SPECIFICATION

Customer Name					
Customer No.					
Product Description			Transmissive Sensor		
Product Model			ORTR-8105		
Orient Confirm			Customer Confirm		
Approved by	Checked by	Prepared by	Approved by	Quality	Engineering
LinShiXiu	Huanghaijun	Kuang MuZhen			
Judge outcome：		OK	Judge outcome：		

Add：Block A 3rd Floor No.4 Building,Tian'an Cyber Park,Huangge Rd, LongGangDist,Shenzhen,GD
TEL：0755-29681816 FAX:0755-29681200
URL：www.orient-opto.com

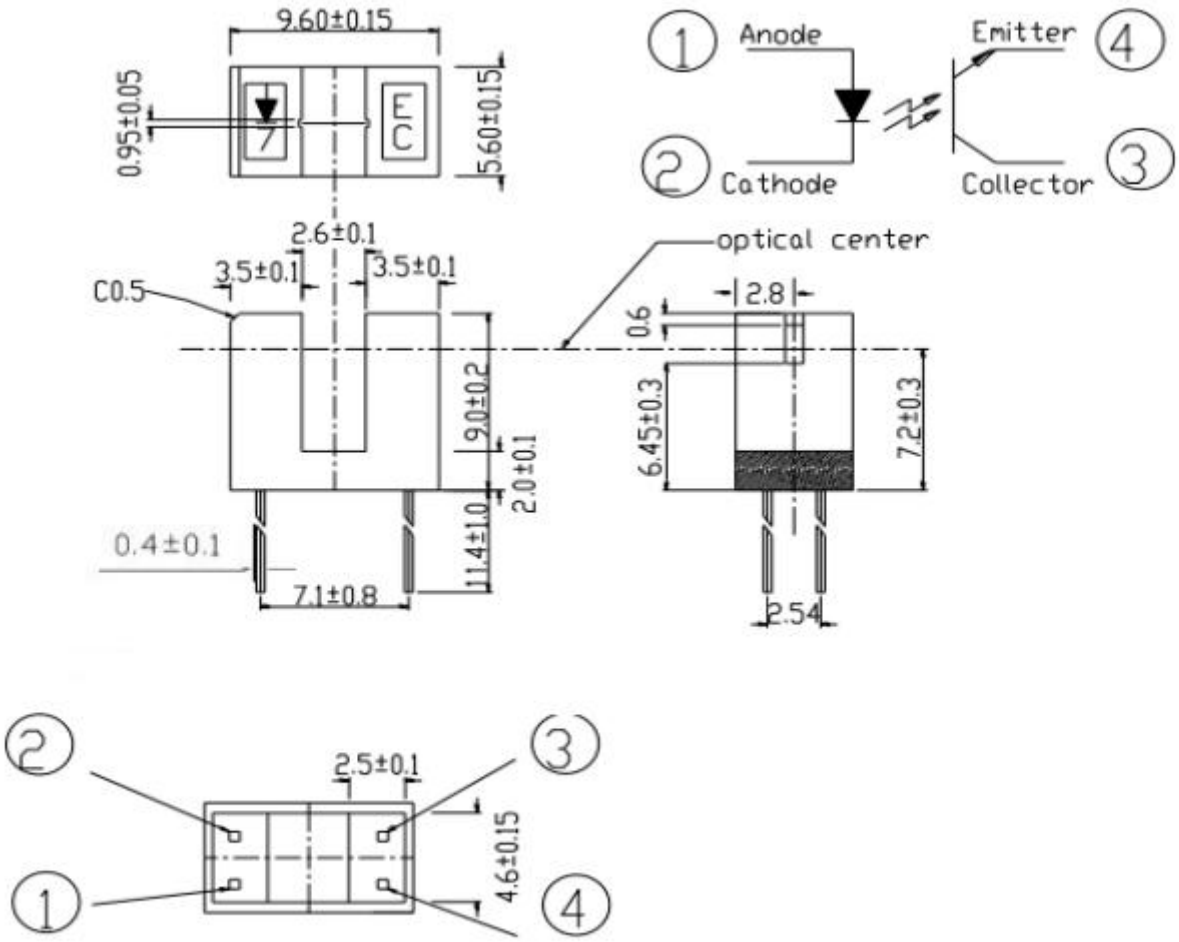
1、Features

- High reliability.
- Fast response time.
- High analytic.
- High sensitivity.
- Cut-off visible wavelength λP=940nm.
- Pb free.
- This product itself will remain within RoHS compliant version.

