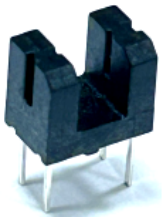
SPECIFICATION

Customer Name					
Customer No.					
Product Description			**Photo Interrupter**		
Product Model			**ORTR-645D-(GK)-Z**		
Orient Confirm			**Customer Confirm**		
Approved by	**Checked by**	**Prepared by**	**Approved by**	**Quality**	**Engineering**
Chenjunyuan	Linshixiu	Zhengdagui			
Judge outcome：		**OK**	**Judge outcome：**		

Add：Block A 3rd Floor No.4 Building Tian An Cyber Park Huang Ge Rd, Long Gang Dist, Shenzhen, GD
TEL：0755-29681816 **URL：www.orient-opto.com**

1、Features



- Fast response time.
- High sensitivity.
- Thin and small package.
- Pb free.
- This product itself will remain within RoHS compliant version.
- Compliance with EU REACH.

2、Applications

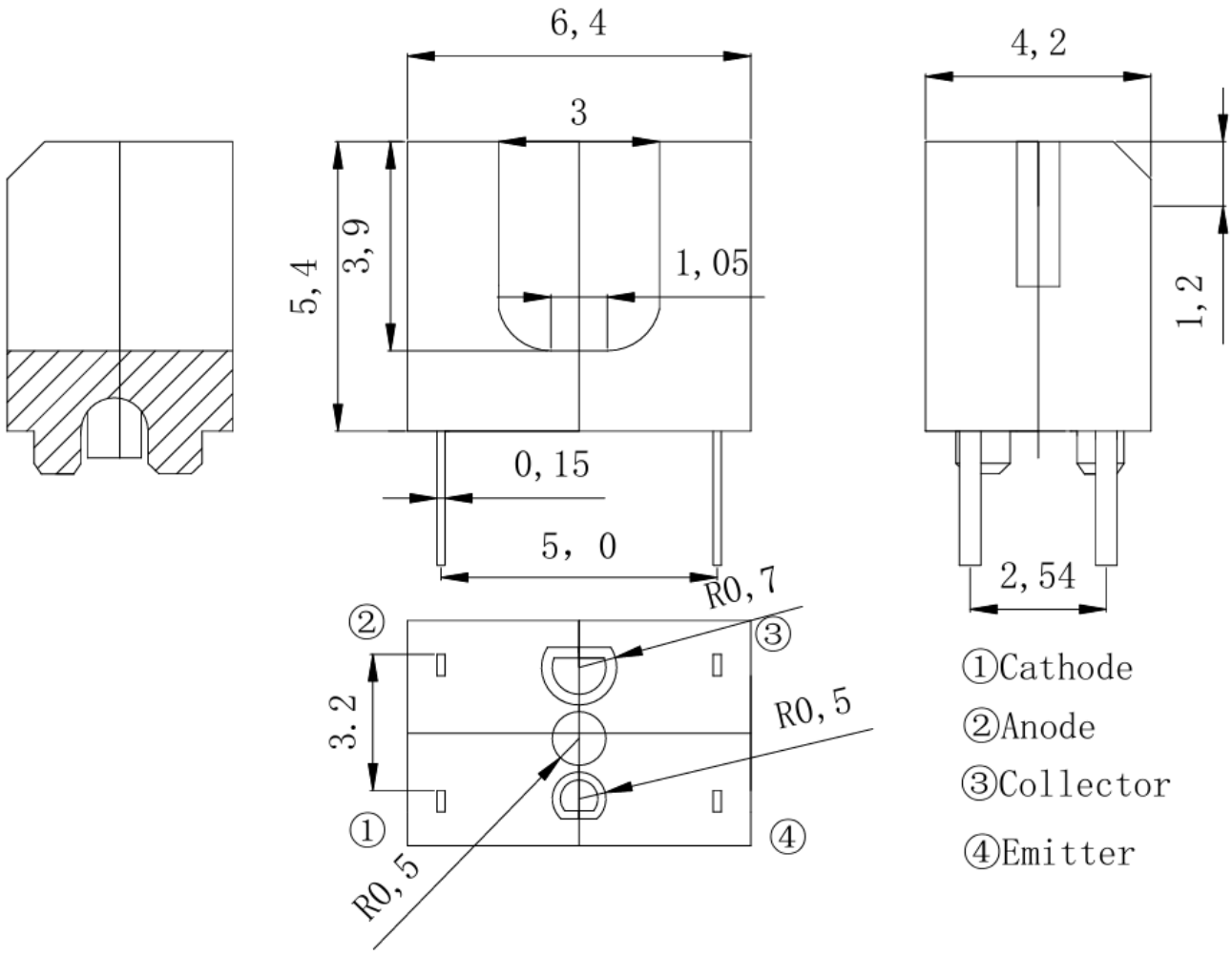
- Printer.
- Copier.
- Scanner.
- Opto-electronic switch.

