

ITR20002

Features

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

Description

The **ITR20002** 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 receive the radiation.

Applications

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

Device Selection Guide

Device No.	Chip Material	LENS COLOR
IR	GaAlAs	Water Clear
PT	Silicon	Water Clear

Absolute Maximum Ratings (Ta=25 °C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25 °C Free Air Temperature	Pd	100	mW
	Reverse Voltage	V _R	5	V
	Forward Current	I _F	60	mA
	Peak Forward Current (*1) Pulse width 100 μs, Duty cycle=1%	I _{FP}	1	A
Output	Collector Power Dissipation	P _C	80	mW
	Collector Current	I _C	20	mA
	Collector-Emitter Voltage	B V _{CEO}	35	V
	Emitter-Collector Voltage	B V _{ECO}	6	V
Operating Temperature		Topr	-25~+85	
Storage Temperature		Tstg	-40~+85	
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		Tsol	260	

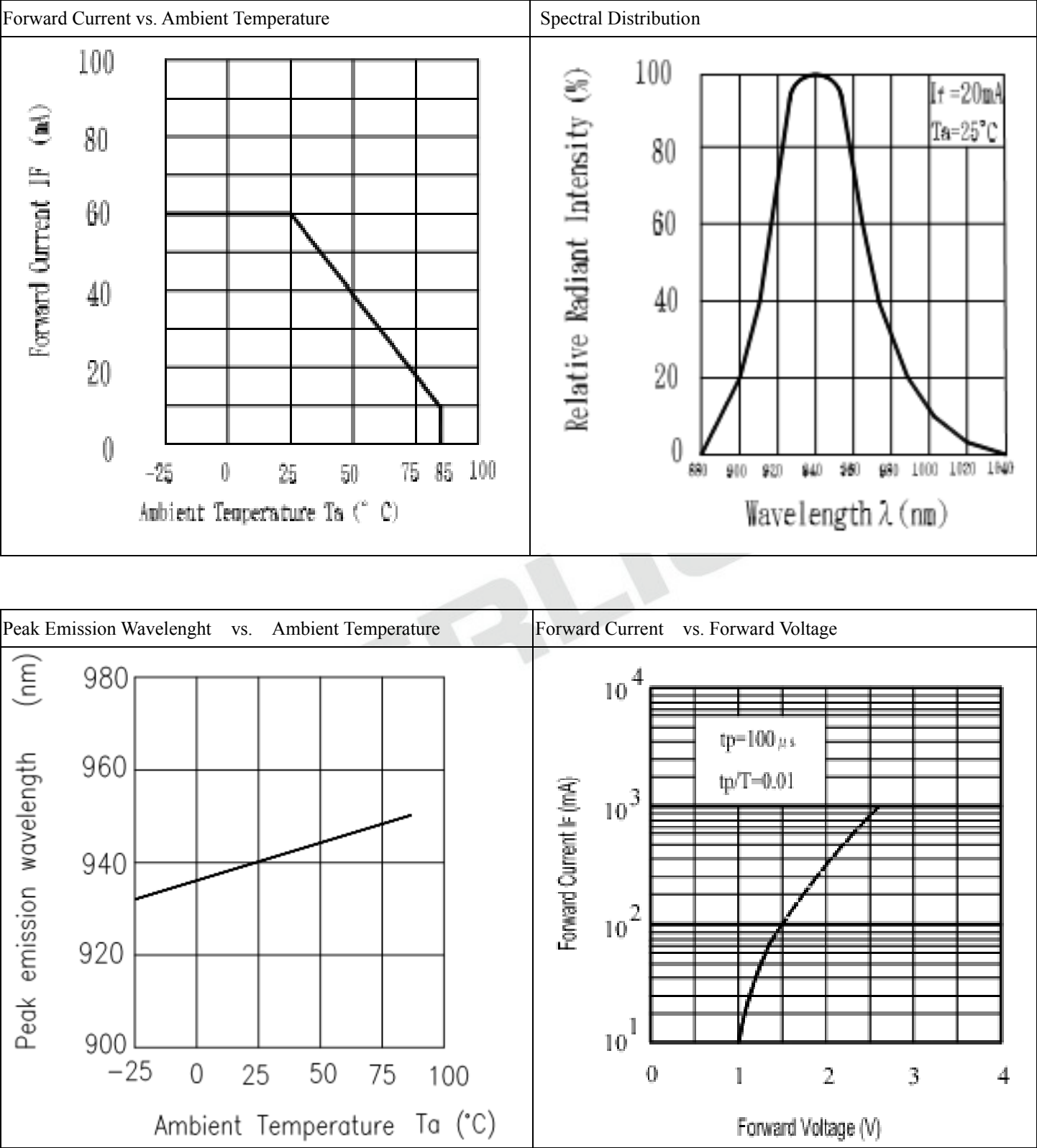
(* 1) tw=100 μ sec. , T=10 msec.