2、Applications

- Mouse Copier.
- Switchc Scanner.
- Non-contact Switching.
- Smart Appliances.

3、Package Dimensions



Notes:

1).All dimensions are in millimeters.

2).Tolerance is ± 0.25mm unless otherwise specified.

4、Electrical-optical characteristics at Ta=25℃

	Item	Symbol	Test condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=20mA	-	1.2	1.5	V
	Reverse Current	I_R	V_R=5V	-	-	10	μA
	Peak wavelength	λp	I_F=20mA	-	940	-	nm
Output	Dark Current	I_{CEO}	V_{CE}=20V Ee=0mW/cm2	-	-	100	nA
	C-E Saturation Voltage	$V_{CE(sat)}$	I_C=2mA, Ee=1mW/cm2	-	-	0.4	V
Transfer Characteristics	Collector Current(*)	$I_{C(ON)}$	V_{CE}=5V,I_F=20mA	1.0	-	-	mA
		$I_{C(OFF)}$		-	-	20	uA
	Rise Time	T_R	V_{CE}=5V,I_C=1mA R_L=1KΩ	-	15	-	us
	Fall Time	T_F		-	15	-	us

Notes：*Forward voltage tolerance：±0.1v
*Radiant intensity tolerance：±10%
*wavelength tolerance：±1.0nm

