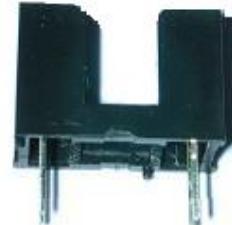


## Technical Data Sheet Opto Interrupter

ITR-9606



### ■ Features

- Fast response time
- High analytic
- Cut-off visible wavelength  $\lambda_p=940\text{nm}$
- High sensitivity
- Pb free
- The product itself will remain within RoHS compliant version.

### ■ Descriptions

The ITR-9606 consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black Thermoplastic

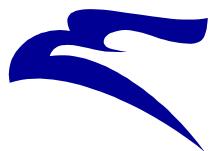
Housing The phototransistor receives radiation from the IRLED only .This is the normal Situation. But when an object is in between , phototransistor could not receives the radiation. For additional component information , please refer to IR928-6C and PT928-6C

### ■ Applications

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

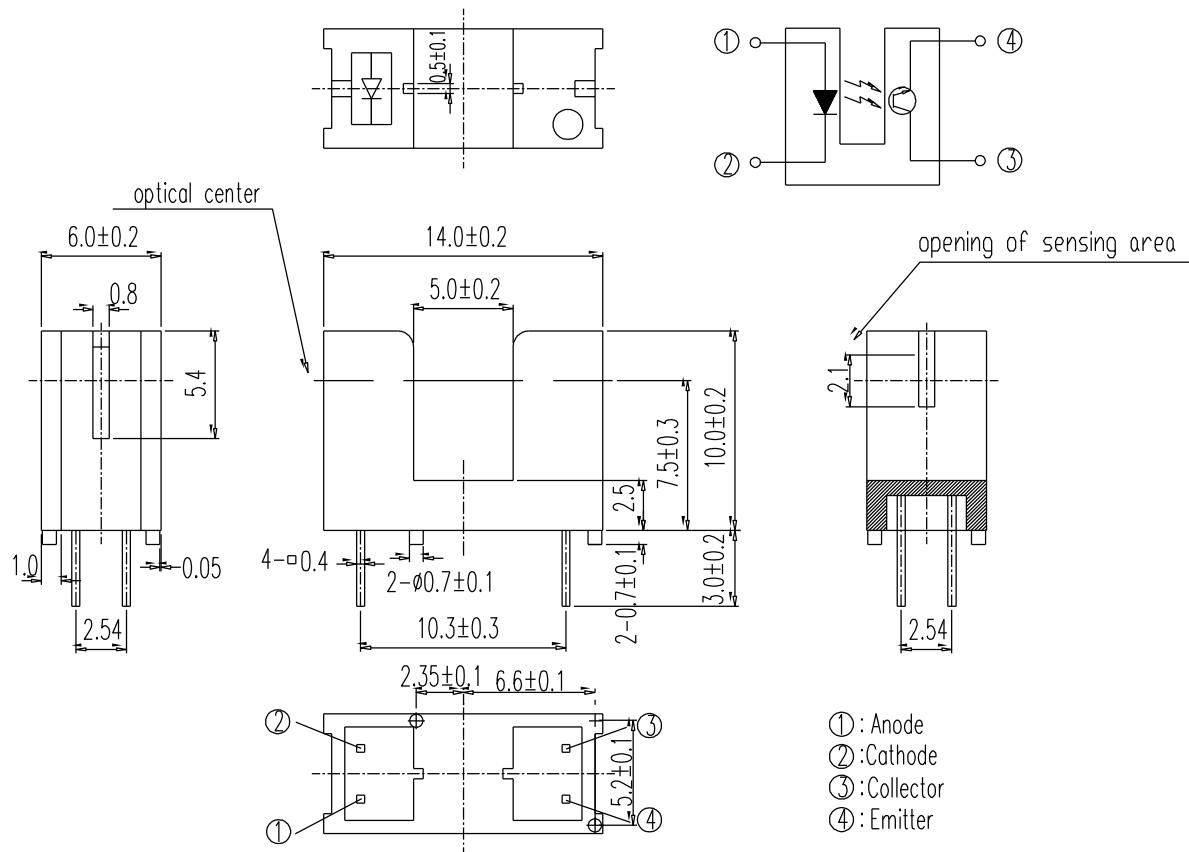
### ■ Device Selection Guide

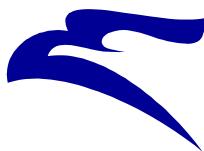
Device No.	Chip Material	LENS COLOR
IR928	GaAlAs	Water clear
PT928	Silicon	Water clear



