

## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	1 of 17		Publish Date	Apr. 9, 2019	

### ● FUNCTIONS

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



DPI010100



DPI010200



DPI010300



DPI010400

### ● 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



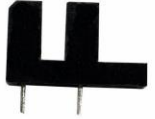
DPI010500



DPI010600



DPI020100



DPI030100



DPI040100



DPI050100

### ● 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.
5. Made in Taiwan.

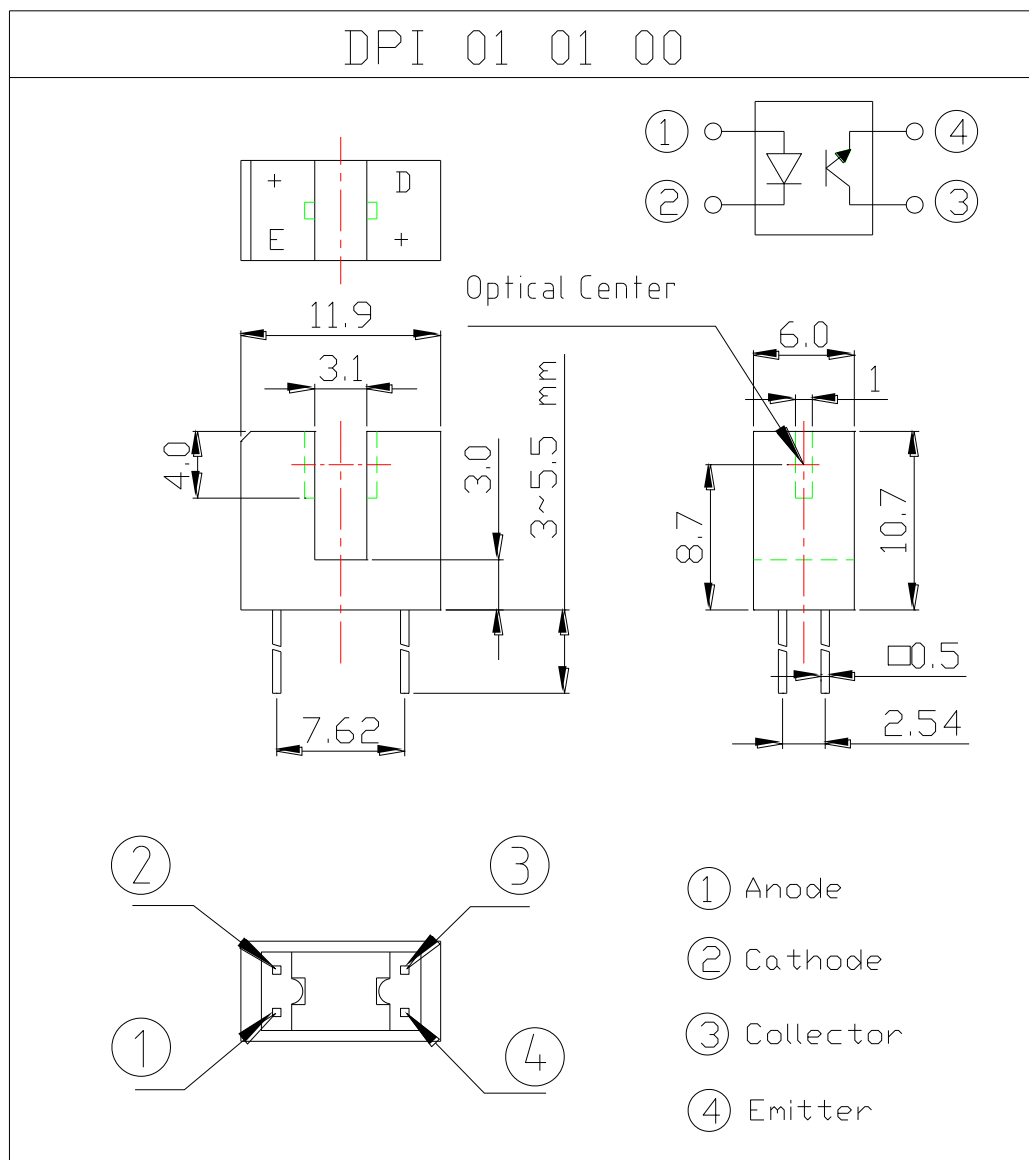


## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	2 of 17		Publish Date	Apr. 9, 2019	

