Version:
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(PT-B1-DC-0603-940)
SMD Infrared Receiving Light Sensor

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Product Introduction

Token SMD IR phototransistors achieve the second generation of optical axis keyboard.

Applications :

- Replace the traditional CDS photoresistor. No Cadmium and lead free with RoHS compliant.
- Suitable for all kinds of light control lighting products, such as security monitoring machine, small night lights, lawn lights, solar lights and so on.
- Auto-adjust background light, such as LCD, mobile phone, camera, digital photo frame, GPS navigation.
- Control all kinds of optical control video products and all kinds of optical control testing equipment.

Optical axis keyboard is a new generation keyboard which join the new optical sensor recognition technology in recent years. By replacing the traditional metal contacts for the optical sensor components, use optical media as a bridge. Because there is no contact, so it will not wear.

Optical axis technology takes advantage of infrared optical induction. There is no abrasion during conduction due to no contact point. The waveform of Optical signal pulse output is clean and noise-free. The keyboard response speed only takes 1ms. Thanks to the new optical sensors - SMD IR phototransistors (PT-B1-DC-0603-940) is the most critical component in optical axis applications.

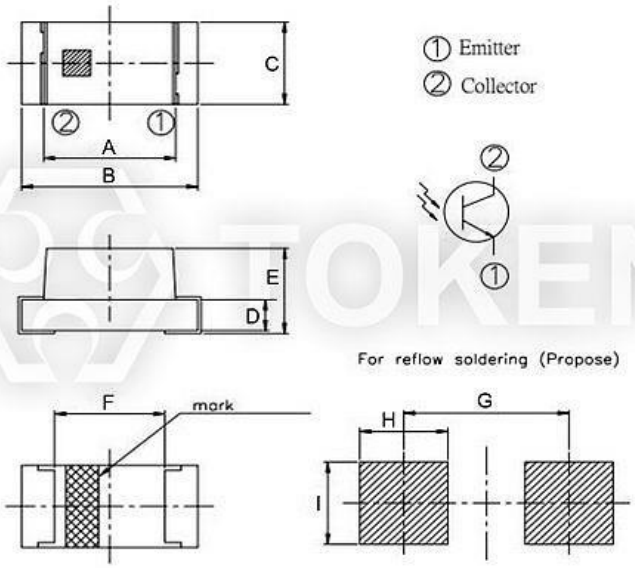
The (PT-B1-DC-0603-940) surface mounted infrared receiving light sensor features fast response speed, stable performance, low current loss in static, and anti-strong light interference. The effective control distance is greater than 1.5 meters.

For the convenience of installation in all kinds of products in any position, different sizes are available upon request. So that product consistency is better, more market competitiveness. It is also achievable to provide the bright current / dark current (bright resistance / dark resistance) for the most suitable product. Please contact our sales or link to Token official website "Ambient-light-sensors" for more information.

Dimensions

Dimensions & Configurations Chip (PT-B1-DC-0603-940) Unit: mm

Part NO.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)
PT-B1-DC-0603-940	1.2 ± 0.2	1.6 ± 0.2	0.8 ± 0.2	0.3 ± 0.2	0.8 ± 0.2	1.0 ± 0.2	1.5 ± 0.2	0.8 ± 0.2	0.8 ± 0.2



SMD IR Light Sensor (PT-B1-DC-0603-940) Dimensions

Electro-Optical Characteristics

Electro-Optical Characteristics (Ta=25˚C) (PT-A8-AC-1206-850)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_p	\	-	850	-	nm
Spectral Response Bandwidth	λ	\	400	-	1100	nm
Collector-Emitter Breakdown Voltage	B_{vceo}	I_{ce}=100μA E_e=0m^W/cm^2	30	-	-	V
Emitter-Base Breakdown Voltage	B_{veco}	I_{ce}=100μA E_e=0m^W/cm^2	3	-	-	V
Collector-Emitter Saturation Voltage	V_{ce} (sat)	I_{ce}=2mA E_e=1m^W/cm^2	-	-	0.4	V
Photo Current	$I_{L(1)}$	V_{cc}=5V E_v=10Lux	0.5	0.8	1.2	μA
	$I_{L(2)}$	V_{cc}=5V E_v=30Lux	1.5	2.4	3.6	μA
	$I_{L(3)}$	V_{cc}=5V E_v=100Lux	5	8	12	μA
Collector Dark Current	I_{ceo}	V_{ce}=5V E_v=0Lux	-	-	0.1	μA
Rise Time	t_r	V_{cc}=5V I_{ce}=1mA RL=1000Ω	15			us
Fall Time	t_f		15			

Shipping standards:

