Version:
December 01, 2022

DEMINT

Electronics Co., Ltd.

(PT-IC-GC) Visible Light Sensor of Security Infrared Filter

DeMint Electronics Co., Ltd.

Web: www.direct-token.com

Email: rfq@direct-token.com

China: 17P, Nanyuan Maple Leaf Bldg., Nanshan Ave., Nanshan Dist., Shenzhen, Guangdong, China. 518054
Tel: +86 755 26055363

Taiwan: No.137, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City, Taiwan. 248012
Tel: +886 2981 0109 Fax: +886 2988 7487

Product Introduction

Infrared filtration film for advanced plating technology on DeMint Visible Security Light Sensor.

Features :

- Simulate the human eye, peak wavelength 520nm.
- Using super 82 layer coating process on the Chip. 100% Filter infrared interference.
- Good batch consistency, completely solve the infrared light start too early.
- Fast response, stable performance, aging at +85°C/65% humidity for 1000 Hr.
- The starting point does not drift. Nice appearance.

Applications :

- Replace the traditional CDS photoresistor.
- Cadmium and lead free with RoHS compliant.
- Dedicated to infrared monitoring products.
- When control the infrared light, it is no need to add extra casing and filter on low illumination.

Customization :

- For the convenience of installation in all kinds of products in any position, different sizes are available upon request.
- DeMint offers various option of the bright current/dark current (bright resistance/dark resistance) to costume the most products.

Visible light sensors are used to detect light or illumination using a manner similar to the human eye. They are typically used in industrial lighting, consumer electronics, and vehicle systems, where they allow settings to be adjusted automatically in response to changing ambient light conditions. By turning on, turning off, or adjusting features, visible light sensors can conserve battery power or provide extra safety while eliminating the need for manual adjustments.

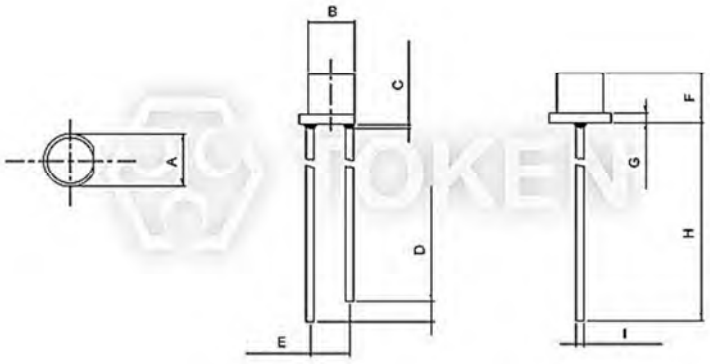
The (PT-IC-GC) family using high quality chip packaging and processing super-plated infrared filter membrane on chip surface, so this sensor can fully filter infrared interference. It is no need to add the casing and extra filter and effective filtering out the effect of light reflection due to infrared emission on security products.

By selecting the accuracy of chips, under strict management of production process, (PT-IC-GC) visible light sensors finished batch consistency uniform. The consistency is 3 to 5 times higher on comparison of similar photosensitive devices. The precision can be controlled as narrow as 10%. Fully meet the customer requirements for starting the LUX value. DeMint taking the advantage of temperature compensation internal process on the chip, (PT-IC-GC) features one times higher temperature resistance than other similar products while working on high temperature environment. Please contact our sales or link to DeMint official website "Visible Light Sensors" for more information.

Dimensions

Dimensions & Configurations (Unit: mm) PT-IC-GC Plate Edge

Part NO.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)
PT-IC-GC-3-PE-520	4.00 ± 0.20	3.00 ± 0.20	1.50 Max.	1.50 ± 0.50	2.54 ± 0.20	4.20 ± 0.20	1.00 ± 0.20	25.4 Min.	0.50 ± 0.20
PT-IC-GC-5-PE-520	5.80 ± 0.20	5.00 ± 0.20	1.50 Max.	1.50 ± 0.50	2.54 ± 0.20	5.30 ± 0.20	1.00 ± 0.20	25.4 Min.	0.50 ± 0.50



Visible Light Sensor (TPT-3-PE) Dimensions

Remark:

- **The epoxy resin highest: 1.5mm max.**
- **Product images, plastic color of apperence, and all other information is for reference only, goods in-kind prevail.**
- **Short Lead—Collector Long Lead—Emitter.**

