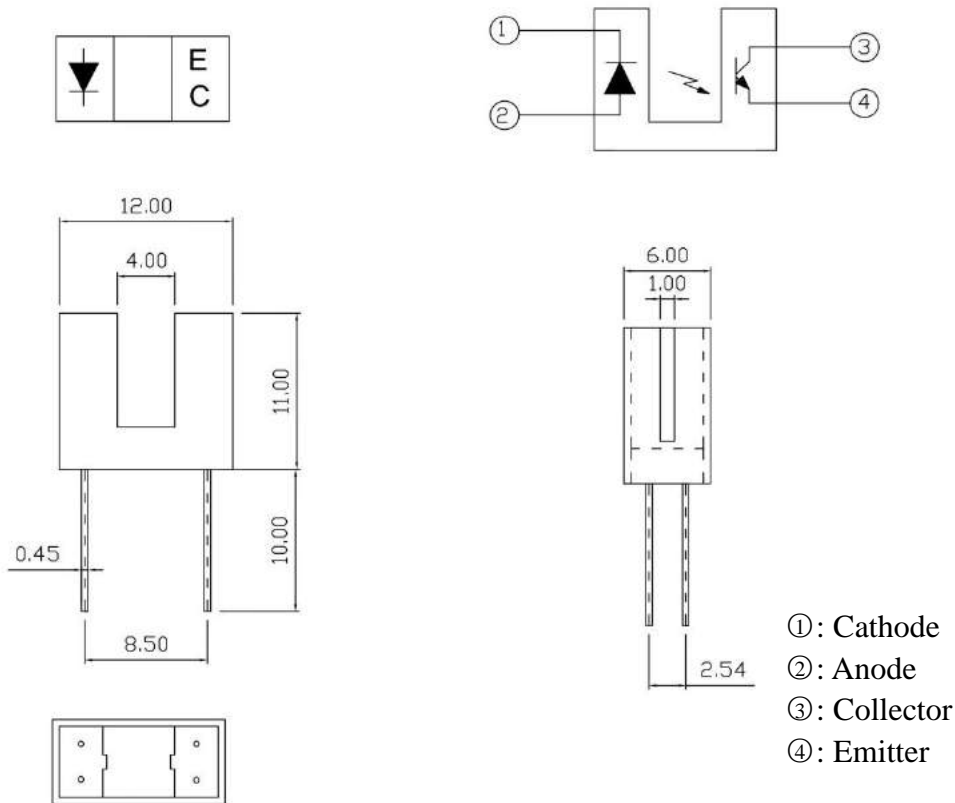




■ PACKAGE DIMENSIONS :



Notes:

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

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

TEL: 020-39390049

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<http://www.gzboyiled.com>



■ Descriptions:

The **BY-ES92B4** (Slot Optical Switch) is a gallium arsenide infrared emitting diode which is coupled with a silicon photo transistor in a plastic housing. The packaging system is designed to optimize the mechanical resolution, coupling efficiency, and insulates ambient light. The slot in the housing provides a means of interrupting the signal with printer, scanner, copier, or other opaque material, switching the output from an “ON” to “OFF” state

■ 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 Boa



■ 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	1.5	V	$I_F = 20mA$
	Reverse Current	I_R	---	---	10	μA	$V_R = 5V$
	Peak Wavelength	λ_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	$I_C = 0.5mA$ $E_e = 1mW/cm^2$
	Collector Current	$I_C(ON)$	0.7	16.0	---	mA	$V_{CE} = 5V$ $I_F = 20mA$
Transfer Characteristic	Rise time	t_r	---	15	---	μsec	$V_{CE} = 5V$ $I_C = 1mA$ $R_L = 1K\Omega$
	Fall time	t_f	---	15	---	μsec	



