EVERCOLORS

Interrupter

MODEL NO : ITR9909

Features :

- Fast response time
- High analytic
- Cut-off visible wavelength λp=840nm
- High sensitivity

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 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 **IR1254-R8** and **PT1254-6B**.

Applications :

- Mouse Copier
- Switch Scanner
- Non-contact Switching
- For Direct PC Board

PART NO.	CHIP MATERIAL	LENS COLOR
IR	GaAlAs	Blue
PT	Silicon	Black

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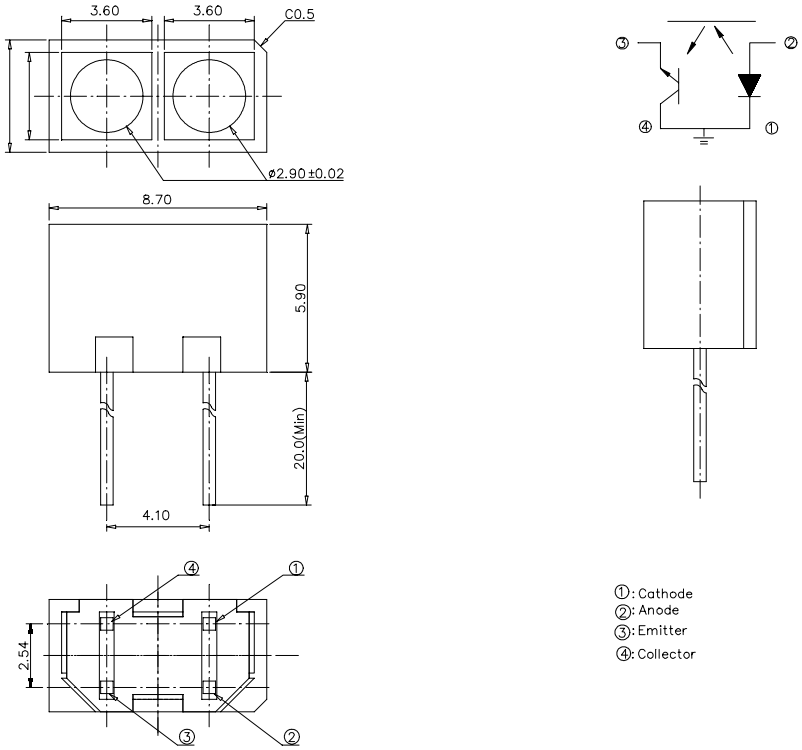
Package Dimension :



Notes :

1.All dimensions are in millimeter.

2.General tolerance: ±0.2mm

3.Lead spacing is measured where the lead emerge from the package.

4.Above specification may be changed without notice. EVERCOLORS will reserve authority on material change for above specification.

5.These specification sheets include materials protected under copyright of EVERCOLORS corporation . Please don't reproduce or cause anyne to reproduce them without EVERCOLORS's consent.

6.When using this product , please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERCOLORS 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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■ Absolute Maximum Ratings at T_A = 25℃

Parameter		Symbol	Rating	Unit
Input	Power Dissipation	P_D	160	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	60	mA
	Peak Forward Current(*1)	I_{FP}	1	A
Output	Collect Power Dissipation	Pc	100	mW
	Collect Current	Ic	20	mA
	Collector-Emitter Voltage	V_{CE}	30	V
	Emitter-Collector Voltage	V_{EC}	5	V
Operating Temperature		Topr	-25~+85	℃
Storage Temperature		Tstg	-40~+85	℃
Soldering Temperature(*2)		Tsol	260	℃

(*1) tw=10 μ secs, T=10 m secs (*2) t=5 secs

■ Electronic Optical Characteristics at T_A = 25℃:

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V_{F1}	-	1.2	1.5	V	I_F=20mA
		V_{F2}	-	1.4	1.85		I_F=100mA,tp=100 μ s,tp/T=0.01
		V_{F3}	-	2.6	4.0		I_F=1A,tp=100 μ s,tp/T=0.01
	Reverse Current	I_R	-	-	10	μ A	V_R=5V
	Peak Wavelength	λ_P	-	940	-	nm	
	View Angle	$2\theta 1/2$	-	35	-	Deg	I_F=20mA
Output	Dark Current	I_{CEO}	-	-	100	nA	V_{CE}=20V,Ee=0mW/cm^2
	C-E Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	I_C=2mA,I_B=0.1mA
Collect Current		$I_{C(ON)}$	0.2	-	-	mA	V_{CE}=5V,I_F=20mA
Leakage Current		I_{CEOD}	-	-	1	μ A	
Response Time	Rise Time	t_R	-	15	-	μ sec	V_{CE}=5V,I_C=1mA,R_L=1KΩ
	Fall Time	t_F	-	15	-	μ sec	