Electro-Optical Characteristics

Electro-Optical Characteristics (Ta=25˚C) PT-IC-GC-3-PE-520

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_p	\	-	520	-	nm
Spectral Response Bandwidth	λ	\	400	-	700	nm
Operating Voltage	V_{cc}	\	-	5	-	V
Photo Current	$I_{L(1)}$	V_{cc}=5V E_v=10Lux	1.2	2.5	3.6	μA
	$I_{L(2)}$	V_{cc}=5V E_v=30Lux	3.6	7.5	10.8	μA
	$I_{L(3)}$	V_{cc}=5V E_v=100Lux	12	25	36	μA
Collector Dark Current	I_D	V_{cc}=5V/85°C E_v=0Lux	-	-	0.8	μA
IR Receiving Current	$I_{L(4)}$	V_{cc}=5V/850nm IR LED E_e=1m^W/cm^2	-	-	0.2	μA
Rise Time	t_r	V_{cc}=5V RL=1000Ω	4.5			ms
Fall Time	t_f		4.5			

Electro-Optical Characteristics (Ta=25˚C) PT-IC-GC-5-PE-520

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_p	\	-	520	-	nm
Spectral Response Bandwidth	λ	\	400	-	700	nm
Operating Voltage	V_{cc}	\	-	5	-	V
Photo Current	$I_{L(1)}$	V_{cc}=5V E_v=10Lux	2	3.5	6	μA
	$I_{L(2)}$	V_{cc}=5V E_v=30Lux	6	10.5	18	μA
	$I_{L(3)}$	V_{cc}=5V E_v=100Lux	20	35	60	μA
Collector Dark Current	I_D	V_{cc}=5V/85°C E_v=0Lux	-	-	0.8	μA
IR Receiving Current	$I_{L(4)}$	V_{cc}=5V/850nm IR LED E_e=1m^W/cm^2	-	-	0.3	μA
Rise Time	t_r	V_{cc}=5V E_v=30Lux RL=1000Ω	4.5			ms
Fall Time	t_f		4.5			

Absolute maximum ratings (Ta=25˚C) PT-IC-GC

Parameter	Symbol	Value		Unit
Operating Voltage	V_{cc}	Min.	Max.	V
		1	10	V
Operating Temperature Range	T_{opr}	-25 ~ +85		°C
Storage Temperature	T_{stg}	-40 ~ +100		°C
Soldering Temperature	T_{sol}	260		°C

