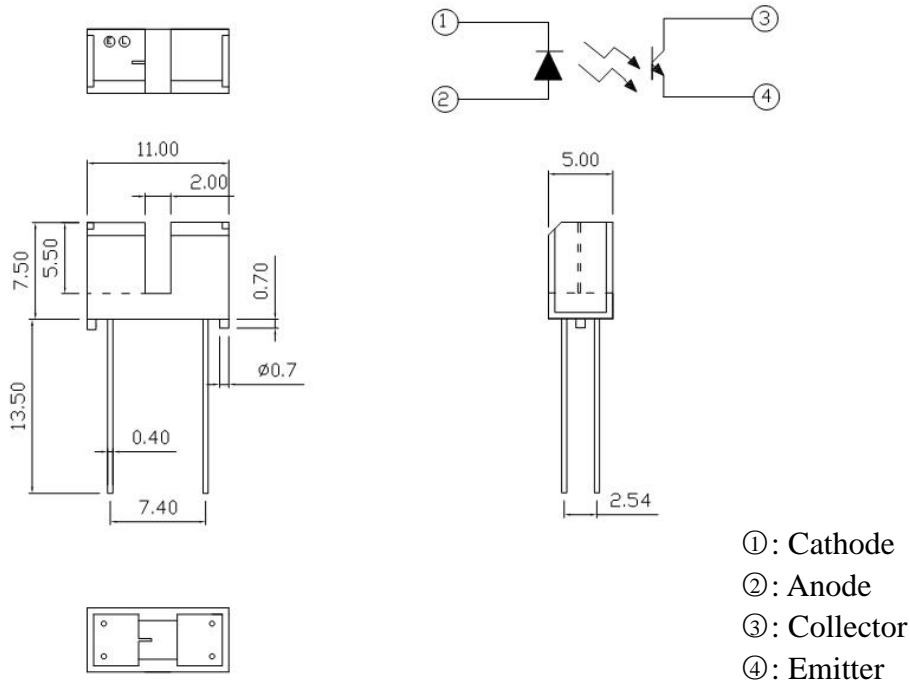




■ PACKAGE DIMENSIONS :



Notes:

1. All dimensions are in millimeters.
2. Tolerances unless dimensions ± 0.3 mm.

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

TEL: 020-39390049

FAX: 020-39390050

<http://www.gzboyiled.com>

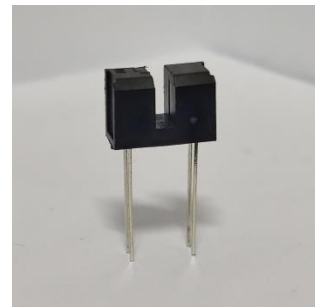


■ Descriptions:

The **BY-ITR9901**(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 | $I_C(ON)$ | --- | 3.7 | --- | mA | $V_{CE} = 5V$ $I_F = 20mA$ |
| Transfer Characteristic | Rise time | t_r | --- | 15 | --- | μsec | $V_{CE} = 5V$ |
| | Fall time | t_f | --- | 15 | --- | μsec | $I_C = 1mA$ $R_L = 1K\Omega$ |