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

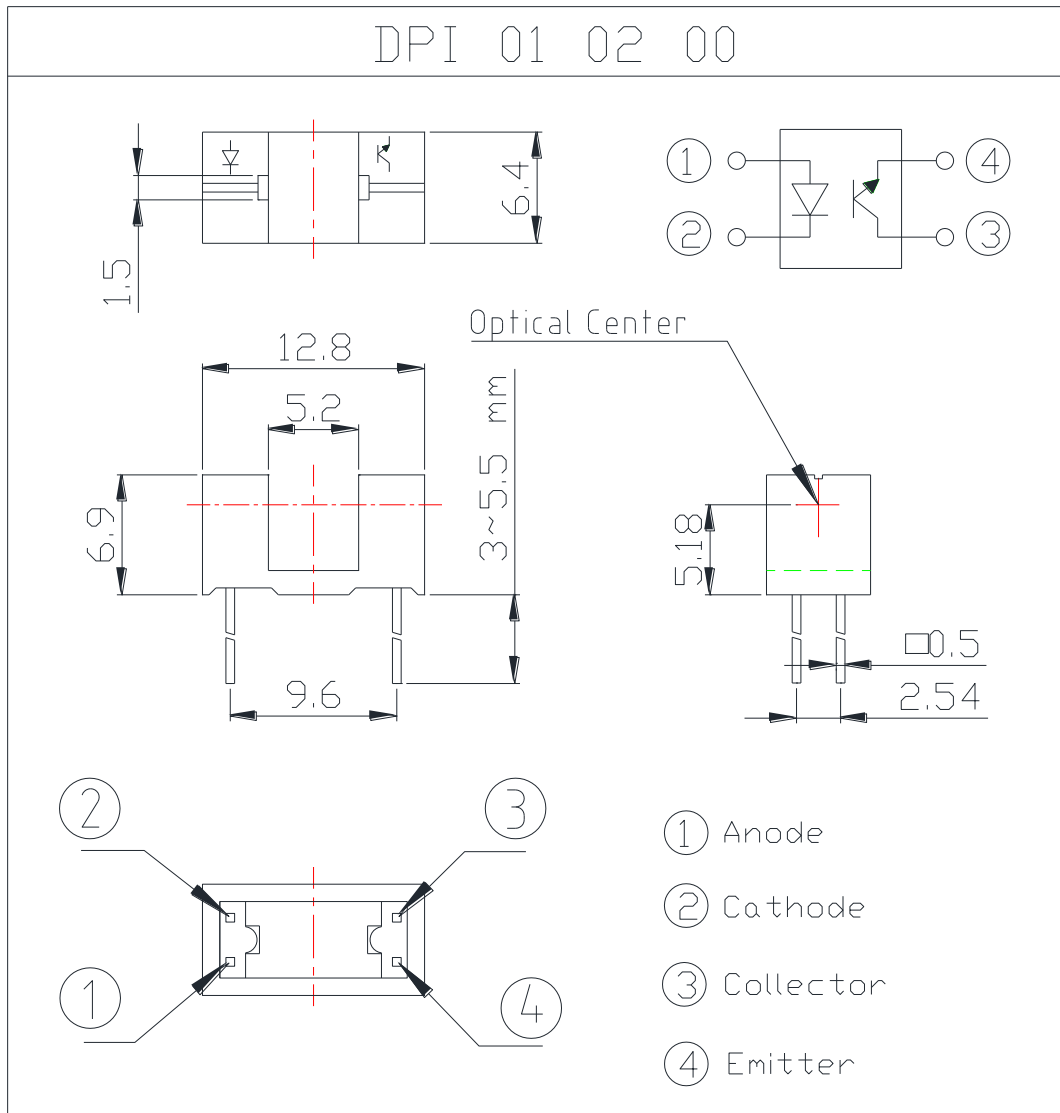
Fig. 1



## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	3 of 17		Publish Date	Apr. 9, 2019	

Fig. 2



### Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	4 of 17		Publish Date	Apr. 9, 2019	

Fig. 3

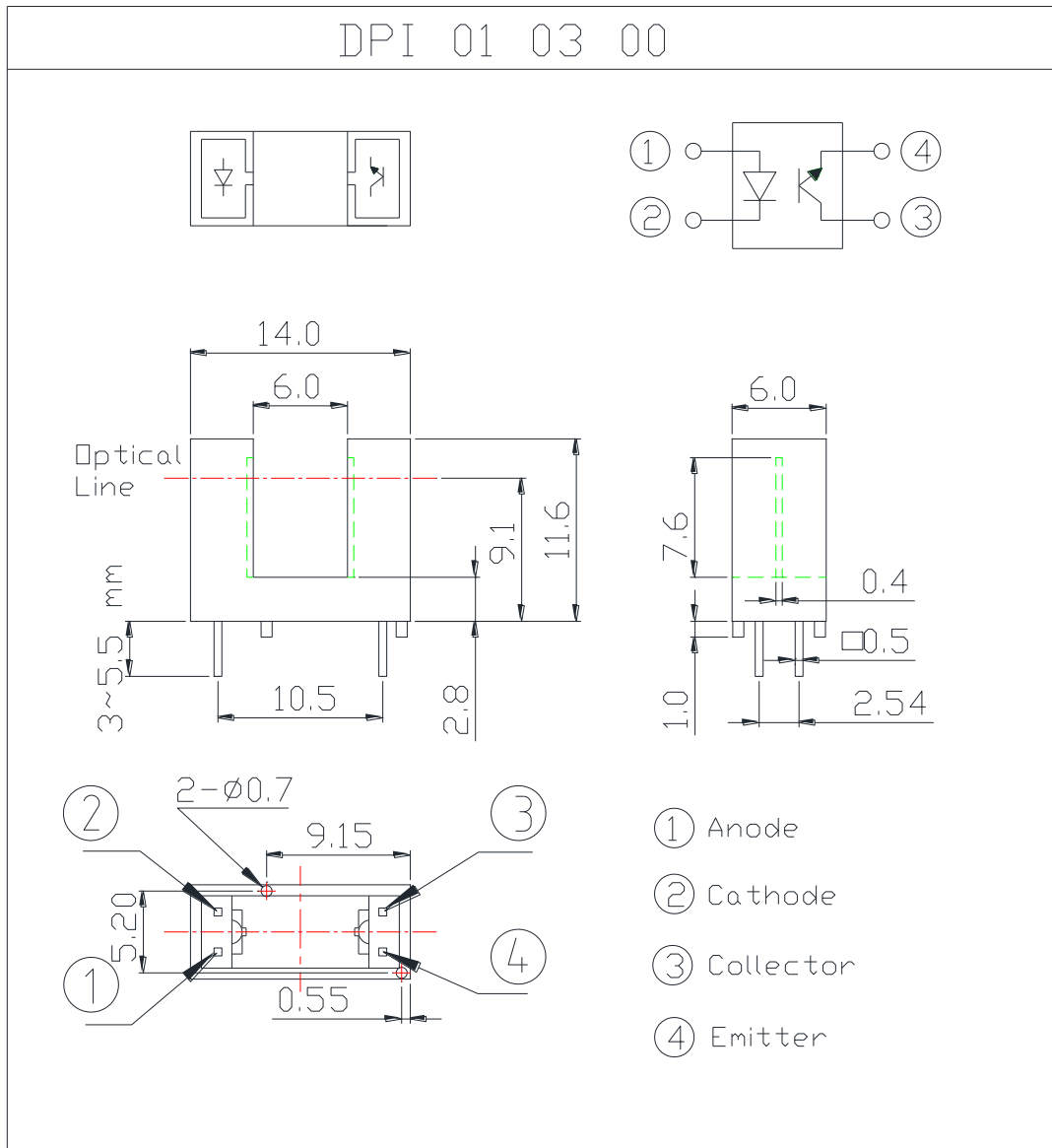


Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	5 of 17		Publish Date	Apr. 9, 2019	

