# Transmission type Photointerrupters Eco-Friendry type

**RPI-441C1E** Datasheet

## ●Applications

• Printers

• Optical Control Equipment

• Amusement

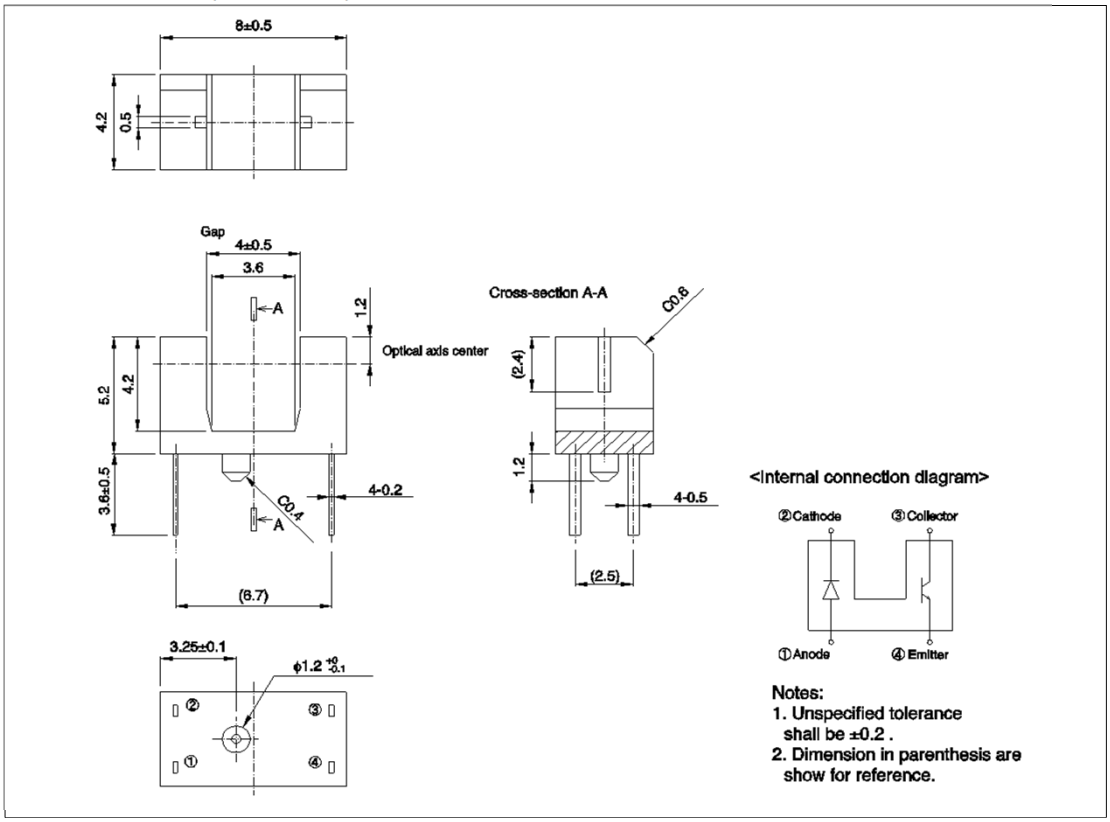
## ●Outline

## ●Features

1) Positioning pin results in high mounting accuracy

2) Gap4.0mm

## ●Dimensions (Unit : mm)




## ●Absolute maximum ratings (Ta = 25°C)

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| Input (Infrared light emitting diode) | Forward current | $I_F$ | 35 | mA |
| | Reverse voltage | $V_R$ | 5 | V |
| | Power dissipation | $P_D$ | 70 | mW |
| Output (Phototransistor) | Collector-emitter voltage | $V_{CEO}$ | 30 | V |
| | Emitter-collector voltage | $V_{ECO}$ | 4.5 | V |
| | Collector current | $I_C$ | 30 | mA |
| | Collector dissipation | $P_C$ | 80 | mW |
| Operating temperature | | $T_{opr}$ | −25 to +85 | °C |
| Storage temperature | | $T_{stg}$ | −30 to +85 | °C |

## ●Electrical and optical characteristics (Ta = 25°C)

1) Input characteristics

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Forward voltage | $V_F$ | $I_F$ =10mA | - | 1.4 | 1.7 | V |
| Reverse current | $I_R$ | $V_R$ =5V | - | - | 10 | μA |
| Peak light emitting wavelength | $\lambda_p$ | $I_F$ =50mA | - | 850 | - | nm |

∗ Non-coherent Infrared light emitting diode used.

