

### Opto Interrupter ITR20005-F



#### Features

- Fast response time
- High analytic
- Cut-off visible wavelength  $\lambda_p=940\text{nm}$
- High sensitivity
- Pb free
- This product itself will remain within RoHS compliant version

#### Description

- The ITR20005-F 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.

#### Applications

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

**Device Selection Guide**

Chip Materials	Lens Color
GaAIAs	Water clear
Silicon	Water clear

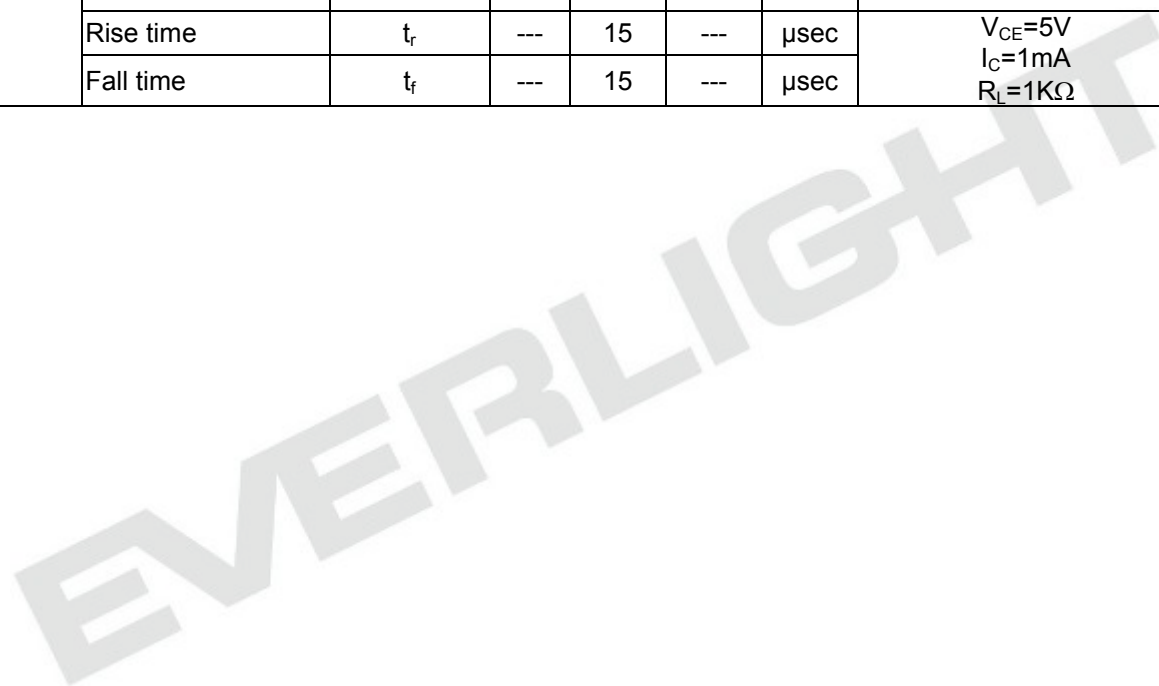
**Absolute Maximum Ratings (Ta=25 °C)**

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25 °C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Forward Current	I <sub>F</sub>	50	mA
	Peak Forward Current (*1) Pulse width 100µs, Duty cycle=1%	I <sub>FP</sub>	1	A
Output	Collector Power Dissipation	Pd	75	mW
	Collector Current	I <sub>C</sub>	20	mA
	Collector-Emitter Voltage	B V <sub>CEO</sub>	30	V
	Emitter-Collector Voltage	B V <sub>ECO</sub>	5	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	

