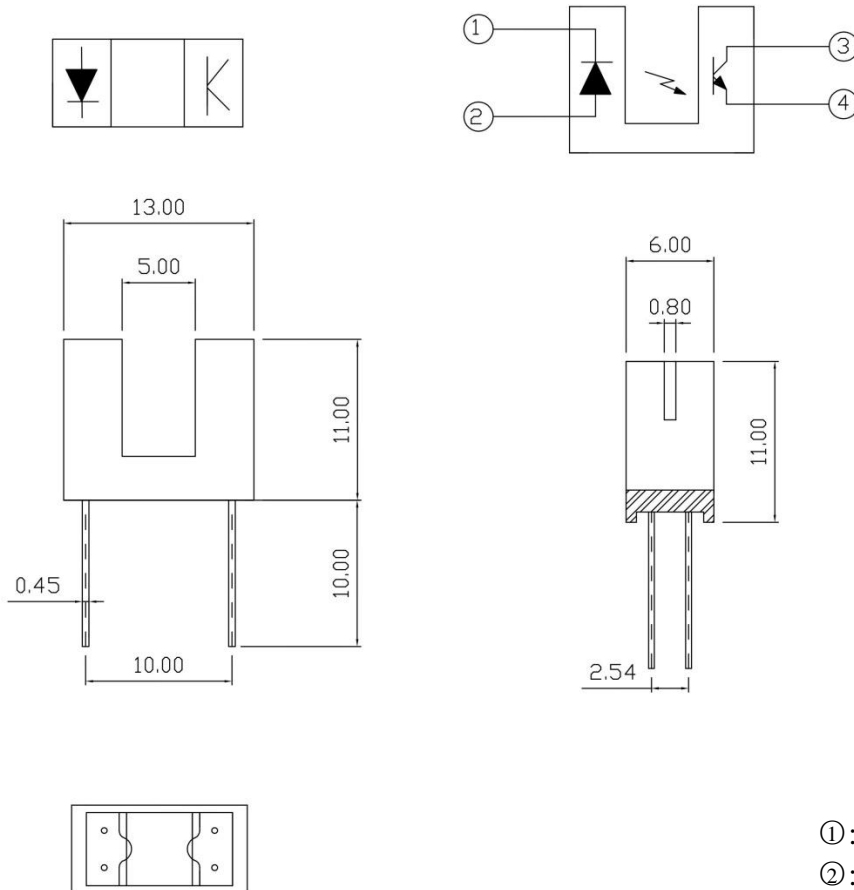




■ PACKAGE DIMENSIONS :



**Notes:**

1. All dimensions are in millimeters.
2. Tolerances unless dimensions  $\pm 0.3$ mm.

- ①: Cathode
- ②: Anode
- ③: Collector
- ④: Emitter

Office: Floor 3, Building 1, Row 3, Bantou Synthetic Industrial Zone, Nansha District, Guangzhou

TEL: 020-39390049

FAX: 020-39390050

<http://www.gzboyiled.com>



## ■ Descriptions:

- . The **BY-GK105A** 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 LED only . This is the normal situation.
- . When an object is in between , phototransistor could not receive the radiation.
- . For additional component information , please refer to IR908-7C and PT908-7C

## ■ Features:

- . Fast response time
- . High sensitivity
- . Cut-off visible wavelength  $\lambda_p=940\text{nm}$
- . Pb free
- . This product itself will remain within Rosh compliant version
- . Compliance with EU REACH



## ■ Applications:

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



■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	$P_d$	75	mW
	Reverse Voltage	$V_R$	5	V
	Forward Current	$I_F$	50	mA
	Peak Forward Current(*1) Pulse width $\leq 100\mu s$ , Duty cycle=1%	$I_{FP}$	1	A
Output	Collector Power Dissipation	$P_C$	75	mW
	Collector Current	$I_C$	20	mA
	Collector-Emitter Voltage	$V_{CEO}$	30	V
	Emitter-Collector Voltage	$V_{ECO}$	5	V
Operating Temperature		$T_{opr}$	-25~+85	°C
Storage Temperature		$T_{stg}$	-40~+85	°C
Lead Soldering Temperature (*2) (1/16 inch from body for 5 seconds)		$T_{sol}$	260	°C