Fig. 4

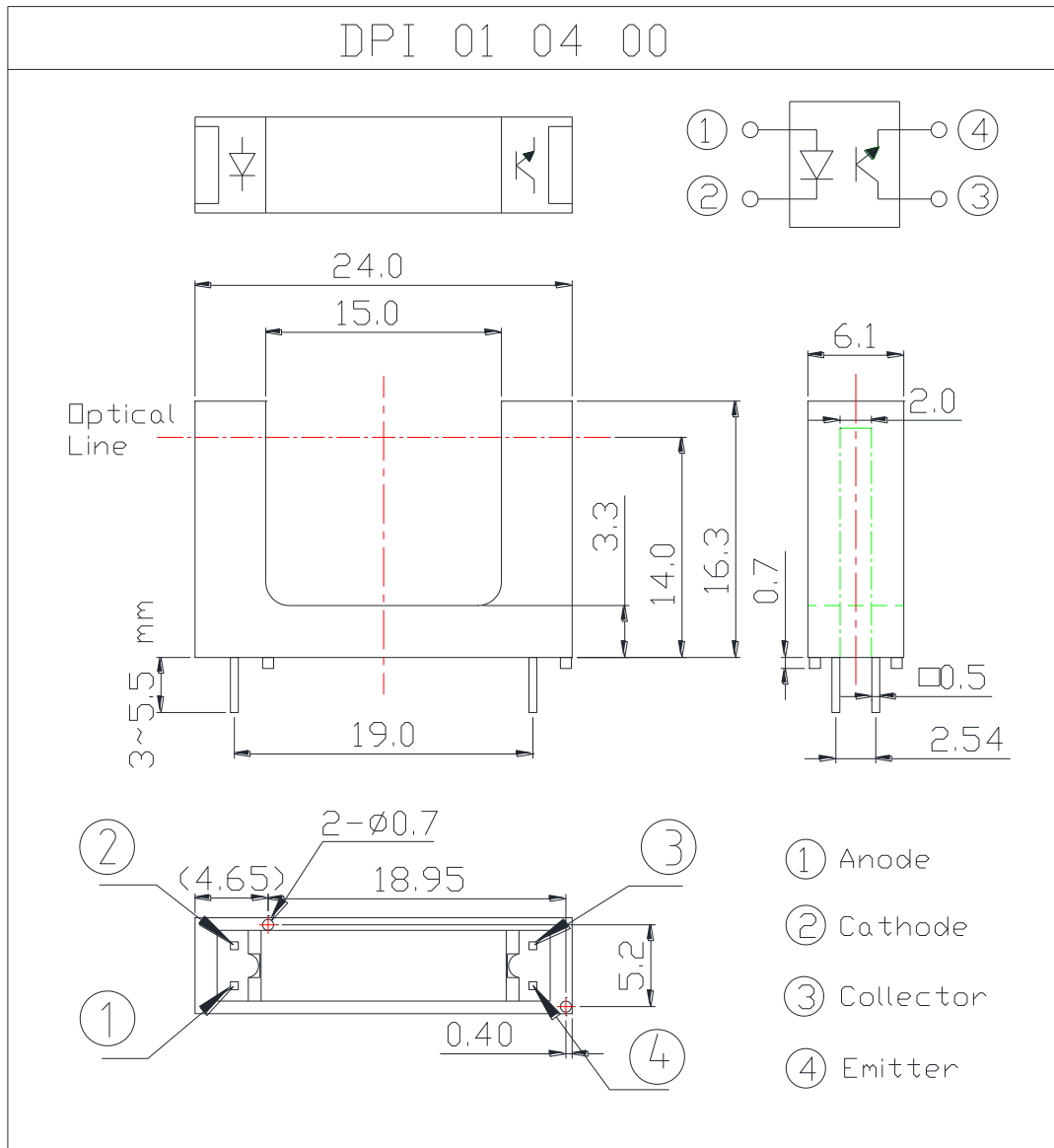
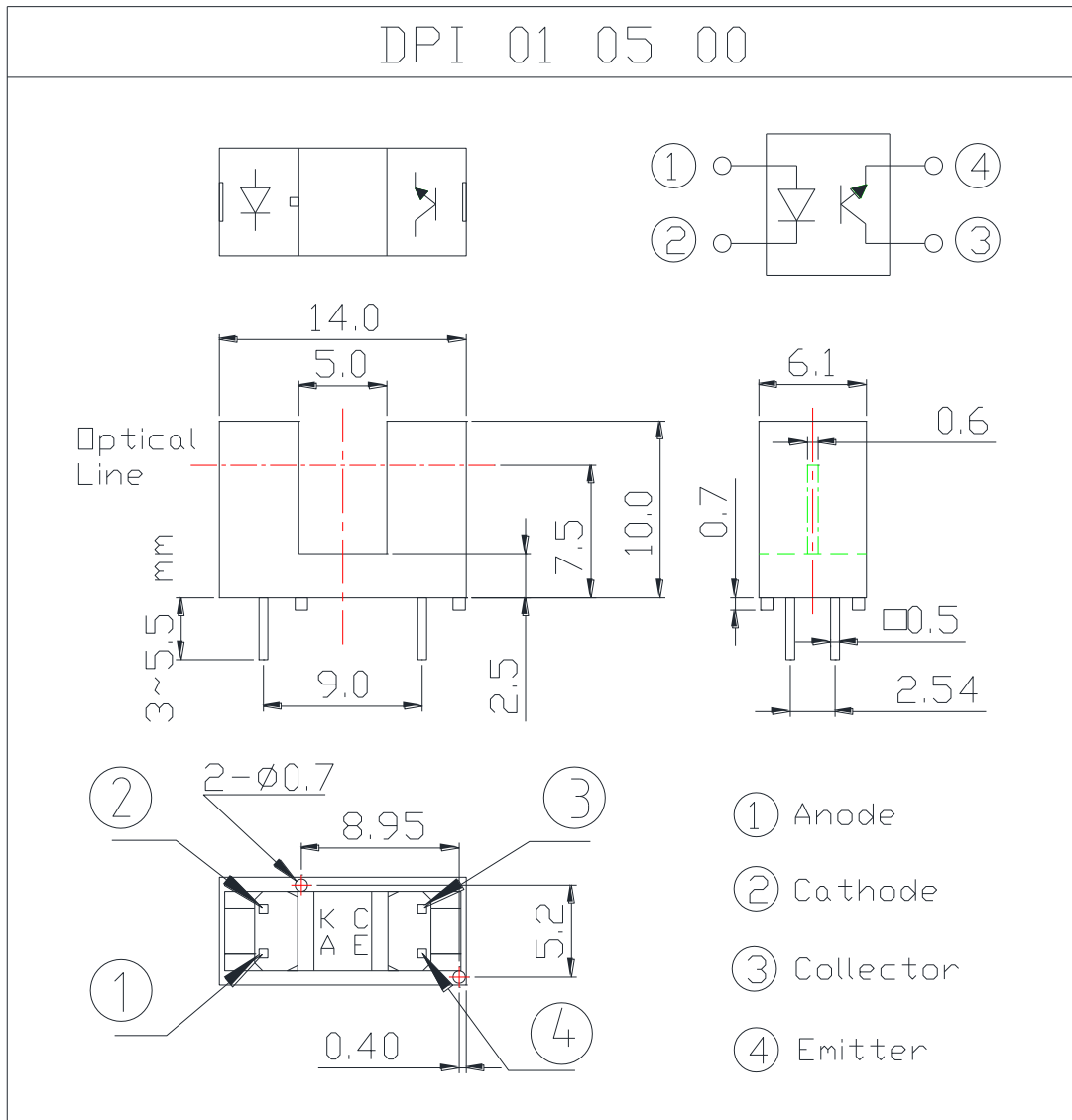


Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	6 of 17		Publish Date	Apr. 9, 2019	

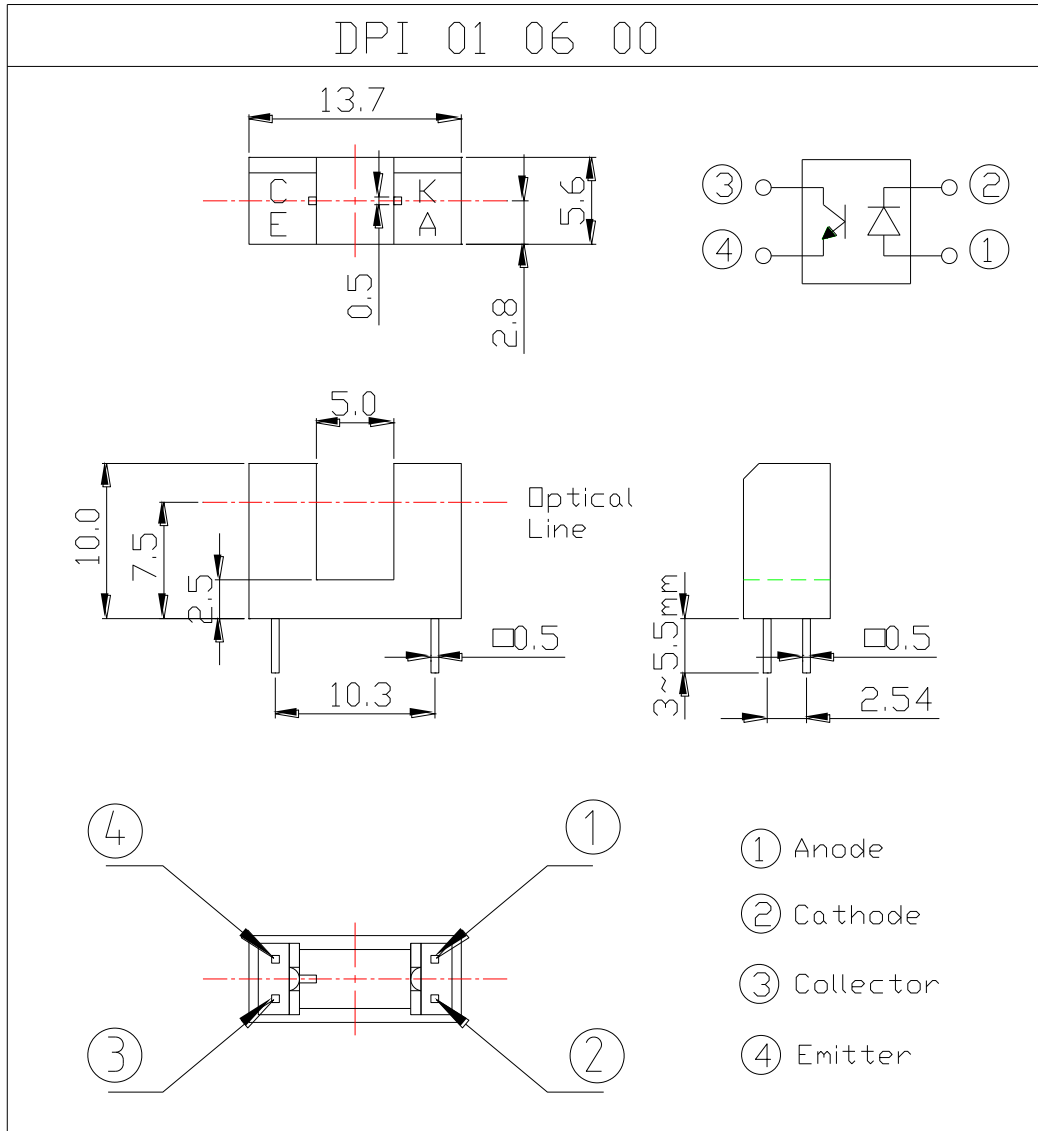
Fig. 5



### Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	7 of 17		Publish Date	Apr. 9, 2019	

