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**DATA SHEET**

**PART NO. : ITR2005003**

**REV : A / 0**

CUSTOMER'S APPROVAL : \_\_\_\_\_ DCC : \_\_\_\_\_

DRAWING NO. : DS-81P-20-0009

DATE : 2020-05-27

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## Descriptions

The ZOS-R0905-07 consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing. The phototransistor receives radiation from the IR only . This is the normal situation. But when an reflecting object close to ITR, phototransistor receives the reflecting radiation .For additional component information, please refer to IR and PT.

## Optical Sensor black

## Transistor Output



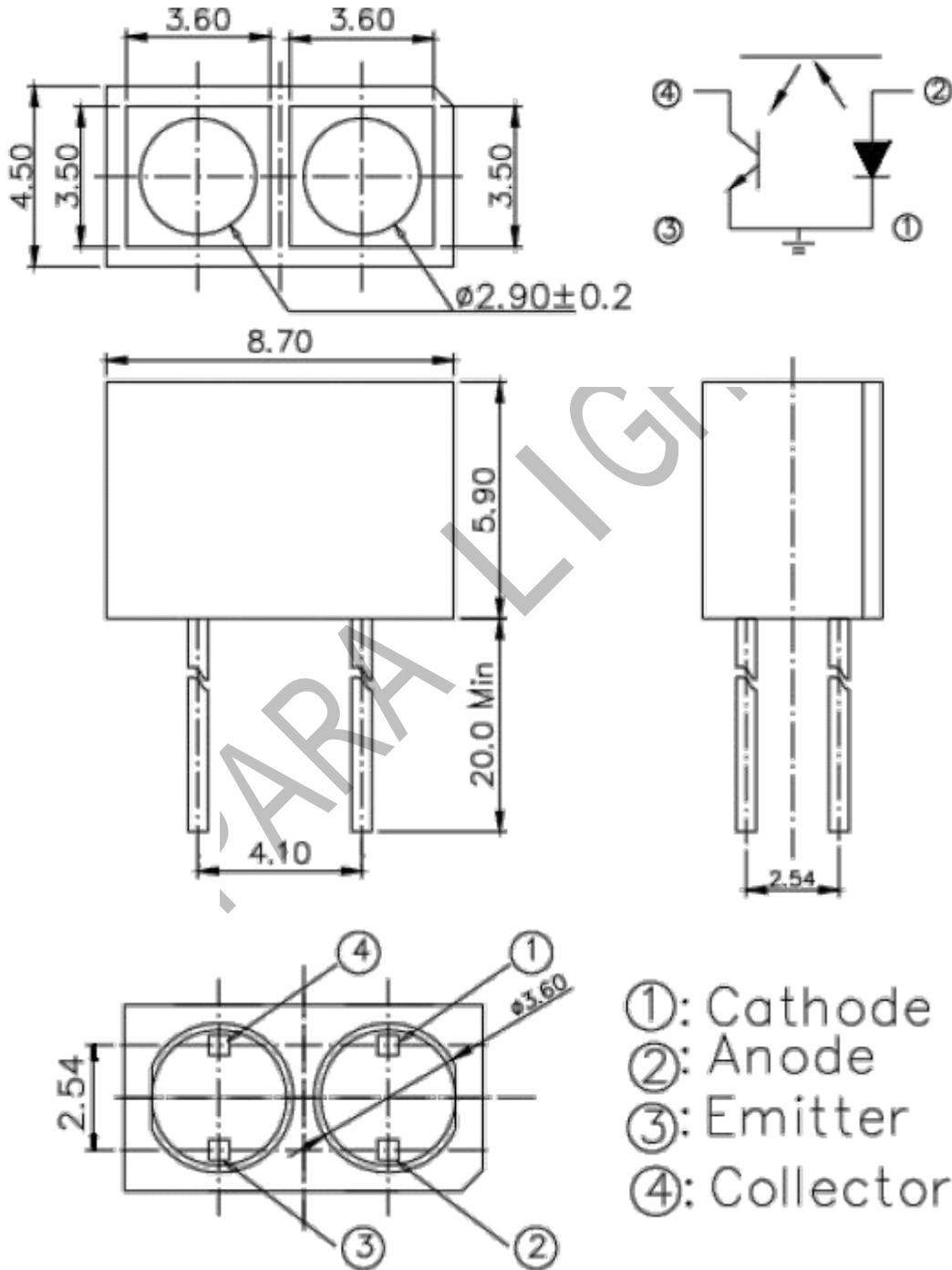
## Features

- Fast response time
- High analytic
- Cut-off visible wavelength  $\lambda_p=940\text{nm}$
- High sensitivity
- Pb free
- This product itself will remain within RoHS compliant version
- Compliance with EU REACH
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)