2) Output characteristics

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Dark current | $I_{CEO}$ | $V_{CE}$ =10V | - | - | 0.5 | μA |
| Peak sensitivity wavelength | $\lambda_p$ | | - | 800 | - | nm |

∗ This product is not designed to be protected against eledtromagnetic wave.

3) Transfer characteristics

| Parameter | | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| Collector current | | $I_C$ | $V_{CE}$ =5V<br>$I_F$ =10mA | 0.2 | 0.55 | - | mA |
| Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_F$ =10mA<br>$I_C$ =0.1mA | - | - | 0.4 | V |
| Response time | Rise time | tr | $V_{CC}$ =5V, $I_F$ =10mA<br>$R_L$=100Ω | - | 10 | - | μs |
| | Fall time | tf | | - | 10 | - | |

## ●Electrical and optical characteristics curves

Fig.1 Relative Output Current vs.Distance (I)

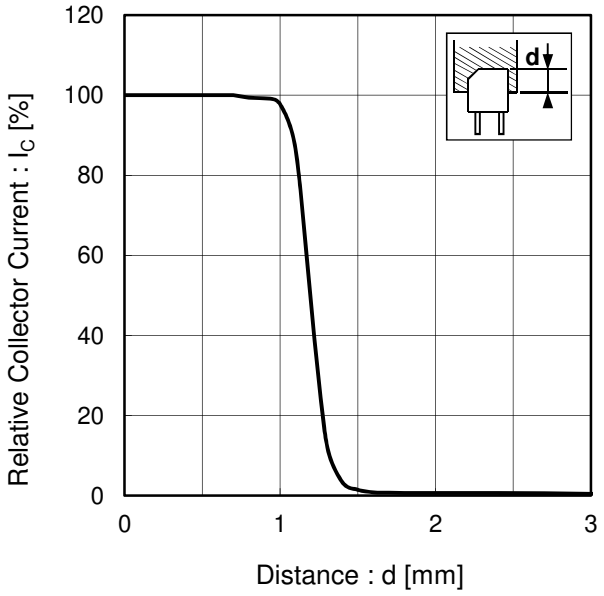



Fig.2 Relative Output Current vs.Distance (II)