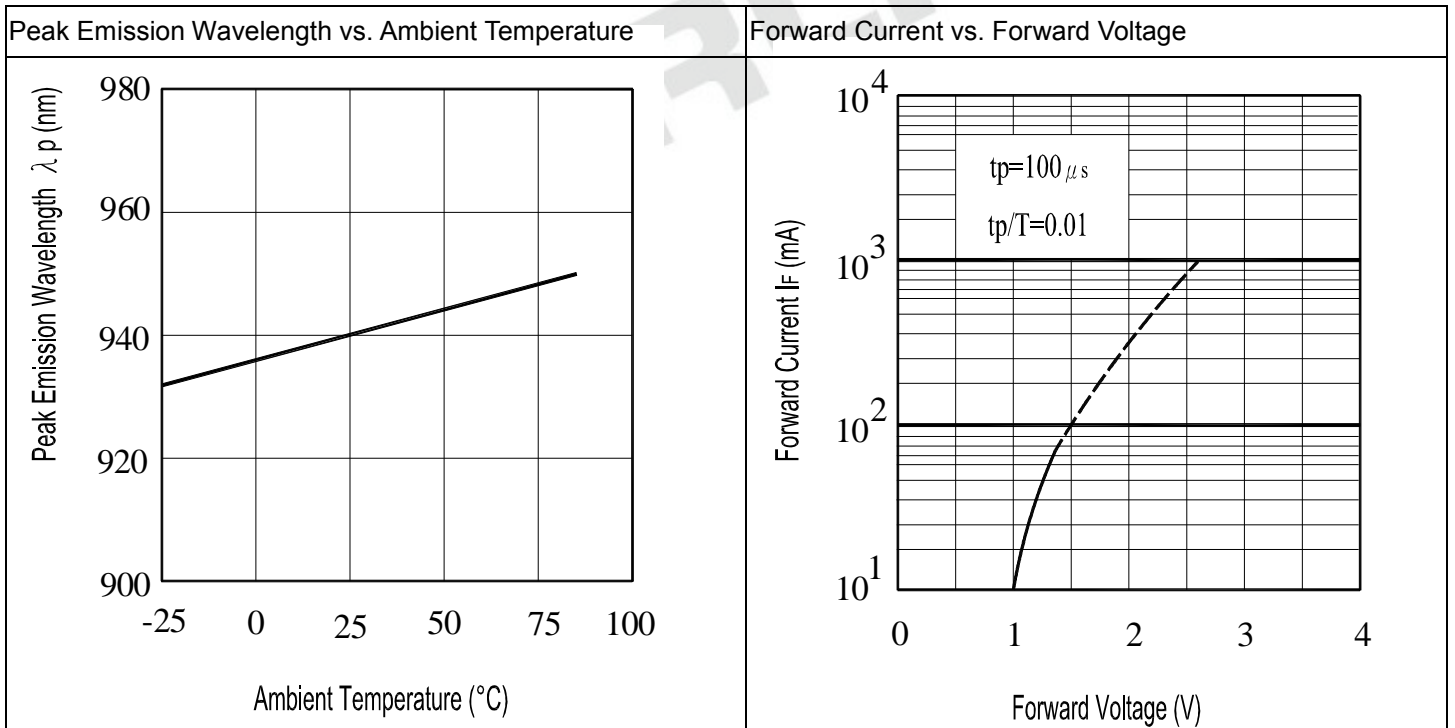
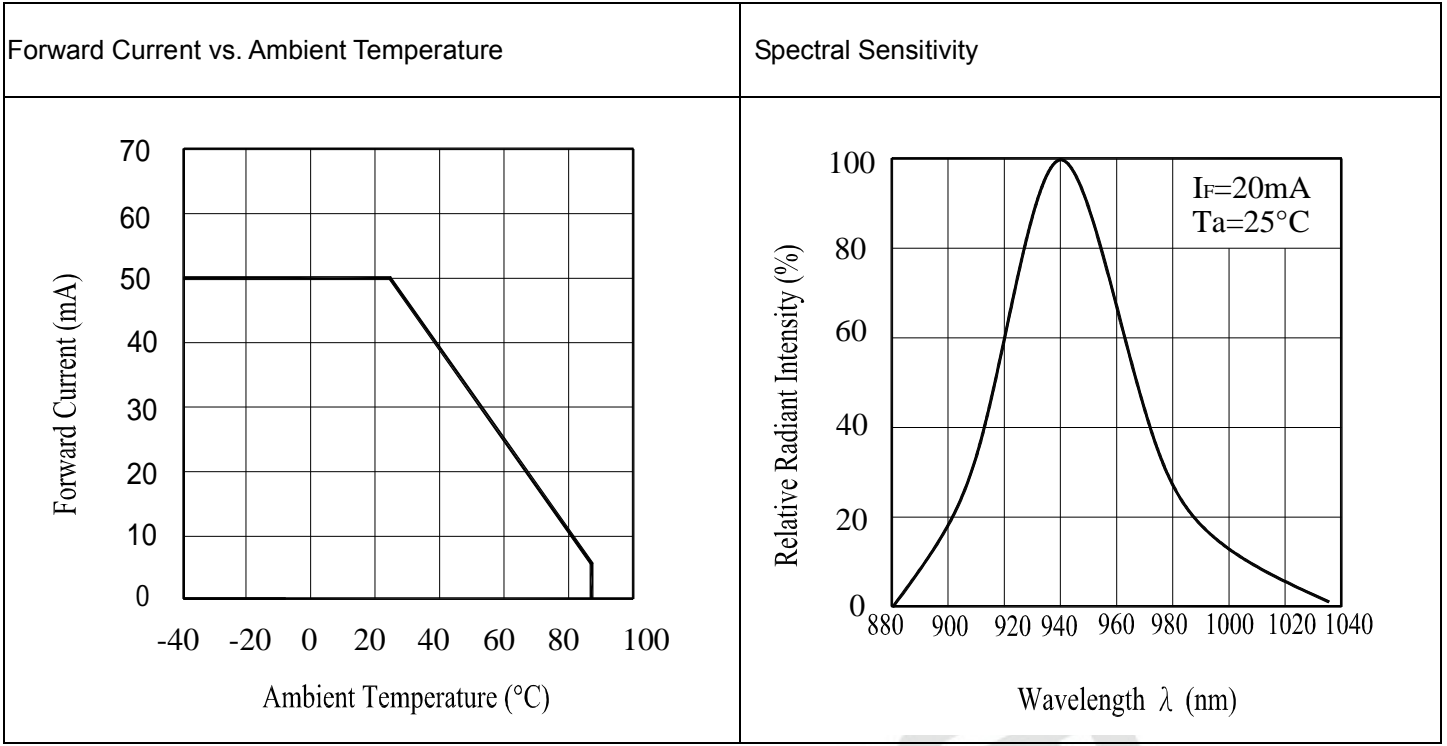
(\*1)  $t_w=100 \mu\text{sec.}$  ,  $T=10 \text{ msec.}$  (\*2)  $t=5 \text{ Sec}$