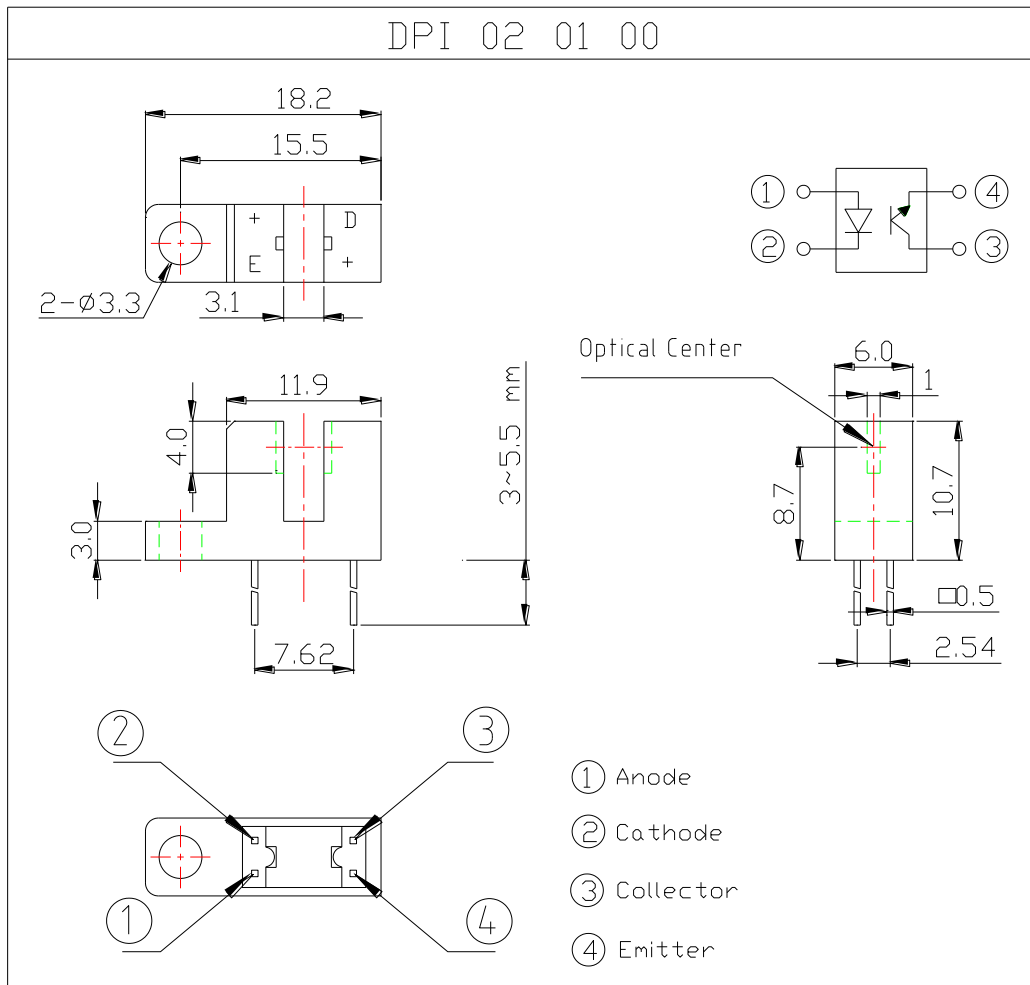
Fig. 6



# Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	8 of 17		Publish Date	Apr. 9, 2019	

