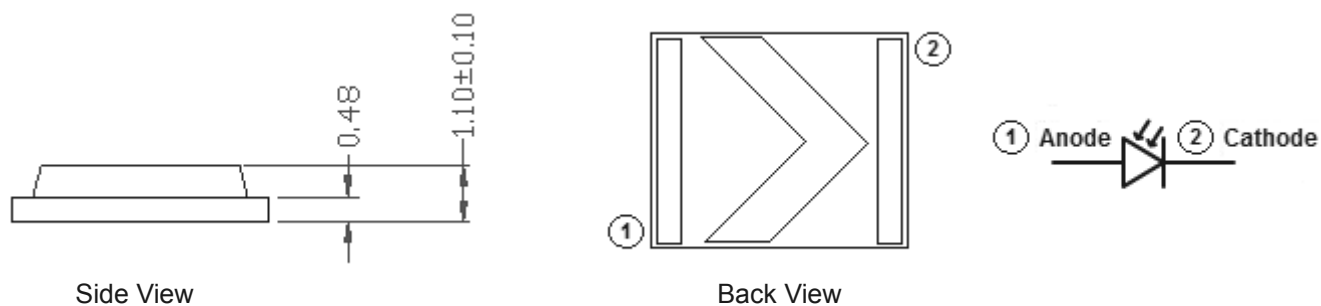
#### Description

ALS-PD50-42C/TR8 Ambient Light Sensor Device, consisting of a photodiode in miniature SMD package, which is molded in water clear package with flat top. It is a good effective solution to the power saving of display backlighting of mobile appliances, such as the mobile phones and PDAs. Due to the high rejection ration of infrared radiation, the spectral response of the ambient light sensor is close to that of human eyes.

#### Applications

- Detection of ambient light for controlling the backlighting of TFT LCD display
- Automatic residential and commercial lighting management
- Automatic contrast enhancement for electronic signboard
- Ambient light monitoring device for daylight and artificial light

## Package Dimensions



## Notes:

1. All dimensions are in millimeters
2. Tolerances unless dimensions  $\pm 0.25$  mm

### Absolute Maximum Operating Conditions ( $T_a=25^{\circ}\text{C}$ )

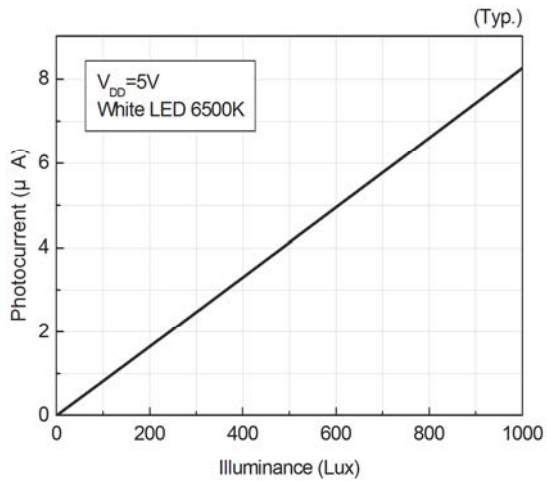
Parameter	Symbol	Condition	Rating	Unit
Reverse voltage	$V_R$		20	V
Forward Voltage	$V_F$	$I_F=20\text{mA}$	1.1	V
Operating Temperature	$T_{opr}$	--	-40~+85	$^{\circ}\text{C}$
Storage Temperature	$T_{stq}$	--	-40~+85	$^{\circ}\text{C}$
Soldering Temperature	$T_{sol}$	--	260	$^{\circ}\text{C}$

### Electrical and Optical Characteristics ( $T_a=25^{\circ}\text{C}$ )

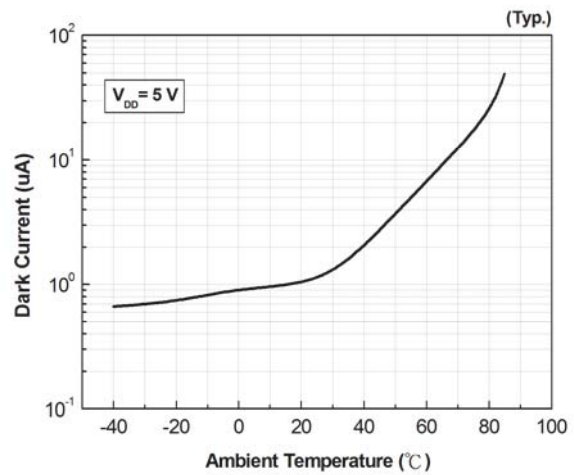
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Dark Current	$I_D$	---	1	30	nA	$E_V=0\text{Lux}$ $V_R=10\text{V}$
Light Current	$I_{L1}$	0.04	---	0.09	uA	$V_R=5\text{V}$ $E_V=10\text{Lux}$
	$I_{L2}$	0.4	---	0.9		$V_R=5\text{V}$ $E_V=100\text{Lux}$
	$I_{L3}$	4	---	9		$V_R=5\text{V}$ $E_V=1000\text{Lux}$
Peak Sensitivity Wavelength	$\lambda_p$	---	550	---	nm	---
Sensitivity Wavelength Range	$\lambda_{0.5}$	440	---	660	nm	---
Reverse Breakdown Voltage	$V_{BR}$	33			V	$I_R=100\text{uA}$
Diode capacitance	$C_D$		151		$p_F$	$V_R=0\text{V}, E=0,$ $f=1\text{ MHz}$
	$C_D$		124			$V_R=3\text{V}, E=0,$ $f=1\text{ MHz}$
Angle of half sensitivity	$2\theta_{1/2}$		100		deg	$V_R=5\text{V}$

