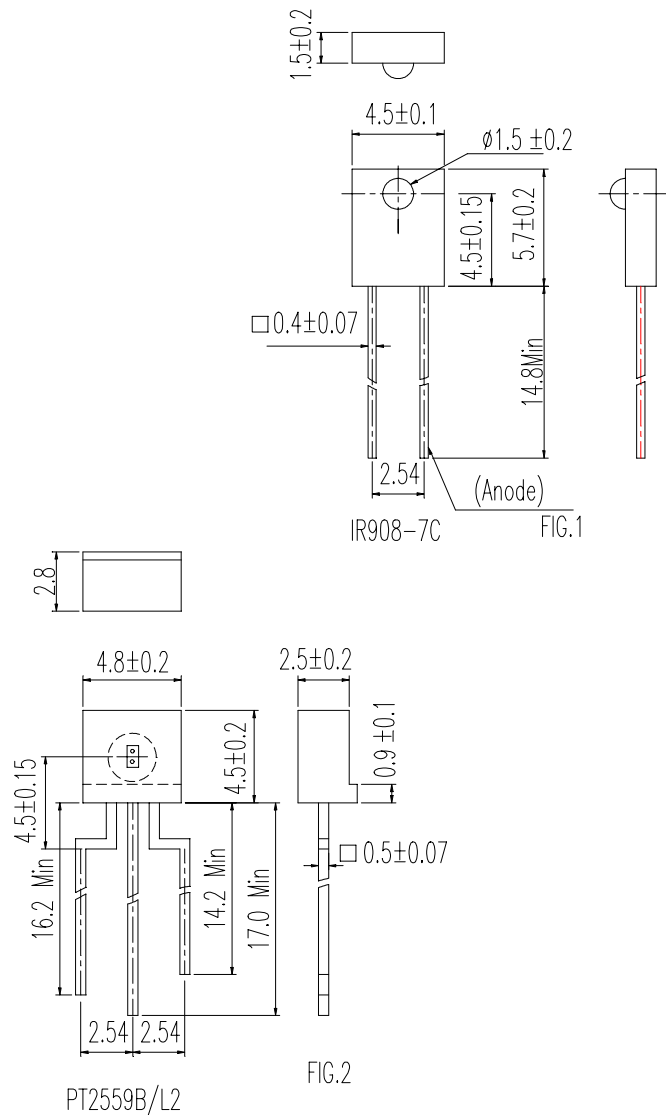


■ Package Dimensions :

Unit:mm



DESIGNER	CHECKER	APPROVED

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Fax: 020-84860600



EVERLIGHT ELECTRONICS CO., LTD.

Device Number: CDRX-200-002 REV: 1

MODEL NO: ITR20003-C

Ecn: Page: 2 of 7

©Notes:

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3. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. No assumes 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.

■Description

The **ITR20003-C** 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) $t_w=100 \mu\text{Sec.}$, $T=10 \text{ mSec.}$ (*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	550		1000	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

