



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
- ▶ 5.0x4.2x5.2mm
- ▶ Photo Interrupter (PI)

NOP71L01



Release Date: 22 July 2025 Version: A1.0



THT Photo Interrupter

THT Photo Interrupter



DESCRIPTION:

- ✓ Compact package based on the double-mould method.
- ✓ High resolution (slit width = 0.4mm).
- ✓ Gap between emitter and detector is 2.0mm.

FEATURES:

- **Package:** THT 4-Pins Photo Interrupter Block
- **Maximum Forward Current:** 50mA
- **Peak Forward Voltage (typ.):** 3V
- **Infrared Peak Wavelength (typ.):** 950nm
- **Wavelength of Maxi. Sensitivity (typ.):** 800nm
- **Operating Temperature:** -25~+85°C
- **Storage Temperature:** -40~+100°C
- **Soldering methods:** Hand; Soldering Heat (DIP)
- **Packing:** Bulk in Carton

APPLICATIONS:

- Floppy Disk Drives
- Printers
- Cameras

CHARACTERISTICS:

Absolute Maximum Characteristics ($T_a=25^{\circ}\text{C}$)

Parameter		Symbol	Ratings	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P_D	75	mW
Output	Collector-Emitter Voltage	V_{CEO}	30	V
	Emitter-Collector Voltage	V_{ECO}	4.5	V
	Collector Power Dissipation	P_C	80	mW
Operating Temperature		T_{OPR}	$-25^{\circ}\text{C} \sim +85^{\circ}\text{C}$	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	$-40^{\circ}\text{C} \sim +100^{\circ}\text{C}$	$^{\circ}\text{C}$
Soldering Temperature		T_{SOL}	260 for 10s	$^{\circ}\text{C}$



CHARACTERISTICS:

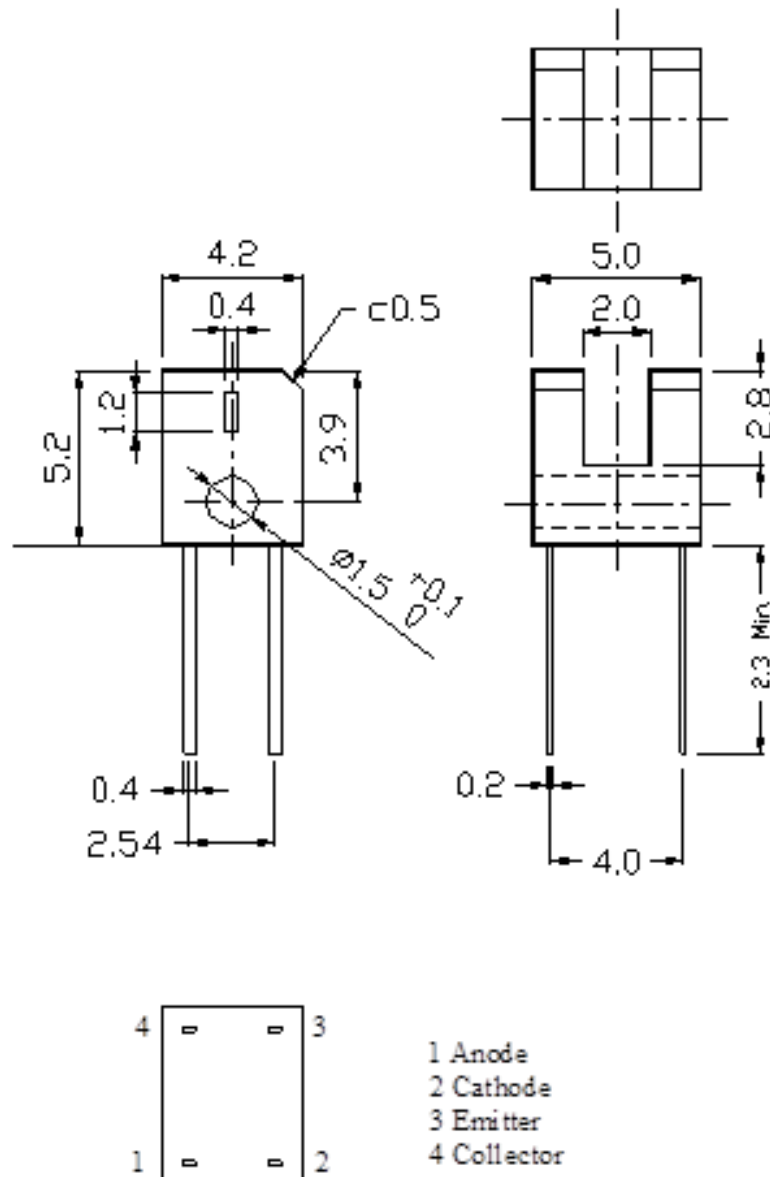
Electrical & Optical Characteristics ($T_a=25^\circ\text{C}$)

