

Product Specifications

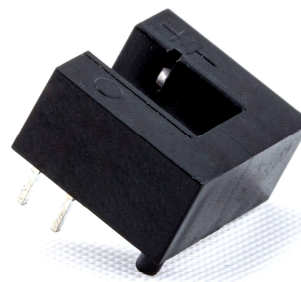
Item No.	DPI040100	Description	Photo Interrupter	Version	3
Page	1 of 8		Publish Date	Jun. 18, 2025	

● FUNCTIONS

1. Position detecting
2. Paper detecting
3. Signal detecting

● APPLICATIONS

1. Automatic control system
2. Automation Equipment
3. Scanner
4. Printer
5. Fax machine
6. Copy machine
7. Printing machine
8. PC mouse
9. Security system
10. Counter
11. Optical encoders
12. Other relevant detection about position detecting, paper detecting, signal detecting



● FEATURES

1. Simple structure, multi-stalling angles for option.
2. Housing made of high anti-tension industrial plastic, free from crack caused during installation.
3. Infrared LED emitting diode matches with phototransistor, free from interference of vision light.
4. Comply with RoHS.



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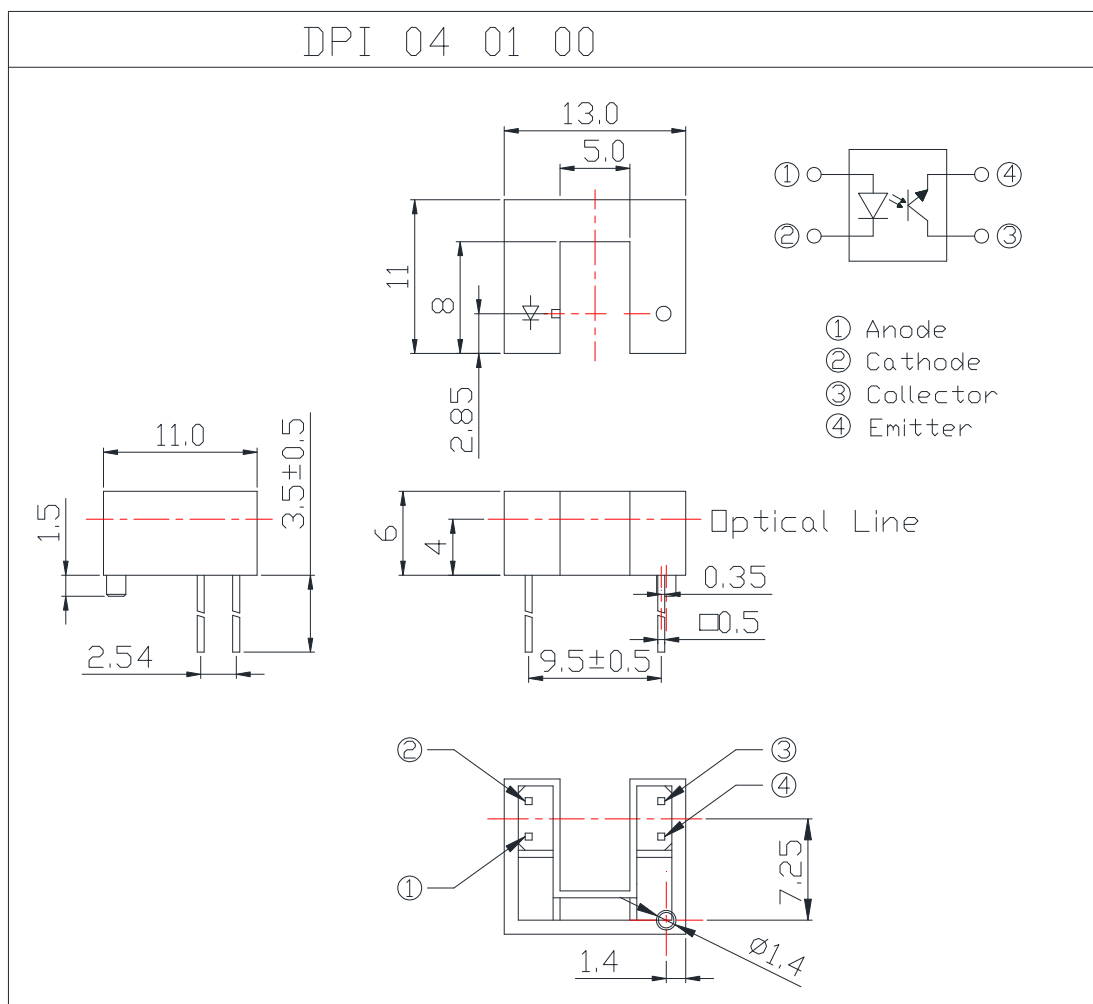
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Page	2 of 8		Publish Date	Jun. 18, 2025	

