

## ITR-ST150

### ■ 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

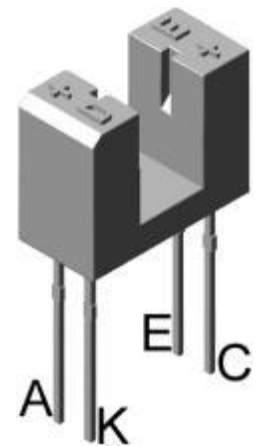
The ITR-ST150 consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black

Thermoplastic

Housing The phototransistor receives radiation from the IRED 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



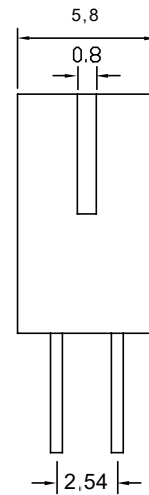
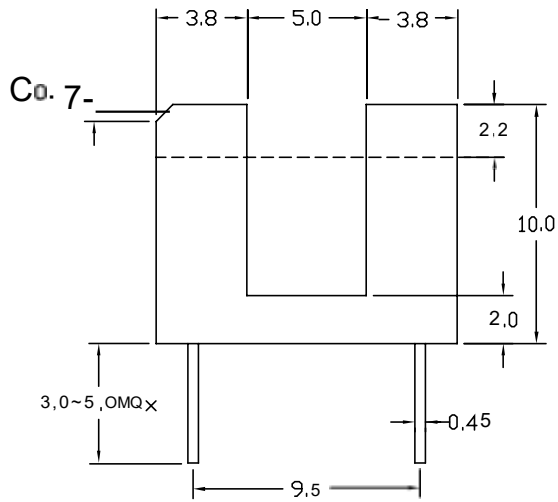
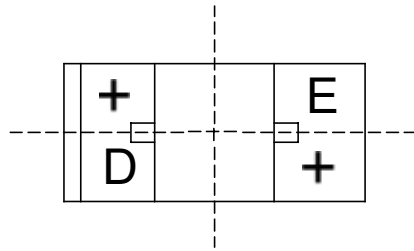
### ■ Applications

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

### ■ Device Selection Guide

Device No.	Chip Material	LENS COLOR
IR928-6C	GaAlAs	Water clear
PT928-6C	Silicon	Water clear

■ Package Dimensions



- A: Anode
- K: Cathode
- C: Collector
- E: Emitter

Dimensional Tolerance  $\pm 0.2\text{mm}$

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

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Forward Current	I <sub>F</sub>	50	mA
	Peak Forward Current (*1) Pulse width ≤100μs, 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>	-20~+65	°C
Storage Temperature	T <sub>stg</sub>	-30~+70	°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 (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=100μs, tp/T=0.01
		V <sub>F3</sub>	---	2.6	4.0		I <sub>F</sub> =1A, tp=100μs, 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	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(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>	0.7	---	---	mA	V <sub>CE</sub> =5V I <sub>F</sub> =20mA
	Rise time	t <sub>r</sub>	---	15	---	μ sec	V <sub>CE</sub> =5V
	Fall time	t <sub>f</sub>	---	15	---	μ sec	I <sub>C</sub> =1mA R <sub>L</sub> =1KΩ

■ Typical Electrical/Optical/Characteristics Curves for IR

Fig.1 Forward Current vs.

Ambient Temperature

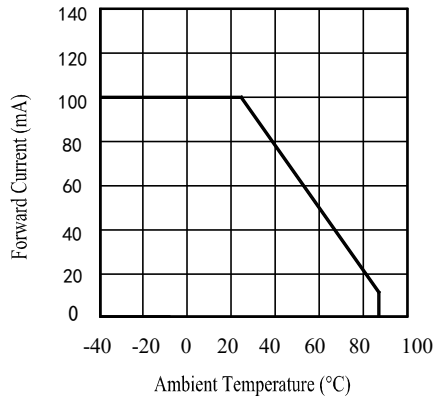


Fig.2 Spectral Distribution

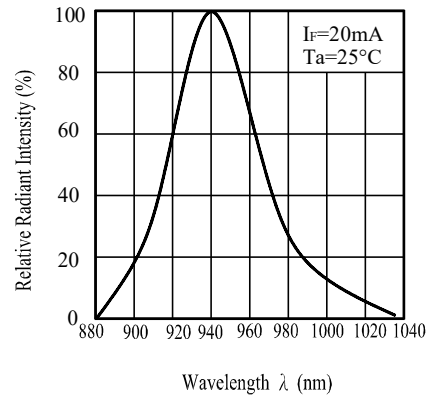


Fig.5 Relative Intensity vs.

Forward Current

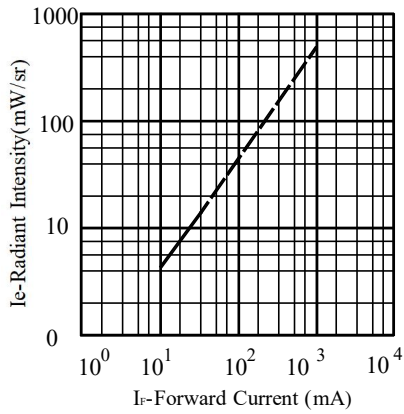


Fig.6 Relative Radiant Intensity vs.