## Typical Electrical and Optical Characteristics Curves

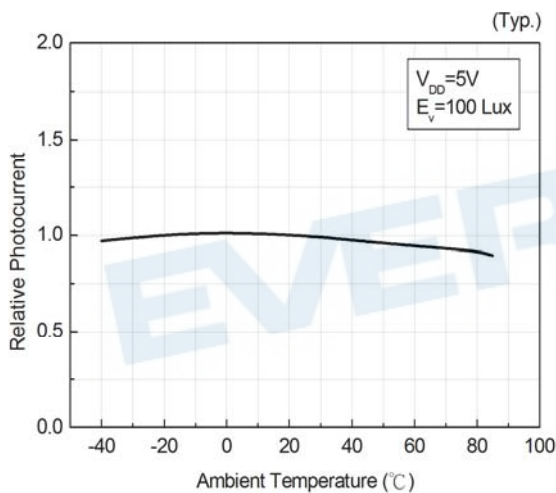
**Fig.1 Photocurrent vs. Illuminance**



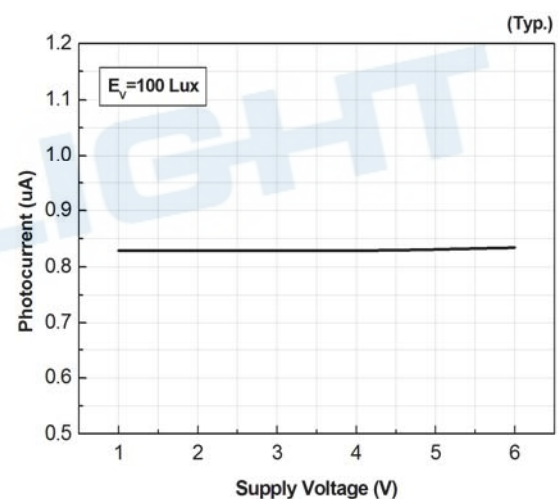
**Fig.2 Dark Current vs. Ambient Temperature**



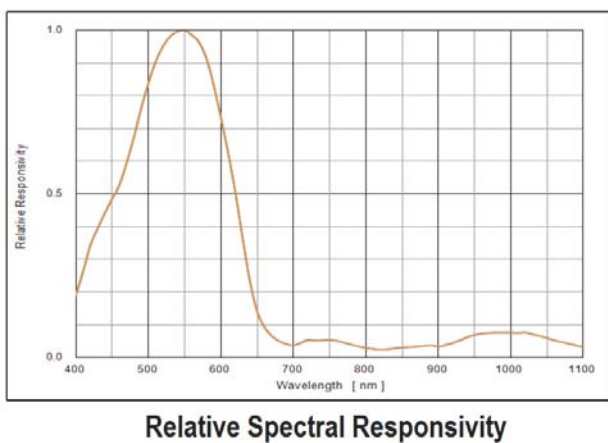
**Fig.3 Relative Photocurrent vs. Temperature**