5、Typical photoelectricity characteristic curve chart

Typical Characteristics For IR

Fig.1 Forward Current vs. Ambient Temperature

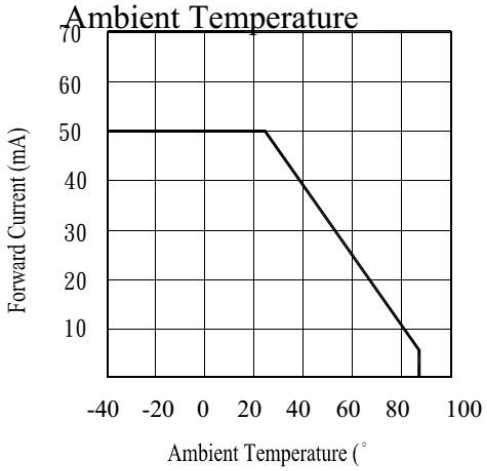


Fig.2 Spectral Distribution

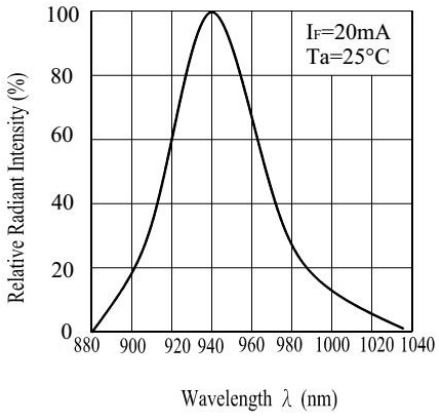


Fig.5 Relative Intensity vs. Forward Current

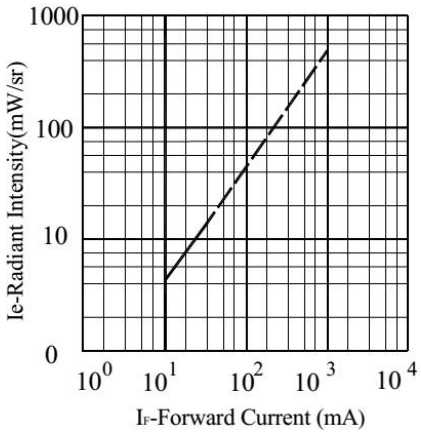


Fig.6 Relative Radiant Intensity vs. Angular Displacement

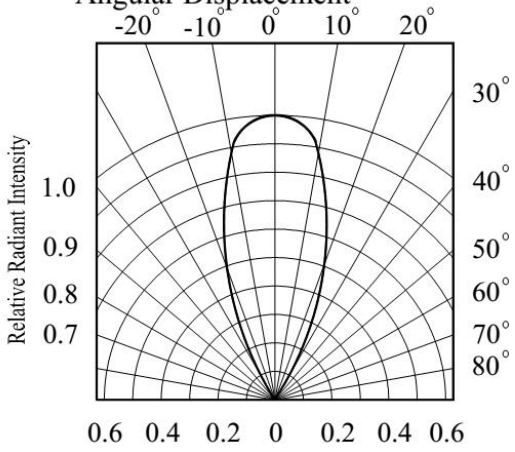


Fig.7 Relative Intensity vs. Ambient Temperature(°C)

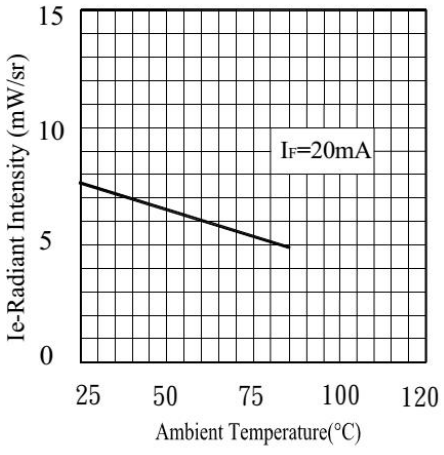
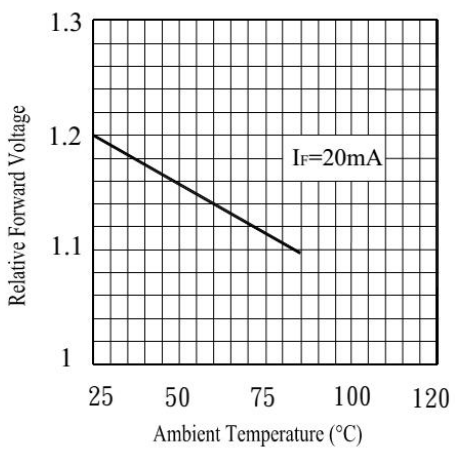


Fig.8 Forward Current vs. Ambient Temperature(°C)



