

TPE10 Series



Features

- 10 mm Wide Slot
- NPN Transistor Output
- Non-Contact Sensing
- Infra-Red Wavelength
- Fast Switching Speed

Applications

- Edge, Position Detection for Door Operator
- Automation Equipments

◆ Ordering Information

TPE10 - □  
1

1	Cable Specification	<p><b>1</b> – Length 1.5M, 4C x 26AWG x Connector 2530-4P, for TD Serious Door Controller</p> <p><b>2</b> – Length 3.8M, 4C x 26AWG x Connector 2530-4P, for TD Serious Door Controller</p> <p><b>3</b> – Length 2M, 3Cx26AWG, General Purpose for PLC - DC 24V</p> <p><b>4</b> – Length 2M, 3Cx26AWG, General Purpose - DC 12~15V</p>
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◆ Specifications (Ta = 25°C)

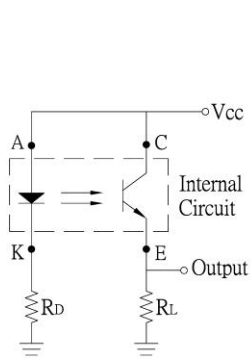
Parameter		Symbol	Min	Typ.	Max	Unit	Condition	
Emitter	Forward Voltage	V <sub>F</sub>		1.25	1.6	V	I <sub>F</sub> = 50 mA	
	Forward Current	* I <sub>F</sub>			100	mA		
	Forward Surge Current	** I <sub>FS</sub>			1	A		
	Reverse Voltage	V <sub>R</sub>			5	V		
	Reverse Current	I <sub>R</sub>		0.01	10	μA	V <sub>R</sub> = 5 V	
	Power Dissipation	P <sub>DLED</sub>			100	mW		
	Peak Wavelength	λ <sub>P</sub>			940	nm	I <sub>F</sub> = 20 mA	
Detector	Collector–Emitter Voltage	V <sub>CEO</sub>			30	V	I <sub>C</sub> = 0.5 mA	
	Collector–Emitter Saturated Voltage	V <sub>CE (sat)</sub>		0.1	0.4	V	I <sub>F</sub> = 20 mA, I <sub>C</sub> = 0.1 mA	
	Collector Current	I <sub>C</sub>	2.4		7	mA	V <sub>CE</sub> = 5 V, I <sub>F</sub> = 20 mA	
	Emitter–Collector Voltage	V <sub>ECO</sub>			5	V	I <sub>E</sub> = 0.1 mA	
	Dark Current	* I <sub>D</sub>			100	nA	V <sub>CE</sub> = 10 V	
	Power Dissipation	P <sub>D</sub>			100	mW		
	Peak Spectral Sensitivity	λ <sub>PK</sub>			900	nm	V <sub>CE</sub> = 10 V	
	Spectral Bandwidth	Δλ	700	900	1100	nm		
Rising time		t <sub>r</sub>		10		μs	V <sub>CE</sub> = 5 V, R <sub>L</sub> = 1KΩ	
Falling time		t <sub>f</sub>		15		μs	I <sub>L</sub> = 5 mA	
Operation Ambient Temperature		T <sub>O</sub>	-40		85	°C		
Storage Ambient Temperature		T <sub>S</sub>	-45		100	°C		
Reference Resistance		R <sub>LED</sub>		3		KΩ	V <sub>CC</sub> = 12 V	
		R <sub>L</sub>		10		KΩ		
Case Material			ABS					
Weight		g	Cable 1.5M - 80g Cable 2.0M - 90g Cable 3.8M - 140g					

\* : Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

\*\* :The pulse width is 10 μs maximum with a frequency of 100 Hz.

◆ Dimension

● Model: TPE10-1, TPE10-2

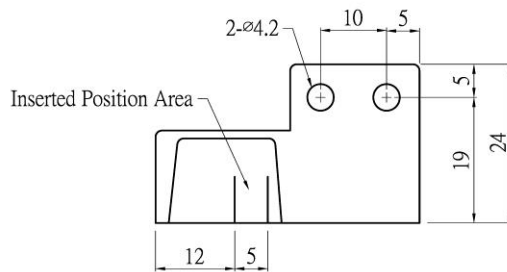
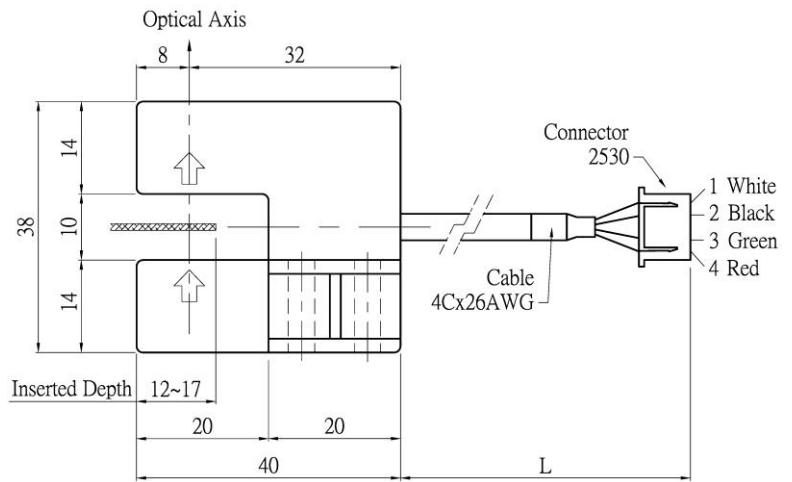
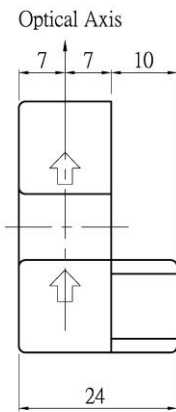