Photo Current	Test conditions	A shift	B shift	C shift	D shift	X shift	Unit
	V_{ce}=5V E_v=10Lux	/	/	/	/	0.5 ~ 1.2	μA

Absolute Maximum Ratings: (Ta=25˚C) (PT-A8-AC-1206-850)

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector-Voltage	V_{ECO}	3	V
Power Dissipation	P_C	70	m^W
Operating Temperature Range	T_{opr}	-25 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃

Curve

Relative Spectral Sensitivity vs. Wavelength (PT-A8-AC-1206-850)

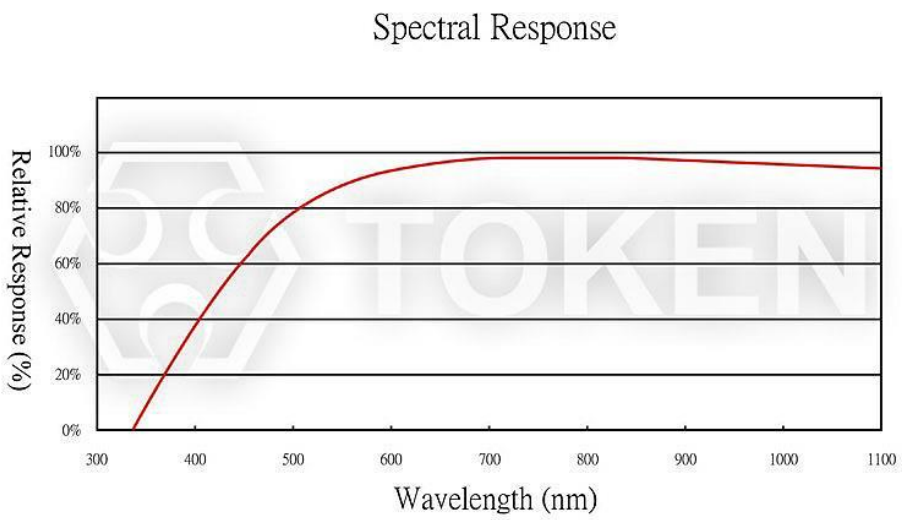
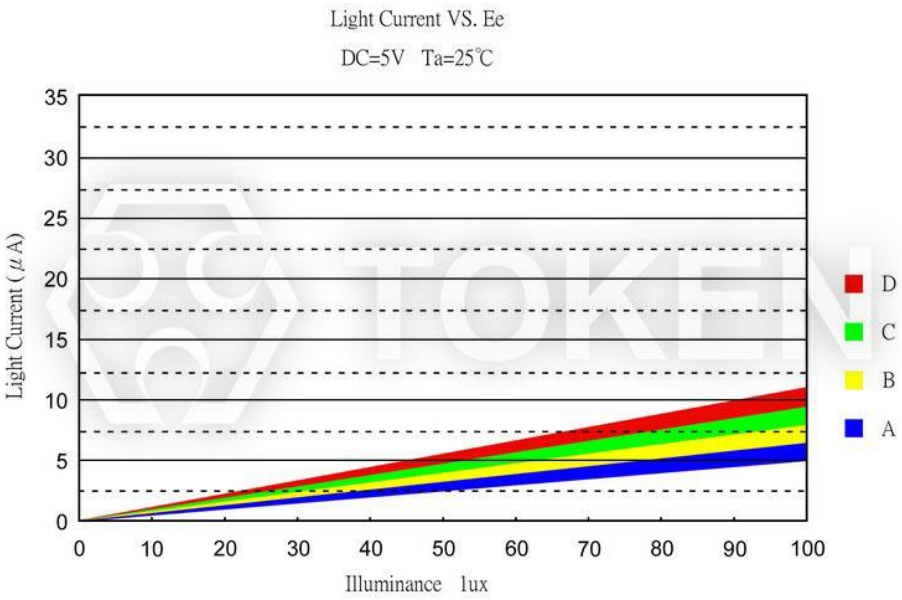
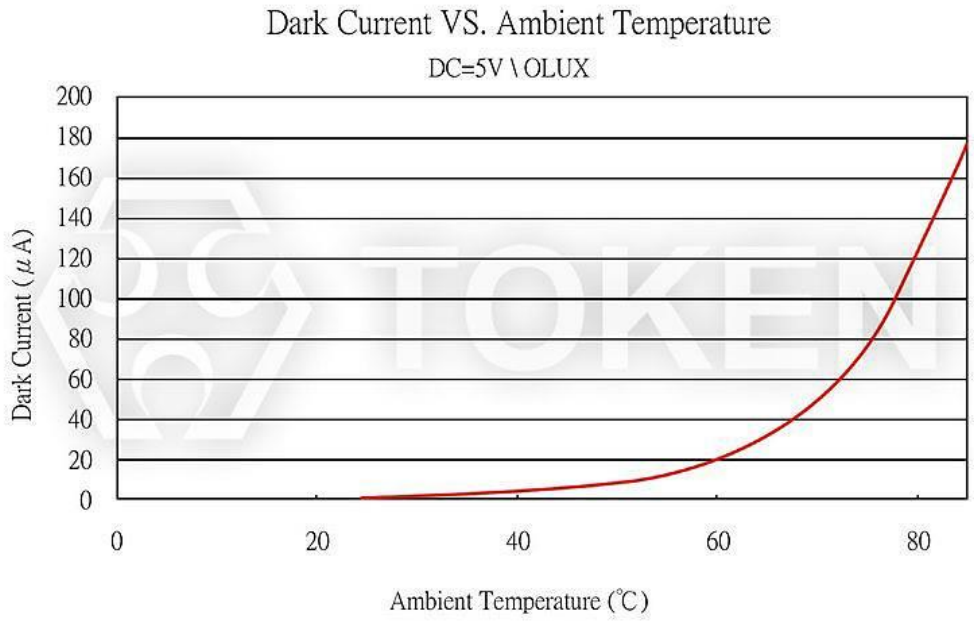