● DIMENSIONS / OPERATION / P.C.B. LAYOUT (Unit: mm, Tolerance: ± 0.25 mm)

Fig. 1



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Item No.	DPI040100	Description	Photo Interrupter	Version	3
Page	3 of 8		Publish Date	Jun. 18, 2025	

● Current/Voltage/Conditions Suggested

Input Current	Operating Voltage	Conditions
10 mA	5 V	$V_{CE}=5V$ $R_D=390\text{ ohm}$ $R_L=33K\text{ ohm}$

● Absolute Maximum Rating ($T_a=25^{\circ}C$)

Item		Symbol	Rating	Unit
Input	Power Dissipation	P_d	75	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current (*1)	I_{FP}	1	A
Output	Collector Power Dissipation	P_C	100	mW
	Collector Current	I_C	40	mA
	C-E Voltage	V_{CEO}	30	V
	E-C Voltage	V_{ECO}	5	V
Operating Temperature		T_{opr}	-40~+85	$^{\circ}C$
Storage Temperature		T_{stg}	-45~+85	$^{\circ}C$
Soldering Temperature (*1)		T_{sol}	260	$^{\circ}C$

Notes: (*1) $t_w=100\mu\text{sec}$, $T=10\text{ msec}$ (*2) $t_{\leq 5\text{ Sec}}$ (*2) $t_{\leq 5\text{ Sec}}$



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Item No.	DPI040100	Description	Photo Interrupter	Version	3
Page	4 of 8		Publish Date	Jun. 18, 2025	

● Electrical Optical Characteristics (Ta=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F=20\text{mA}$	-	1.2	1.5	V
	Reverse Current	I_R	$V_R=5\text{V}$	-	-	100	μA
	Peak Wavelength	λ_p	$I_F=20\text{mA}$		940		nm
Output	Dark Current	I_D	$V_{CE}=10\text{V}$	-	-	100	nA
	C-E Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=0.5\text{mA}$ $I_F=20\text{mA}$	-	-	0.4	V
Light Current		I_L	$V_{CE}=5\text{V}$ $I_F=20\text{mA}$	1.5	-	10	mA
Speed	Rise Time	T_r	$I_{FP}=20\text{mA}$ $V_{CE}=5\text{V}$	-	20	-	μsec
	Fall Time	T_f	$R_L=1\text{K}\Omega$	-	20	-	μsec



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Item No.	DPI040100	Description	Photo Interrupter	Version	3
Page	5 of 8		Publish Date	Jun. 18, 2025	

● Typical Electrical / Optical Characteristics Curves (Ta=25°C)