MODEL NO: BY-ITR9901

■ 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

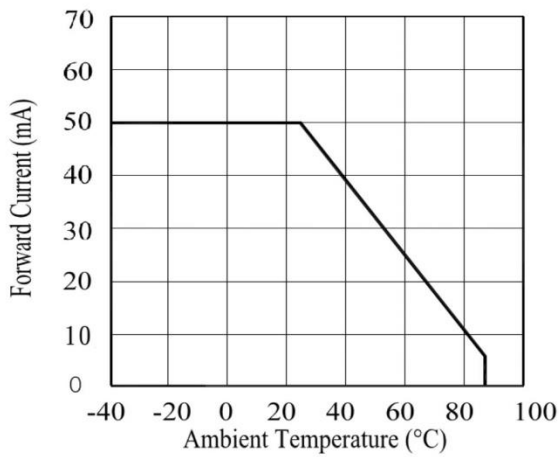


Fig.2 Spectral Distribution

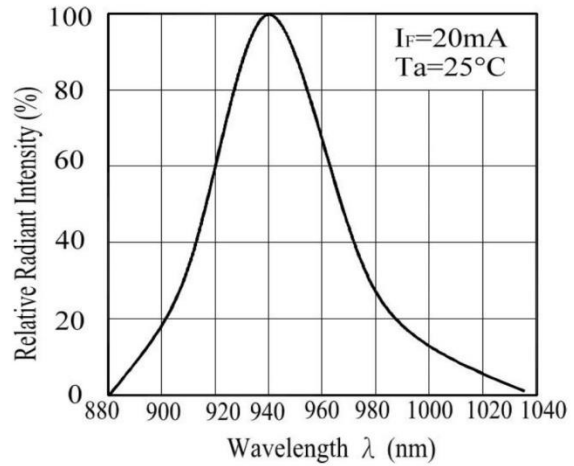


Fig.3 Forward Current vs. Forward Voltage

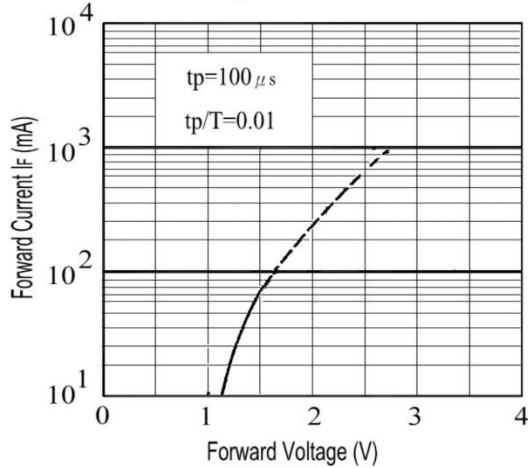
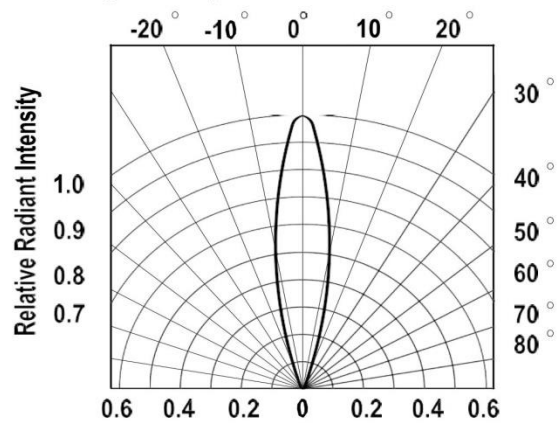


Fig.4 Relative Radiant Intensity vs. Angular Displacement





■ Typical Electrical/Optical/Characteristics Curves for PT

Fig.1 Spectral Sensitivity

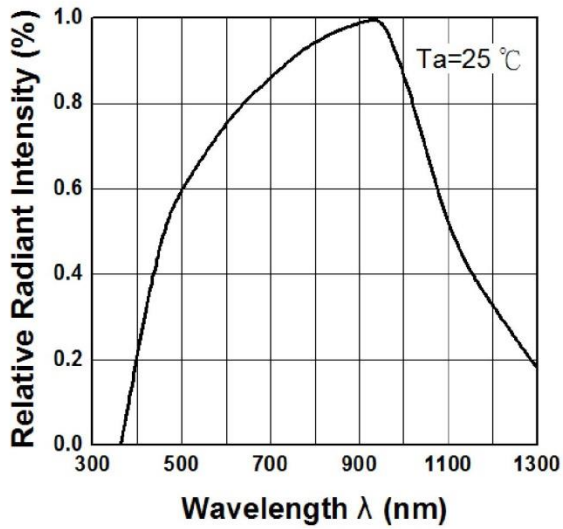


Fig.2 Collector Current vs. Irradiance

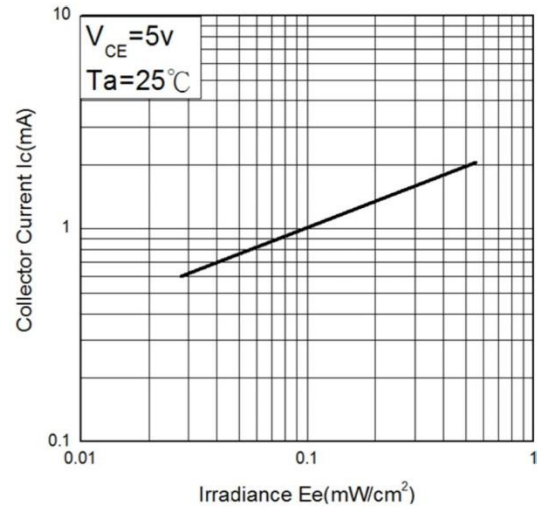
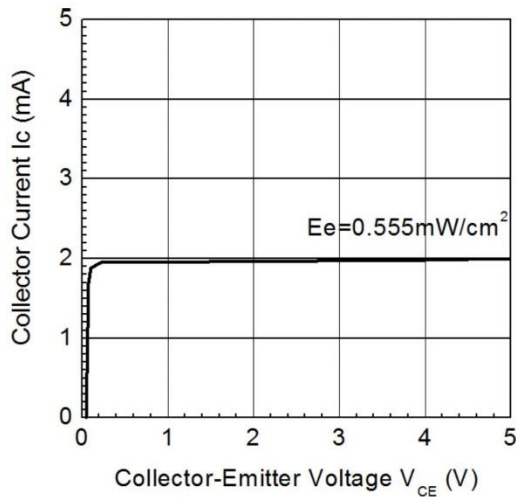


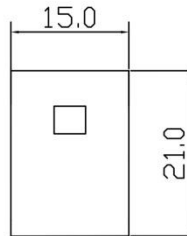
Fig.3 Collector Current vs. Collector-Emitter Voltage



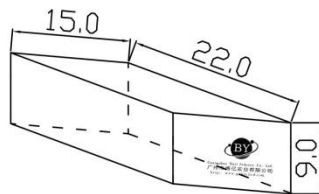


■ Packing Specifications

1. Bag:



2. Box:



广州市博亿实业有限公司

CPC:

P/N:



BY-ITR9901

QTY:

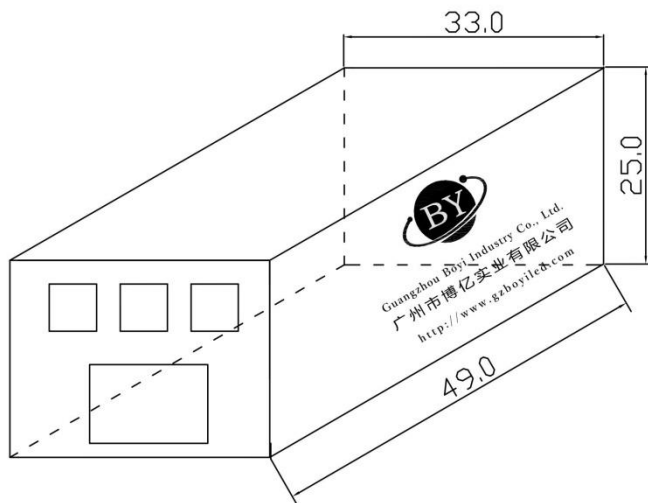
CAT:



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