Fig. 7

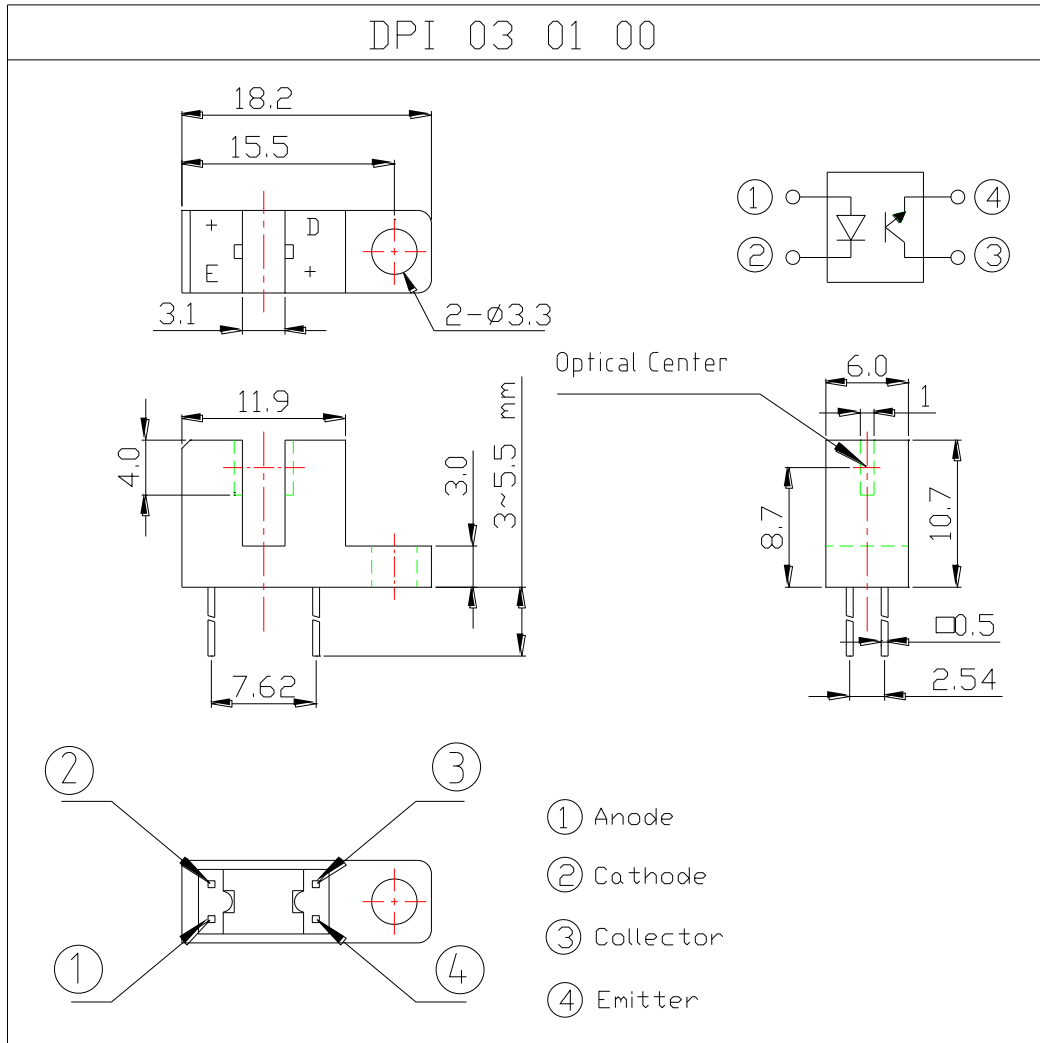




## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	9 of 17		Publish Date	Apr. 9, 2019	

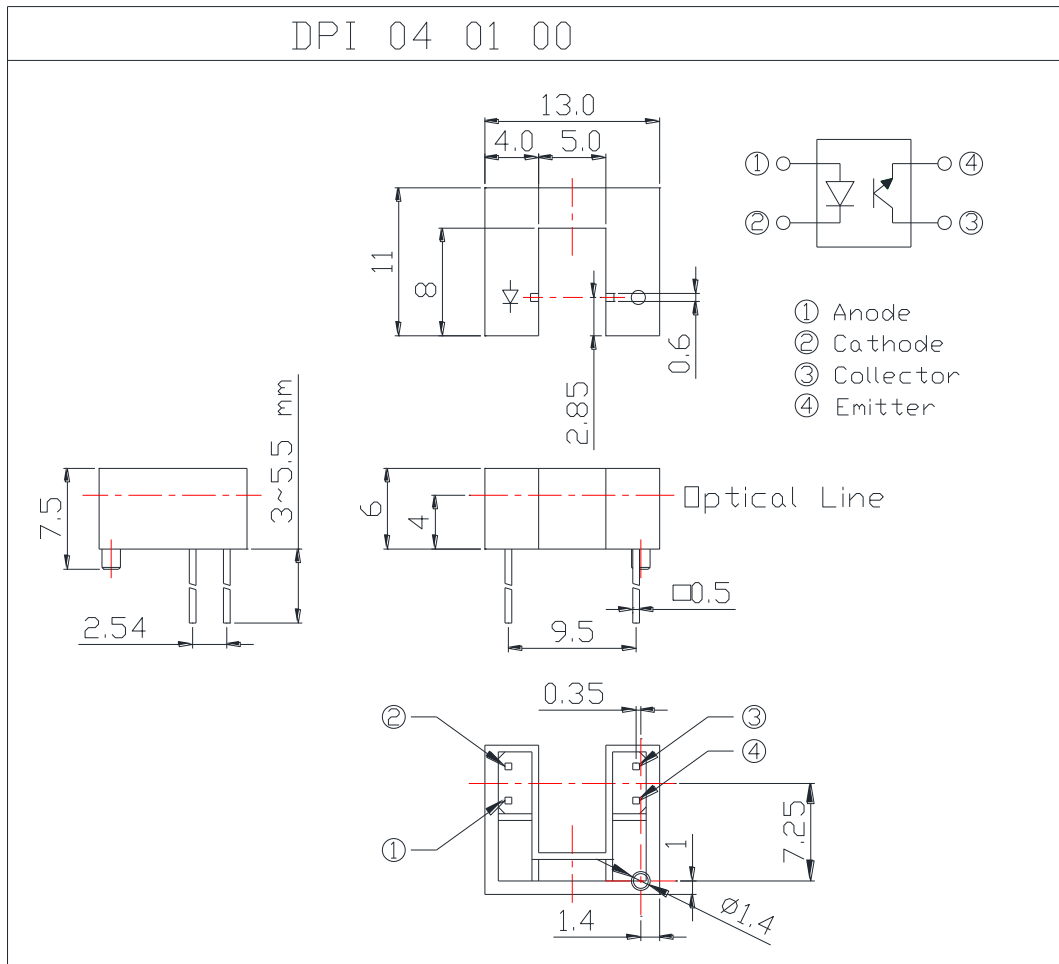
Fig. 8



## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	10 of 17		Publish Date	Apr. 9, 2019	