Typical Characteristics For PT

Fig.1Collector Power Dissipation vs. Ambient Temperature

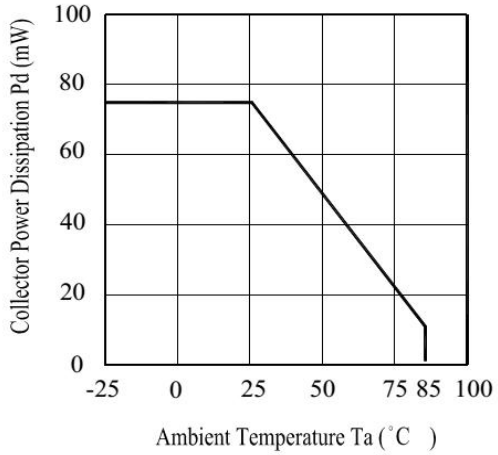


Fig.2 Spectral Sensitivity

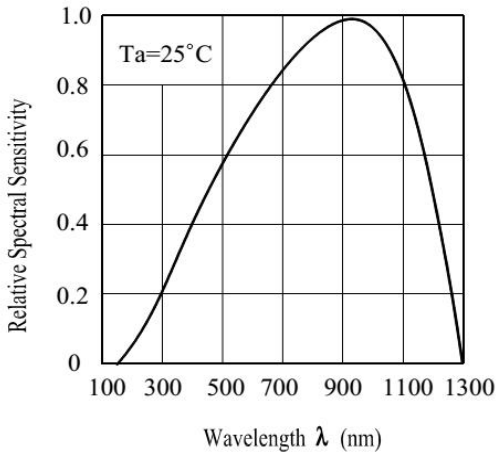


Fig.3 Relative Collector Current vs. Ambient Temperature

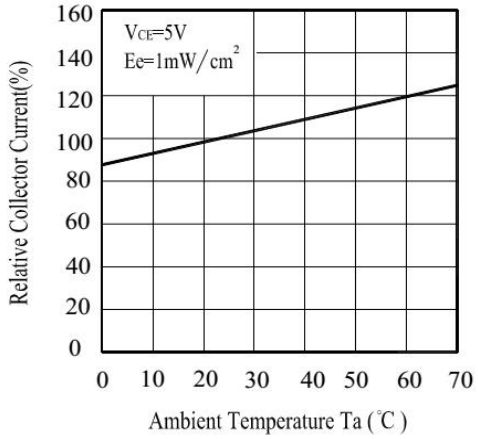


Fig.4 Collector Current vs. Irradiance

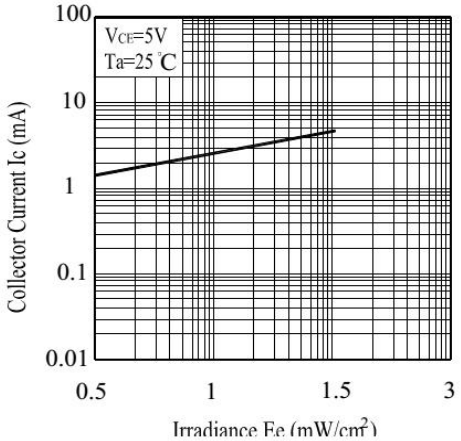


Fig.5 Collector Dark Current vs. Ambient Temperature

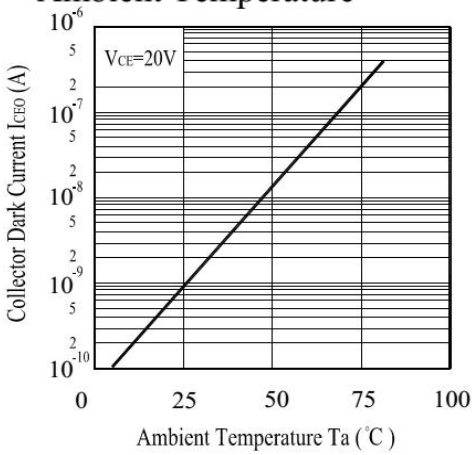
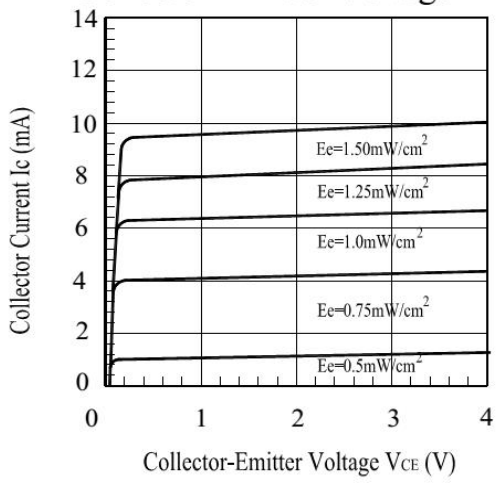