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■ Package Dimensions





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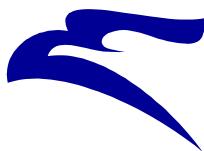
**Absolute Maximum Ratings (Ta=25°C)**

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 $\leq 100 \mu s$ , Duty cycle=1%	I <sub>FP</sub>	1	A
Output	Collector Power Dissipation	P <sub>C</sub>	75	mW
	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		To <sub>pr</sub>	-25~+85	°C
Storage Temperature		T <sub>stg</sub>	-40~+85	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T <sub>sol</sub>	260	°C

(\*1)  $tw=100 \mu s$ ,  $T=10 \text{ msec.}$  (\*2)  $t=5 \text{ Sec}$

**Electro-Optical Characteristics (Ta=25°C)**

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V <sub>F1</sub>	---	1.2	1.6	V	I <sub>F</sub> =20mA
		V <sub>F2</sub>	---	1.4	1.85		I <sub>F</sub> =100mA, tp=100 $\mu s$ , tp/T=0.01
		V <sub>F3</sub>	---	2.6	4.0		I <sub>F</sub> =1A, tp=100 $\mu s$ , tp/T=0.01
	Reverse Current	I <sub>R</sub>	---	---	10	$\mu A$	V <sub>R</sub> =5V
	Peak Wavelength	$\lambda_p$	---	940	---	nm	I <sub>F</sub> =20mA
	View Angle	2θ1/2	---	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</sub> (sat)	---	---	0.4	V	I <sub>C</sub> =2mA, Ee=1mW/cm <sup>2</sup>
Transfer Characteristics	Collect Current	I <sub>C</sub> (ON)	0.5	---	10	mA	V <sub>CE</sub> =5V, I <sub>F</sub> =20mA
	Rise time	t <sub>r</sub>	---	15	---	$\mu s$	V <sub>CE</sub> =5V, I <sub>C</sub> =1mA, R <sub>L</sub> =1KΩ
	Fall time	t <sub>f</sub>	---	15	---	$\mu s$	



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█ Typical Electrical/Optical/Characteristics Curves for IR

Fig.1 Forward Current vs.

Ambient Temperature

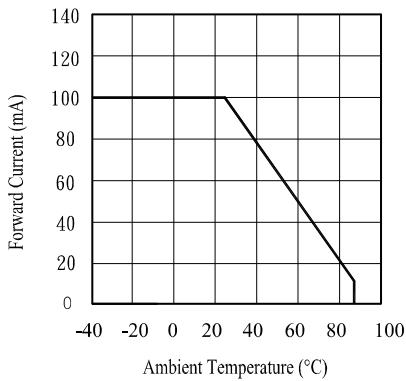


Fig.2 Spectral Distribution

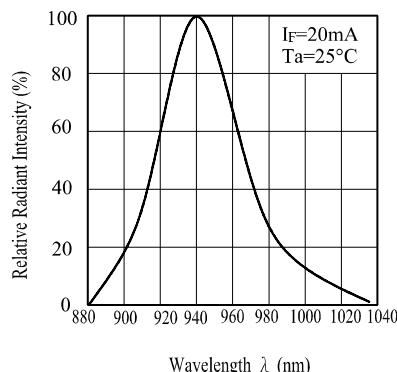


Fig.5 Relative Intensity vs.

Forward Current

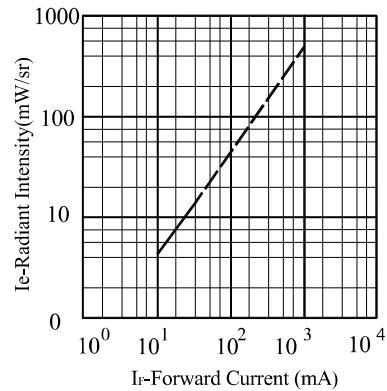


Fig.6 Relative Radiant Intensity vs.

Angular Displacement

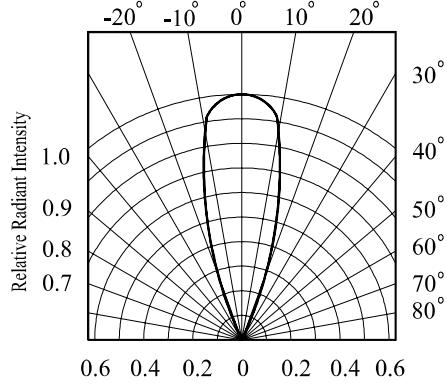


Fig.7 Relative Intensity vs.

