

Opto Interrupter ITR9909

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
- Copliance with EU REACH
- Compliance Halogen Free. (Br < 900 ppm , Cl < 900ppm , Br+Cl < 1500ppm)

Description

- The ITR9909 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 object is in between , phototransistor could not receives the radiation.
- For additional component information , please refer to IR and PT

Applications

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

Device Selection Guide

Device No.	Chip Materials	Lens Color
IR	GaAlAs	Blue
PT	Silicon	Black

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 _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1) Pulse width ≤ 100μs, Duty cycle=1%	I _{FP}	1	A
Output	Collector Power Dissipation	Pd	75	mW
	Collector Current	I _C	50	mA
	Collector-Emitter Voltage	B V _{CEO}	30	V
	Emitter-Collector Voltage	B V _{ECO}	5	V
Operating Temperature		T _{opr}	-25~+85	°C
Storage Temperature		T _{stg}	-40~+85	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T _{sol}	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	VF	---	1.2	1.5	V	IF=20mA
			---	1.4	1.85		IF=100mA, tp=100μ s,tp/T=0.01
			---	2.6	4.0		IF=1A,tp=100μ s,tp/T=0.01
	Reverse Current	IR	---	---	10	μA	VR=5V
	Peak Wavelength	λP	---	940	---	nm	IF=20mA
Output	Dark C urrent	ICEO	---	---	100	nA	VCE=20V,Ee=0mW/cm ²
	C-E Saturation Voltage	VCE(sat)	---	---	0.4	V	IC=2mA Ee=1mW/cm ²
Transfer Characteristics	Collect Current	IC(ON)	200	---	---	uA	VCE=5V IF=20mA
	Rise time	tr	---	15	---	μsec	VCE=5V,IC=1mA ,RL=1000Ω
	Fall time	tf	---	15	---	μsec	

Note:

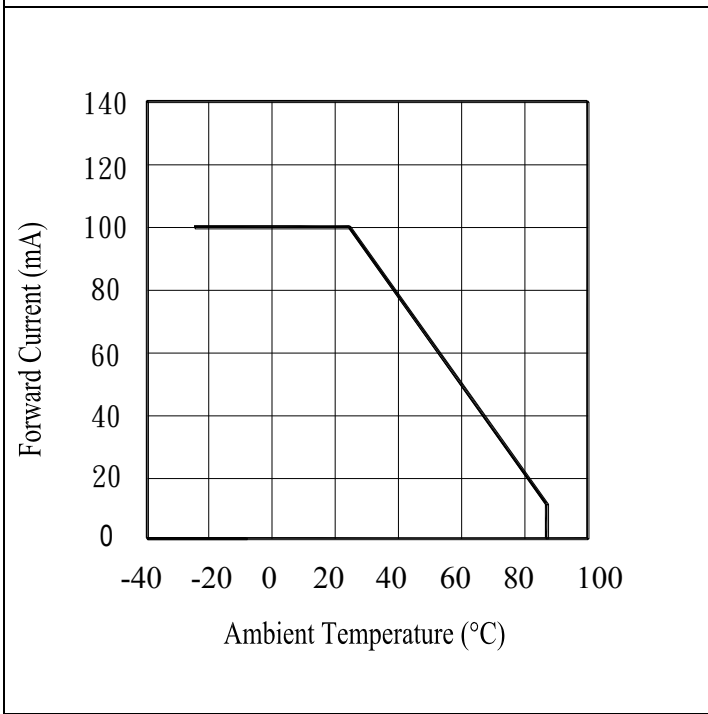
*Measurement Uncertainty of Forward Voltage: ±0.1V