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

■ Electro-Optical Characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	$V_F$	---	1.2	1.6	V	$I_F = 20mA$
	Reverse Current	$I_R$	---	---	10	$\mu A$	$V_R = 5V$
	Peak Wavelength	$\lambda_P$	--	940	---	nm	$I_F = 20mA$
Output	Collector Dark Current	$I_{CEO}$	---	---	100	nA	$V_{CE} = 10V$ , $E_e = 0mW/cm^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C = 0.5mA$ $E_e = 10mW/cm^2$
	Collector Current	$I_C(ON)$	0.5	8.0	---	mA	$V_{CE} = 5V$ $I_F = 20mA$
Transfer Characteristic	Rise time	$t_r$	---	15	---	$\mu sec$	$V_{CE} = 5V$
	Fall time	$t_f$	---	15	---	$\mu sec$	$I_C = 1mA$ $R_L = 1K\Omega$



MODEL NO: BY-GK105A

■ Reliability test item and condition

The reliability of products shall be satisfied with item listed below:

Confidence level :90%

LTPD:10%

Parameter	Purpose & Condition	Failure Judgement Criteria	Samples(n) Defective(c)
Temperature Cycle	Evaluates product's ability to withstand exposure to high temperature, low temperature, and temperature variation between two limit temperature. Standard test Condition:  85°C~25°C~-55°C~25°C 30min 5min 30min 5min 50 cycle	$I_R \geq U \times 2$ $I_{C(on)} \leq L \times 0.8$ $V_F \geq U \times 1.2$  U : Upper specification limit  L : Lower specification limit	n =22 , c=0
Thermal Shock	Evaluates product's ability to withstand rapid temperature change Standard test Condition:  85°C ~ -55°C 5 min 5 min 50cycle		n =22 , c=0
High Temperature Storage	Evaluates product's ability to withstand prolonged storage at high temperature Standard test Condition:  Temperature : 100 °C Time : 1000hrs		n =22 , c=0
Low Temperature Storage	Evaluates product's ability to Storage withstand prolonged storage at low temperature Standard test Condition:  Temperature : -55 °C Time : 1000hr		n =22 , c=0



MODEL NO: BY-GK105A

Parameter	Purpose & Condition	Failure Judgement Criteria	Samples(n) Defective(c)
Operating Life Test	Evaluates product's endurance to prolonged electrical or temperature stresses. Standard test Condition: $V_{CE} = 5V$ $I_F = 20mA$ Time : 1000hrs	$I_R \geq U \times 2$ $I_{C(on)} \leq L \times 0.8$ $V_F \geq U \times 1.2$  U : Upper specification limit	n =22 , c=0
High Temperature High Humidity	Evaluates product's ability to withstand prolonged storage at high temperature and high humidity. Standard test Condition: Temperature: 85°C Relative humidity:85% Time : 1000hrs	L : Lower specification limit	n =22 , c=0
Soldering Heat	Evaluates product's ability to withstand soldering heat Standard test conditions Solder temperature : 260±5°C Solder time : 10 seconds		n =22 , c=0

■ Supplements

Type	Material	Lens Color	Peak Wavelength
IR	GaAlAs	Water clear	940 nm
PT	Silicon	Water clear	940 nm