Ambient Temperature(°C)

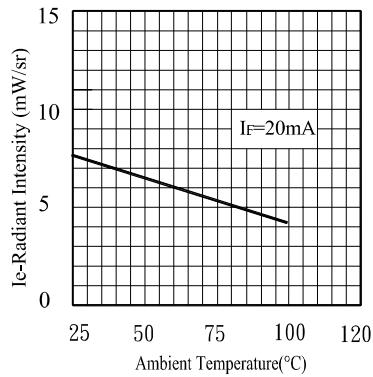
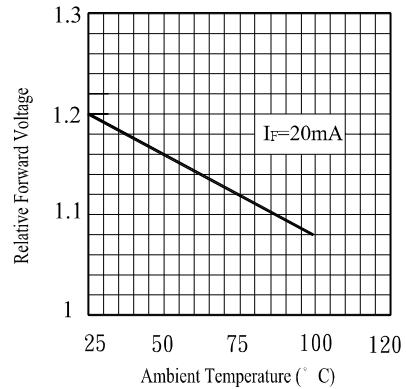
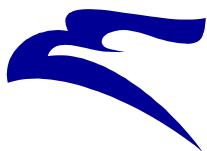


Fig.8 Forward Current vs.

Ambient Temperature(°C)





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## ■ Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs.  
Ambient Temperature

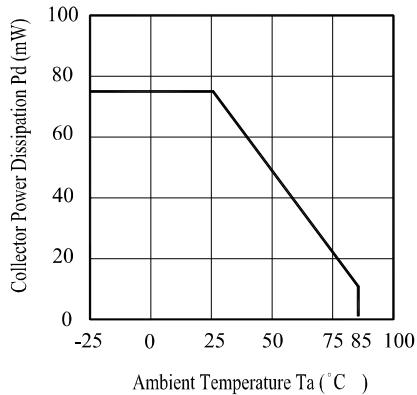


Fig.3 Relative Collector Current vs.  
Ambient Temperature

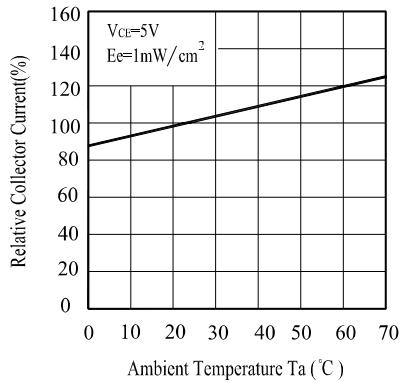


Fig.5 Collector Dark Current vs.

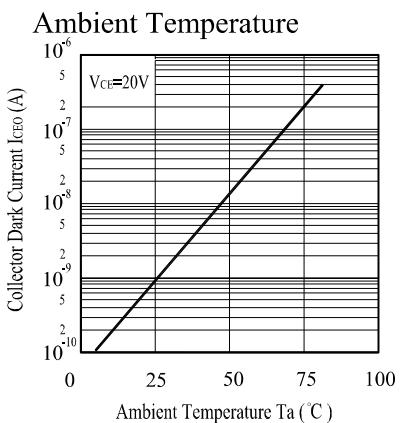


Fig.2 Spectral Sensitivity

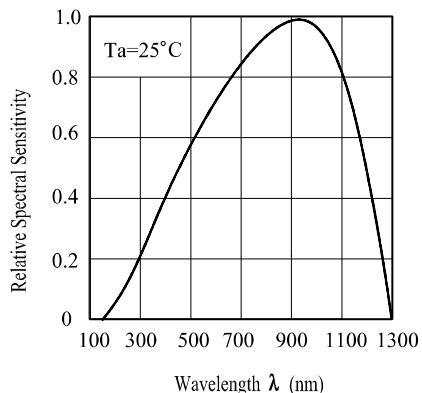


Fig.4 Collector Current vs.

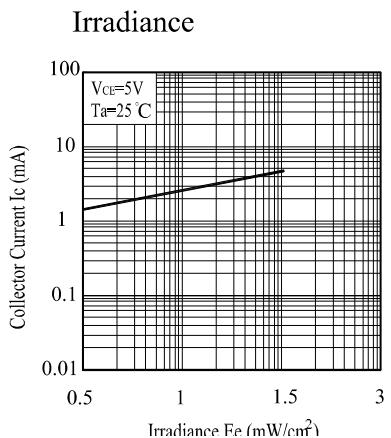


Fig.6 Collector Current vs.