Fig.6 Collector Current vs. Collector-Emitter Voltage



6、Absolute Maximum Rating

Ambient temperature：25℃， Humidity：RH60%

Item		Symbol	Value	Unit	Remark
Input	Power Dissipation	Pd	75	mW	at(or below) 25℃ Free Air Temperature
	Reverse Voltage	V_R	5	V	-
	Forward Current	I_F	50	mA	-
	Peck forward current	I_{FP}	1	A	Pulse width ≦100μs, Duty cycle=1% tw=100 μsec,
Output	Collector Power Dissipation	Pc	75	mW	-
	Collector Current	Ic	20	mA	-
	Collector-Emitter Voltage	BV_{CEO}	30	V	-
	Emitter-Collector Voltage	BV_{ECO}	5	V	-
Operating Temperature		Topr	-25~+85	℃	-
Storage Temperature		Tstg	-40~+100	℃	-
Soldering temperature		Tsol	260	℃	Wave soldering, 3mm out of physical body, ≤3S

7、Reliability Test Project

Description	Item	Test criterion	Test condition	Test time	Qty.	Fail Qty.
Life test	Life test (room temperature)	JIS7021:B4	Ta=25℃±5℃，IF=20mA	1000Hrs	22	0
Ambience test	High temperature store	JIS7021:B10 MIL-STD-202:210A MIL-STD-750:2031	Ta=85℃±5℃	1000Hrs	22	0
	Low temperature store	JIS7021:B12	Ta= -35℃±5℃	1000Hrs	22	0
	High temperature/ humidity test	JIS7021:B11 MIL-STD-202:103D	Ta=85℃±5℃ RH=85%	1000Hrs	22	0
	Cold / Heat strike test	JIS7021:B4 MIL-STD-202:107D MIL-STD-750:1026	30min -10℃±5℃←→100℃±5℃ 5min 5min	50Cycles	22	0
	Cold and heat cycle test	JIS7021:A3 MIL-STD-202:107D MIL-STD-705:105E	5min 5min 5min -35℃～25℃～85℃～-35℃ 30min 5min 30min 5min	50Cycles	22	0

8、Note

1、LED bracket forming method

（1）The pin of LED can be bent where is at least 3mm out of LED colloid.

（2）Must use fixture to deform the LED bracket.

（3）Finishing the forming of LED bracket must be before soldering.

（4）Guarantee the gap between two pin of LED tallys with LED pads in PCB when forming.

2、Manual soldering

The tip temperature of soldering iron don't exceed 300℃；soldering time don't exceed 3s and soldering position must be 3mm out of led colloid。

3、ESD countermeasure

Static electricity and high volt can damage LED，The production whose Die material is InGaN must strictly required to prevent ESD，Must put on static glove and static fillet，Soldering tool and the cover of device must connect the ground，soldering condition follows the related stating of production specification manual。

4、Protecting countermeasure when over current
Need add the protecting resistor in circuit in order to avoid damaging led due to big current and voltage fluctuation。

5、LED installation method
(1)Pay attention to the LED polarity and avoid installation wrong。LED can't be close to euthermic component，work condition should tally with it's specification。
（2）Don't install the LED under the condition of the led pin deformation。
（3）The LED bracket don't load any pressure when installing the LED into PCB or fitting hole。
（4）Must avoid any strike and force on LED before the soldering temperature return to room temperature。

6、Storage time
（1）LED can be stored for a year under the condition: the temperature of 5℃～35℃ and humidity of RH60%，These production must be re-inspected and tested before use if their storage time exceed a year。
（2） If LED is exposed in air for a week under the condition: the temperature of 5℃～35℃，humidity of RH60%，must place the LED in the ambience of 65℃±5℃ for 24 hours and use it in 15 days for best。

7、Cleaning
Be careful of some chemical results in the LED colloid fades and damage when using chemical clean the LED，such as chloroethylene, acetone etc。 Can use ethanol to wash or soak LED but the time don't exceed 3 minutes.

8、Kinked
The kinked tooling scrape easily the pin of LED, where the LED bracket is rusting easily, especial expose it in moist air. To decrease the LED bracket rust, advise using plated tin LED bracket.