*Measurement Uncertainty of Luminous Intensity: ±10%

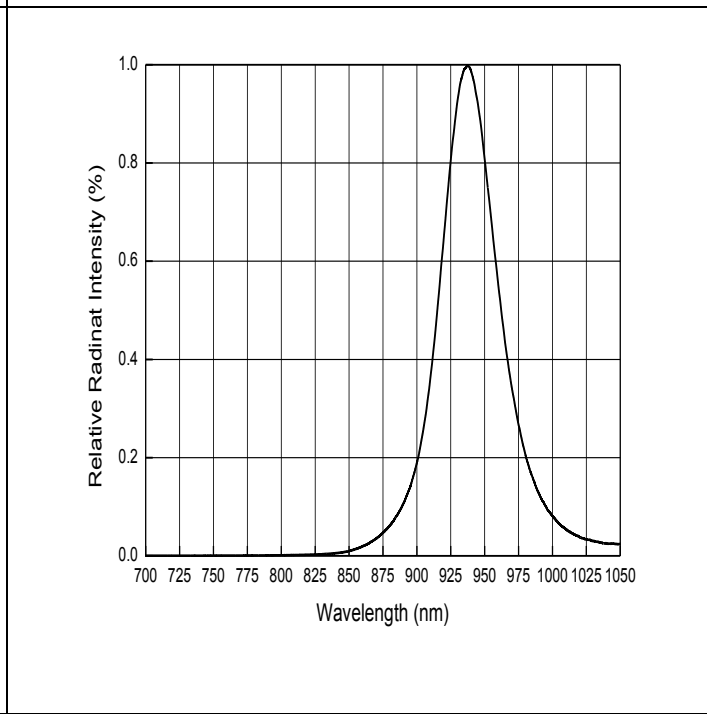
*Measurement Uncertainty of Dominant Wavelength ±1.0nm