Parameter		Symbol	Values			Unit	Test Condition
			Min.	Typ.	Max.		
Input	Forward Voltage	V_F	---	1.3	1.6	V	$I_F=50\text{mA}$
	Peak Forward Voltage	V_{FM}	---	3	4	V	$I_{FM}=0.5\text{A}$
	Reverse Current	I_R	---	---	10	μA	$V_R=5\text{V}$
Output	Collector Dark Current	I_{CEO}	---	---	0.5	μA	$V_{ce}=10\text{V}$
	Peak Sensitivity Wavelength	λ_P	---	800	---	nm	---
	Collector-Emitter Breakdown Voltage	BV_{CEO}	30	---	---	V	$I_{ce}=50\mu\text{A}$
	Emitter-Collector Breakdown Voltage	BV_{ECO}	4.5	---	---	V	$I_{ec}=50\mu\text{A}$
Coupled	Collector Current	I_C	0.2	1.0	---	mA	$V_{ce}=5\text{V}$ $I_F=20\text{mA}$
	Collector-Emitter Saturation Voltage	$V_{ce(sat)}$	---	---	0.4	V	$I_F=20\text{mA}$ $I_c=0.1\text{A}$
	Response Time	T_r/T_f	---	10	---	μs	$I_F=5\text{mA}$ $V_{cc}=5\text{V}$ $R_L=100\Omega$
Infrared LED	Cut-off Frequency	f_c	---	1	---	MHz	$I_F=50\text{mA}$
	Peak Light Emitting Wavelength	λ_P	---	950	---	nm	---
Photo Transistor	Response Time	T_r/T_f	---	10	---	μs	$V_{cc}=5\text{V}$ $I_c=1\text{mA}$ $R_L=100\Omega$
	Maximum Sensitivity Wavelength	λ_P	---	800	---	nm	---



OUTLINE DIMENSION:

Package Dimension:

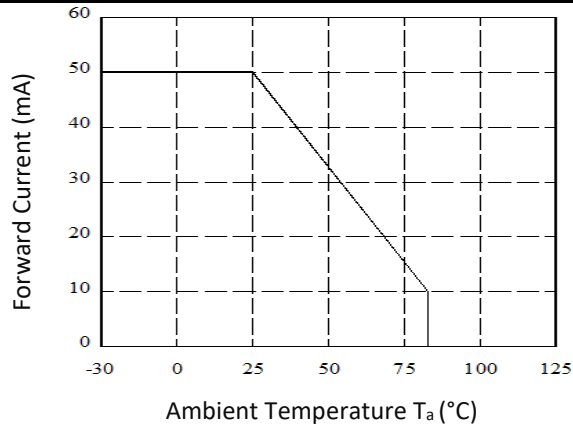


1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.2\text{mm}$, unless otherwise noted.

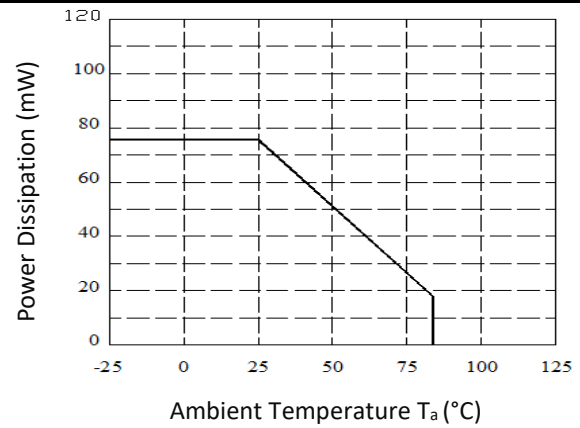


ELECTRO-OPTICAL CHARACTERISTICS:

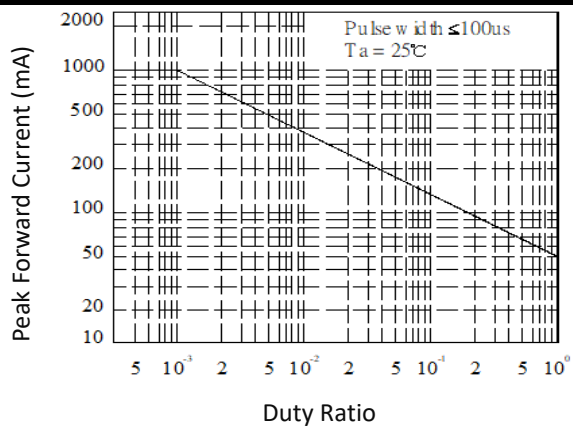
Forward Current v.s. Ambient Temperature