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■ Typical Electrical/Optical/Characteristics Curves For IR

Fig. 1 Forward Current vs. Ambient Temperature

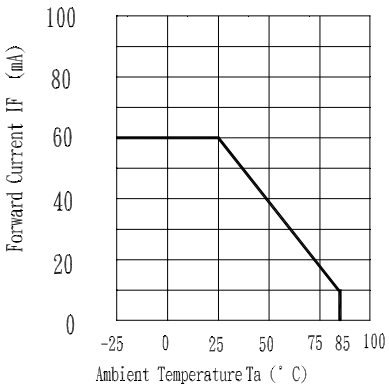


Fig. 2 Spectral Distribution

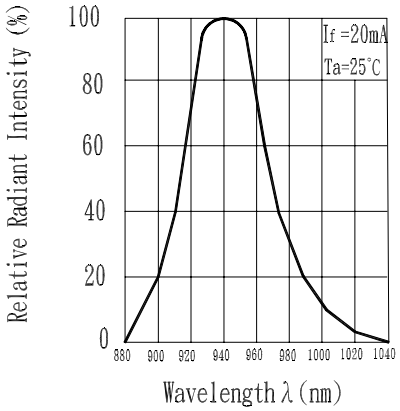


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

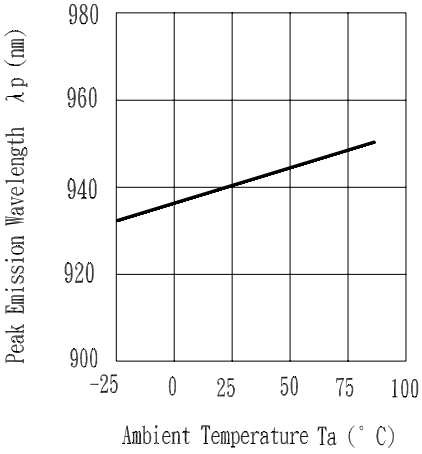


Fig. 4 Forward Current vs. Forward Voltage

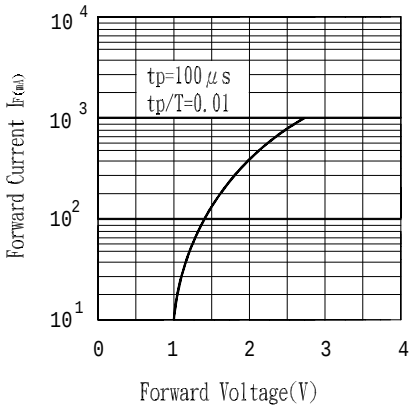


Fig. 5 Relative Intensity vs. Forward Current

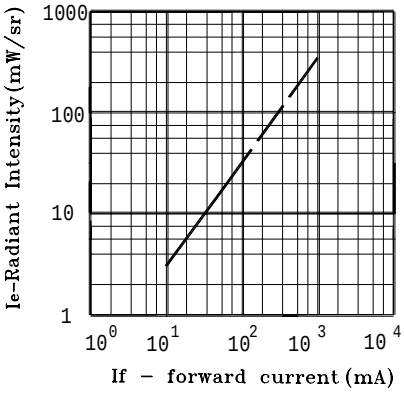
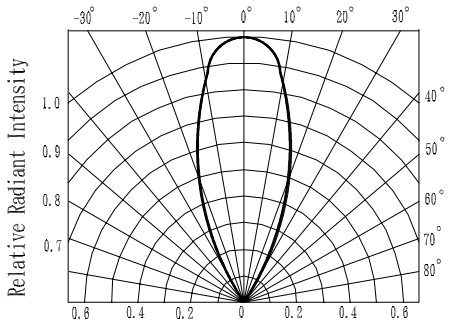


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



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■ Typical Electrical/Optical/Characteristics Curves For PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