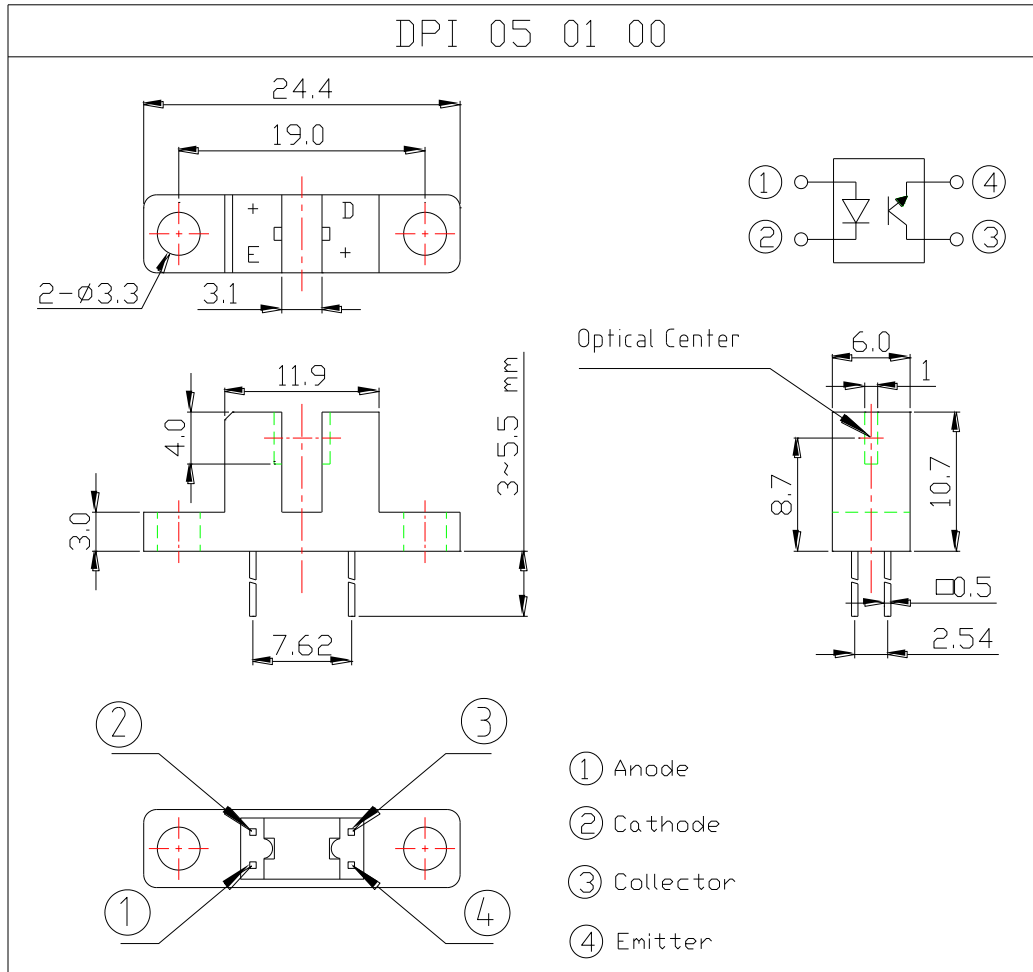
Fig. 9



## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	11 of 17		Publish Date	Apr. 9, 2019	

Fig. 10



## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	12 of 17		Publish Date	Apr. 9, 2019	

● Current/Voltage/Conditions Suggested

Input Current (mA)	Operating Voltage (V)	Conditions
10	5	$V_{CE}=5V$ $R_D=470\text{ ohm}$ $R_L=33K\text{ ohm}$

● 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	$I_{FP}$	1	A
Output	Collector Power Dissipation	$P_C$	100	mW
	Collector Current	$I_C$	20	mA
	C-E Voltage	$V_{CEO}$	30	V
	E-C Voltage	$V_{ECO}$	5	V
Operating Temperature		$T_{opr}$	-25~+85	$^{\circ}C$
Storage Temperature		$T_{stg}$	-40~+100	$^{\circ}C$
Soldering Temperature (*1)		$T_{sol}$	260	$^{\circ}C$

(\*1)  $t=5\text{ Sec}$



## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	13 of 17		Publish Date	Apr. 9, 2019	

● Electrical Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=20\text{mA}$	-	1.2	1.5	V
Reverse Current	$I_R$	$V_R=5\text{V}$	-	-	10	$\mu\text{A}$
Peak Wavelength	$\lambda_p$	$I_F=10\text{mA}$		940		nm
Dark Current	$I_{ce0}$	$V_{CE}=10\text{V}$	-	-	100	nA
C-E Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=0.25\text{mA}$ $I_F=10\text{mA}$	-	-	0.4	V
Light Current	$I_C$	$V_{CE}=5\text{V}$ $I_F=10\text{mA}$	0.5	-	-	mA
Rise Time	$T_r$	$I_{FP}=20\text{mA}$ $V_{CE}=5\text{V}$	-	20	-	$\mu\text{sec}$
Fall Time	$T_f$	$R_L=1\text{K}\Omega$	-	20	-	$\mu\text{sec}$



## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	14 of 17		Publish Date	Apr. 9, 2019	