■ Typical Electrical/Optical/Characteristics Curves for IR

Fig.1 Forward Current vs. Ambient Temperature

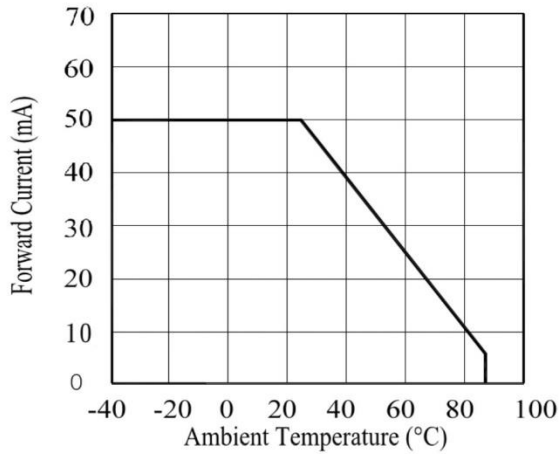


Fig.2 Spectral Distribution

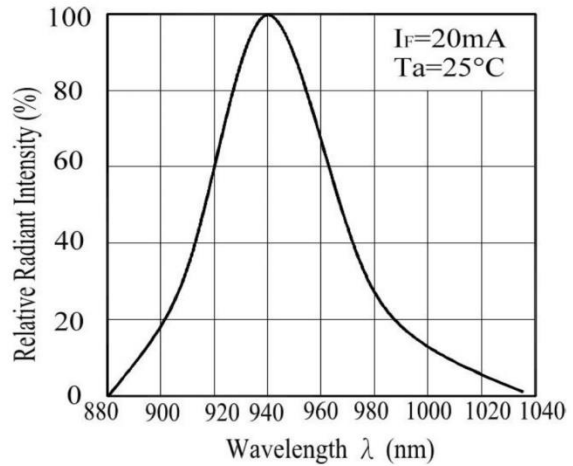


Fig.3 Forward Current vs. Forward Voltage

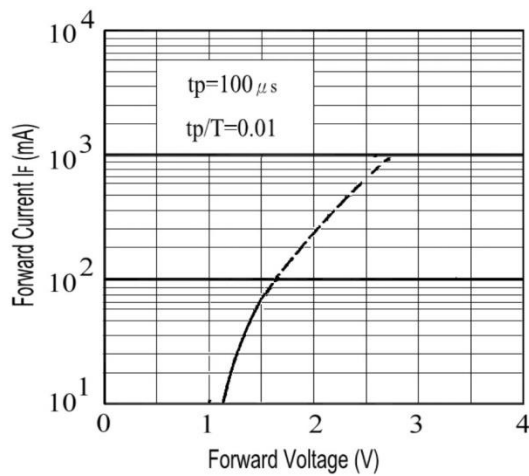
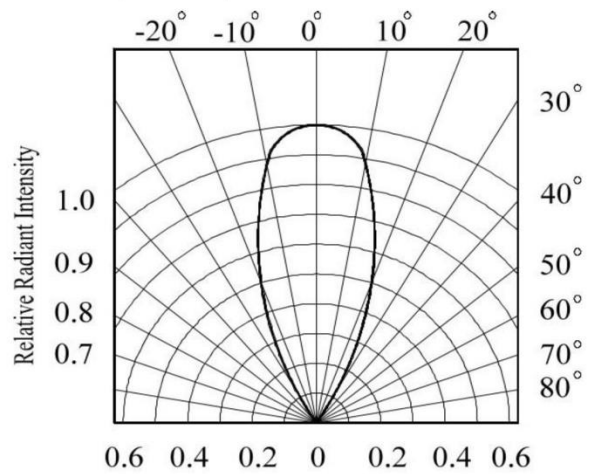


