



**BRIGHTTEK**  
BRIGHTTEK (EUROPE) LIMITED

*Brighten Up The World With LED!*



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

## PRODUCT DATASHEET

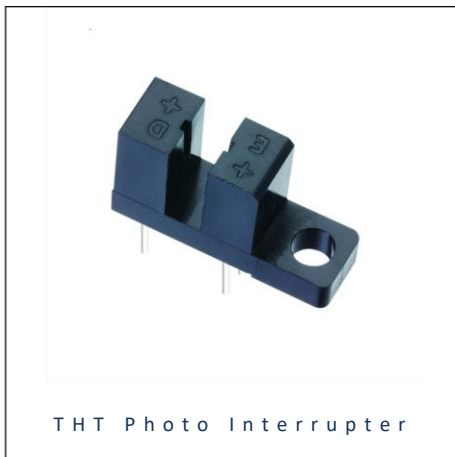


- ▶ THT Through hole
- ▶ 24.5x6.3x10.8mm
- ▶ Photo Interrupter (PI)

NOP08L52



Release Date: 08 December 2023 Version: A1.2



THT Photo Interrupter

## THT Photo Interrupter



### FEATURES:

- **Package:** THT 4-Pins Photo Interrupter Block
- **Viewing Angle:** 40°
- **Infrared Peak Wavelength:** 940nm
- **Wavelength of Maxi. Sensitivity:** 940nm
- **Materials:**
  - Die: GaAlAs-GaAs (IR) / Silicon (PT)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Soldering methods:** Hand; Soldering Heat (DIP)
- **Packing:** Bulk in Carton