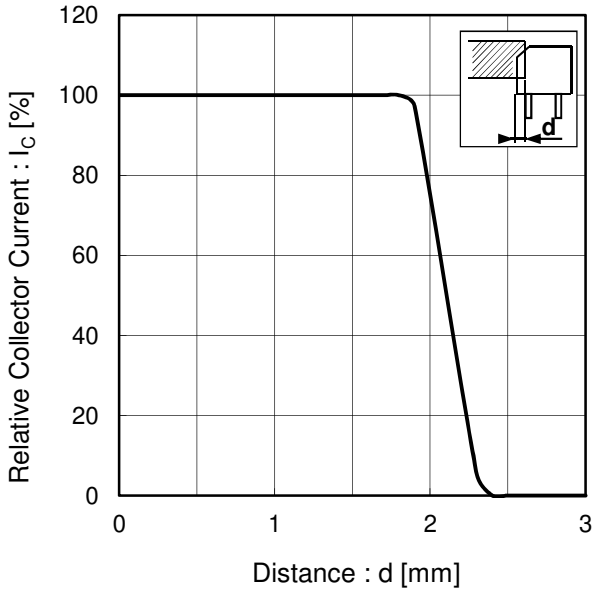



Fig.3 Forward Current Fall off

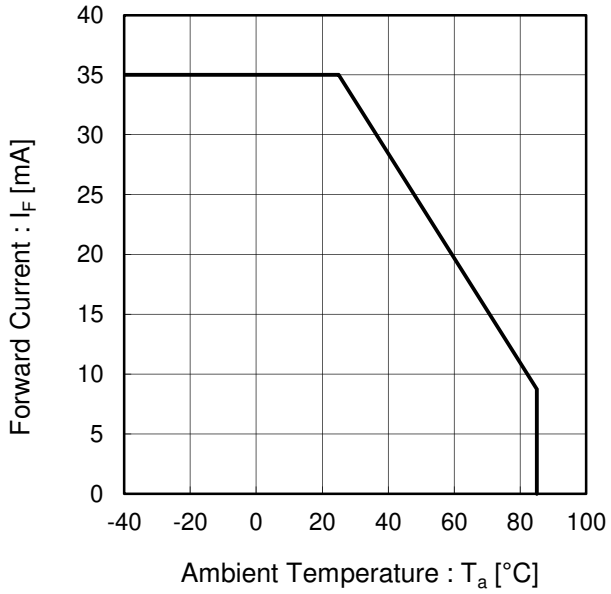
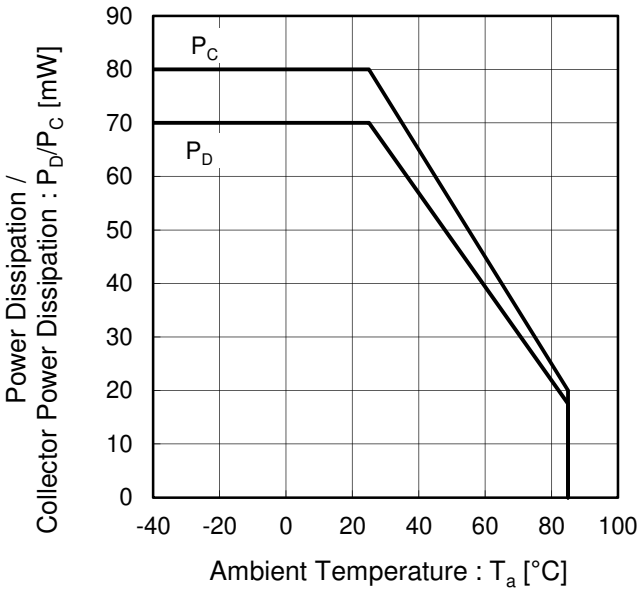