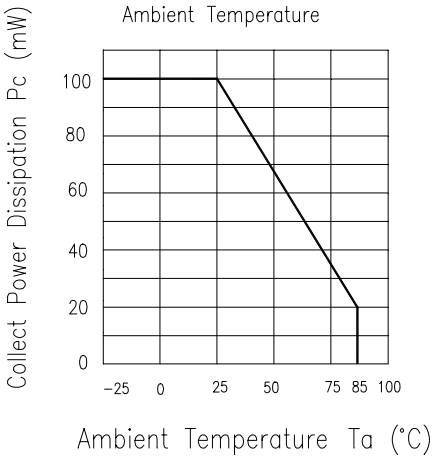


Fig.2 Collector Dark Current vs. Ambient Temperature

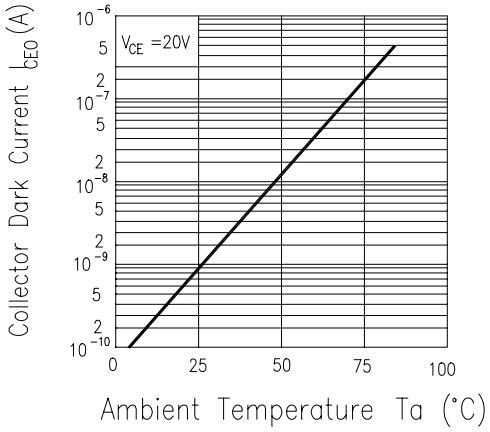


Fig. 3 Relative Collector Current vs. Ambient Temperature

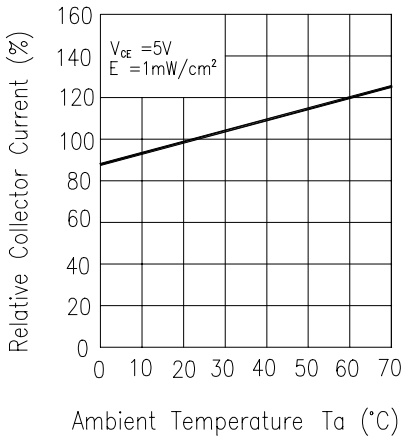


Fig.4 Collector Current vs. Irradiance

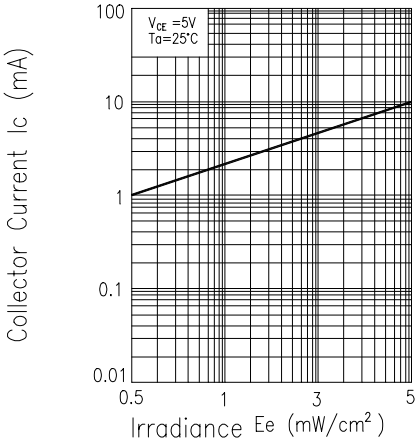


Fig.5 Spectral Sensitivity

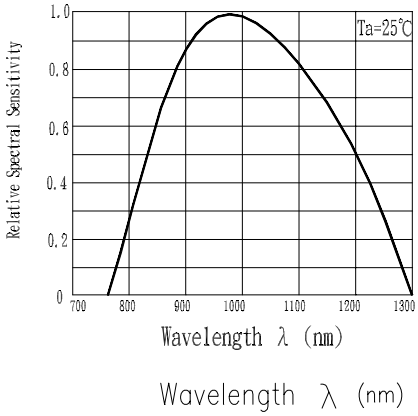
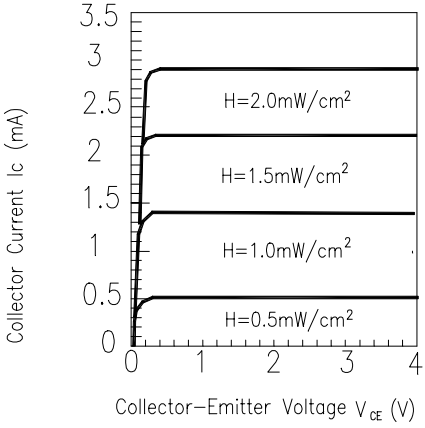


Fig.6 Collector Current vs. Collector−Emitter Voltage



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■ Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.
Confidence level:90%
LTPD:10%

NO.	Item	Test Conditions	Test Hours/ Cycle	Sample Size	Failure Judgement Criteria	Ac/Re
1	**Solder Heat**	TEMP : 260℃ ± 5 ℃	5 sec	22 PCs	$I_{c(on)} \leqq L \times 0.8$ L :Lower specification limit	0/1
2	**Temperature Cycle**	H : +85℃ 30 min ↕ 5 min L : -55℃ 30 min	50 cycle	22 PCs		0/1
3	**Thermal Shock**	H : +100℃ 5 min ↕ 10 sec L : -10℃ 30 min	50 cycle	22 PCs		0/1
4	**High Temperature Storage**	TEMP. : +100℃	1000 hrs	22 PCs		0/1
5	**Low Temperature Storage**	TEMP. : -55℃	1000 hrs	22 PCs		0/1
6	**DC Operating Life**	V_{CE}=5V	1000 hrs	22 PCs		0/1
7	**High Temperature / High Humidity**	85℃ / 85% R.H.	1000 hrs	22 PCs		0/1