## Applications

- Mouse Copier
- Switch Scanner
- Floppy disk driver
- Non-contact Switching
- For Direct Boar

**Package Dimension**



**Note:**

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

## Absolute Maximum Ratings

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	100	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Forward Current	I <sub>F</sub>	50	mA
	Peak Forward Current (*1) Pulse width ≤ 100 μs, Duty cycle=1%	I <sub>FP</sub>	1	A
	Collector Power Dissipation	P <sub>C</sub>	100	mW
Output	Collector Current	I <sub>C</sub>	50	mA
	Collector-Emitter Voltage	B V <sub>CEO</sub>	30	V
	Emitter-Collector Voltage	B V <sub>ECO</sub>	5	V
	Operating Temperature	T <sub>opr</sub>	-25~+85	°C
Storage Temperature	T <sub>stg</sub>	-40~+100	°C	
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)	T <sub>sol</sub>	260	°C	

(\*1)  $t_w=100 \mu \text{sec.}$ ,  $T=10 \text{msec.}$

(\*2)  $t=5 \text{Sec}$

## Electro-Optical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V <sub>F1</sub>	---	1.2	1.5	V	I <sub>F</sub> =20mA
		V <sub>F2</sub>	---	1.4	1.85		I <sub>F</sub> =100mA, tp=100 μs, tp/T=0.01
		V <sub>F3</sub>	---	2.6	4.0		I <sub>F</sub> =1A, tp=100 μs, tp/T=0.01
	Reverse Current	I <sub>R</sub>	---	---	10	μA	V <sub>R</sub> =5V
	Peak Wavelength	λ <sub>p</sub>	---	940	---	nm	I <sub>F</sub> =20mA
View Angle	2θ <sub>1/2</sub>	---	60	---	Deg	I <sub>F</sub> =20mA	
Output	Dark Current	I <sub>CEO</sub>	---	---	100	nA	V <sub>CE</sub> =20V, Ee=0mW/cm <sup>2</sup>
	C-E Saturation Voltage	V <sub>CE(sat)</sub>	---	---	0.4	V	I <sub>C</sub> =2mA Ee=1mW/cm <sup>2</sup>
Output	Dark Current	I <sub>CEO</sub>	---	---	100	nA	V <sub>CE</sub> =20V, Ee=0mW/cm <sup>2</sup>
	C-E Saturation Voltage	V <sub>CE(sat)</sub>	---	---	0.4	V	I <sub>C</sub> =2mA Ee=1mW/cm <sup>2</sup>
Transfer Characteristics	Collect Current	I <sub>C(ON)</sub>	0.2	---	---	mA	V <sub>CE</sub> =5V I <sub>F</sub> =20mA
	Rise time	t <sub>r</sub>	---	15	---	μsec	V <sub>CE</sub> =5V
	Fall time	t <sub>f</sub>	---	15	---	μsec	I <sub>C</sub> =1mA R <sub>L</sub> =1KΩ

## Typical Electrical/Optical/Characteristics Curves for IR

Fig.1 Forward Current vs.

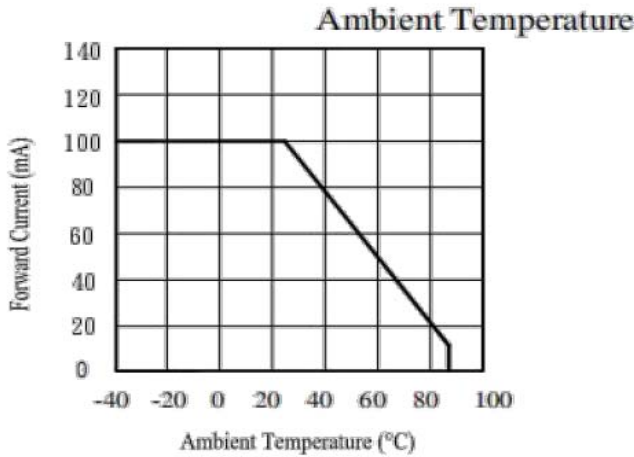


Fig.2 Spectral Distribution

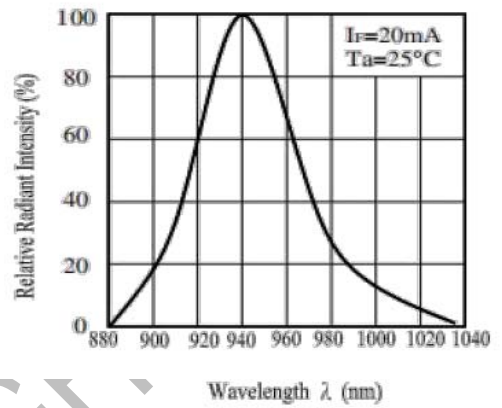


Fig.3 Radiant Intensity vs.