φ3 Curve Characteristics

Relative Spectral Sensitivity vs. Wavelength PT-IC-GC-3-PE-520

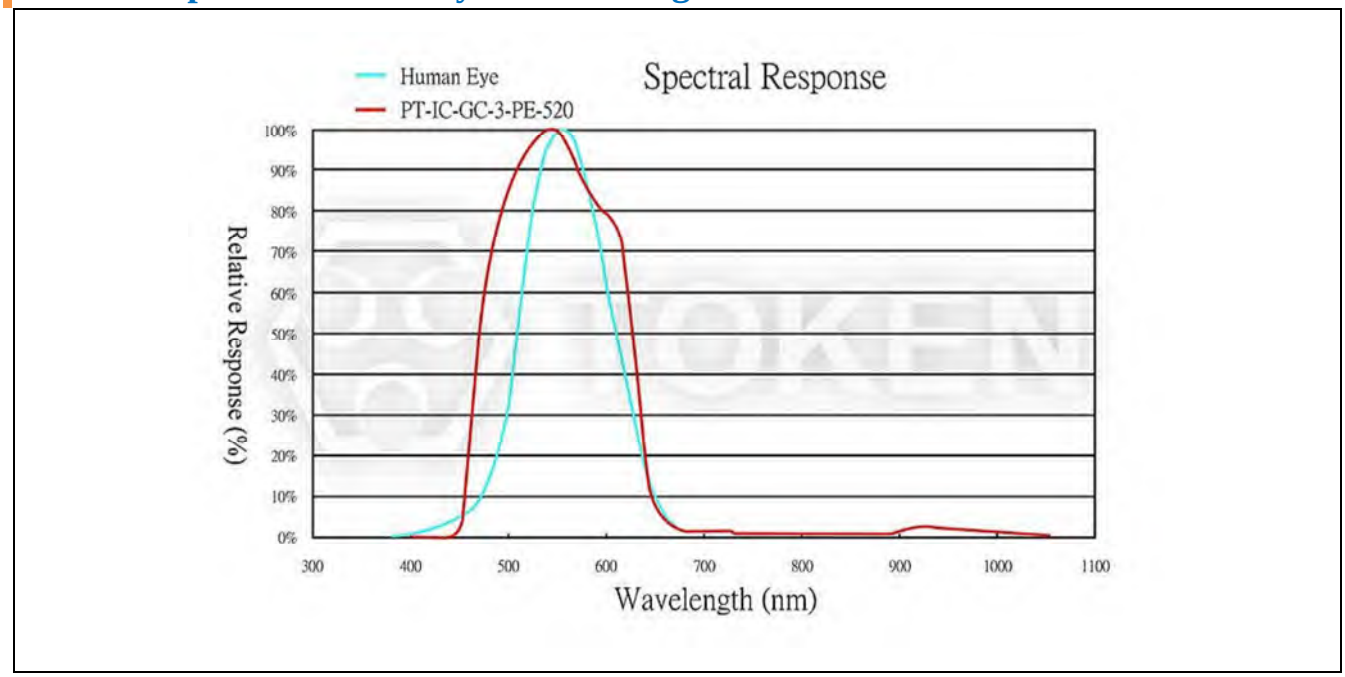
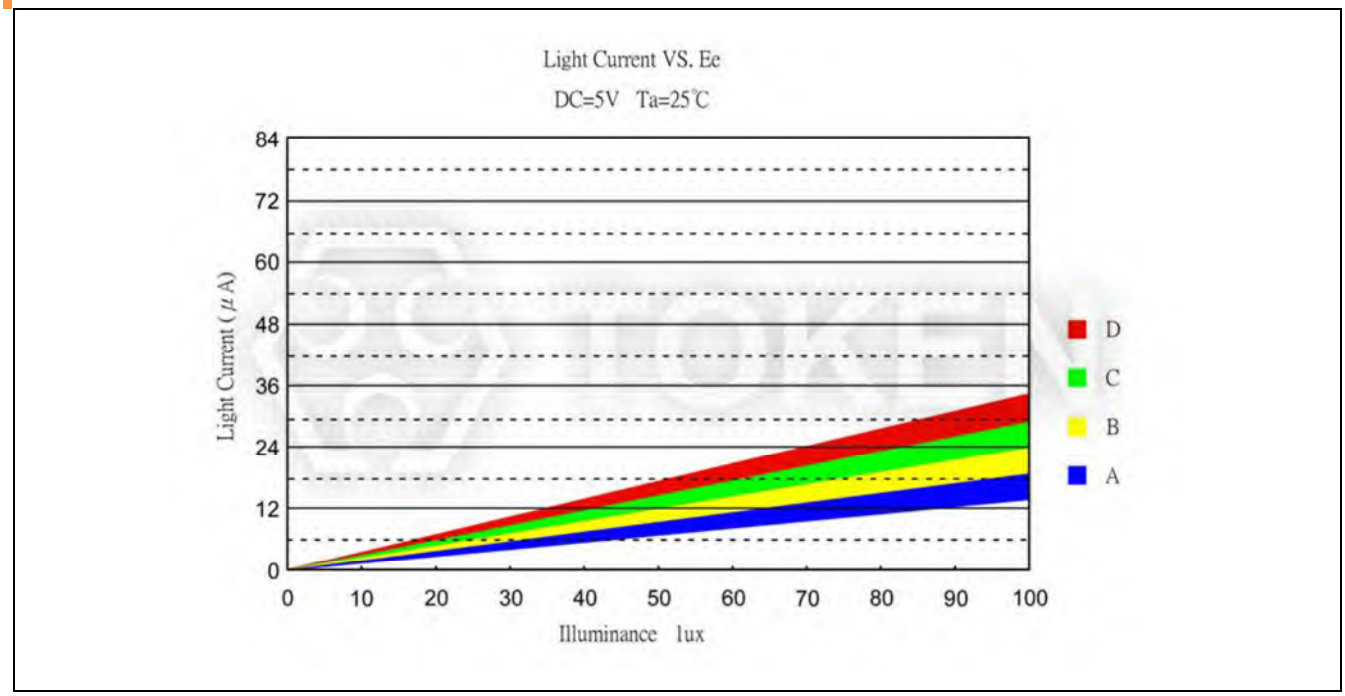
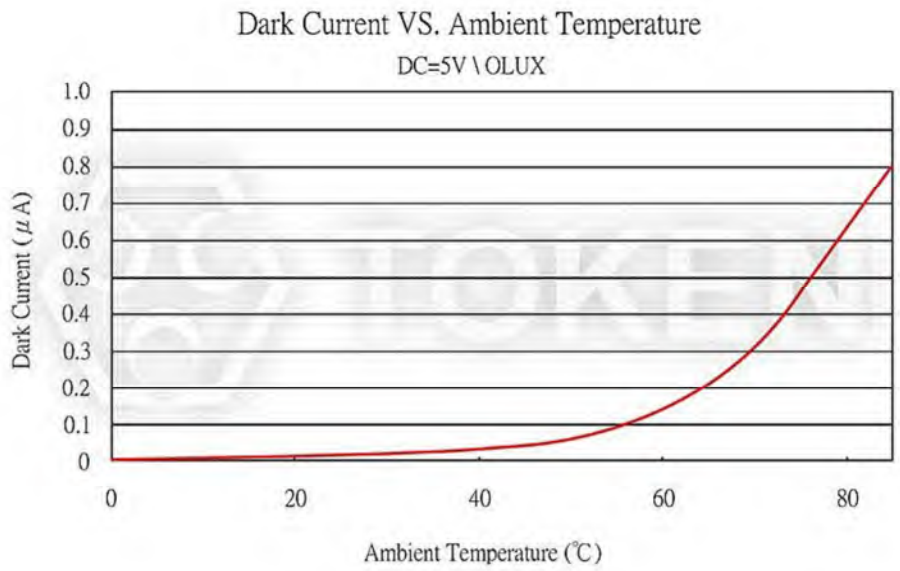