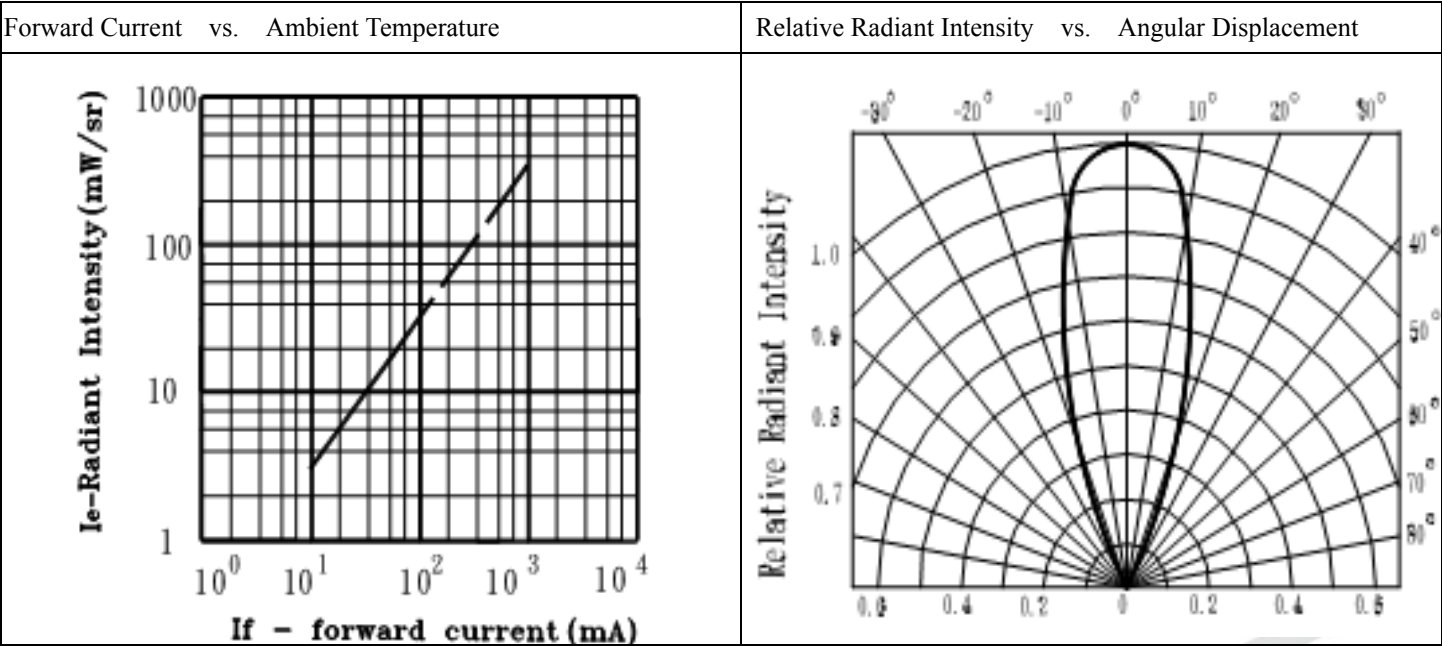
(* 2) t=5 Sec

Electro-Optical Characteristics (Ta=25 °C)