MODEL NO: BY-ES92B4

■ 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



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

■ Device Selection Guide

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

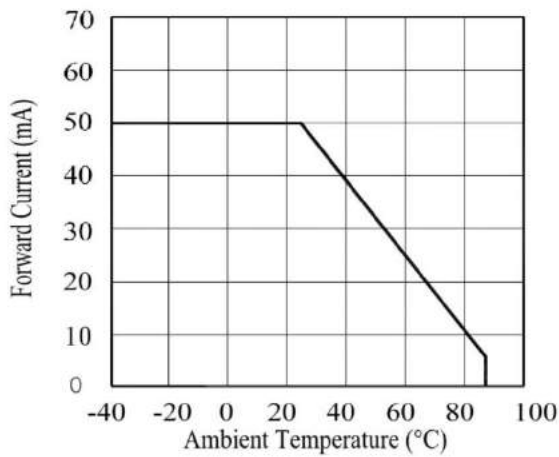


Fig.2 Spectral Distribution

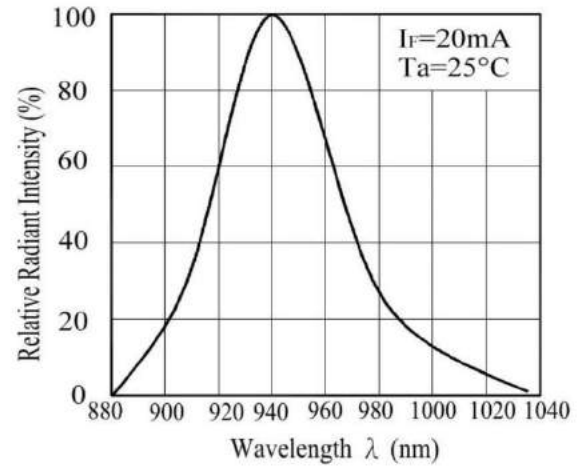


Fig.3 Forward Current vs. Forward Voltage

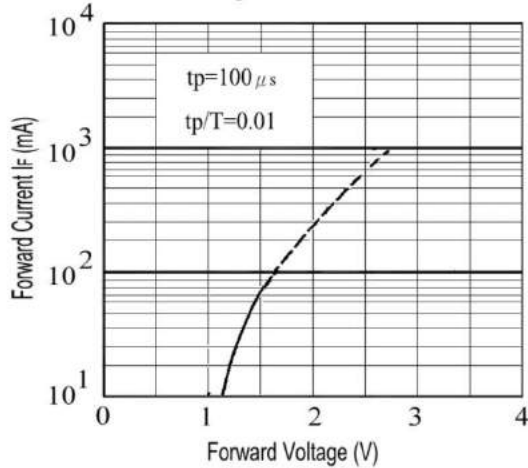
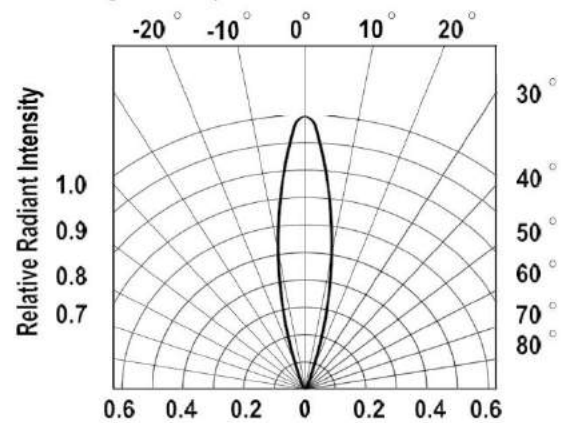


