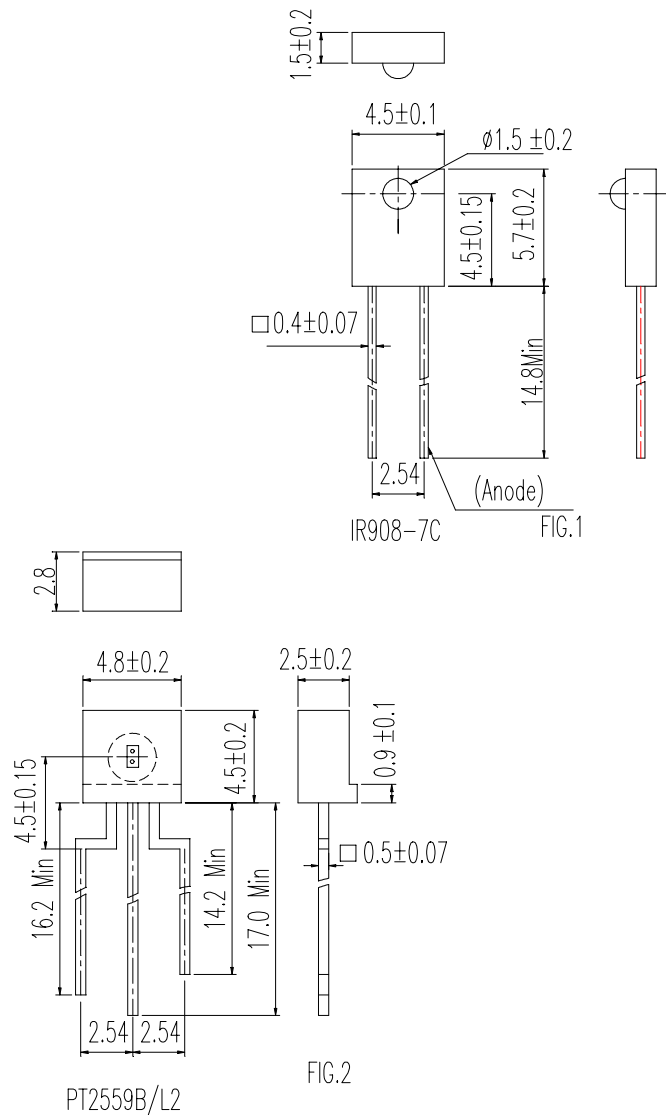


■ Package Dimensions :

Unit:mm



DESIGNER	CHECKER	APPROVED

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GUANG ZHOU CHINA

Tel: 020-84860913

Fax: 020-84860600



EVERLIGHT ELECTRONICS CO., LTD.

Device Number: CDRX-200-001 REV: 1

MODEL NO: ITR20003-B

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■Description

The **ITR20003-B** is a gallium arsenide infrared emitting diode coupled with a silicon dual photo transistor. The gap provides a means of interruption.

■Features

ITR:

- Fast response time
- High resolution sensitivity

■Applications

- Mouse
- Opto-electronic Switch

Absolute Maximum Ratings (Ta=25°C)

Item		Symbol	Rating	Unit
Input	Power Dissipation	Pd	75	mW
	Reverse Voltage	V _R	5	V
	Forward Current	I _F	50	mA
	Peak Forward Current (*1)	I _{FP}	1	A
Output	Collector Power Dissipation	Pc	75	mW
	Collector Current	Ic	30	mA
	Collector-Emitter Voltage	V _{CE0}	30	V
	Emitter-Collector Voltage	V _{EC0}	5	V
Operation Temperature		Topr	-25~+85	°C
Storage Temperature		Tstg	-40~+85	°C
Soldering Temperature (*2)		Tsol	260	°C