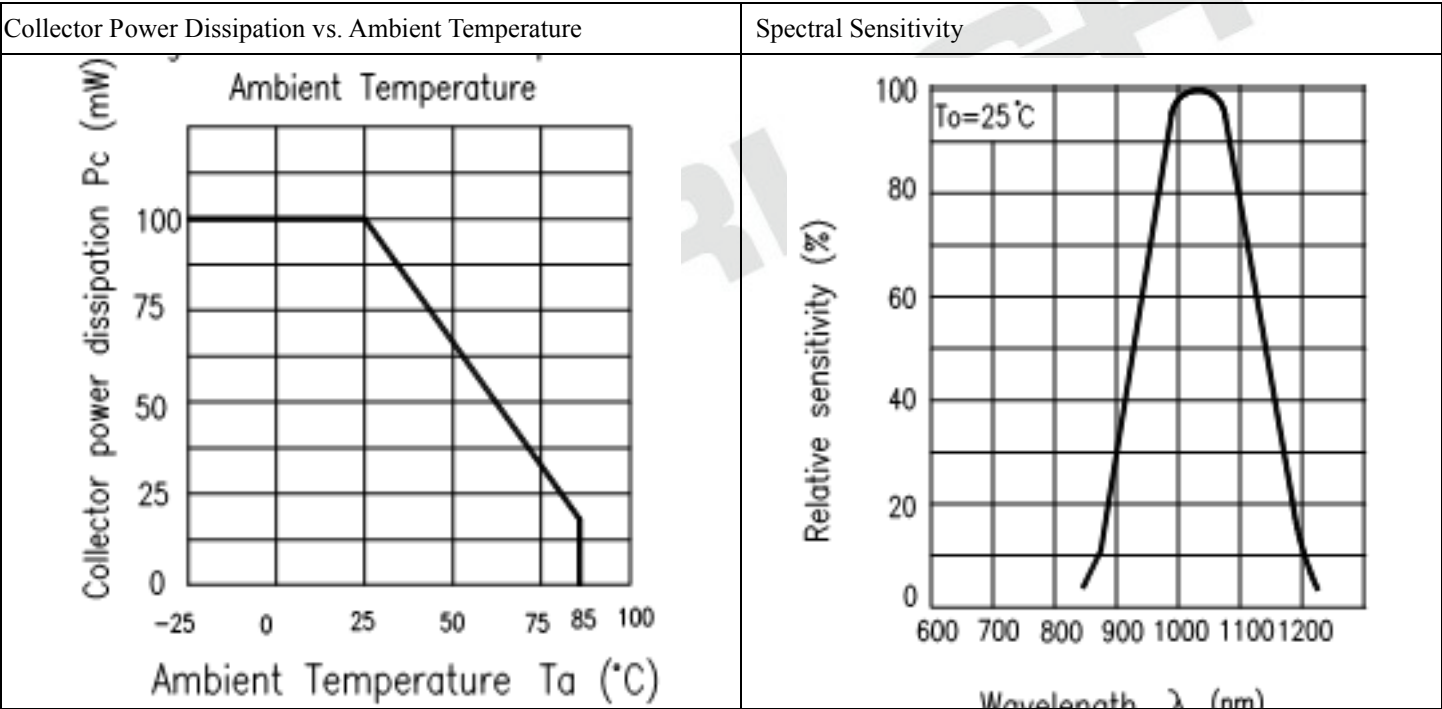
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_F	---	1.2	1.5	V	$I_F=20\text{mA}$
	Reverse Current	I_R	---	---	10	μA	$V_R=5\text{V}$
	Peak Wavelength	λ_p	---	940	---	nm	$I_F=20\text{mA}$
	View Angle	2 θ 1/2	---	30	---	Deg	$I_F=20\text{mA}$
Output	Dark Current	I_{CEO}	---	---	100	nA	$V_{CE}=20\text{V}, E_e=0\text{mW/cm}^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=0.04\text{mA}$ $I_F=40\text{mA}$
Transfer Characteristics	Collect Current	$I_C(ON)$	0.04	---	0.9	mA	$V_{CE}=5\text{V}$ $I_F=20\text{mA}$
	Rise time	t_r	---	20	---	μsec	$V_{CE}=2\text{V}$ $I_C=100\mu\text{A}$ $R_L=100\Omega$
	Fall time	t_f	---	25	---	μsec	

