



DATA SHEET

MODEL NO : ITR20001/T

DATE : AUG, 15, 2000

DEPARTMENT : CHR&D 2

REVISION : 1

RECEIVED			
<input checked="" type="checkbox"/> MASS PRODUCTION			
<input type="checkbox"/> PRELIMINARY			
<input type="checkbox"/> CUSTOMER DESIGN			
DEVICE NUMBER : CDRX-200-006			
PAGE :8			
CUSTOMER	DESIGNER	CHECKER	APPROVER

REV	DESCRIPTION	RELEASE DATE

OFFICE: NO 25,Lane 76,Chung Yang Rd, Sec.3 Tucheng, Taipei 236, Taiwan, R.O.C.

TEL : 886-2-2267-2000,2266-9936 (22 Lines)

FAX : 886-2-2267-6189

<http://www.everlight.com>



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Interrupter

MODEL NO : ITR20001/T

■ Features :

- Fast response time
- High analytic
- Cut-off visible wavelength $\lambda_p=840\text{nm}$
- High sensitivity
- Pd free

■ Description :

The **ITR20001/T** 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 could not receive radiation from the IRED. 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 **IR2424-3C** and **PT2424-6B**.

■ Applications :

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

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



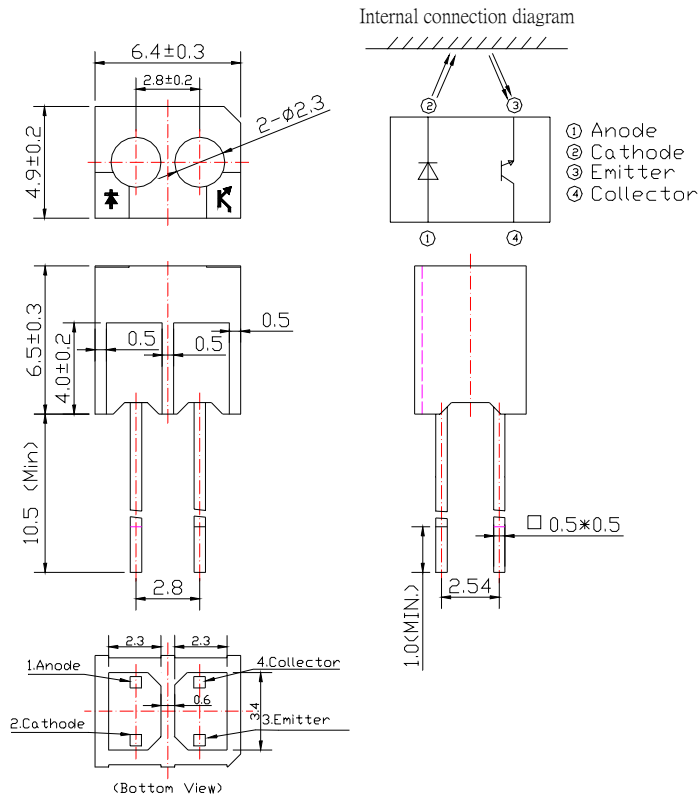
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Interrupter

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Package Dimension :



Notes :

1. All dimensions are in millimeter.
2. General tolerance: ± 0.3 mm
3. Lead spacing is measured where the lead emerge from the package.
4. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
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6. When using this product , please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERIGHT 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 $T_A = 25^\circ\text{C}$

Parameter		Symbol	Rating	Unit
Input	Power Dissipation	P_D	100	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current(*1)	I_{FP}	1	A
Output	Collect Power Dissipation	P_C	75	mW
	Collect Current	I_C	20	mA
	Collector-Emitter Voltage	V_{CE}	30	V
	Emitter-Collector Voltage	V_{EC}	5	V
Operating Temperature		T_{opr}	-25~+85	$^\circ\text{C}$
Storage Temperature		T_{stg}	-40~+85	$^\circ\text{C}$
Soldering Temperature(*2)		T_{sol}	260	$^\circ\text{C}$

(*1) Pause width= 100 μs , Duty Cycle=1% (*2) $t=5$ secs

■ Electronic Optical Characteristics at $T_A = 25^\circ\text{C}$:

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	V_{F1}	-	1.2	1.5	V	$I_F=20\text{mA}$
		V_{F2}	-	1.4	1.85		$I_F=100\text{mA}, t_p=100\mu\text{s}, t_p/T=0.01$
		V_{F3}	-	2.6	4.0		$I_F=1\text{A}, t_p=100\mu\text{s}, t_p/T=0.01$
	Reverse Current	I_R	-	-	10	μA	$V_R=5\text{V}$
	Peak Wavelength	λ_P	-	940	-	nm	$I_F=20\text{mA}$
	View Angle	$2\theta_{1/2}$	-	35	-	Deg	$I_F=20\text{mA}$
Output	Dark Current	I_{CEO}	-	-	100	nA	$V_{CE}=5\text{V}, E_e=0\text{mW}/\text{cm}^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_C=0.04\text{mA}, I_F=40\text{mA}$
Collector Current(*3)		$I_{C(ON)}$	0.04	-	1.6	mA	$V_{CE}=5\text{V}, I_F=20\text{mA}$
		$I_{C(OFF)}$	-	-	2	μA	
Response Time	Rise Time	t_R	-	25	-	μs	$V_{CE}=5\text{V}, I_C=100\mu\text{A}$, $R_L=100\Omega$
	Fall Time	t_F	-	25	-	μs	

(*3) $I_{C(on)}$ at the testing condition—with reflector in 5mm away,

$I_{C(off)}$ at the testing condition—without reflector and external light less than 10 Lux at the module surface.



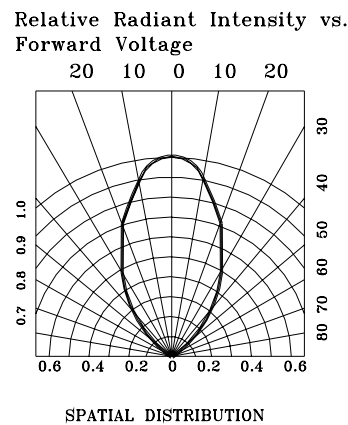
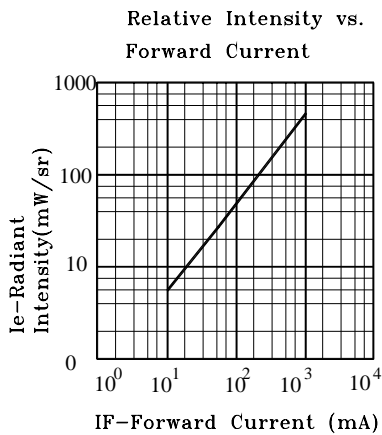
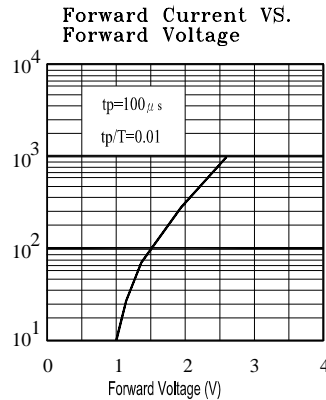
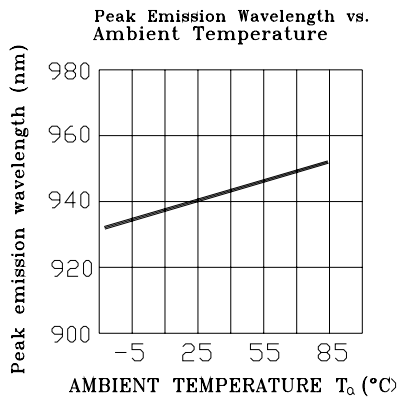
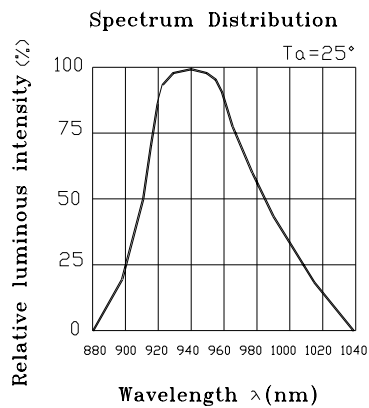
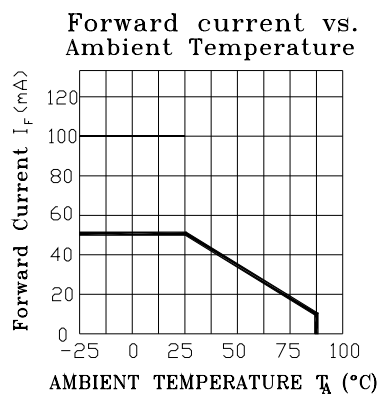
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Interrupter

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■ Typical Electrical/Optical/Characteristics Curves For IR





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■ Typical Electrical/Optical/Characteristics Curves For PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