**Electro-Optical Characteristics (Ta=25 )**

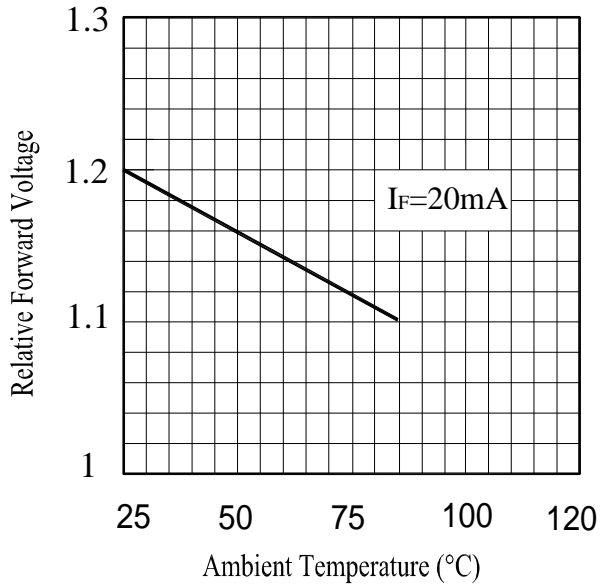
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	$V_F$	---	1.2	1.5	V	$I_F=20\text{mA}$
	Reverse Current	$I_R$	---	---	10	$\mu\text{A}$	$V_R=5\text{V}$
	Peak Wavelength	$\lambda_P$	---	940	---	nm	$I_F=20\text{mA}$
	View Angle	$2\theta_{1/2}$	---	40	---	Deg	$I_F=20\text{mA}$
Output	Dark C urrent	$I_{CEO}$	---	---	100	nA	$V_{CE}=20\text{V}, E_e=0\text{mW}/\text{cm}^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=2\text{mA}$ $E_e=1\text{mW}/\text{cm}^2$
Transfer Characteristics	Collect Current	$I_C(ON)$	0.6	---	---	mA	$V_{CE}=5\text{V}$ $I_F=20\text{mA}$
		$I_C(OFF)$	---	---	20	$\mu\text{A}$	$V_{CE}=5\text{V}$ $I_F=0\text{mA}$
	Rise time	$t_r$	---	15	---	$\mu\text{sec}$	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $R_L=1\text{K}\Omega$
	Fall time	$t_f$	---	15	---	$\mu\text{sec}$	