3、Description

- The ORTR-645-(GK)-Z consists of an infrared light emitting diode and a silicon phototransistor encased in a black thermo-plastic housing.

- Phototransistor receives radiation from the IR LED only, and avoids the noise from ambient light.

4、Package Outline Dimensions



Notes:

1). All dimensions are in millimeters.

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

3). Specifications are subject to change without notice.

5、Absolute maximum ratings at Ta=25℃

Parameter		Symbol	Rating	Unit
Input	Power Dissipation	P_D	65	mW
	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	5	V
Output	Collector Power Dissipation	P_C	75	mW
	Collector Current	I_C	20	mA
	C-E Voltage	V_{CEO}	30	V
	E-C Voltage	V_{ECO}	5	V
Operating Temperature Range		T_{opr}	-25~+80	℃
Storage Temperature Range		T_{stg}	-40~+85	℃
Soldering Temperature*1 （3mm from the package）		T_{sld}	260	℃

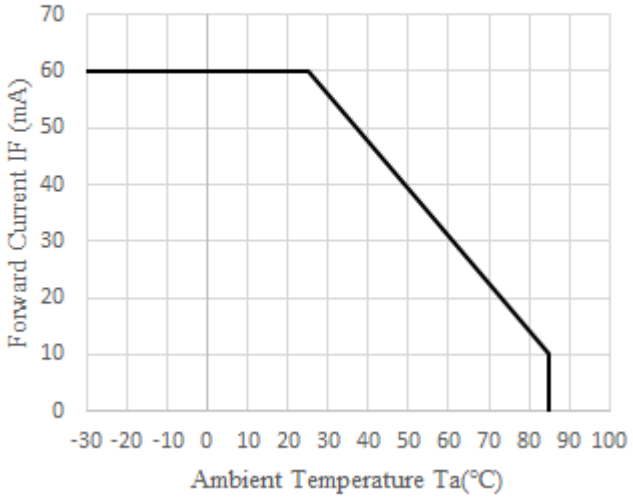
Notes: *1 Soldering time≦5 seconds.

6、Electrical-optical characteristics at Ta=25℃

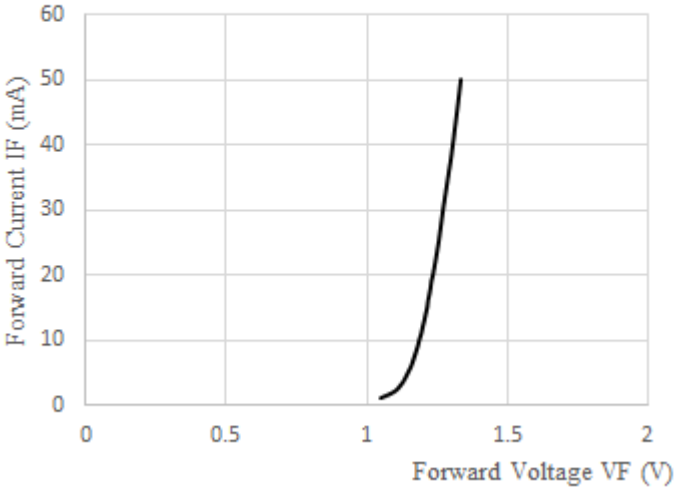
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=20mA	-	1.27	1.6	V
	Reverse Current	I_R	V_R=5V	-	-	10	uA
	Peak Wave Length	λ_P	I_F=20mA	-	940	-	nm
Output	Collector Dark Current	I_{CEO}	V_{CE}=20V Ee=0mW/cm^2	-	-	100	nA
	C-E Saturation Voltage	$V_{CE(sat)}$	I_C=2mA Ee=1mW/cm^2	-	-	0.4	V
Transfer Characteristics	On State Collector Current	$I_{C(on)}$	V_{CE}=5V I_F=20mA	0.5	-	6.0	mA
	Rise Time	t_r	V_{CC}=5V I_C=1mA R_L=1K	-	15	-	us
	Fall Time	t_f		-	15	-	us