Photo Current vs. Illuminance (PT-A8-AC-1206-850)



Dark Current vs. Ambient Temperature P(PT-A8-AC-1206-850)



Note

Mounting :

- While packages are on one circuit board, avoid mismatching in the thermal expansion of each component, generate cracks in the package and break the bonding wire.

Soldering :

- Do not immerse plastic parts in tin tank.
- During soldering, when adding thermal stress in a moisture absorbing state, moisture evaporates, swells and generates stress to the internal package.
- To avoid swellings and cracks in the surface of the package, followsoldering conditions below.
- Wave soldering method: 120℃ < 60s 、260℃ < 5s.
- Manual soldering: 260℃ < 5s 、340℃ < 3s.

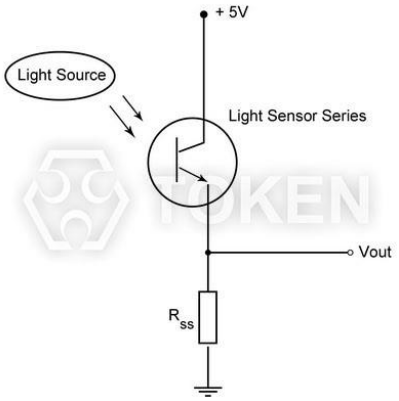


Photo Current Measurement Method - PT-A8-AC-1206-850

Lead-forming and cuttings :

- Before soldering, perform lead forming at normal temperature.
- While forming or cutting the lead, stay the area at a distance of 5 mm or greater from the root of the lead.
- Avoid mounting which may cause force on the root of the lead.

Storage:

The sensor is incorporated in the transparent resin package. Because of its sensitivity to humidity, the package is moisture-proof. When storing the sensor, do as instructed below.

- Quickly use after opening. (within 2 days, below 30 ℃/60 % R.H.).
- Once unpacked, use within three months, or keeping within a moisture-proof method, which include maintaining within a moisture-proof container with silica gels, is suggested for longterm safe-keeping.
- Very bad storage conditions may deteriorate solderability or characteristics, and defect the appearance. Recommended conditions of the storage place, temperature 0℃ to 30 ℃, humidity below 60% R.H. (Avoid freezingand dew condensation).

Cleaning:

- Do not wash with water to avoid corrosion.
- Under any circumstance, the cleaning time should be within 1 minute of normal temperature.
- Alcohol is recommended as a cleaning agent when cleaning products.
- If you use other cleaning agents, you need to confirm whether the cleaning agent will corrode the epoxy body.
- Freon can not be used as a cleaning agent.
- When cleaning products with ultrasonic cleaning, ultrasonic power and time should be less than 300W and 30 seconds, respectively.
- PCB and product can not touch the oscillator. Can not make the product on the PCB resonance.
- This model is static sensitive devices, so static electricity and surges can damage the product.
- To all the equipment, machines, tables, and the ground must be anti-static ground.
- Requires the use of anti-static wrist strap wear.

Order Codes

Order Codes (PT-A8-AC-1206-850)

PT	-	A8	-	AC	-	1206	-	850

Part Number	Chip Type	Lens Color		Size		Spectral Bandwidth	
PT	A8	AC	Water Clear	1206	3.2mm × 1.5mm	850	850 nm