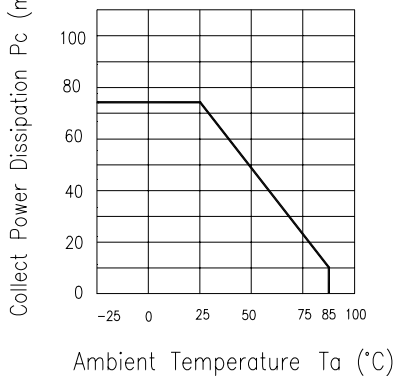


Fig.2 Collector Dark Current vs. Ambient Temperature

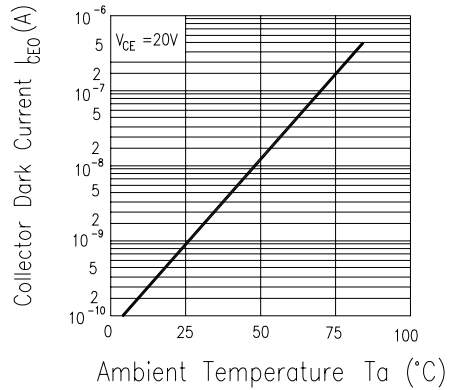


Fig. 3 Relative Collector Current vs. Ambient Temperature

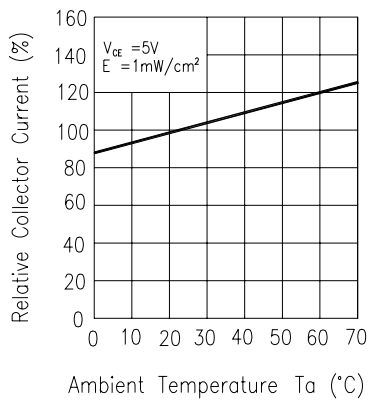


Fig.4 Collector Current vs. Irradiance

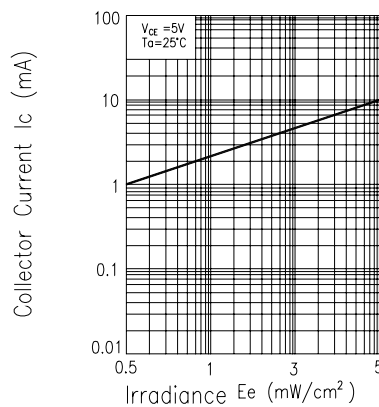


Fig.5 Spectral Sensitivity

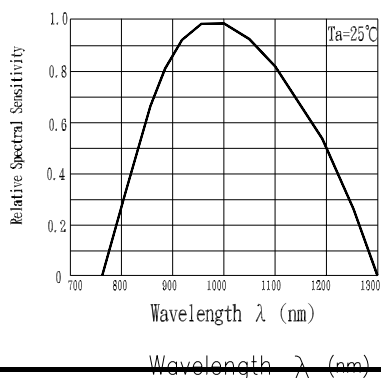
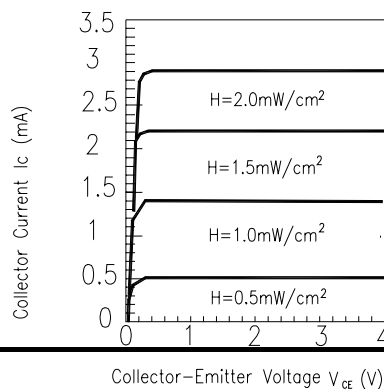


Fig.6 Collector Current vs. Collector-Emitter Voltage



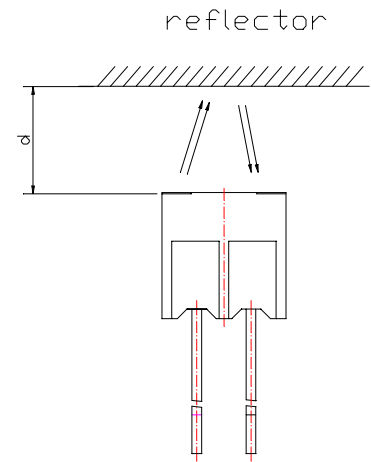
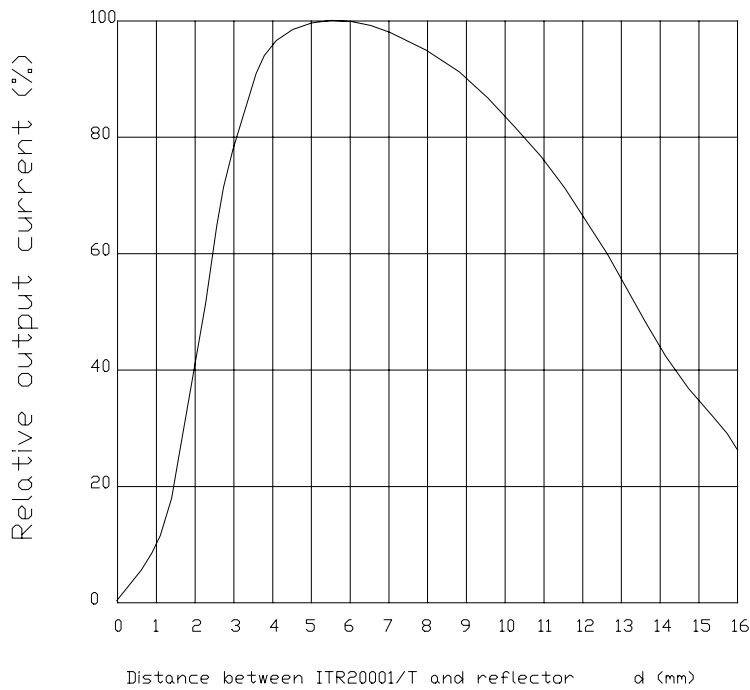