### APPLICATIONS:

- Voltage Detector
- Monitor Sensor

**CHARACTERISTICS:**

## Absolute Maximum Characteristics (Ta=25°C)

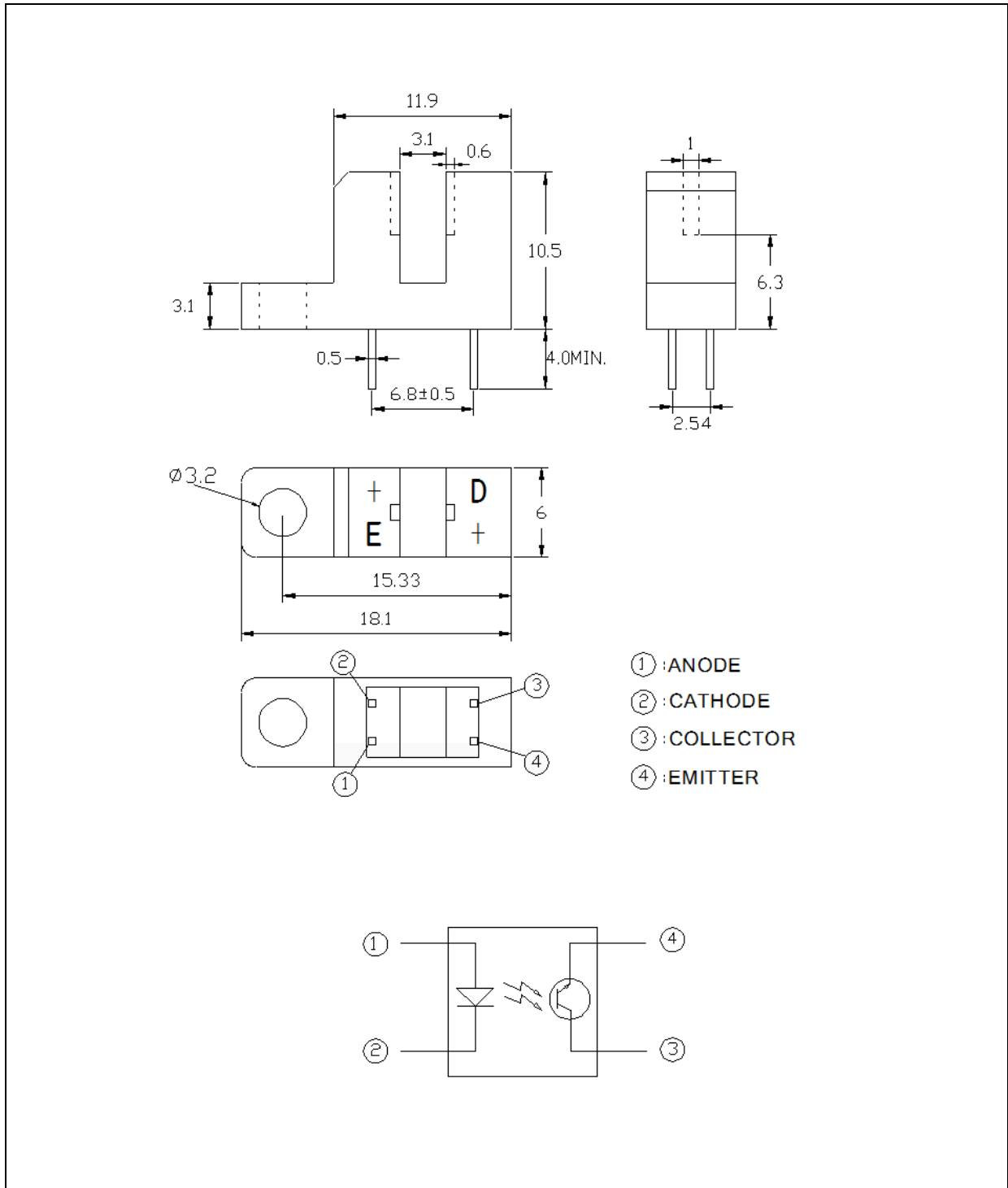
| Parameter |  | Symbol             | Ratings  | Unit |
|-----------|--|--------------------|----------|------|
| IR        | Power Dissipation  | P <sub>D</sub>     | 75       | mW   |
|           | Continuous Forward Current                                 | I <sub>F</sub>     | 50       | mA   |
|           | Peak Forward Current<br>(pulse width: 10μs, duty cycle 1%) | I <sub>PF</sub>    | 1        | A    |
|           | Reverse Voltage  | V <sub>R</sub>     | 5        | V    |
|           | Operating Temperature                                      | T <sub>OPR</sub>   | -40~+85  | °C   |
|           | Storage Temperature  | T <sub>STG</sub>   | -40~+100 | °C   |
| PT        | Power Dissipation  | P <sub>D</sub>     | 75       | mW   |
|           | Emitter-Collector Breakdown Voltage                        | BV <sub>ECCO</sub> | 5        | V    |
|           | Collector-Emitter Sustaining Voltage                       | V <sub>CE</sub>    | 30       | V    |
|           | Relative Humidity at 85°C                                  | H <sub>R</sub>     | 85       | %    |
|           | Operating Temperature                                      | T <sub>OPR</sub>   | -40~+85  | °C   |
|           | Storage Temperature  | T <sub>STG</sub>   | -40~+100 | °C   |

## Electrical &amp; Optical Characteristics (Ta=25°C)

| Parameter | Symbol                  | Values         |      |      | Unit | Test Condition |   |
|-----------|-------------------------|----------------|------|------|------|----------------|---|
|           |                         | Min.           | Typ. | Max. |      |                |   |
| Input     | Forward Voltage         | V <sub>F</sub> | ---  | 1.2  | 1.5  | V              | I <sub>F</sub> =20mA<br>V <sub>R</sub> =4V  |
|           | Reverse Leakage Current | I <sub>R</sub> | ---  | ---  | 10   | μA             |   |
| Output    | Dark Current            | I <sub>d</sub> | ---  | ---  | 100  | nA             | V <sub>CE</sub> =10V<br>E <sub>e</sub> =0mW/cm <sup>2</sup>                               |
|           | Junction Capacitance    | C <sub>T</sub> | ---  | ---  | ---  | pF             |   |
| Coupled   | Output Current          | I <sub>C</sub> | 0.5  | ---  | ---  | mA             | I <sub>F</sub> =20mA<br>V <sub>CE</sub> =5V<br>I <sub>C</sub> =2mA<br>R <sub>L</sub> =1KΩ |
|           | Rise Time               | T <sub>r</sub> | ---  | 5    | ---  | μS             |   |
|           | Fall Time               | T <sub>f</sub> | ---  | 5    | ---  | μS             |   |