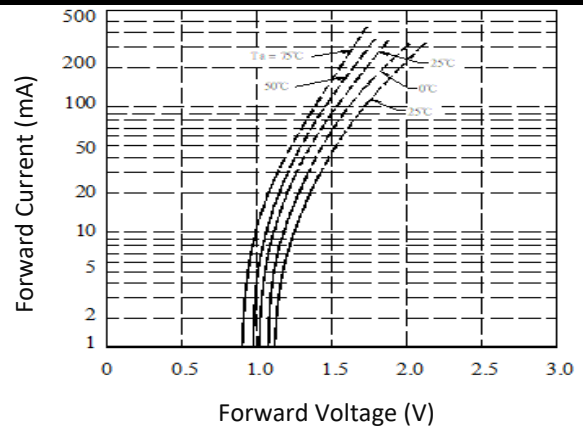
Power Dissipation v.s. Ambient Temperature



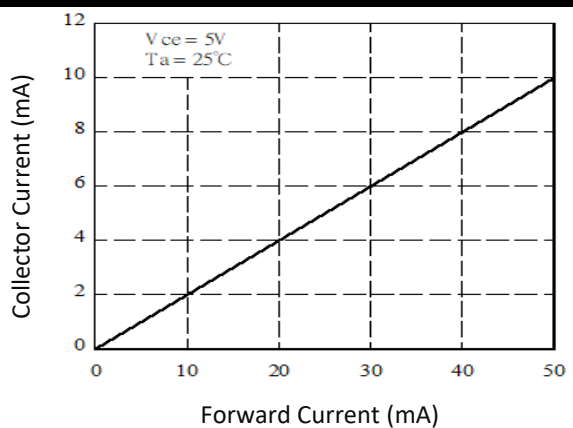
Peak Forward Current v.s. Duty Ratio



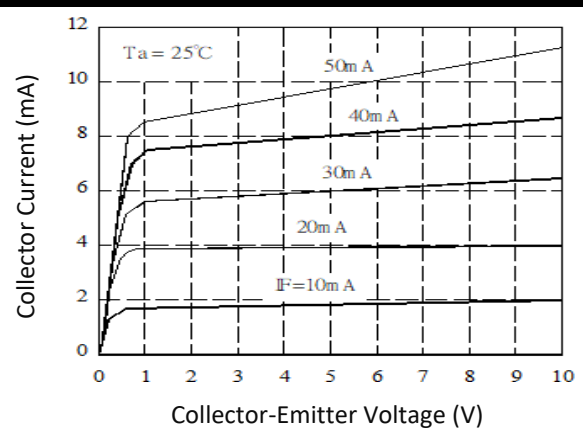
Forward Current v.s. Forward Voltage



Collector Current v.s. Forward Current

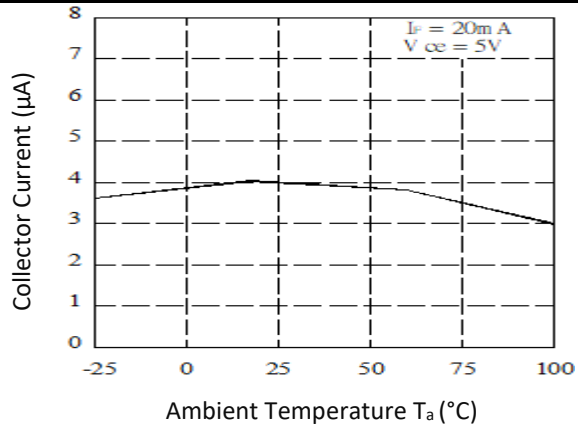


Collector Current v.s. Collector-Emitter Voltage

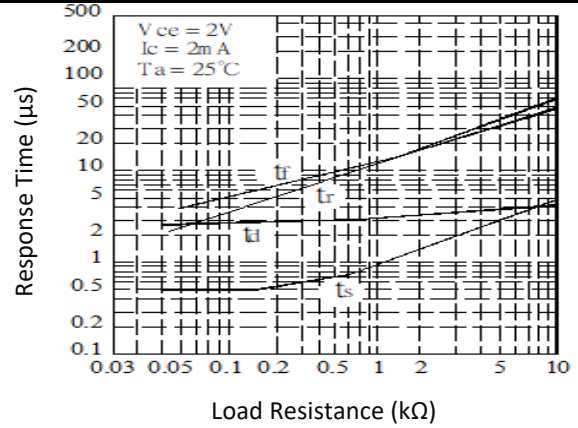


ELECTRO-OPTICAL CHARACTERISTICS:

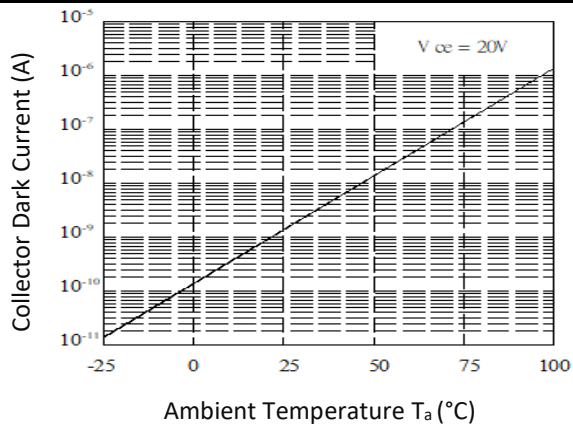
Relative Intensity v.s. Forward Current



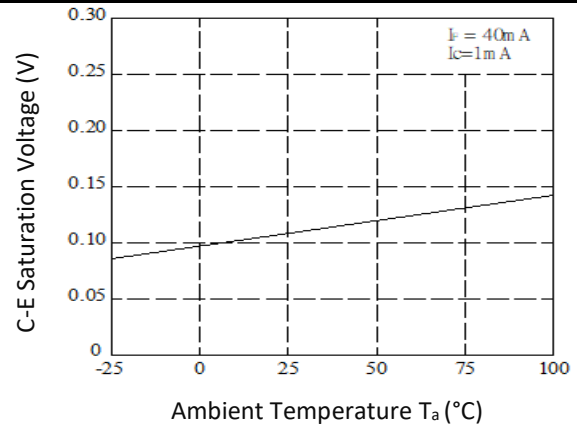
Response Time v.s. Load Resistance



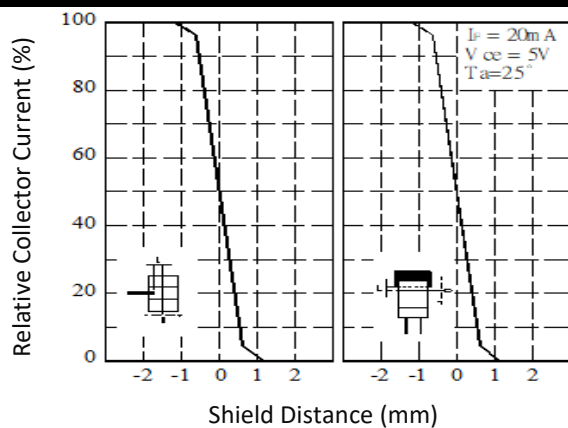
Collector Dark Current v.s. Ambient Temperature