7、Typical optical characteristics curves

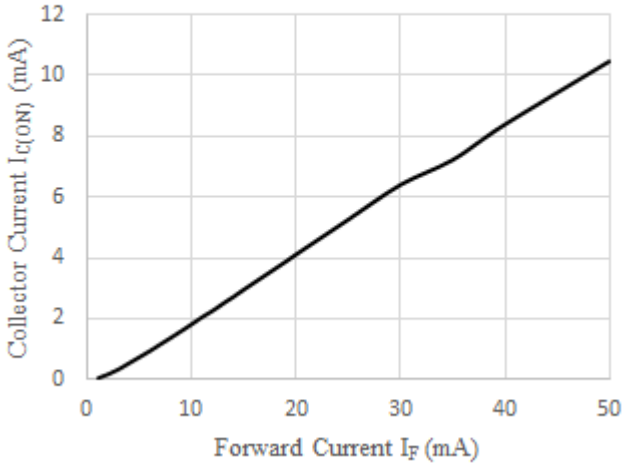
Forward Current vs. Ambient Temperature



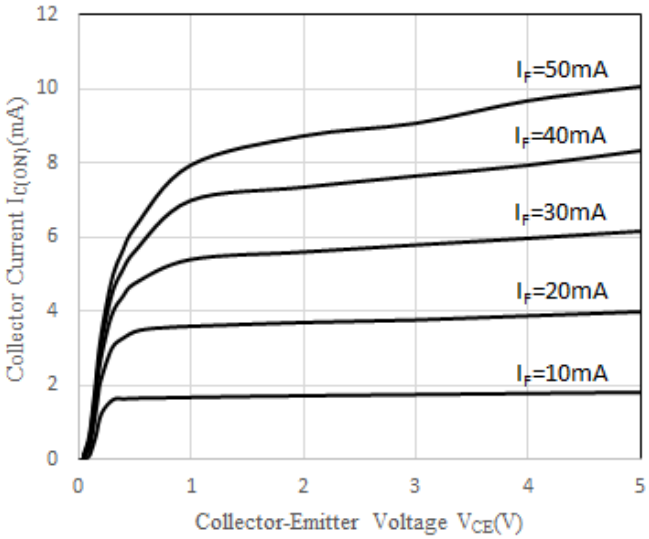
Forward Current vs. Forward Voltage



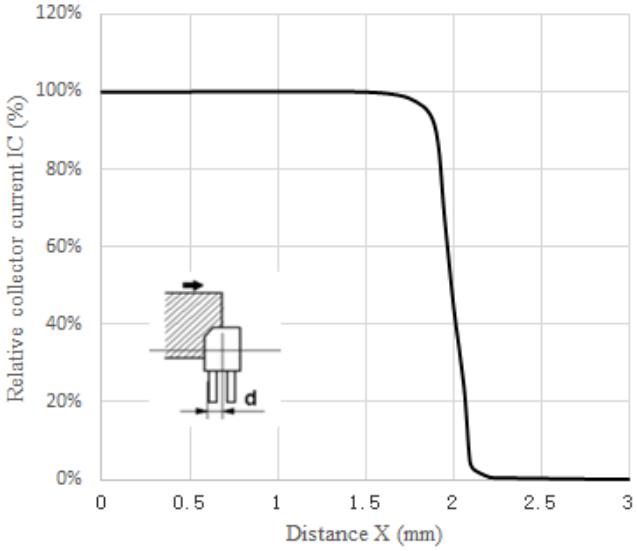
Collector Current vs. Forward Current