## OUTLINE DIMENSION:

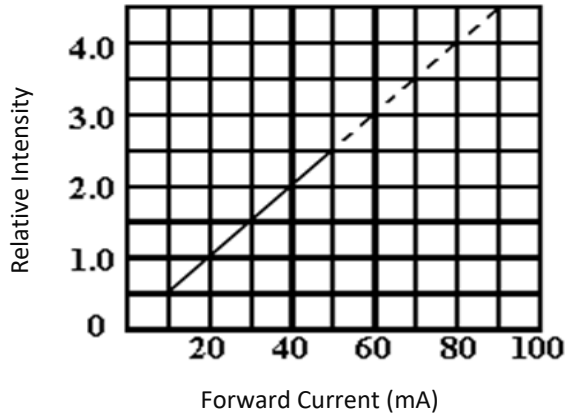
Package Dimension:



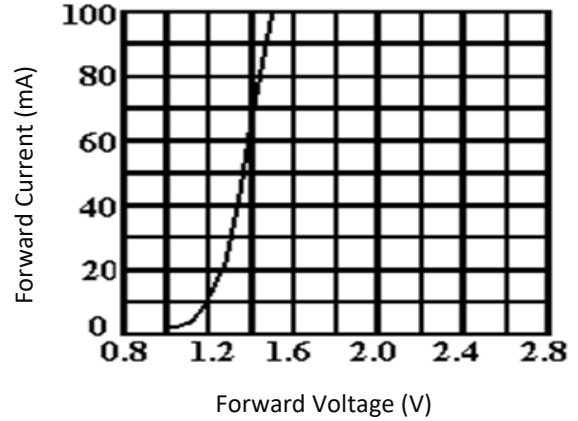
1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.2$ mm, unless otherwise noted.