(*1) tw=100 μSec. , T=10 mSec. (*2) 1/16 inch from body for 5 seconds

Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Min	Typ	Max	Unit	Condition
Input	Forward Voltage	V _F		1.2	1.5	V	I _F =20mA
	Reverse Current	I _R			10	μA	V _R =5V
Output	Dark Current	I _{CE0}			100	nA	V _{CE} =20V Ee=0mW/cm ²
Transfer Characteristics	C-E Saturation Voltage	V _{CE(Sat)}			0.4	V	I _C =0.5mA Ee=10mW/cm ²
	Light Current (Use ITR9607 Holder)	I _L	400		750	μA	V _{CE} =5V I _F =4.0mA
	ABS[I _L (Up.PT)-I _L (Down.PT)] (In one ITR)				100	μA	V _{CE} =5V I _F =4.0mA
	Response Time	Rise Time		15	---	μSec	V _{CC} =5V I _C =1mA R _L =1000Ω
		Fall Time		15	---	μSec	

■ Typical Characteristics For IR

Fig. 1 Forward Current vs. Ambient Temperature

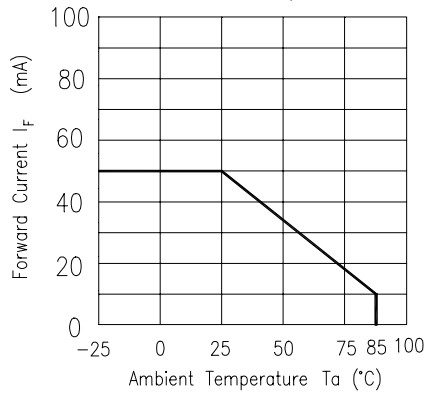


Fig. 2 Spectral Distribution

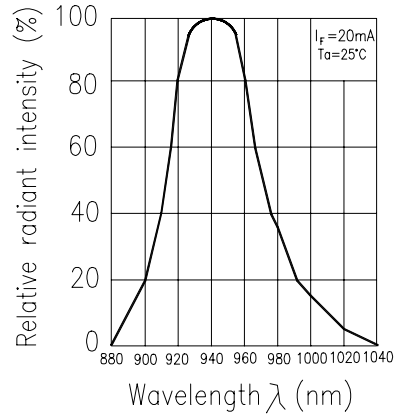


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

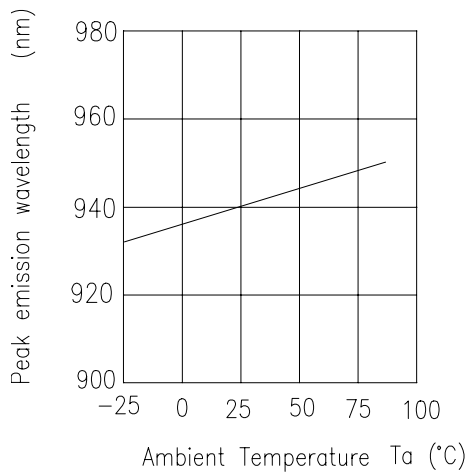


Fig. 4 Forward Current vs. Forward Voltage

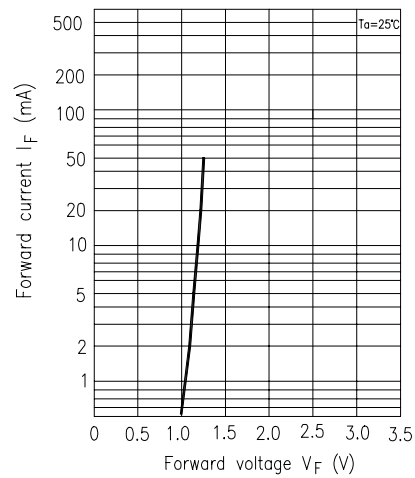


Fig. 5 Forward Voltage vs. Ambient Temperature

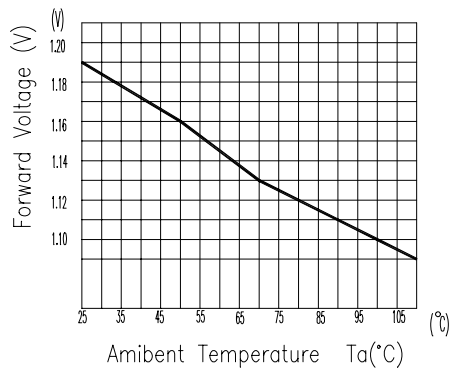
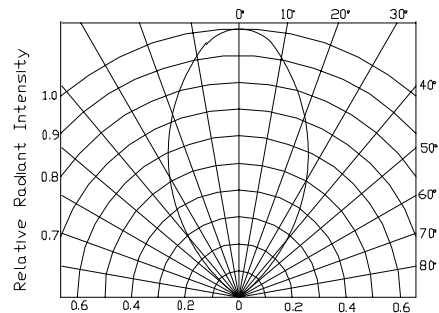