C-E Saturation Voltage v.s. Ambient Temperature

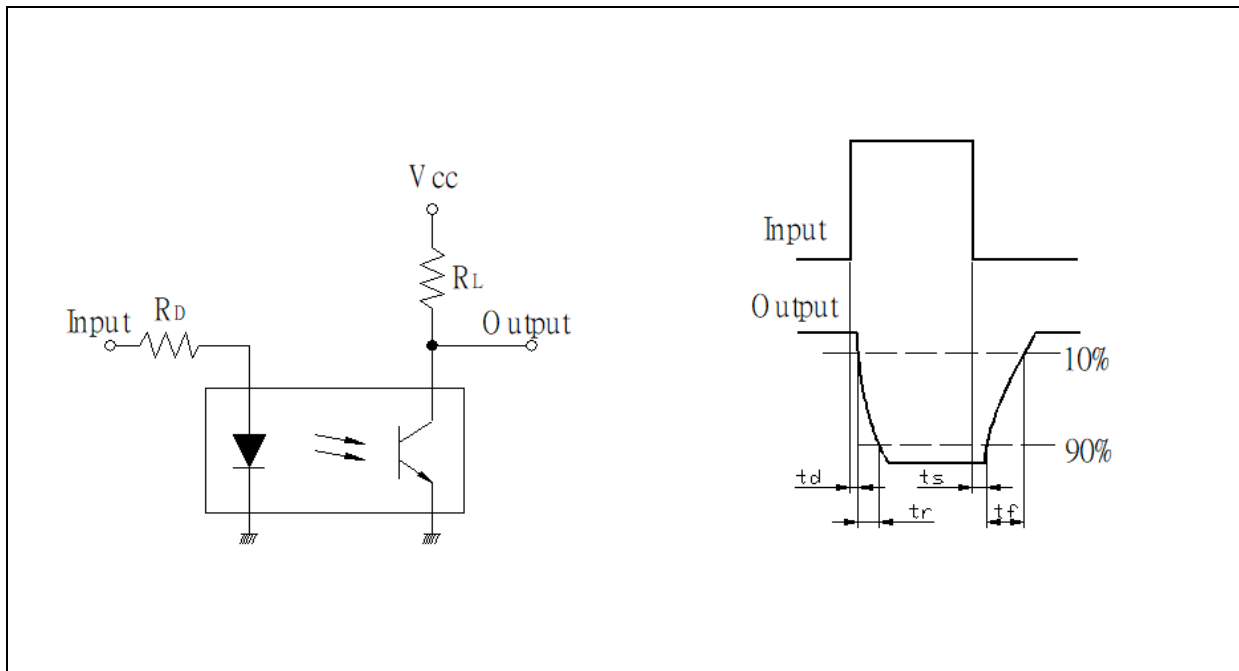


Relative Collector Current v.s. Shield Distance



TEST CIRCUIT:

Test Circuit and Waveforms for Response Time:



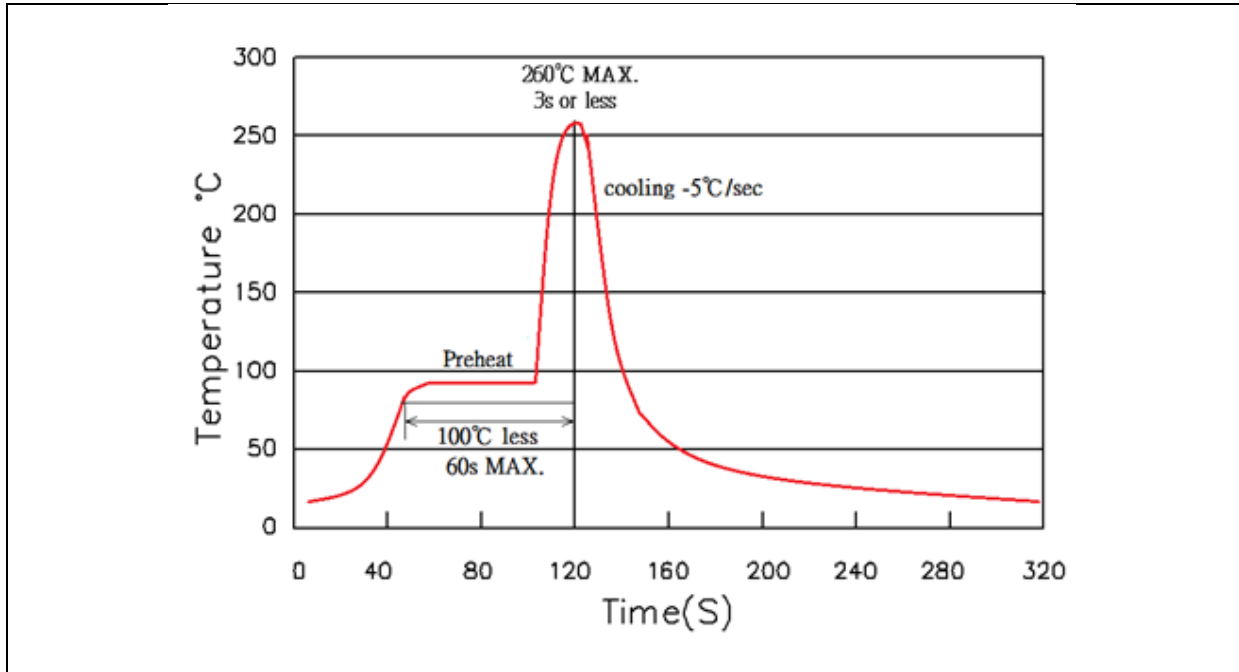


RECOMMENDED SOLDERING PROFILE:

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 time.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PRECAUTIONS OF USE:

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.

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:

Version	Date	Summary of Revision
A1.0	22/07/2025	Datasheet set-up.