Typical Electrical/Optical/Characteristics Curves for IR

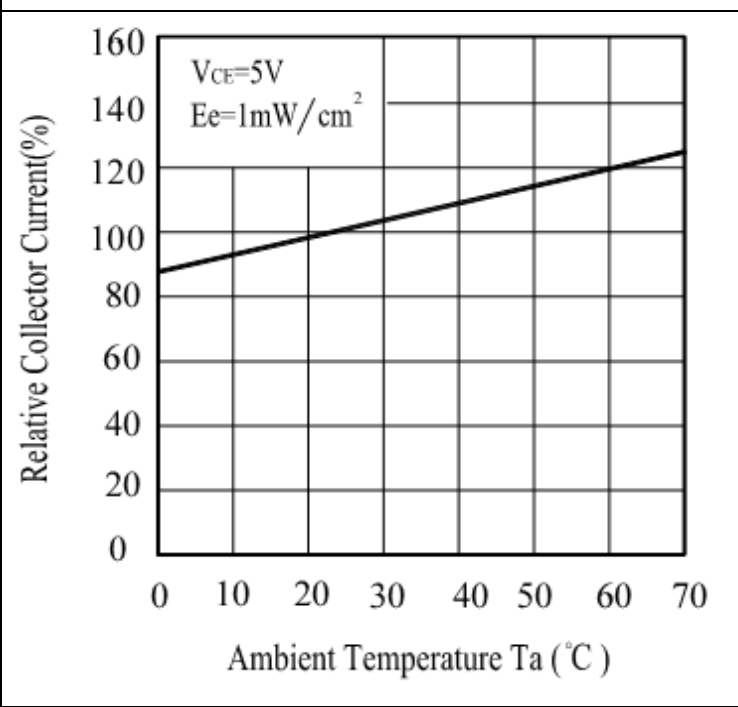




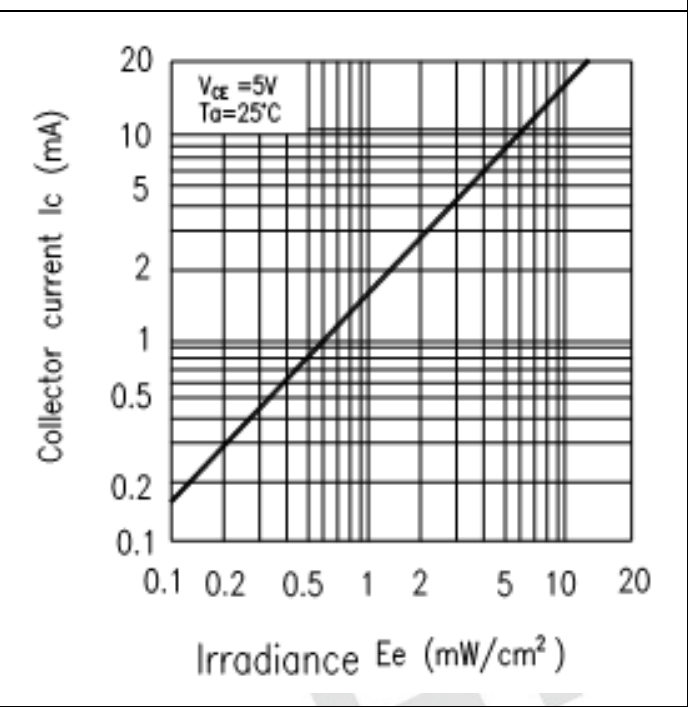
Typical Electro/Optical/Characteristics Curves for PT