## ELECTRO-OPTICAL CHARACTERISTICS (IR):

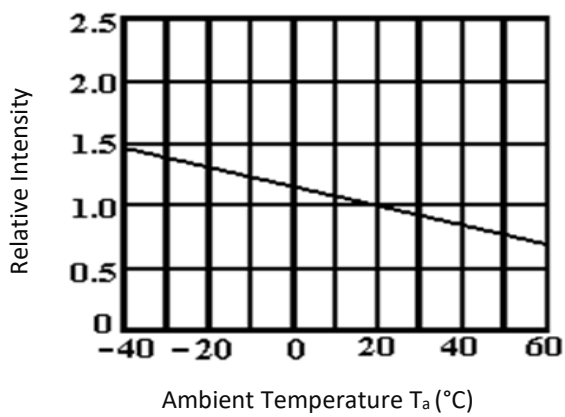
Relative Intensity v.s. Forward Current



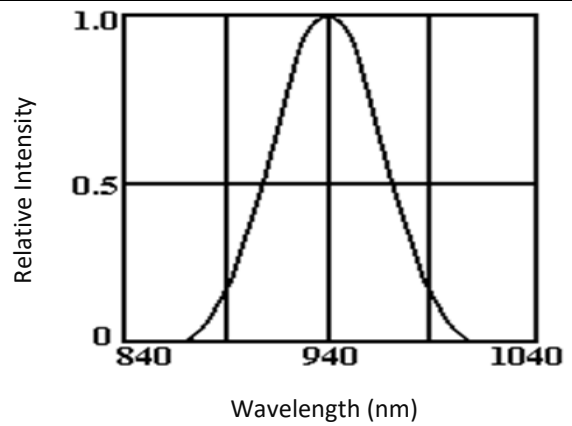
Forward Current v.s. Forward Voltage



Relative Intensity v.s. Temperature

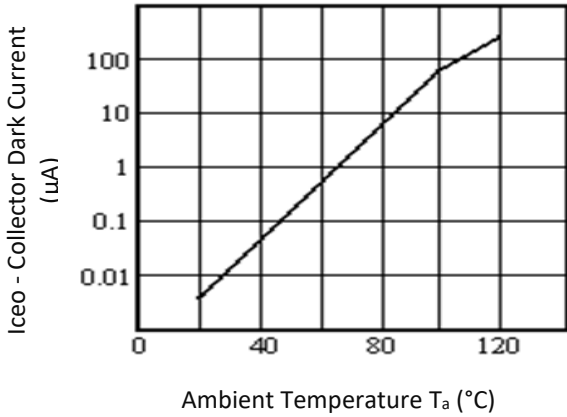


Spectral Distribution

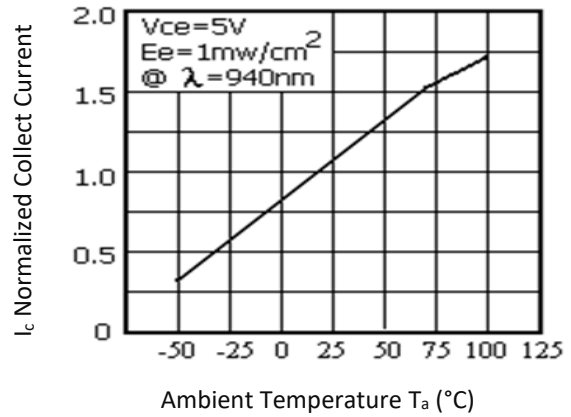


## ELECTRO-OPTICAL CHARACTERISTICS (PT):

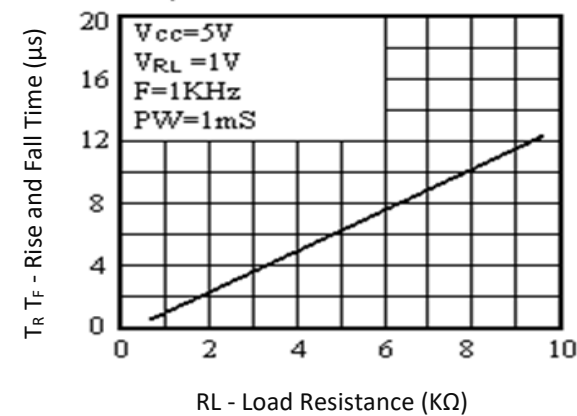
Ambient Temperature v.s. Collect Dark Current



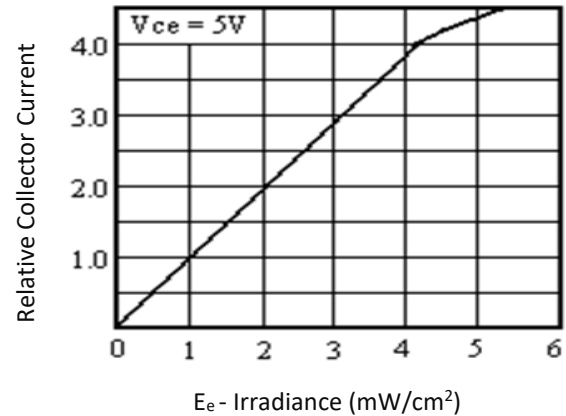
Ambient Temp. v.s. Normalized Collect Current