Fig.4 Relative Radiant Intensity vs. Angular Displacement





■ Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Spectral Sensitivity

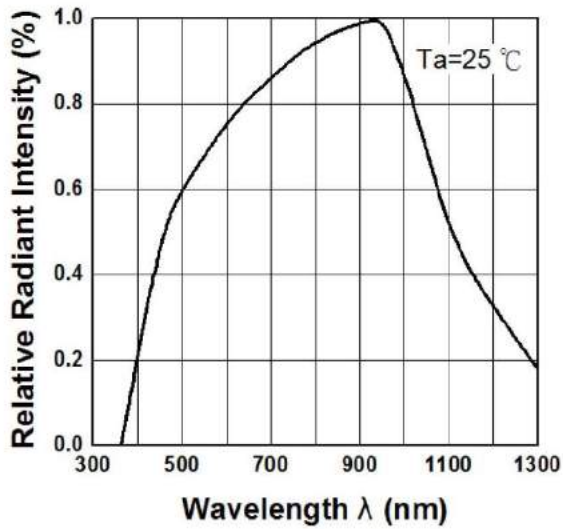


Fig.2 Collector Current vs. Irradiance

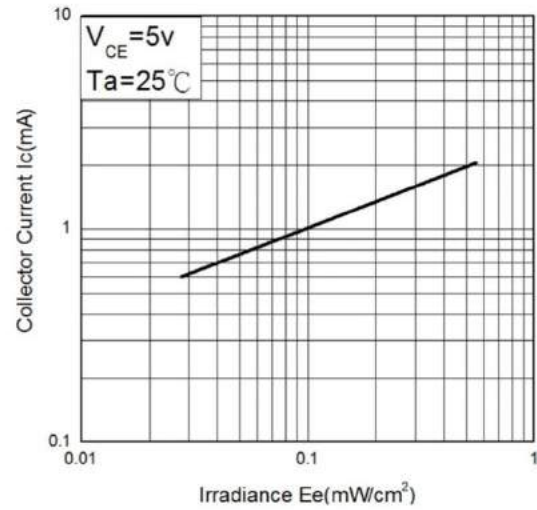
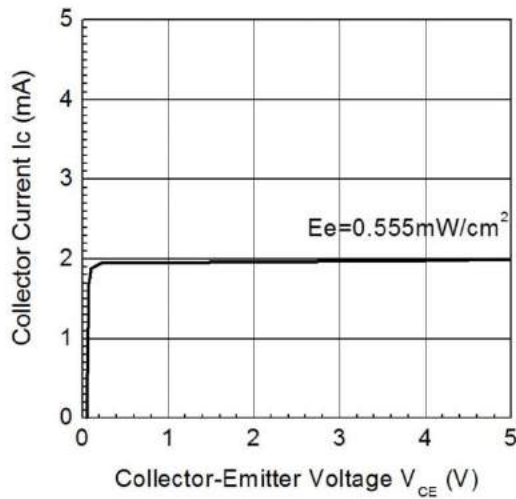


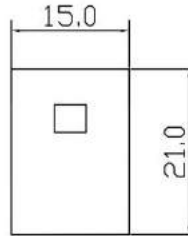
Fig.3 Collector Current vs. Collector-Emitter Voltage



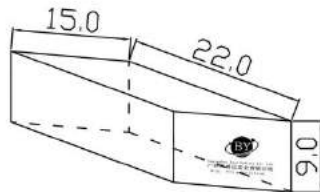


■ Packing Specifications

1. Bag:



2. Box:



广州市博亿实业有限公司

CPC:

P/N:



BY-ES92B4

QTY:

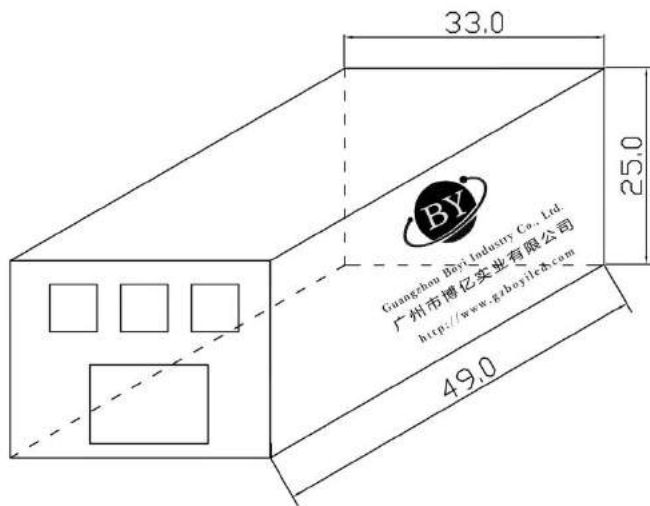
CAT:

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