**Fig.4 Photocurrent vs. Supply Voltage**



**Fig.5 Spectral Response**



**Fig.6 Output Voltage vs. Illuminance**

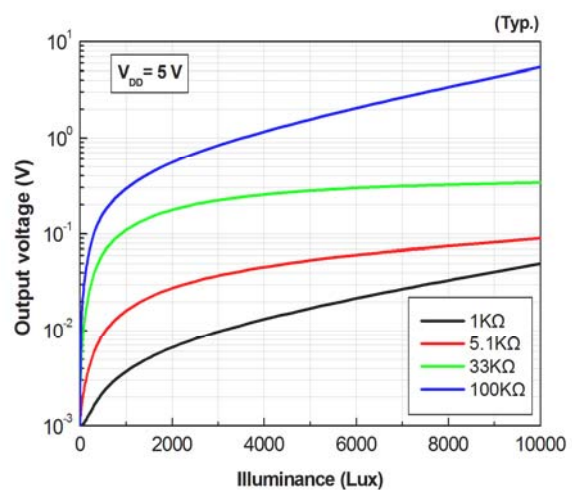
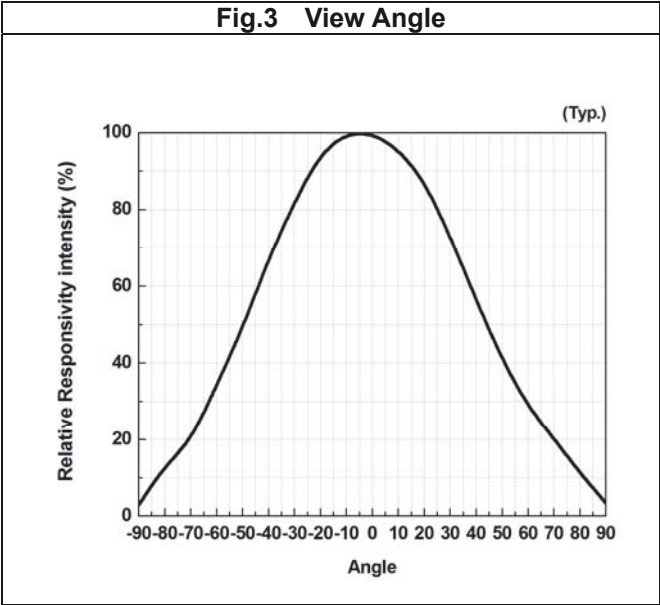


Fig.3 View Angle



Packing Quantity Specification

2000 Pcs/ 1 Reel

Label Format

RoHS  EVERLIGHT 5

CPN: XXXXXXXXXXXXXXXXXXXX  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX  
P/N: XXXXXXXXXXXX  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX  
LOT NO: Y150716XXX-XXXXXXXXXX-XXXXXXXXXX  
QTY: 0123456789 HUE: XXXXXXXXXXXX  
CAT: XXXXXXXXXXXX REF: XXXXXXXXXXXX  
REFERENCE: BTPYMMDDXXXXX  
MSL-X MADE IN XXXXXX



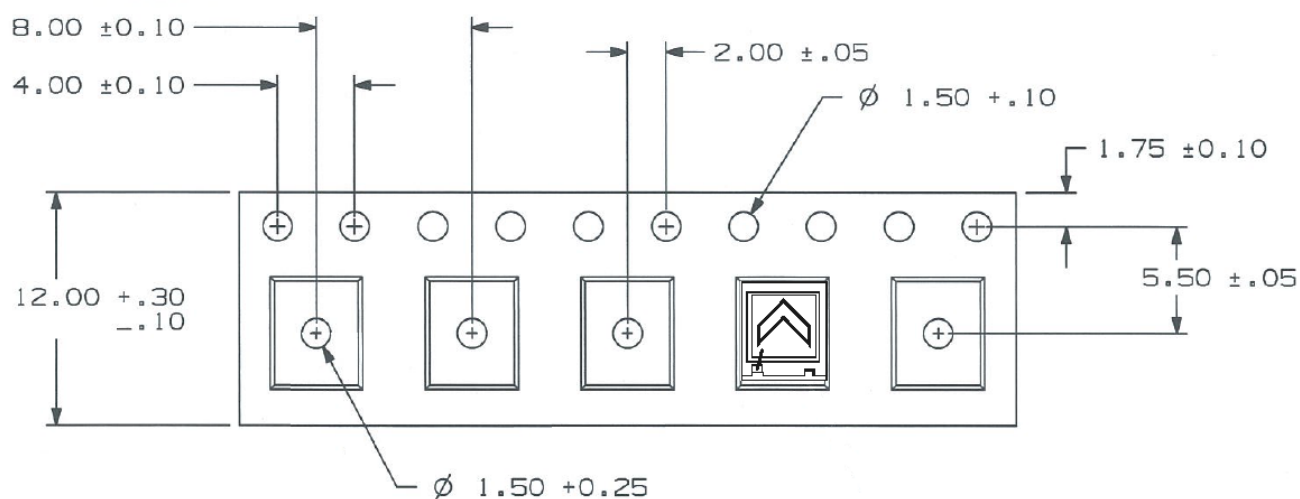
- CPN : Customer's Product Number
- P/N : Product Number
- QTY : Packing Quantity
- CAT : Ranks
- HUE : Peak Wavelength
- REF : Reference
- LOT No : Lot Number
- MSL : MSL Level
- MADE IN XXXXX : Manufacturing Location

Technical drawing of a circular mechanical part, showing a top view (Fig. 1) and a side view (Fig. 2).

**Fig. 1 (Top View):** A circular part with a central hub and six radial spokes. The central hub has a diameter of  $\phi 13 \pm 0.5$ . The spokes are labeled with a width of  $2.5 \pm 0.5$ .

**Fig. 2 (Side View):** A cross-section of the part showing the overall diameter of  $\phi 178 \pm 1.0$  and the thickness of the part, which is  $16.0 \pm 0.2$ . The drawing also shows a dimension of  $13.2 \pm 1.5$  for the central hub area.

**Loaded Quantity Per Reel 2000PCS/Reel**



## 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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6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.