Typical Electrical/Optical/Characteristics Curves for IR

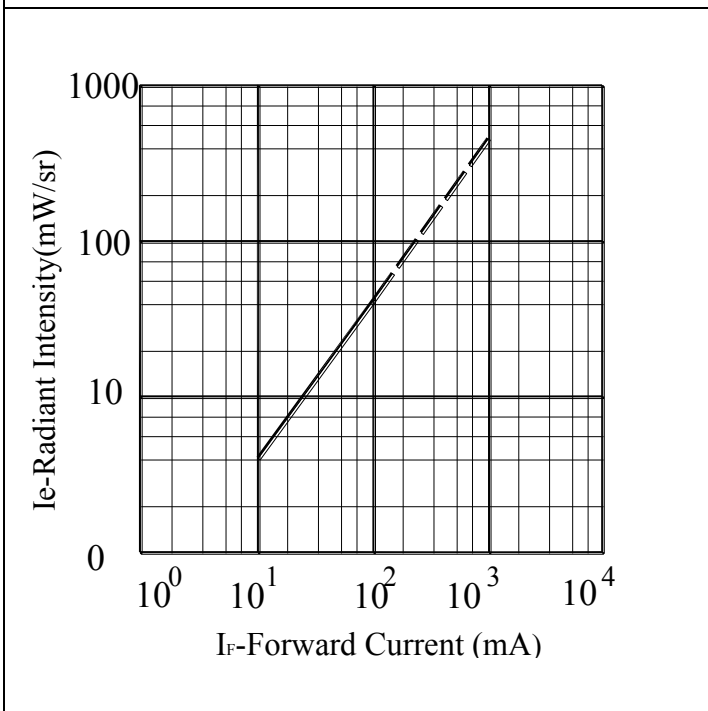
Forward Current vs. Ambient Temperature



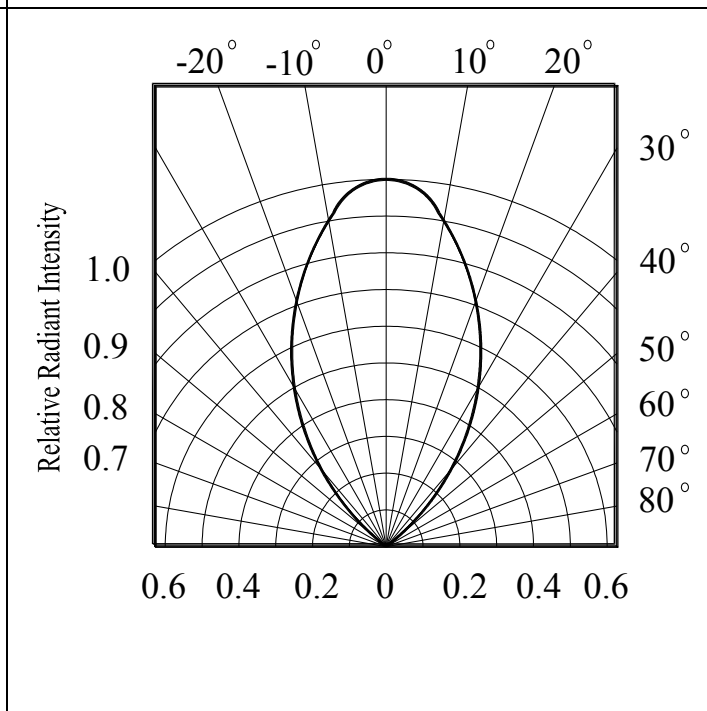
Spectral Sensitivity



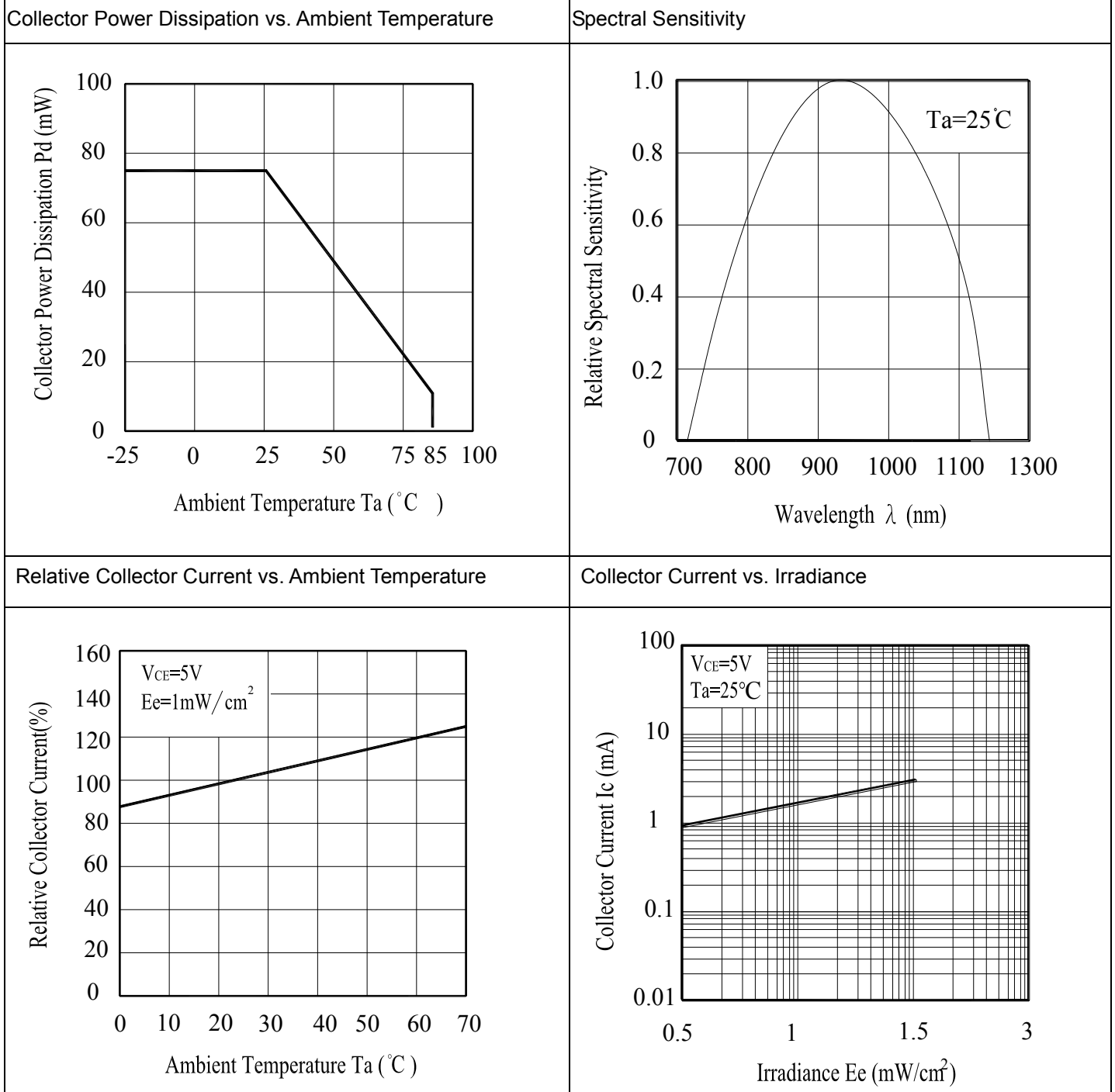
Relative Radiant Intensity vs Forward Current