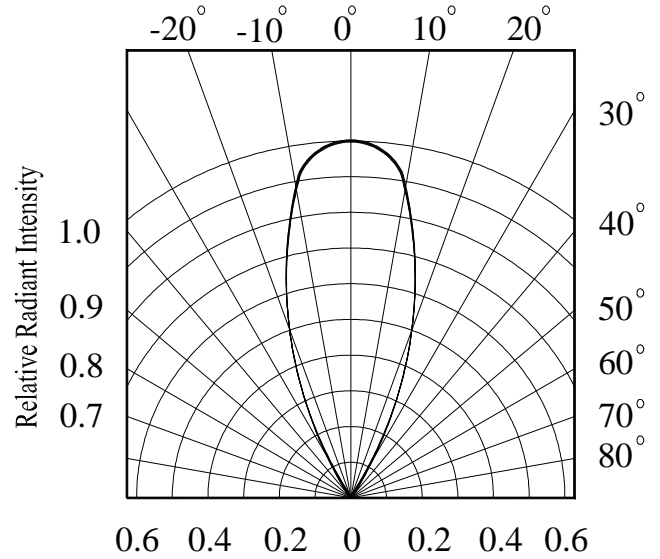
Typical Electrical/Optical/Characteristics Curves for IR



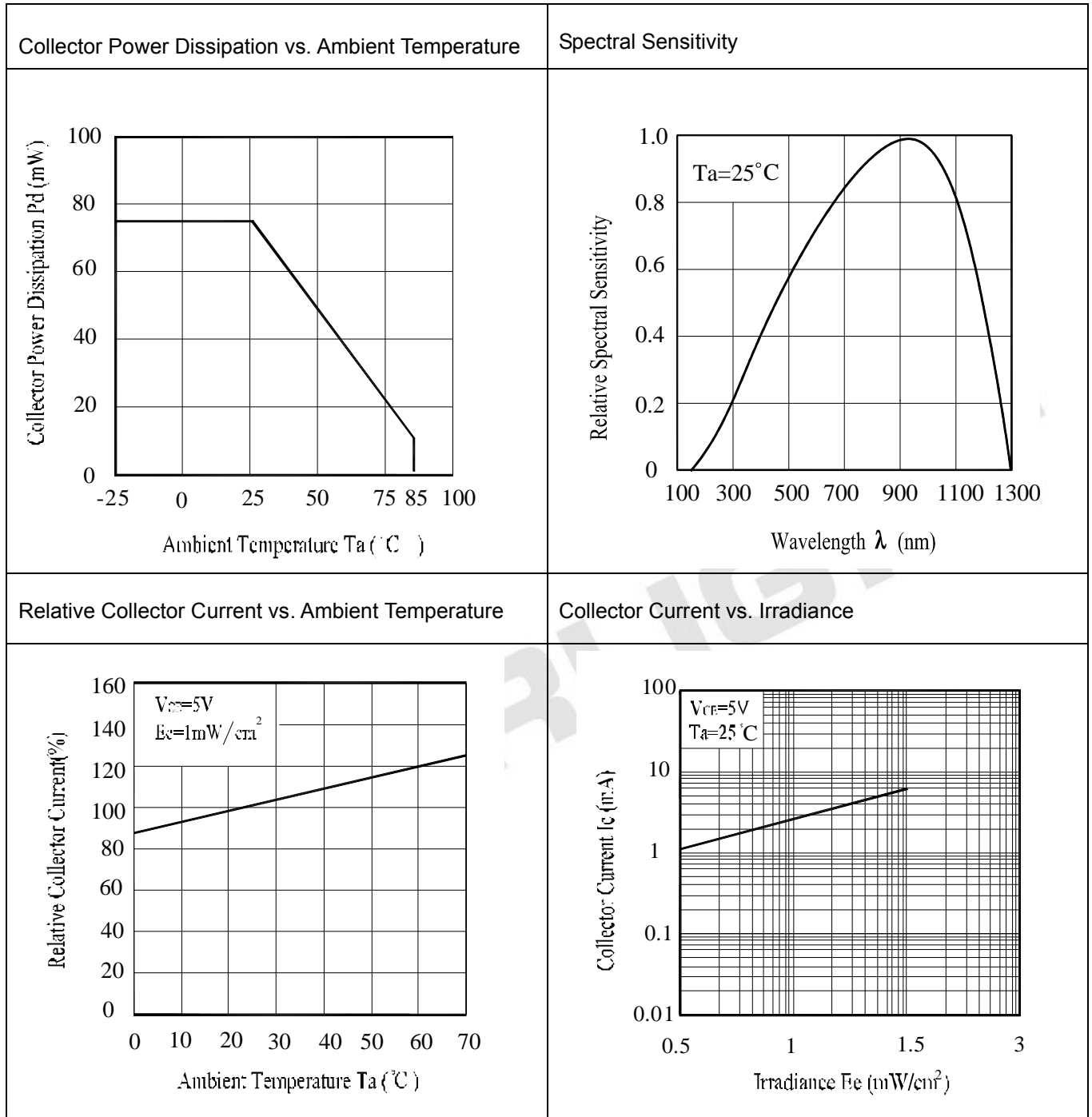
Forward Voltage vs. Ambient Temperature