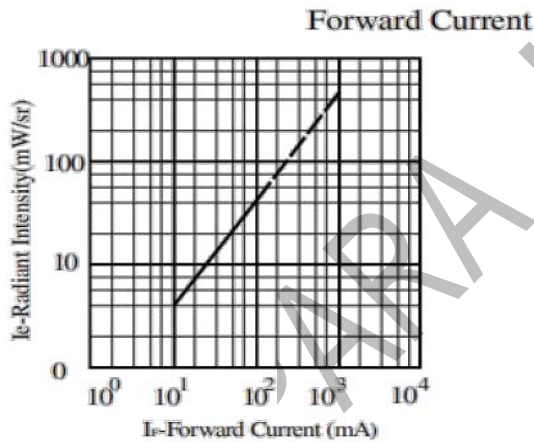


Fig.4 Relative Radiant Intensity vs.

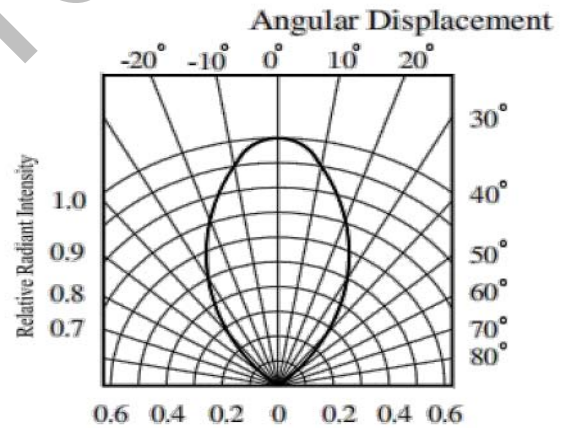


Fig.5 Forward Current vs.

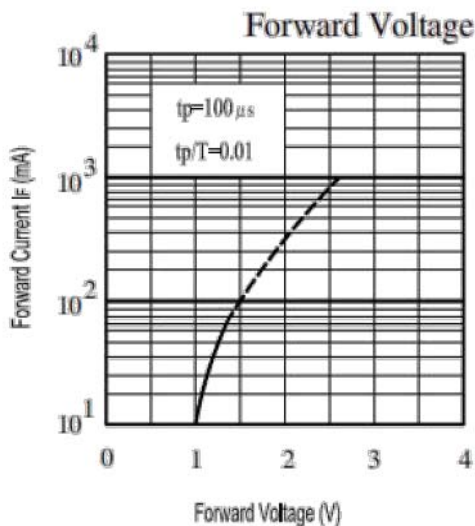
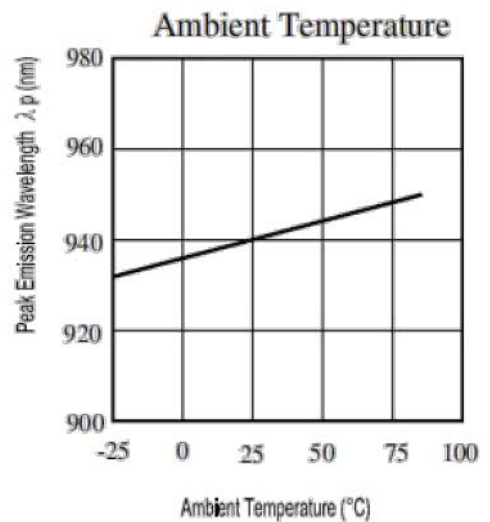