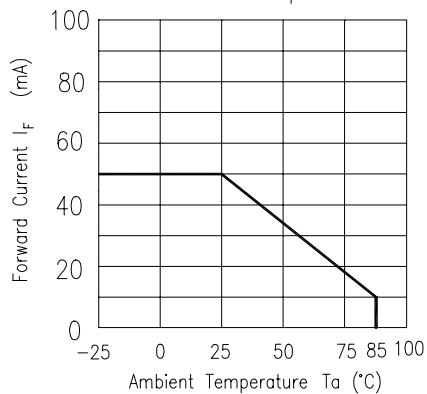


Fig. 2 Spectral Distribution

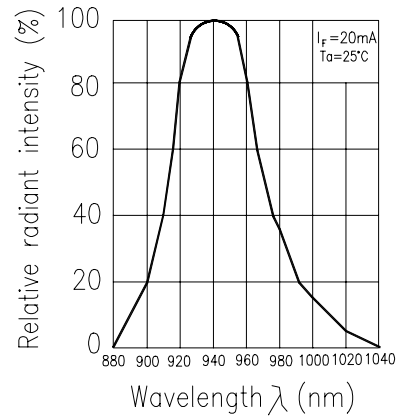


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

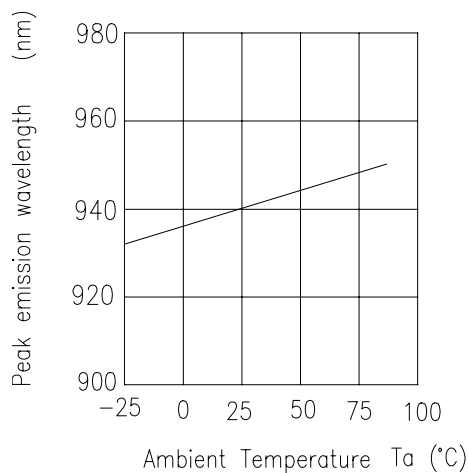


Fig. 4 Forward Current vs. Forward Voltage

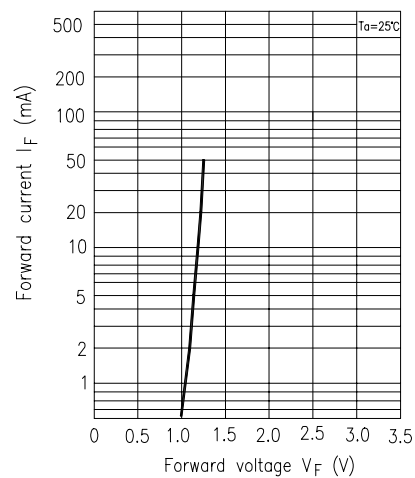


Fig. 5 Forward Voltage vs. Ambient Temperature

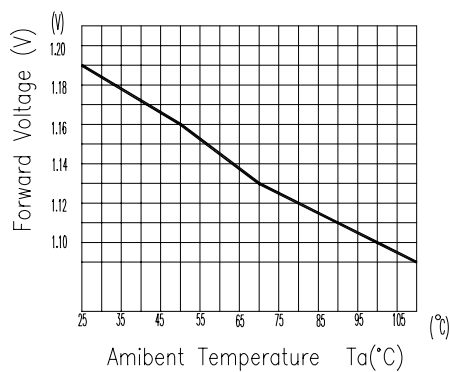
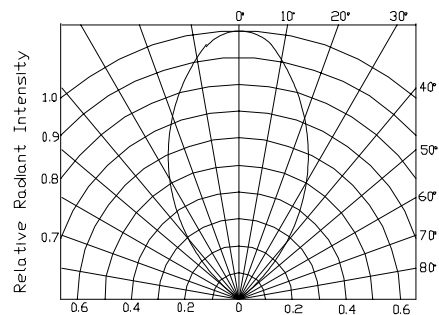
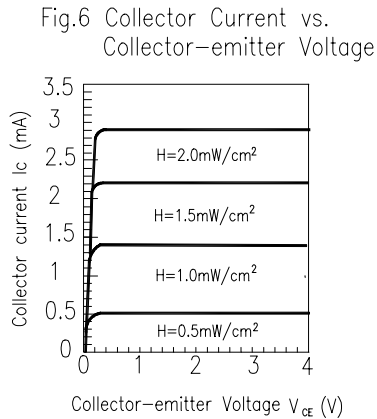
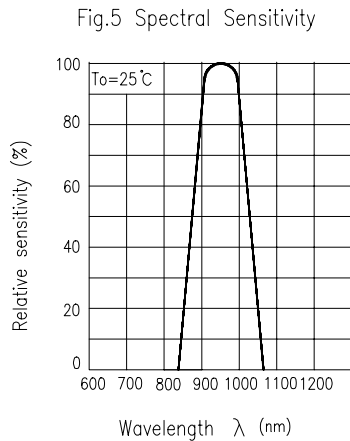
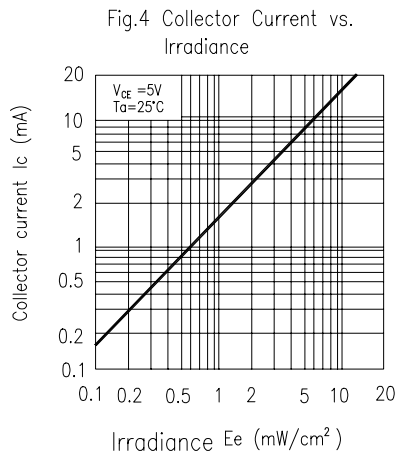
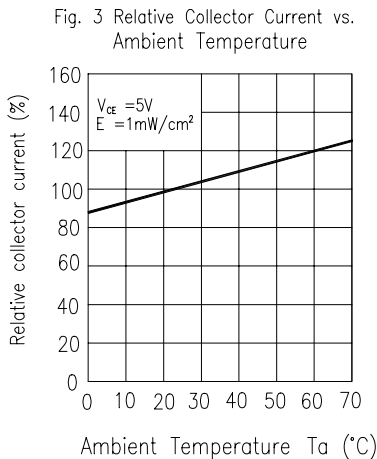
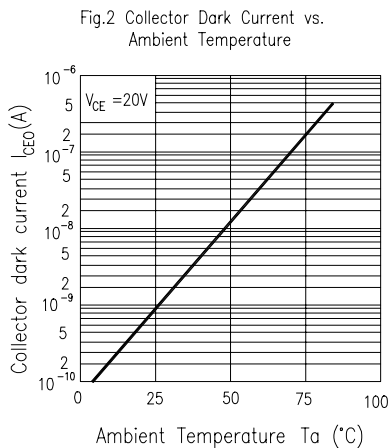
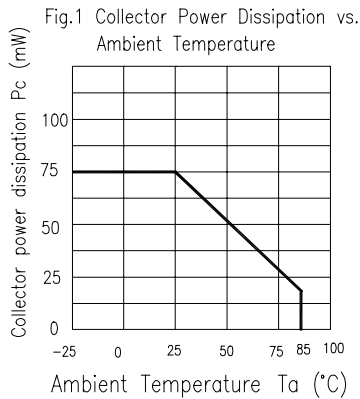