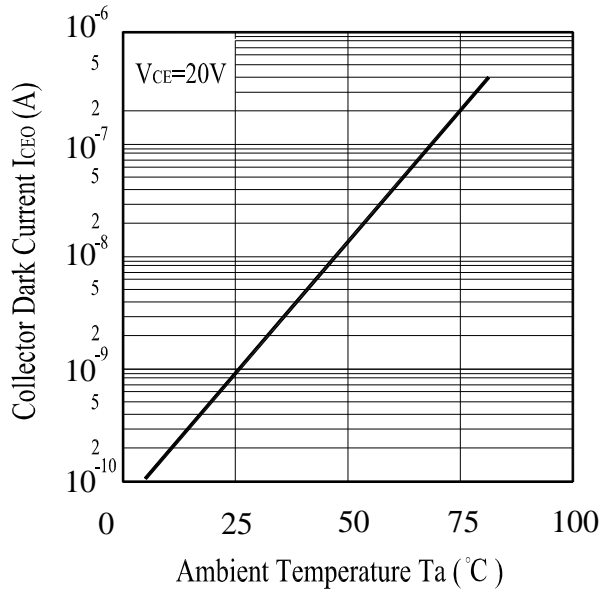
Relative Radiant Intensity vs. Angular Displacement



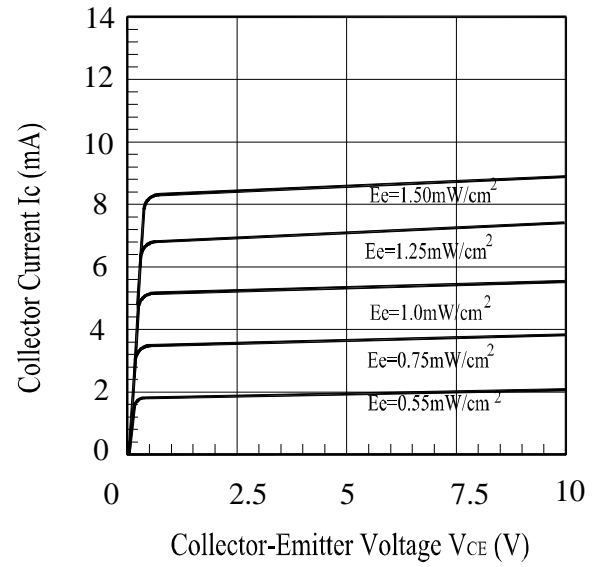
Typical Electrical/Optical/Characteristics Curves for PT