Fig.6 Peak Emission Wavelength



## Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

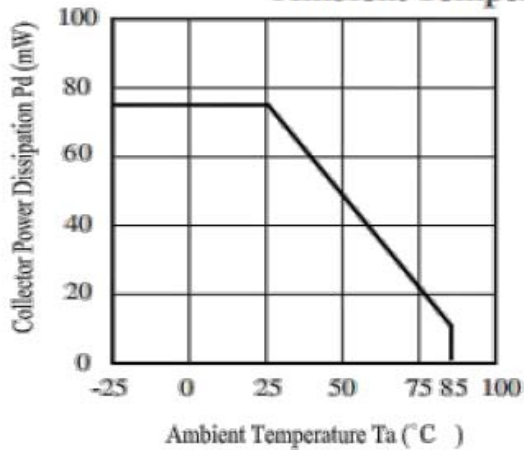


Fig.2 Spectral Sensitivity

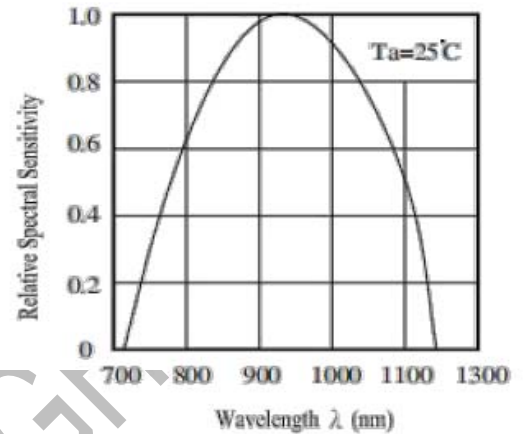


Fig.3 Relative Collector Current vs. Ambient Temperature

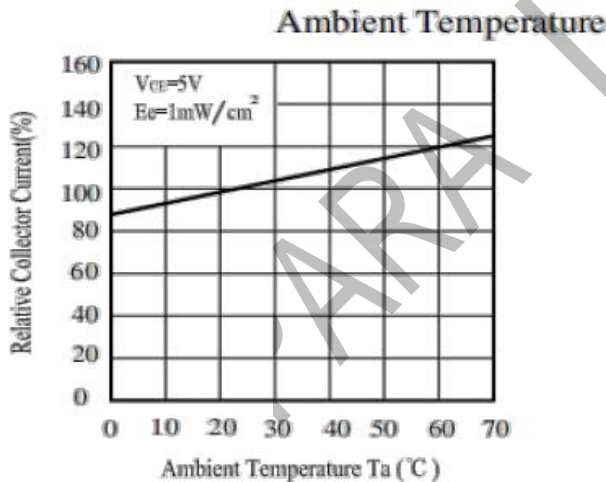


Fig.4 Collector Current vs. Irradiance

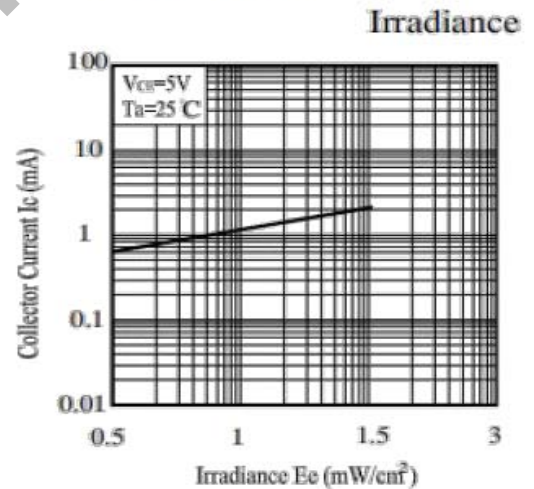


Fig.5 Collector Dark Current vs. Ambient Temperature

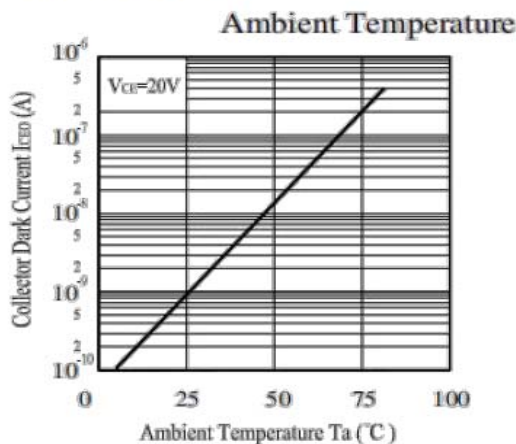
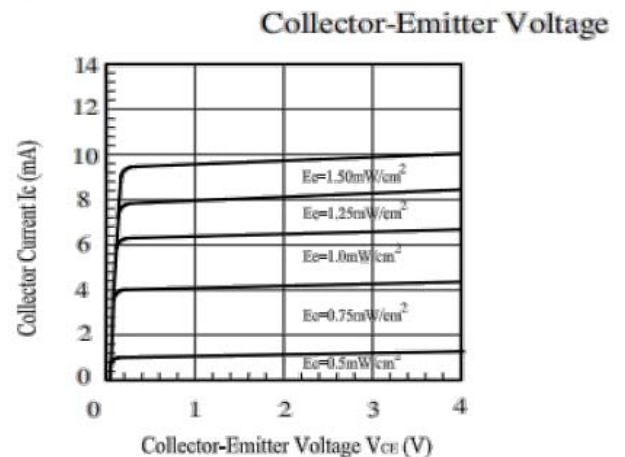


Fig.6 Collector Current vs. Collector-Emitter Voltage



## Packing Quantity Specification

1.150PCS//1Bag

2.4Bag/1box 2. 10bos/1Carton

## Notes

1. Above specification may be changed without notice. will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instruction for using outlined in these specification sheets. assumes no responsibility for any damage resulting from 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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