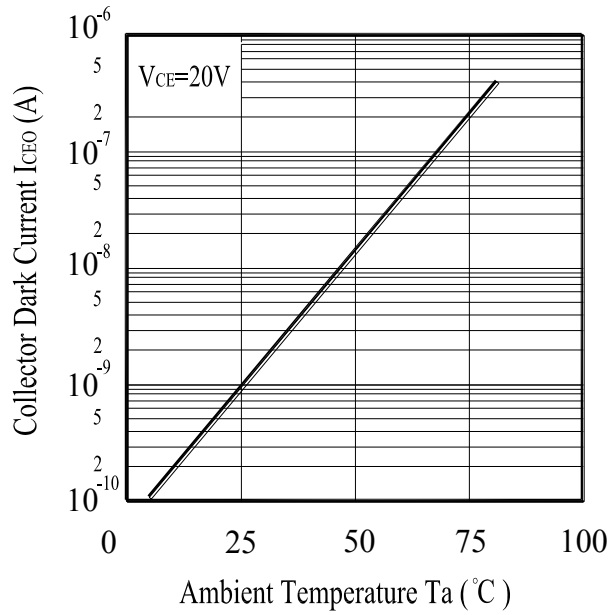
Relative Radiant Intensity vs Angular Displacement



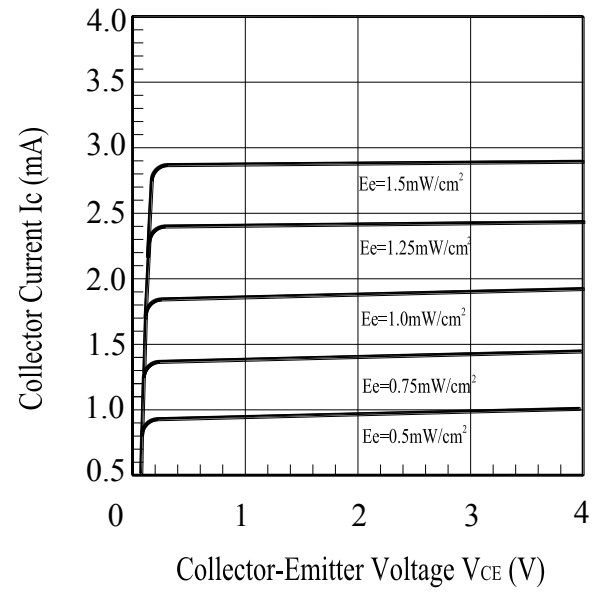
Typical Electrical/Optical/Characteristics Curves for PT



Collector Dark Current vs. Ambient Temperature

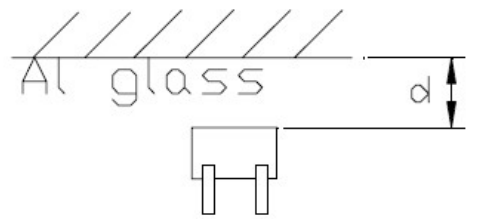
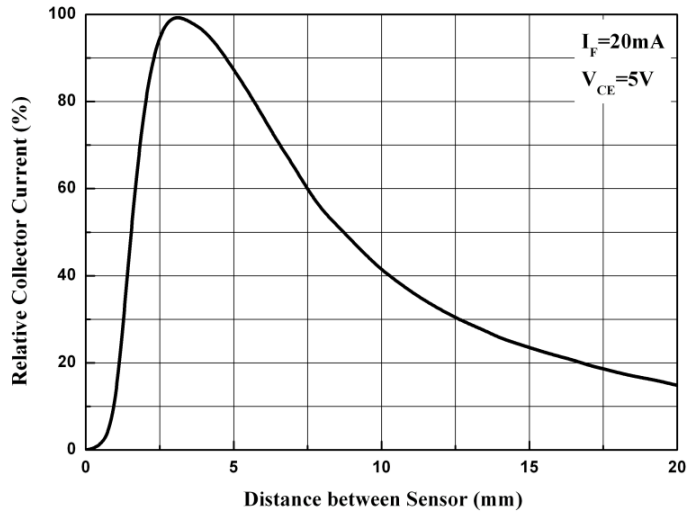