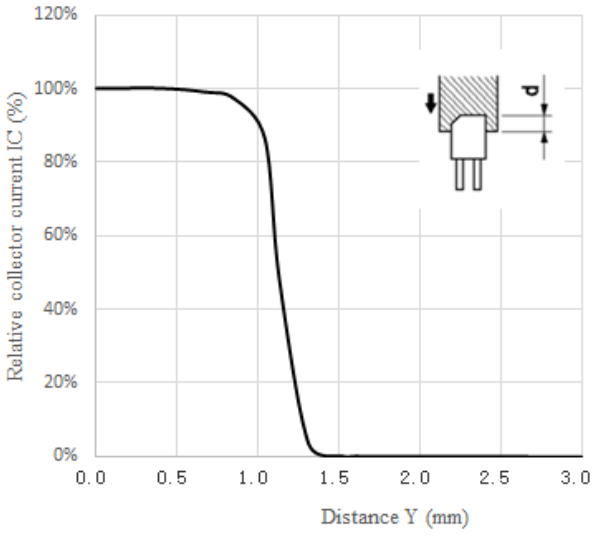
Collector Current vs. Collector-Emitter Voltage



Relative output current VS. distance X

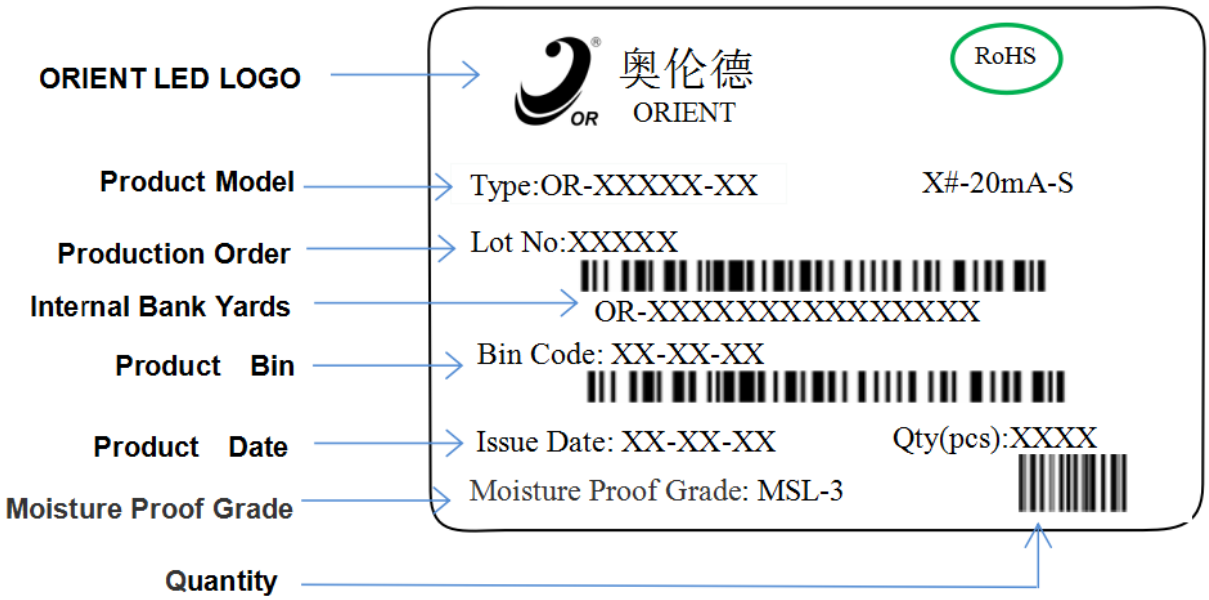


Relative output current VS. distance Y



8、Package and Label of Products

Label:



9、Precautions for use

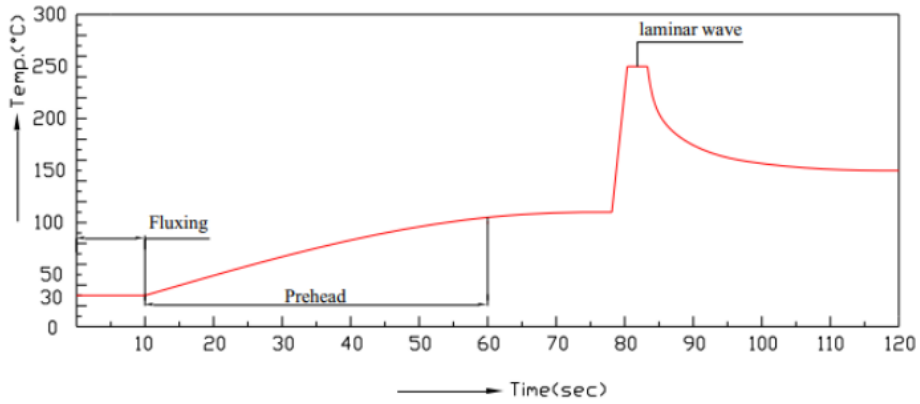
1、Soldering

1.1 Careful attention should be paid during soldering. When soldering, leave more then 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.

1.2 Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300℃ Max. (30W Max.)	Preheat temp.	100℃ Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min. (From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

1.3 wave profile：



1.4 Avoiding applying any stress to the lead frame while the Photo Interrupter are at high temperature particularly when soldering.

1.5 Dip and hand soldering should not be done more than one time.

1.6 After soldering the Photo Interrupter, the epoxy bulb should be protected from mechanical shock or vibration until the Photo Interrupter return to room temperature.

1.7 A rapid-rate process is not recommended for cooling the Photo Interrupter down from the peak temperature.

1.8 Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the Photo Interrupter.

1.9 Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

2、Cleaning

2.1. Don’t be cleaned with ultrasonic. Recommended to be wiped with isopropyl alcohol or pure alcohol, wiping time should not be more than one minute. LED must be placed at room temperature for fifteen minutes before using. After cleaning, you must insure clean on the radiant surface. Otherwise, foreign objects can affect radiant color.

2.2. LED can not be in contact with isoamyl acetate, trichloroethylene, acetone,sulfide, nitride, acid, alkali, salt. These matter can destroy LED.

3、Sealing

3.1. Sealing glue can not contain sodium ion, sulfide, because these matter can affect fluorescence powder poisoning.

3.2. When using normal sealing glue, Recommended to be operated life for 168hrs under normal temperature.

4、Storage

4.1. Don't open the moisture proof bag before ready to use the LEDs.

4.2. The LEDs should be kept at 30℃ or less and 60%RH or less before opening the package. The max. storage period before opening the package is 1 year.

4.3. After opening the package, the LEDs should be kept at 30-35%RH or less, and it should be used within 3 days. If the LEDs should be kept at 30-35%RH or more, and it should be used within 4 hours.

4.4. If the LEDs be kept over the conditions of 20%, baking is required before mounting. Baking condition as below: 70±5℃ for 12 hrs for bulk goods, 105±5℃ for 1 hrs for roll goods.

4.5. The environment have no acid, alkali, corrosive gas, intensively shake and high magnetic field.

5、Static

5.1.Static and Peak surge voltage can destroy LED, Avoiding Instantaneous voltage when turn on or turn off the lights.

5.2. Please wear Anti-static wrist band, Anti-static glove, Anti-static shoes in the course of operation, and the equipment must be grounded.

6、Test

6.1. Customer must apply the current limiting resistor in the circuit so as to drive the LEDs within the rated current. Otherwise slight voltage shift maybe will cause big current change and burn out will happen.

6.2. Also, caution should be taken not to overload the LEDs with instantaneous high voltage at the turning ON and OFF of the circuit. Otherwise, The LEDs will be destroyed, testing methods as follows:

6.3. The reverse voltage mustn't exceed 5v when lighting on or testing the LED, otherwise,The LEDs will be damaged.

7、Else

Radiant color of LEDs have a little change with the current, recommended that LED is used in series and resistance, when lighting, please don't see directly radiant surface of LED, otherwise LED will burn eyes.