Fig.1 Power Dissipation vs. Ambient Temperature

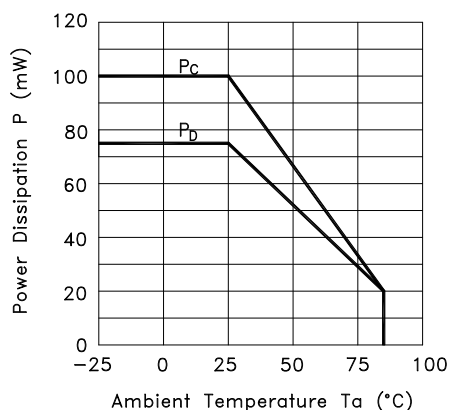


Fig.2 Forward Current vs. Forward Voltage

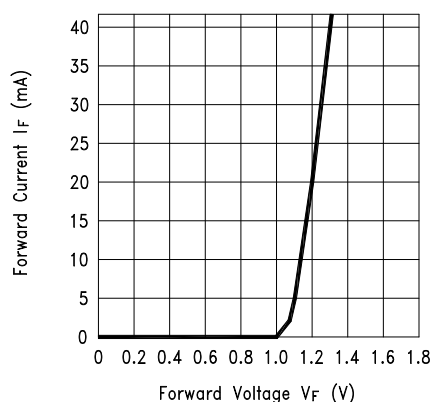


Fig.3 Collector Current vs. Collector-emitter Voltage

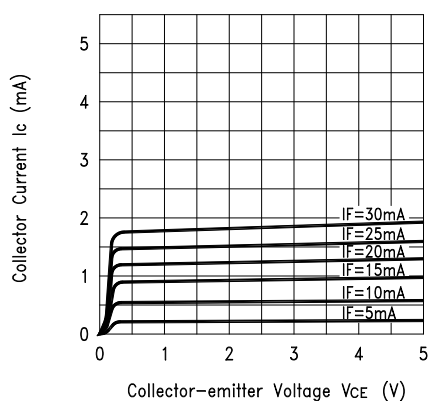
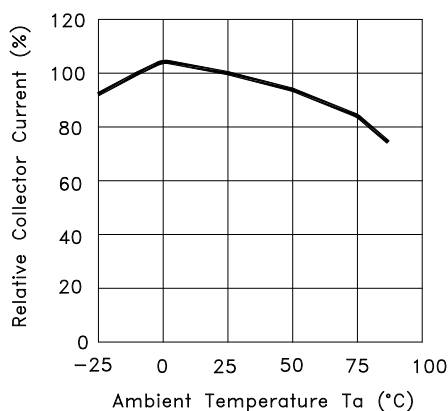


Fig.4 Collector Current vs. Ambient Temperature



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Page	6 of 8		Publish Date	Jun. 18, 2025	

Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature

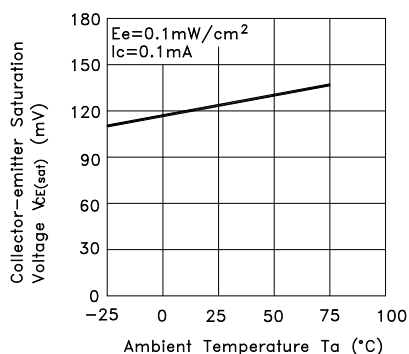


Fig.6 Response Time vs. Load Resistance

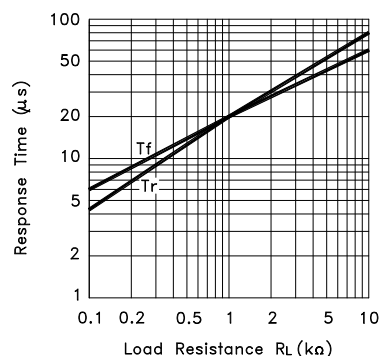
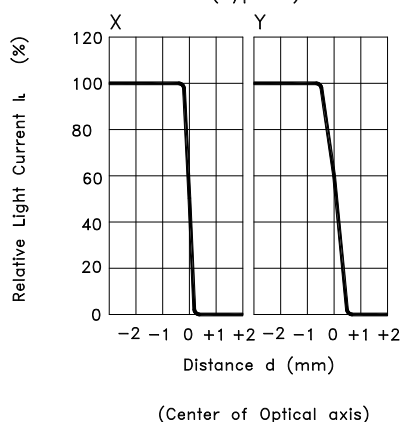
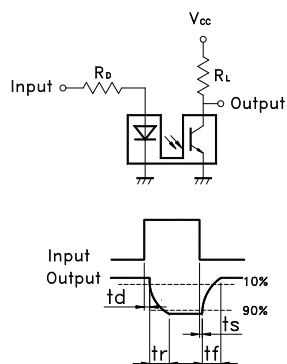


Fig.7 Sensing Position Characteristics (Typical)



Test Circuit for Response Time



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Page	7 of 8		Publish Date	Jun. 18, 2025	

● PACKAGE

	Part Number	Package	Quantity	Total	Dimension (mm)
1.	DPI 040100	PE Bag	500 pcs	500 pcs	300L*370W
		Inner Box	3 Bags	1,500 pcs	348L*191W*85H
		Carton	3 Boxes	4,500 pcs	364L*278W*213H

※ Package shown as below for reference.



PE Bag



Inner Box



Carton



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Page	8 of 8		Publish Date	Jun. 18, 2025	

● NOTES

1. For the continued product improvement as one of the company policy, specifications may change or update without notice. The latest information can be obtained through our sales offices. Normally, all products are supplied under our standard conditions.

● PRECAUTIONS FOR USE

1. If the products is intended to be used for other endurance equipment requiring higher safety and reliability such as life support system, space and aviation devices, disaster and safety system, it's necessary to make verification of conformity or contact us for the details before using.
2. Do not try to clean the switch with a solvent or similar substance after the soldering process.
3. Use water-soluble flux may damage the switch.
4. Please follow the soldering instruction accordingly, otherwise might lead to defective.
5. Do not use switch in the environment of high humidity, because such an environment may cause the leakage current between the terminals.
6. Please do not exceed the rated load as there will be a risk of disabling the product function.
7. In the circuit, switch should not be near or directly connected with the magnetic component solder joints (for example: relays, transformers, etc.).
8. To prevent damaging IR and PT, please make electrostatic protective treatment, for example: wearing a conductive wrist strap or antistatic gloves during production process and grounding machinery etc.



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