Angular Displacement

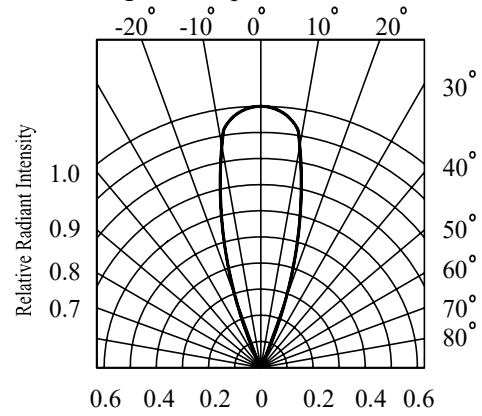


Fig.7 Relative Intensity vs.

Ambient Temperature(°C)

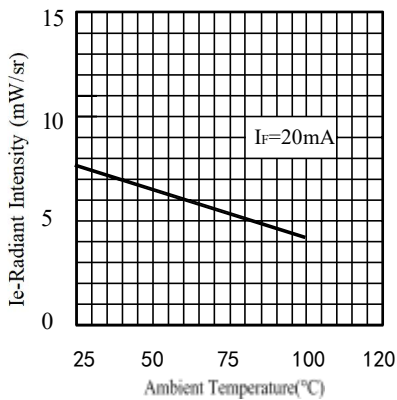
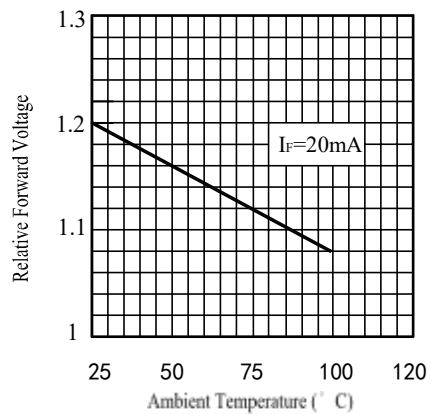


Fig.8 Forward Current vs.

Ambient Temperature(°C)



■ Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

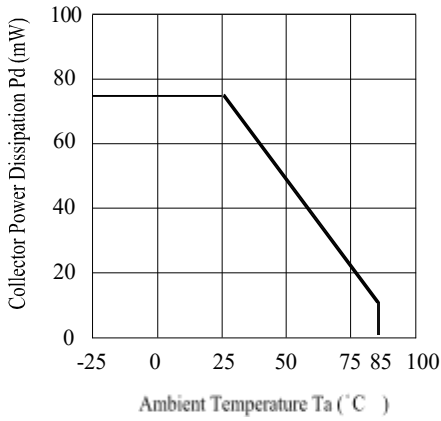


Fig.2 Spectral Sensitivity

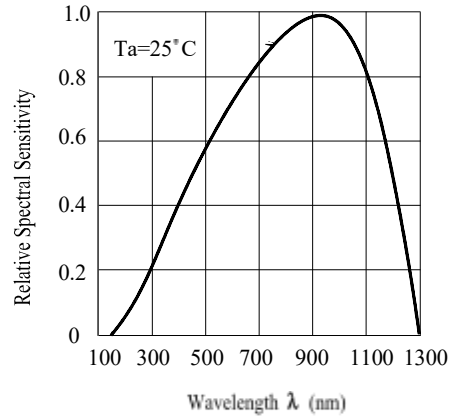


Fig.3 Relative Collector Current vs. Ambient Temperature

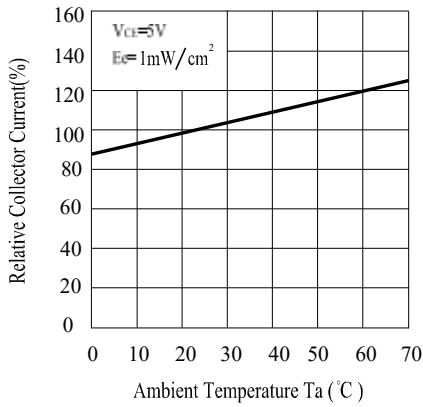


Fig.4 Collector Current vs. Irradiance

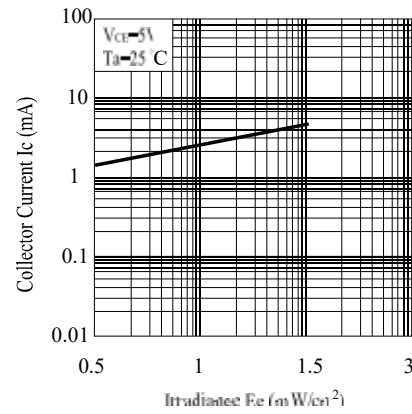


Fig.5 Collector Dark Current vs. Ambient Temperature

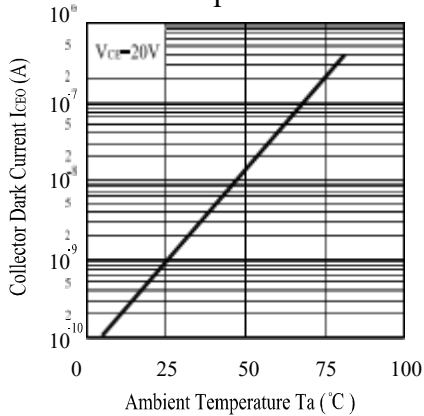


Fig.6 Collector Current vs. Collector-Emitter Voltage