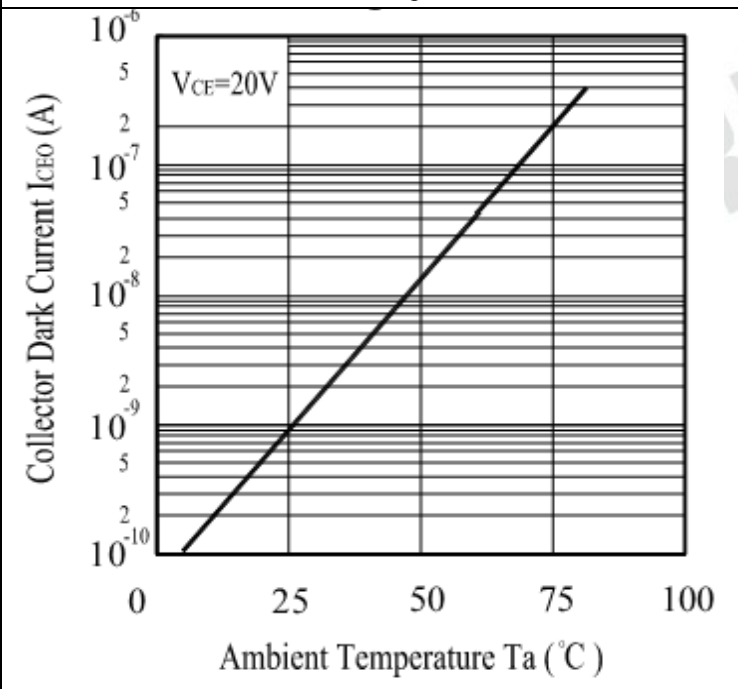
Relative Collector Current vs Ambient Temperature