Fig. 4 Relative Radiant Intensity vs. Angular Displacement





■ Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Spectral Sensitivity

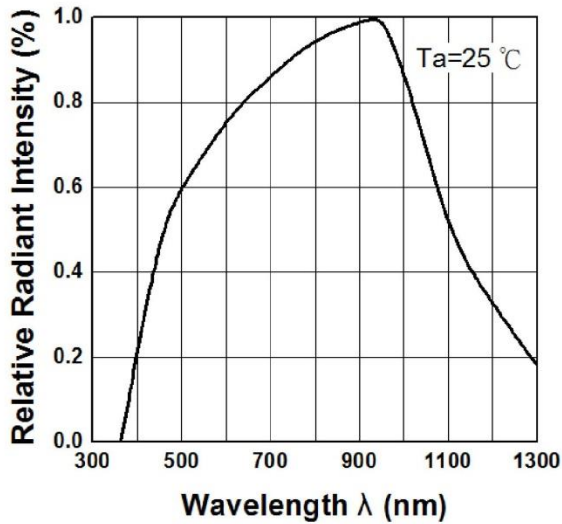


Fig.2 Collector Current vs. Irradiance

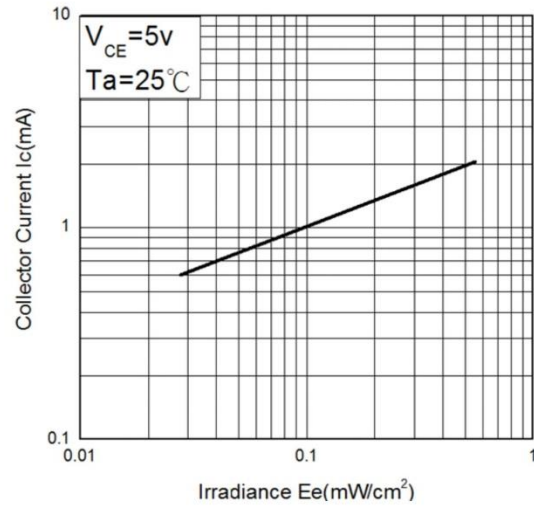
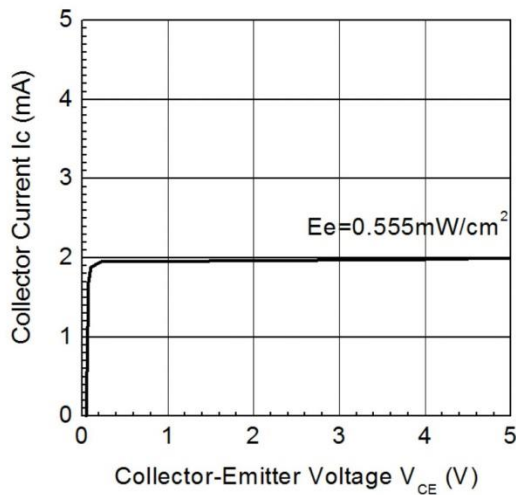


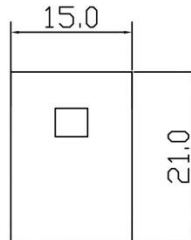
Fig.3 Collector Current vs. Collector-Emitter Voltage



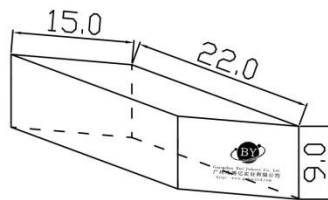


■ Packing Specifications

1. Bag:



2. Box:



广州市博亿实业有限公司

CPC:

P/N:



BY-GK105A

QTY:

CAT:

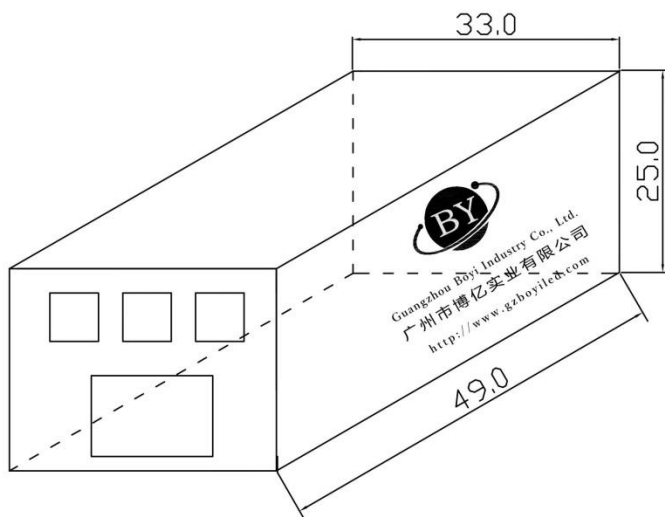


HUE:

REF:

3. Carton:

LOT NO:



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. 150Pcs/1Bag ,
2. 6Bags/1Box
3. 10Boxes/1Carton