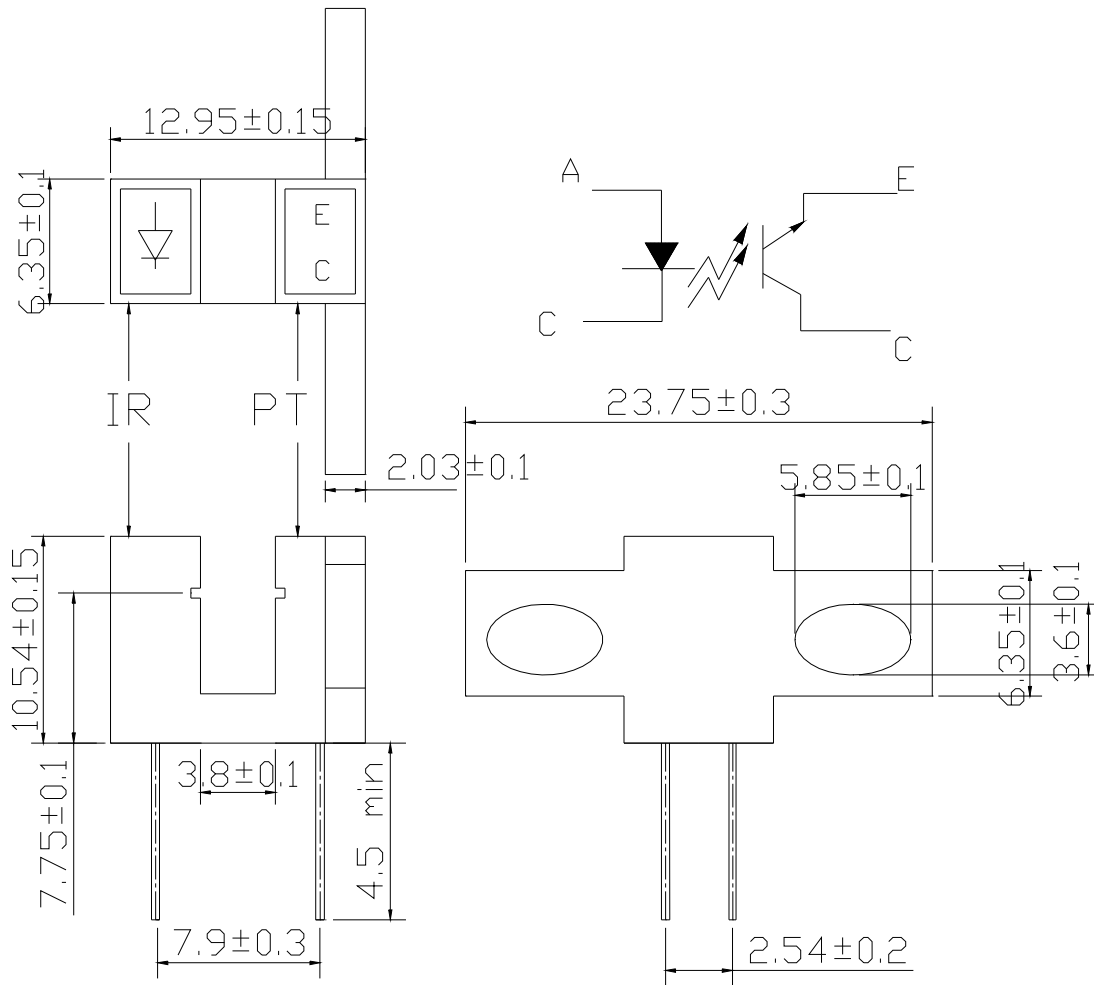
Collector Dark Current vs. Ambient Temperature



Collector Current vs. Collector-Emitter Voltage



### Package Dimension



Note: Tolerances unless dimensions  $\pm 0.25$ mm



**Packing Quantity Specification**

1. 150PCS/1Bag, 4Bag/1Box
2. 10Boxes/1Carton

**Label Form Specification**

- 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 instruction 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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