Collector Current vs. Collector-Emitter Voltage

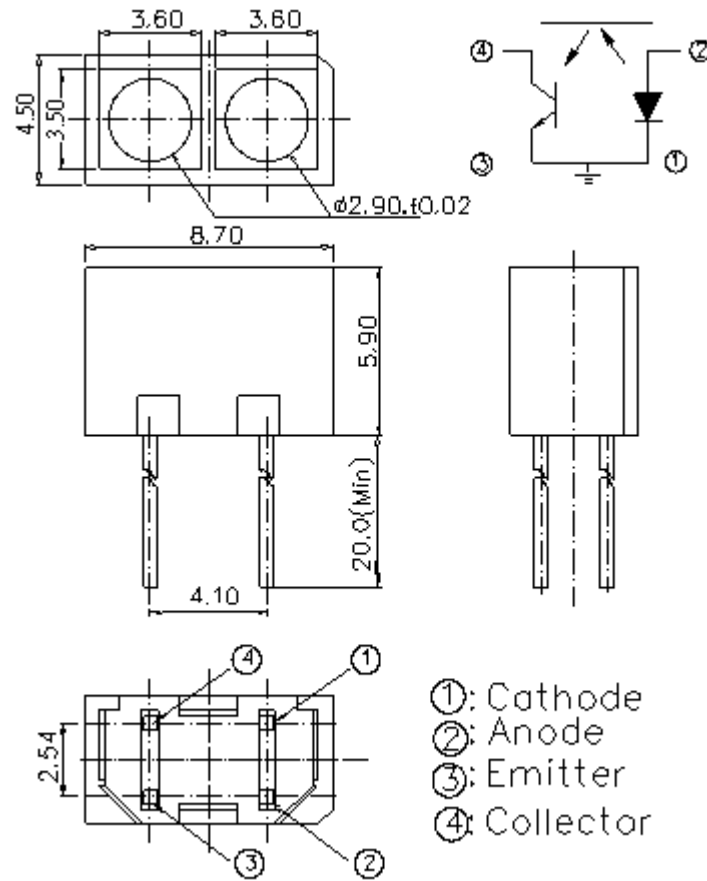


Typical Electrical/Optical/Characteristics Curves for ITR

Relative Collector Current vs Distance Between Sensor



Package Dimension

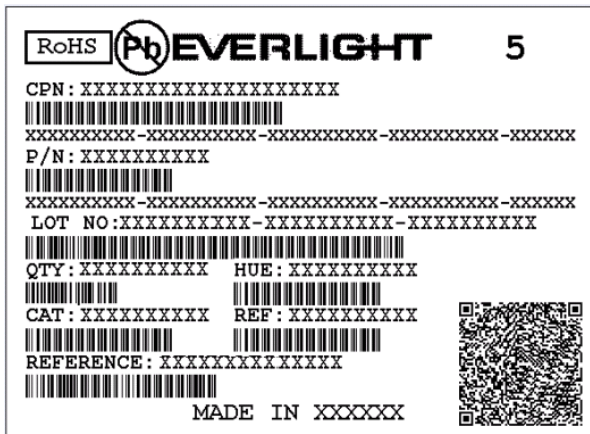


Note: Tolerances unless dimensions $\pm 0.25\text{mm}$

Packing Quantity Specification

1. 150PCS/1 Bag, 5 Bags/1Box
2. 10Boxes/1Carton

Label Form Specification



- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- X: Month
- Reference: Identify Label Number

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