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



Typical Characteristics For PT



■ 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

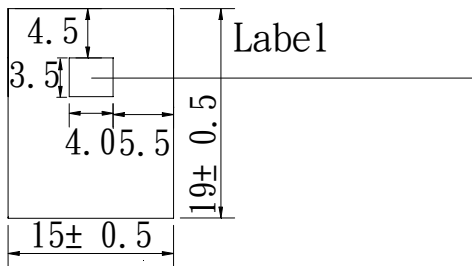
Type	Material	Peak Wavelength
IR	GaAs	940 nm
PT	Silicon	860 nm

(2) Material

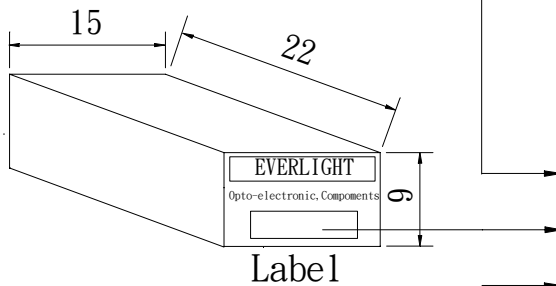
Type	Lead frame	Wire	Part Package
Material	SPCC	Gold	Epoxy

■ Packing Specifications

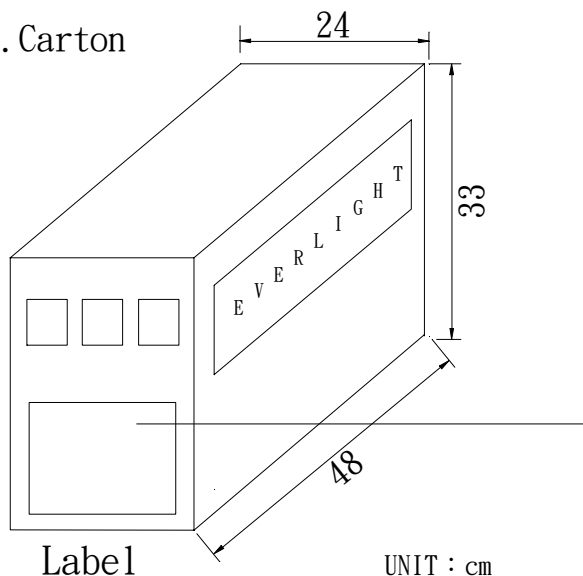
1. Bag



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-C 2KPcs/1box
- 10boxes/1Carton