Fig.4 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature



## ●Electrical and optical characteristics curves

Fig.5 Forward Current vs. Forward Voltage

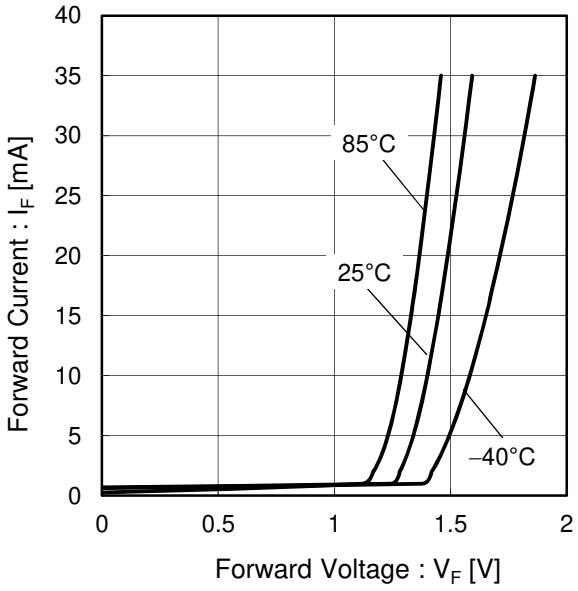



Fig.6 Collector Current vs. Forward Current

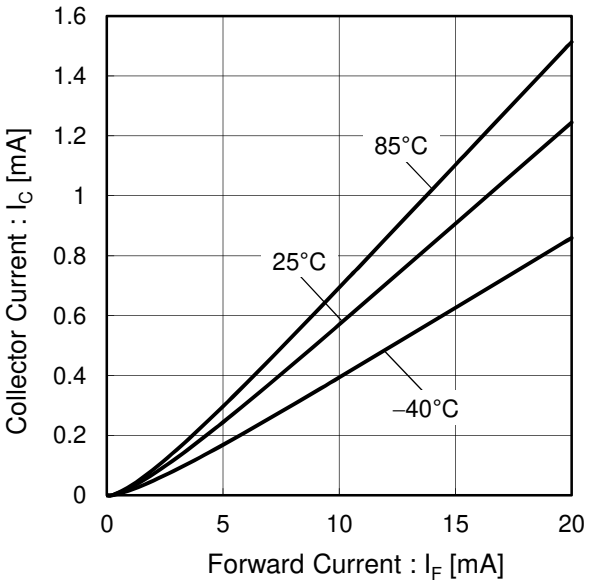



Fig.7 Relative Output vs. Ambient Temperature

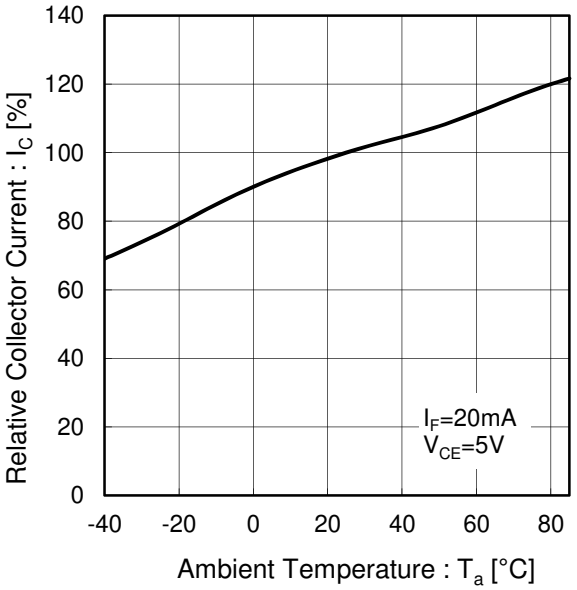
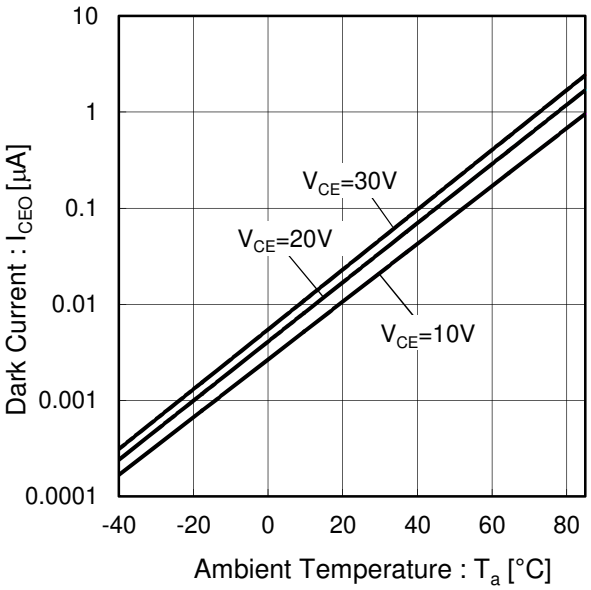
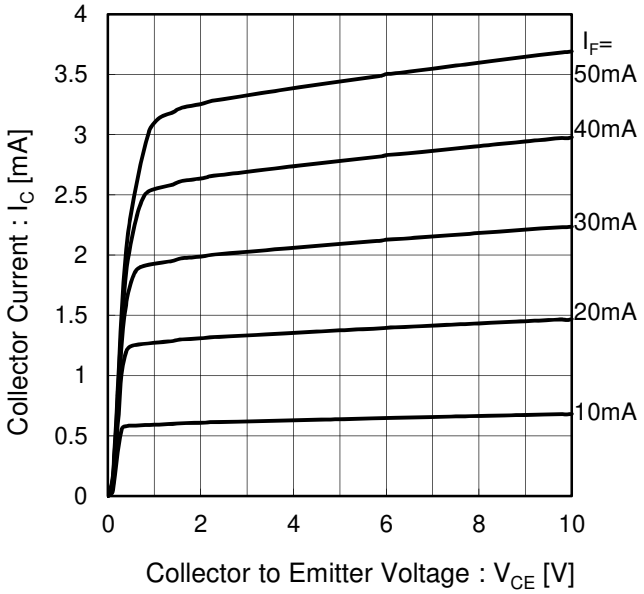



Fig.8 Dark Current vs. Ambient Temperature



## ●Electrical and optical characteristics curves

Fig.9 Output Characteristics



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