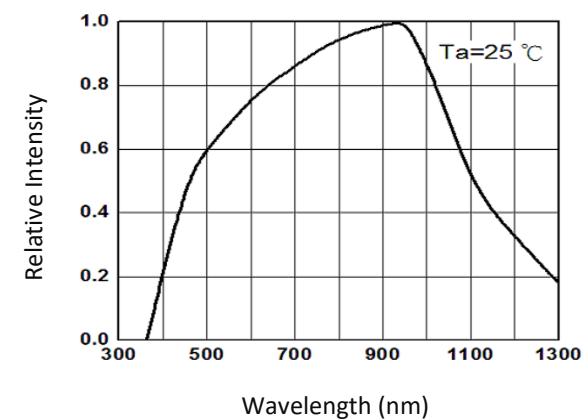
Rise and Fall Time v.s. Load Resistance



Forward Collector Current v.s. Irradiance



Relative Intensity v.s. Wavelength



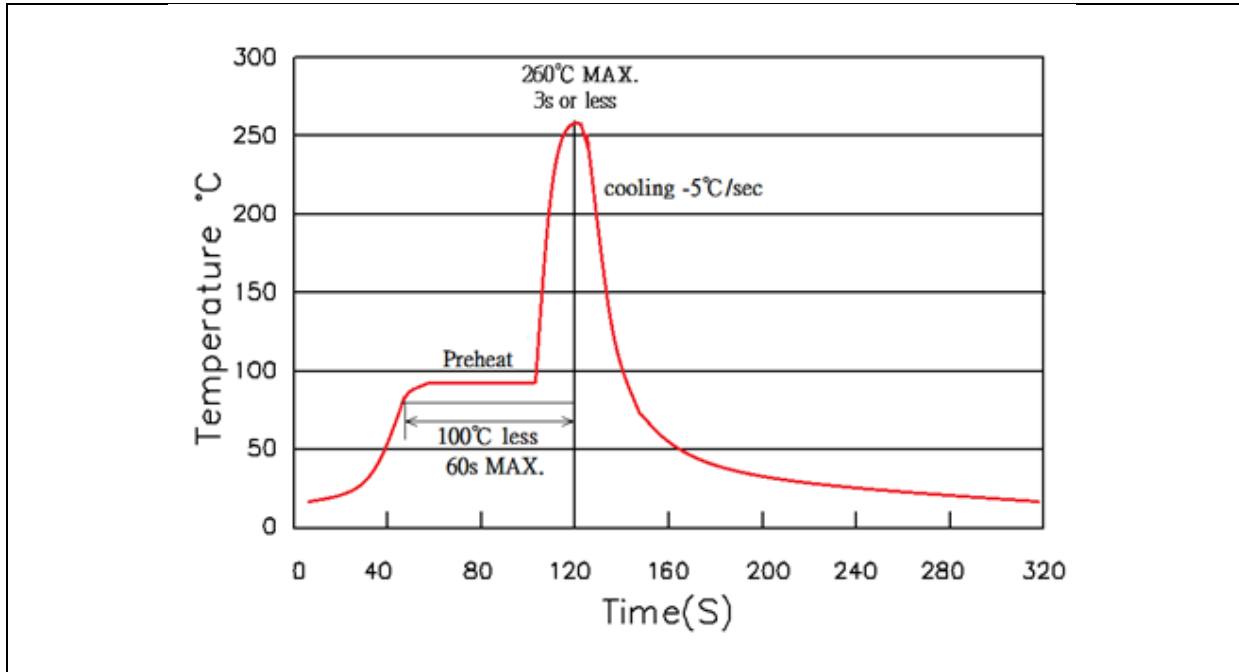
## RECOMMENDED SOLDERING PROFILE:

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### Hand Solder (Solder Iron):

- Temperature at tip of iron: 350°C Max.
- Soldering Time: 3 seconds  $\pm$  1 sec.

### Solder Heat (DIP):



### Note:

1. Recommend reflow temperature 245°C. The maximum soldering temperature should be limited to 260°C.
2. Maximum reflow soldering: 1 times.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

## PRECAUTIONS OF USE:

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### Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 months at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a year. Otherwise, they should be kept in a damp-proof box with desiccating agent <10% R.H. and apply baking before use.

### Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

The suggested baking conditions are as followings:

- 60±3°C x 36hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

### Testing Circuit:



Must apply resistor(s) for protection (over current proof).

### Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

### ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

**REVISION RECORD:**

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| Version | Date       | Summary of Revision                      |
|---------|------------|--|
| A1.0    | 16/04/2023 | Datasheet set-up.                        |
| A1.1    | 23/11/2023 | Revise status as not moisture sensitive. |
| A1.2    | 08/12/2023 | Revise storage condition.                |



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