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



■ Typical Characteristics For PT

Fig.1 Collector Power Dissipation vs. Ambient Temperature

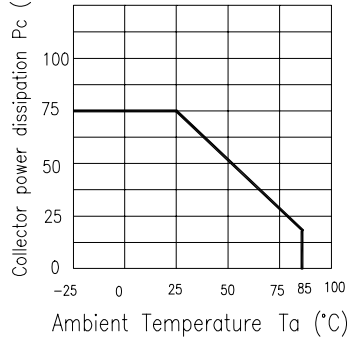


Fig.2 Collector Dark Current vs. Ambient Temperature

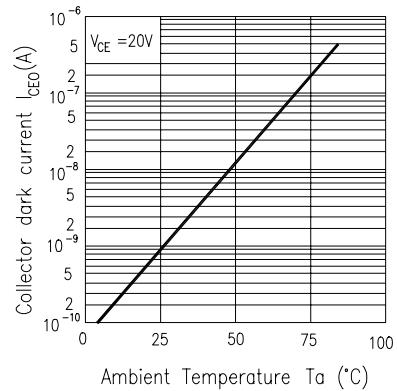


Fig. 3 Relative Collector Current vs. Ambient Temperature

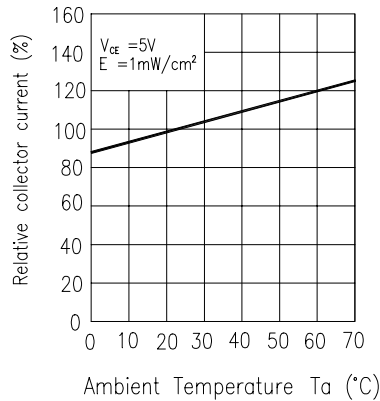


Fig.4 Collector Current vs. Irradiance

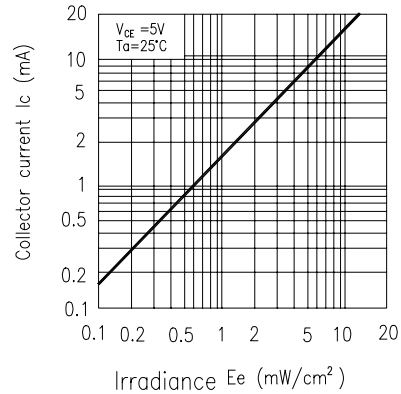


Fig.5 Spectral Sensitivity

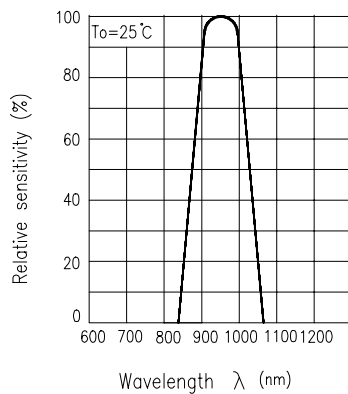
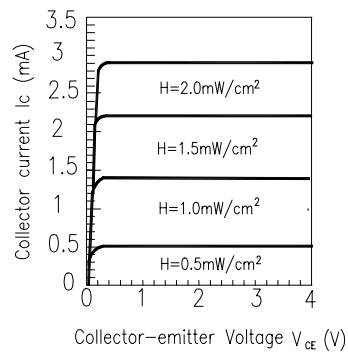