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MODEL NO : ITR20001/T

■ Typical Electrical/Optical/Characteristics Curves For ITR

Relative output current vs. detecting distance





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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°C ± 5 °C	5 secs	22 pcs	$I_{c(on)} \leq L \times 0.8$ L :Lower specification limit	0/1
2	Temperature Cycle	H : +85°C 30 mins ↑ 5 mins ↓ L : -55°C 30 mins	50 cycles	22 pcs		0/1
3	Thermal Shock	H : +100°C 5 mins ↑ 10 secs ↓ L : -10°C 30 mins	50 cycles	22 pcs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000 hrs	22 pcs		0/1
5	Low Temperature Storage	TEMP. : -55°C	1000 hrs	22 pcs		0/1
6	DC Operating Life	$V_{CE}=5V$ $I_F=20mA$	1000 hrs	22 pcs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 pcs		0/1



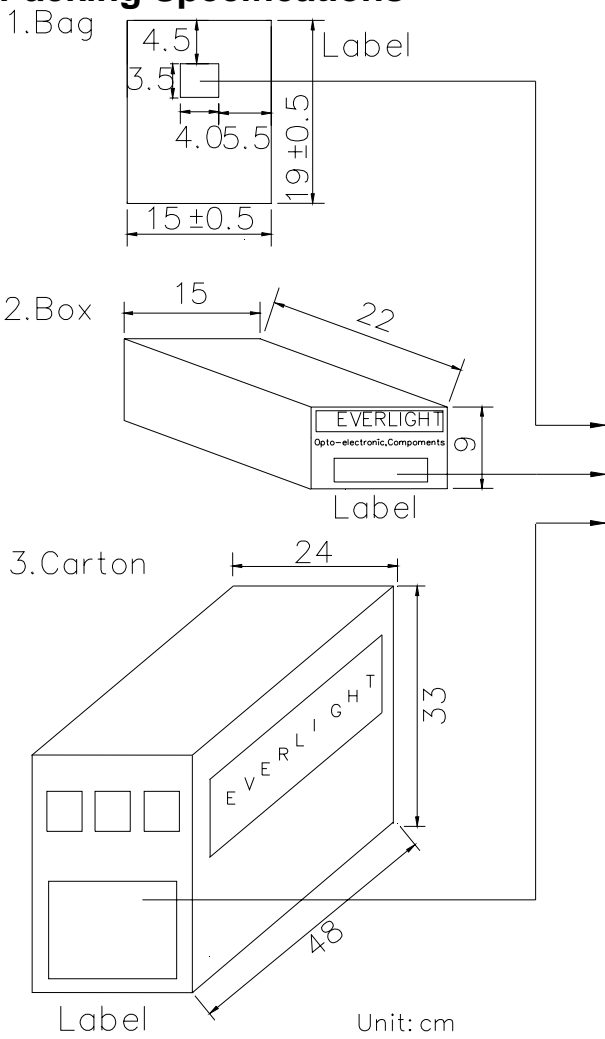
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■ Packing Specifications



CPN:

P/N:



ITR20001/T

QTY:



CAT:

HUE:

REF:

LOT NO:

CPN : Customer's Production Number

P/N : Production Number

QTY : Packing Quantity

CAT : Ranks

HUE : Peak Wavelength

REF : Reference

LOT NO : Lot Number

■ Packing Quantity Specification

1.150Pcs/1Bag

2.5Bags/1Box

3.10Boxes/1Carton

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