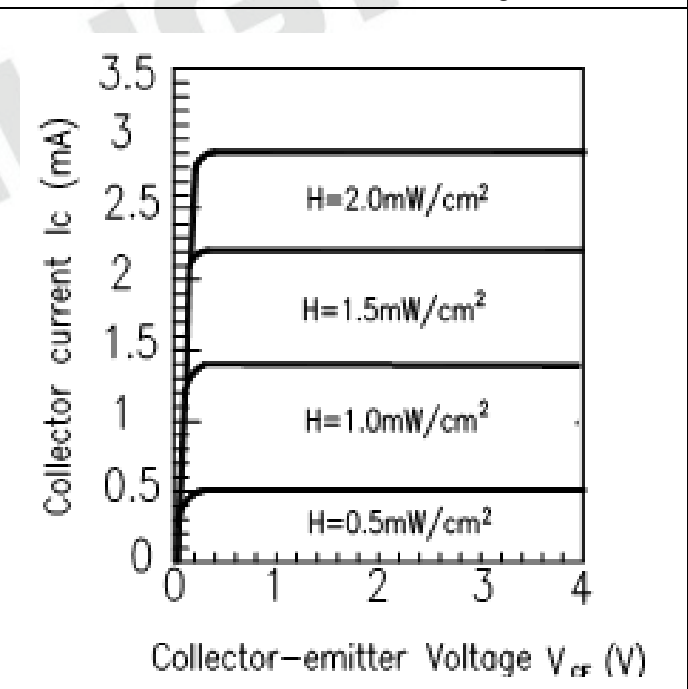
Collector Current vs. Irradiance



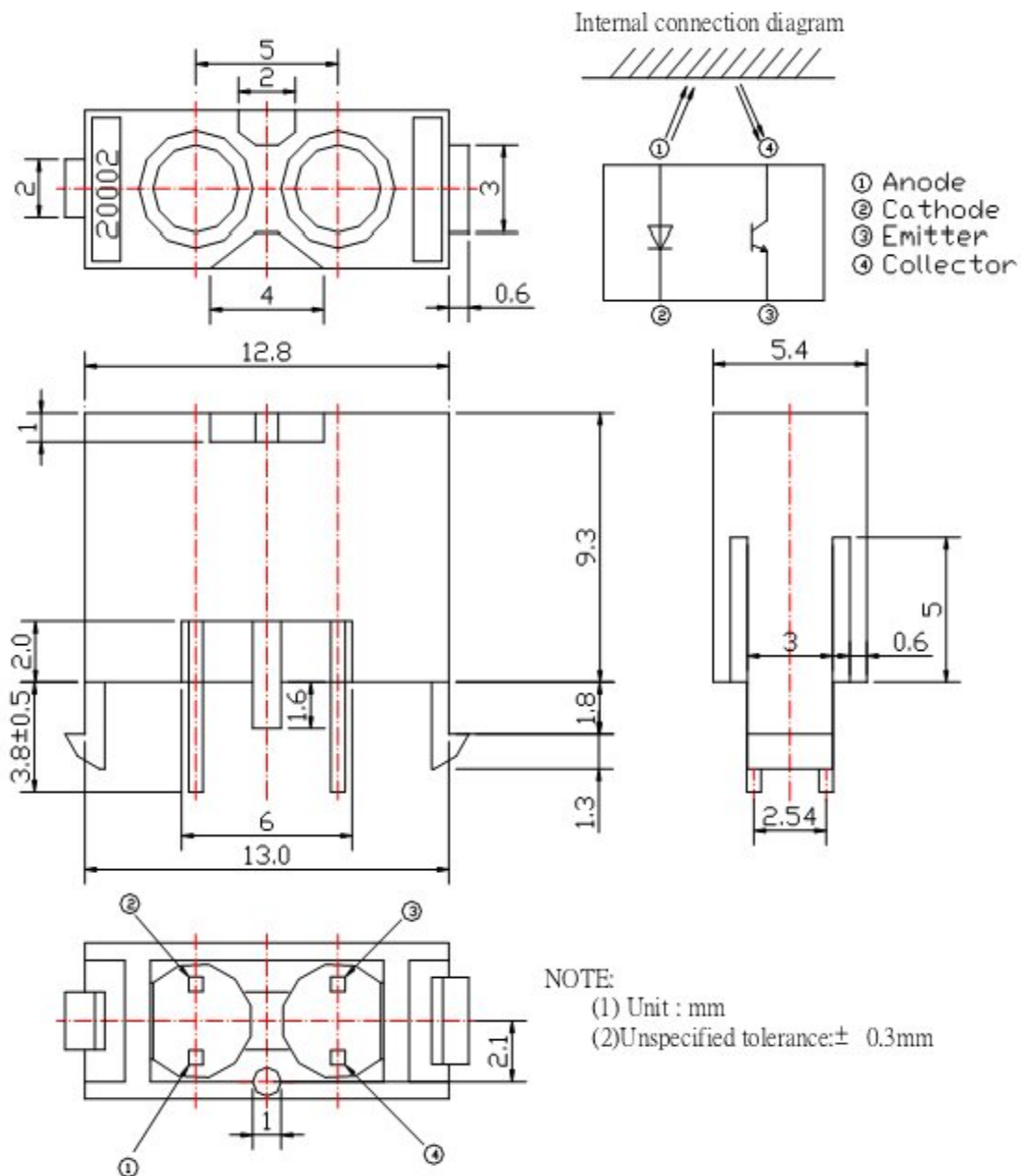
Collector Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Package Dimension



Packing Quantity Specification

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

Label Form Specification

The diagram shows a rectangular label form with the following elements:

- Top left: A circular logo with "Pb" inside.
- Top center: A rectangular box containing the word "EVERLIGHT".
- Top right: A circular logo with "X" inside.
- Below "Pb" logo: The text "CPN:" followed by "P/N:".
- Below "P/N:" text: A standard 1D barcode.
- Below the first barcode: The text "ITR20002".
- Below "ITR20002": The text "QTY:" followed by a second 1D barcode.
- Below the second barcode: The text "LOT NO:" followed by a third 1D barcode.
- Below the third barcode: The text "Reference" followed by a fourth 1D barcode.
- Below "QTY:" text: The text "CAT:", "HUE:", and "REF:" stacked vertically.
- Below "HUE:" text: A rectangular box containing the text "RoHS".

- 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

Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT 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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