Fig.6 Collector Current vs. Collector-emitter Voltage



Device Number: CDRX-200-001 REV: 1

MODEL NO: ITR20003-B

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■ Reliability

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

Test Items	Test Conditions	Failure Judgement Criteria	Samples(n) Defective(c)
Operation life	$I_F=20\text{mA}$, $T_a: 25^\circ\text{C}$ 1000hrs	$I_R \geq U \times 2$ $I_L \leq L \times 0.8$ $V_F \geq U \times 1.2$ U : Upper specification limit L : Lower specification limit	n = 22, c = 0
Temperature cycle	1 cycle -55°C to $+85^\circ\text{C}$ (30min) (30min) 50 cycle test		n = 22, c = 0
Thermal shock	-10°C to $+100^\circ\text{C}$ (5min) (10sec) (5min) 50cycle test		n = 22, c = 0
High temperature storage	Temp : $+100^\circ\text{C}$ 1000hrs		n = 22, c = 0
Low temperature storage	Temp : -55°C 1000hrs		n = 22, c = 0
High temperature High humidity	$T_a: 85^\circ\text{C}$ RH: 85% 1000hrs		n = 22, c = 0
Solder heat	Temp : $260 \pm 5^\circ\text{C}$ 5sec 4mm Form the bottom of the package.		n = 22, c = 0
Solderability	Temp : $230 \pm 5^\circ\text{C}$ 5sec 4mm Form the bottom of the package.	More than 90% of Lead to be covered by soldering	n = 22, c = 0

■ Supplement

1. Parts

(1) Chip

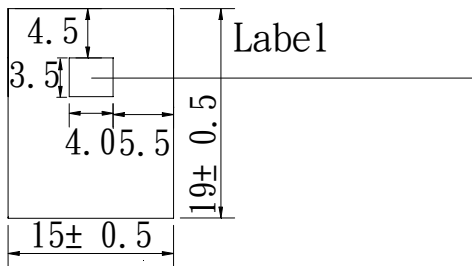
Type	Material	Peak Wavelength
IR	GaAs	940 nm
PT	Silicon	860 nm

(2) Material

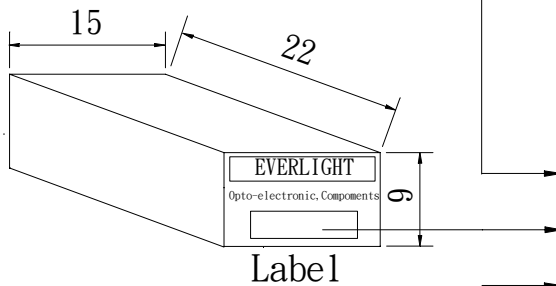
Type	Lead frame	Wire	Part Package
Material	SPCC	Gold	Epoxy

■ Packing Specifications

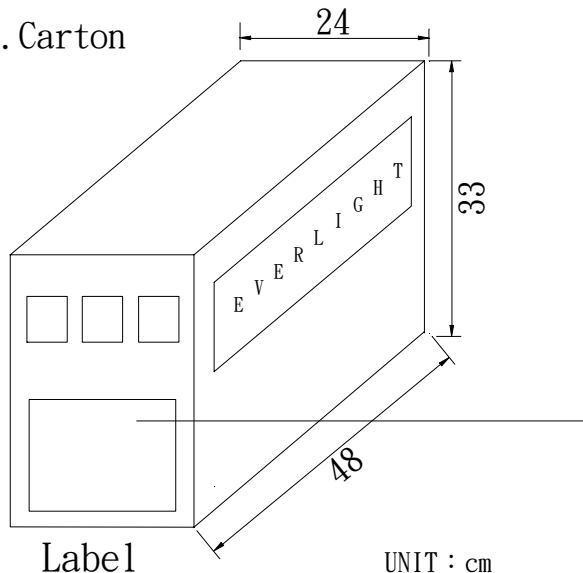
1. Bag



2. Box



3. Carton



CPN: Customer's product number
P/N: Product number
QTY: Packing quantity
CAT: Ranks
HUE: Peak wavelength
REF: Reference
LOT NO: Lot number

UNIT : cm

Packing Quantity Specification

- (1) IR 1000Pcs/1bag , (2) PT 500Pcs/1bag;
- ITR20003-B 2KPcs/1box
- 10boxes/1Carton