Photo Current vs. Illuminance PT-IC-GC-3-PE-520



Dark Current vs. Ambient Temperature PT-IC-GC-3-PE-520



φ5 Curve Characteristics

Relative Spectral Sensitivity vs. Wavelength PT-IC-GC-5-PE-520

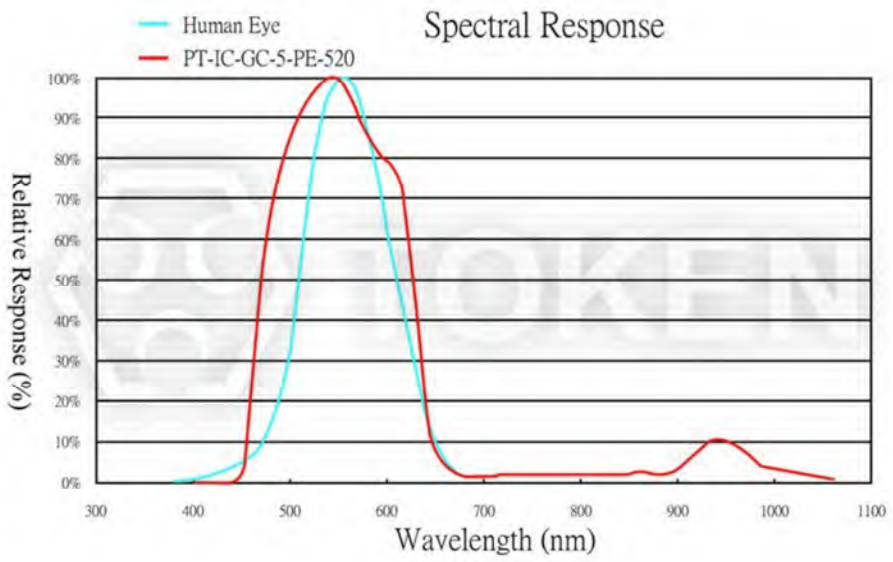
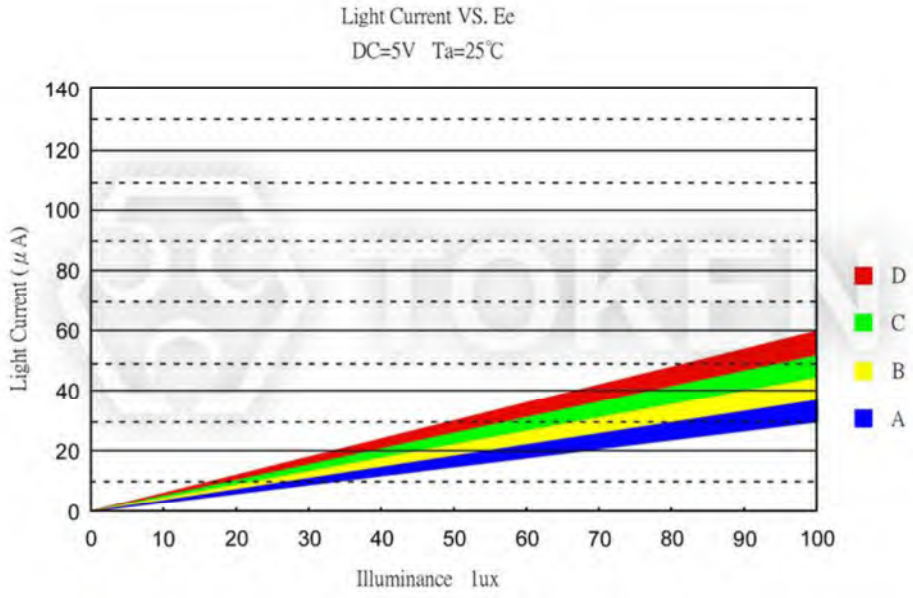
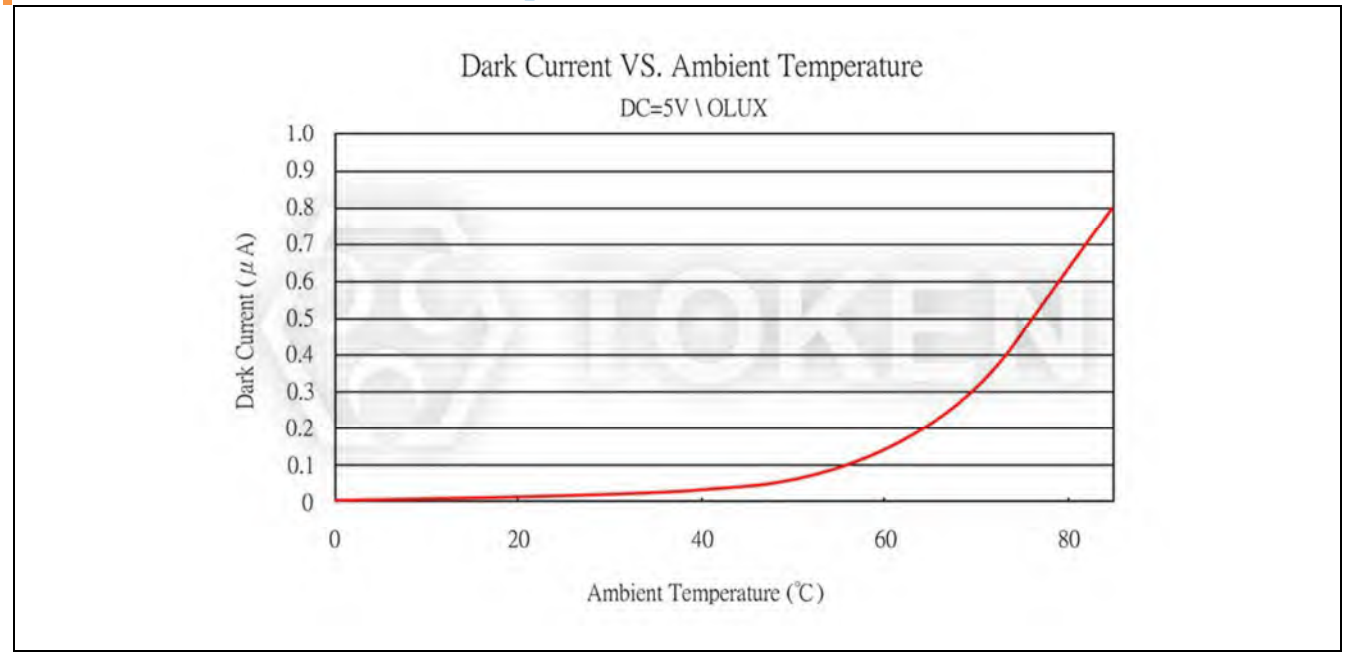


Photo Current vs. Illuminance PT-IC-GC-5-PE-520



Dark Current vs. Ambient Temperature PT-IC-GC-5-PE-520



Note

Visible Light Sensor (PT-IC-GC) Precaution Usage :

- The light source : Select 590nm LED Surface light source.

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°C < 60s、260°C < 5s.
- Manual soldering: 260°C < 5s、340°C < 3s.

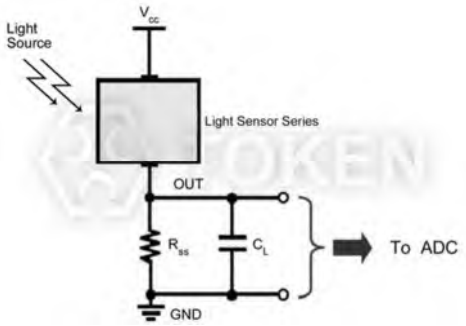


Photo Current Measurement Method - 3PE520GCIC

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 °C/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°C to 30 °C, 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-IC-GC)

PT	-	IC	-	GC	-	3	-	PE	-	520

Part Number	Chip Type	Lens Color		Size	Shape	Spectral Bandwidth	
PT	IC	GC	Dark Green	3 mm	Plate Edge	520	520 nm
				5 mm			