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

Fig.1 Power Dissipation vs. Ambient Temperature

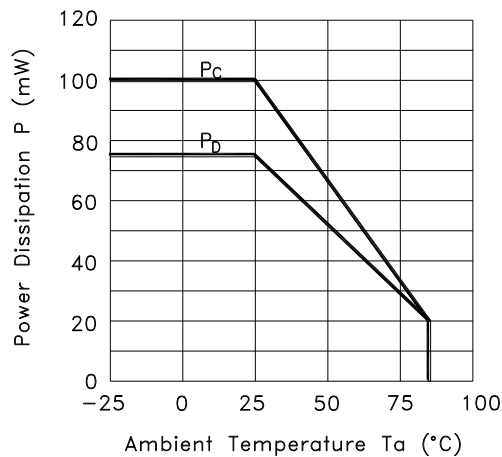


Fig.2 Forward Current vs. Forward Voltage

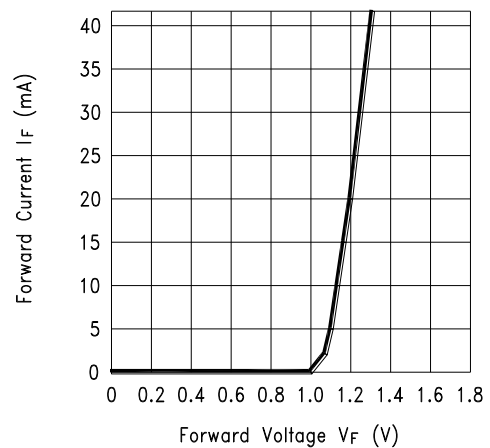


Fig.3 Collector Current vs. Collector-emitter Voltage

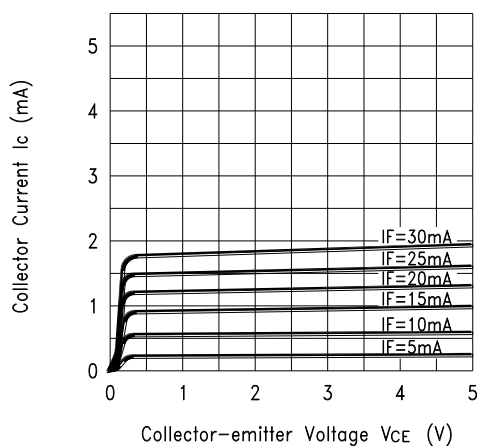
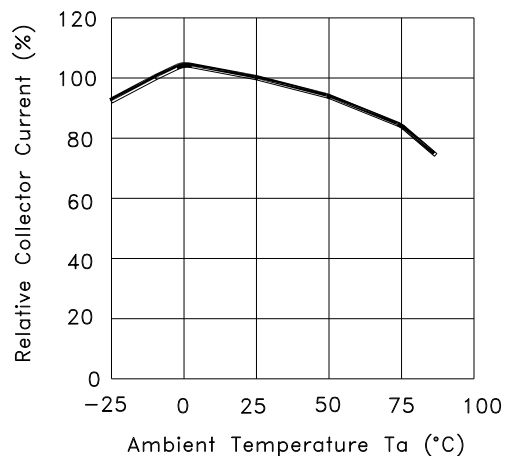


Fig.4 Collector Current vs. Ambient Temperature



# Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	15 of 17		Publish Date	Apr. 9, 2019	

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

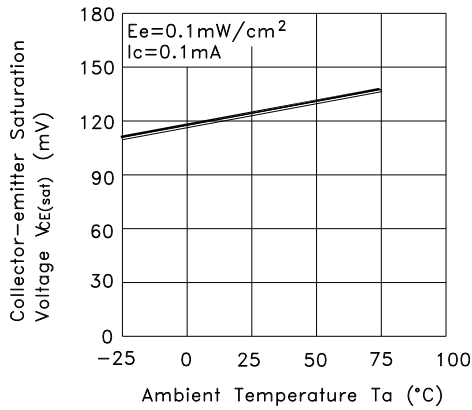


Fig.6 Response Time vs. Load Resistance

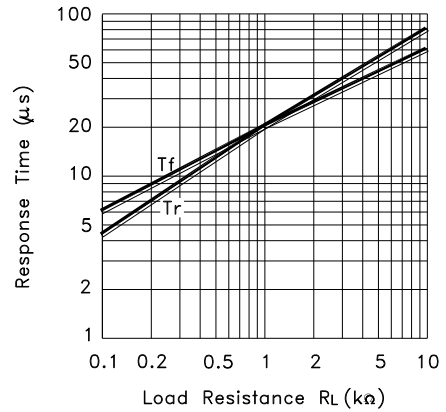
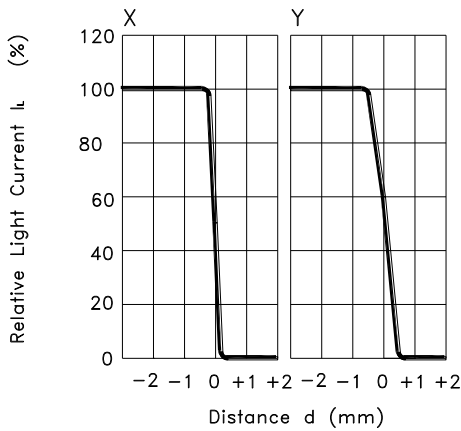
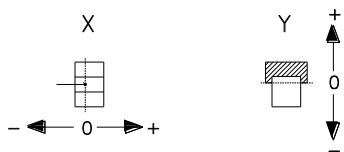


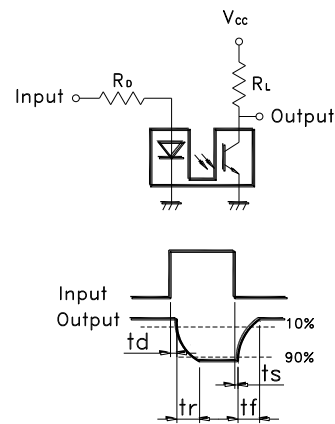
Fig.7 Sensing Position Characteristics (Typical)



(Center of Optical axis)



Test Circuit for Response Time



## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	16 of 17		Publish Date	Apr. 9, 2019	

● PACKAGE

	Part Number	Package	Quantity	Total	Dimension(mm)
1.	DPI Series	PE Bag	200 pcs	200 pcs	205L*145W
		Inner Box	8 Bags	1,600 pcs	348L*191W*85H
		Carton	3 Boxes	4,800 pcs	364L*278W*213H

※ Package shown as below for reference.



PE Bag

Inner Box

Carton





## Photo Interrupter

Item No.	DPI Series	Description	Photo Interrupter	Version	6
Page	17 of 17		Publish Date	Apr. 9, 2019	

### ● 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.).