Symbol	Name	Pin	Wire
A	Anode	1	White
K	Cathode	2	Black
E	Emitter	3	Green
C	Collector	4	Red

Circuit Diagram

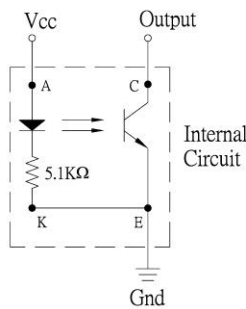
Vcc (V)	Rb (KΩ)	RL (KΩ)
12	2.4	10
24	4.7	20

Reference Resistance



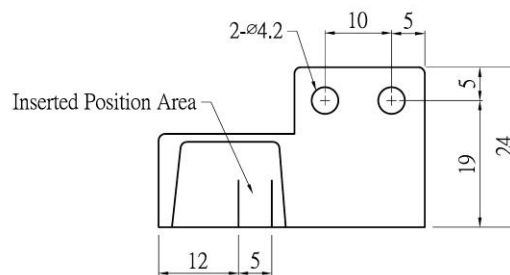
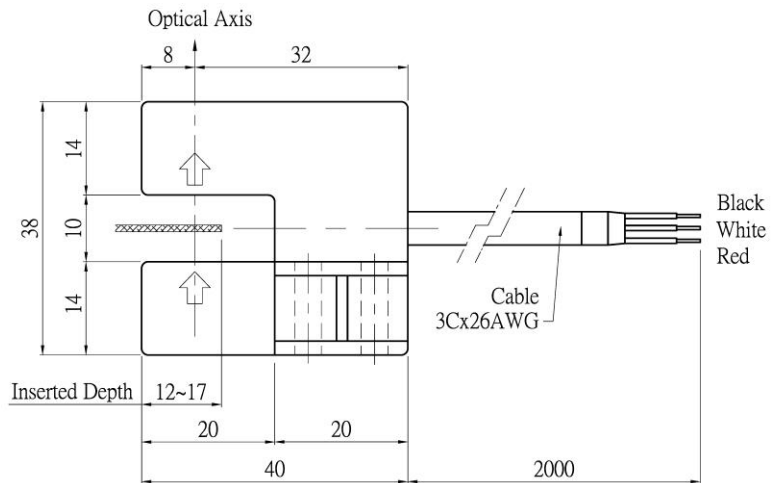
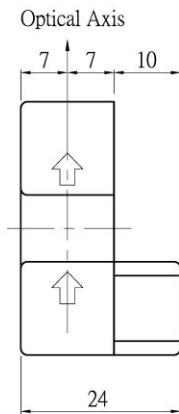
Model	L
1	1500
2	3800

● Model: TPE10-3, TPE10-4



Name	Wire
Vcc (DC24V)	Red
Output	White
Gnd	Black

Circuit Diagram



◆ Engineering Data

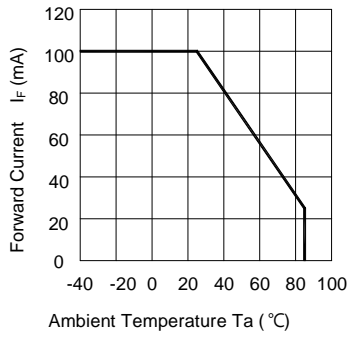


Fig 1. FORWARD CURRENT VS. AMBIENT TEMPERATURE

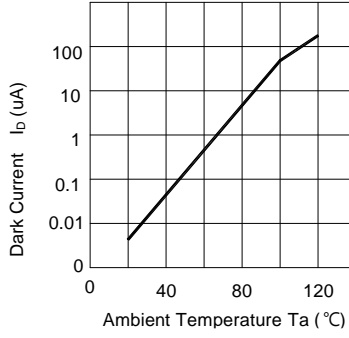


Fig 2. DARK CURRENT VS AMBIENT TEMPERATURE

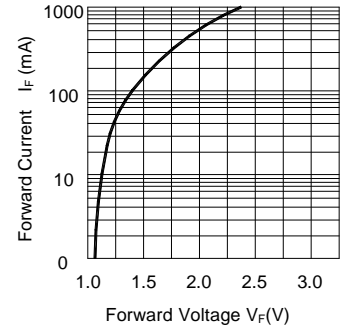


Fig 3. FORWARD CURRENT VS. FORWARD VOLTAGE

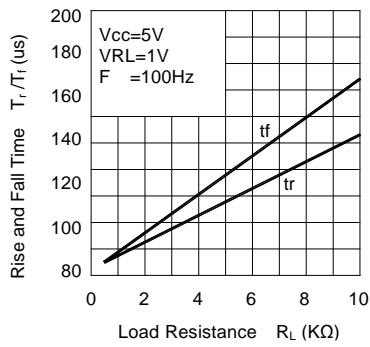


Fig4. RISE AND FALL TIME VS LOAD RESISTANCE

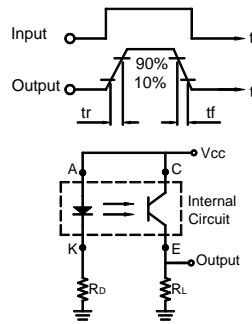


FIG 5. RESPONSE TIME MEASUREMENT