

TLP822, TLP826 TLP827

(TLP822)

VCR, COMPACT DISK PLAYER
FLOPPY DISK DRIVE, FACSIMILE, PRINTER
VENDING MACHINE, TICKETING MACHINE
FOR VARIOUS POSITION DETECTION

The TLP822, TLP826, and TLP827 are photo interrupters with a high radiant power infrared LED and a photo transistor combined.

- Small package
- Side mounting type : TLP822
- PWB direct mounting type : TLP826
TLP827 (the oblong slit)
- Detecting gap : 5mm
- High detecting accuracy : Slit width 0.5mm
- Current transfer ratio : 5% (MIN.) at $I_F = 10\text{mA}$
- The detector side is of visible light cut type.
- Material of the package : Polycarbonate

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	RATING	UNIT	
LED	Forward Current	I_F	50	mA	
	Forward Current Derating	$\Delta I_F / ^\circ\text{C}$	($T_a > 25^\circ\text{C}$)	-0.33	
			($T_a > 85^\circ\text{C}$)	-2 (Note)	
Reverse Voltage		V_R	5	V	
DETECTOR	Collector-Emitter Voltage		V_{CEO}	35	V
	Emitter-Collector Voltage		V_{ECO}	5	V
	Collector Power Dissipation		P_C	75	mW
	Collector Power Dissipation Derating		$\Delta P_C / ^\circ\text{C}$	-1	mW/ $^\circ\text{C}$
	Collector Current		I_C	50	mA
Operating Temperature Range	TLP822 TLP826	T_{opr}	-25~85	$^\circ\text{C}$	
	TLP827		-25~95		
Storage Temperature Range		T_{stg}	-40~100	$^\circ\text{C}$	
Soldering Temperature (5s.)		T_{sol}	260	$^\circ\text{C}$	

Note : TLP827 only

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RECOMMENDED OPERATING CONDITIONS

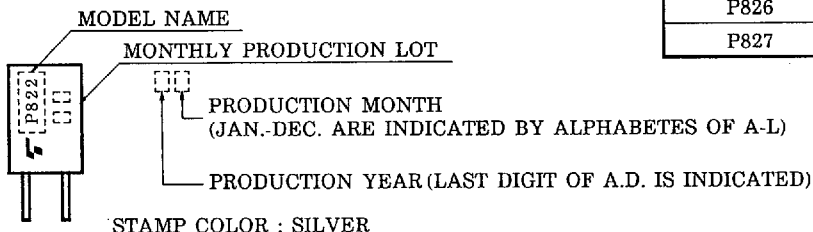
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}	—	5	24	V
Forward Current	I _F	—	10	20	mA
Operating Temperature	T _{opr}	-10	—	75	°C

OPTO-ELECTRICAL CHARACTERISTICS (T_a = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F	I _F = 10mA	1.00	1.15	1.30	V
	Reverse Current	I _R	V _R = 5V	—	—	10	μA
	Peak Emission Wavelength	λ _P	I _F = 10mA	—	940	—	nm
DETECTOR	Dark Current	I _D (I _{CEO})	V _{CE} = 24V, I _F = 0	—	—	0.1	μA
	Peak Sensitivity Wavelength	λ _P	—	—	870	—	nm
COUPLED	Current Transfer Ratio	I _C / I _F	V _{CE} = 2V, I _F = 10mA	5	—	75	%
	Collector-Emitter Saturation Voltage	V _{CE} (sat)	I _F = 20mA, I _C = 0.5mA	—	0.1	0.4	V
	Rise Time	t _r	V _{CC} = 5V, I _C = 1mA R _L = 1kΩ	—	15	50	μs
	Fall Time	t _f		—	15	50	

PRODUCT INDICATION

ABBREVIATION	TYPE
P822	TLP822
P826	TLP826
P827	TLP827



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PRECAUTION

Please be careful of the followings.

1. If chemical are used for cleaning, the soldered surface only shall be cleaned with chemicals avoiding the whole cleaning of the package.
2. The container is made of polycarbonate. Polycarbonate is usually stable with acid, alcohol, and aliphatic hydrocarbons however, with peroxochemicals (such as benzene, toluene, and acetone), alkali, aromatic hydrocarbons, or chloric hydrocarbons, polycarbonate becomes cracked, swollen, or melted. Please take care when choosing a packaging material by referencing the table below.

<Chemicals to avoid with polycarbonate >

	PHENOMENON	CHEMICALS
A	Little deterioration but staining	<ul style="list-style-type: none"> • nitric acid (low concentration), hydrogen peroxide, chlorine
B	Cracked, crazed, or swollen	<ul style="list-style-type: none"> • acetic acid (70% or more) • gasoline • methyl ethyl ketone, ethyl acetate, butyl acetate • ethyl methacrylate, ethyl ether, MEK • acetone, m-amino alcohol, carbon tetrachloride • carbon disulfide, trichloroethylene, cresol • thinners, oil of turpentine • triethanolamine, TCP, TBP
C	Melted { } : Used as solvent.	<ul style="list-style-type: none"> • concentrated sulfuric acid • benzene • styrene, acrylonitrile, vinyl acetate • ethylenediamine, diethylenediamine • {chloroform, methyl chloride, tetrachloromethane, dioxane, } 1, 2-dichloroethane
D	Decomposed	<ul style="list-style-type: none"> • ammonia water • other alkali

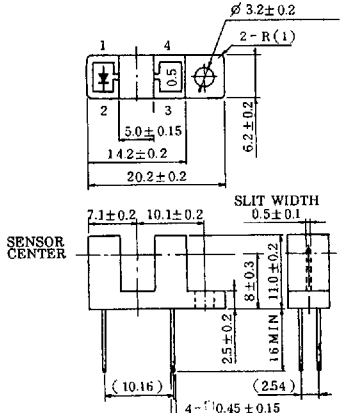
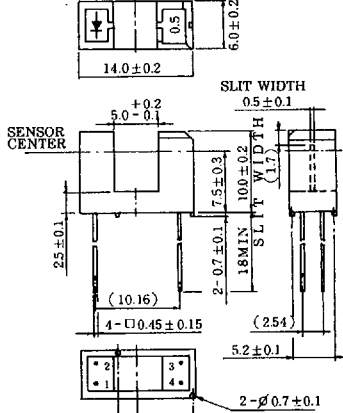
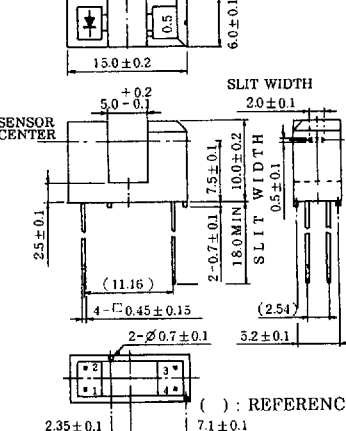
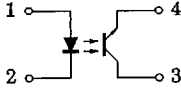
3. TLP822, TLP826, TLP827 shall be mounted on unwarped surface.
4. Screw shall be tightened to clamping torque of 0.59N·m.

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TLP827

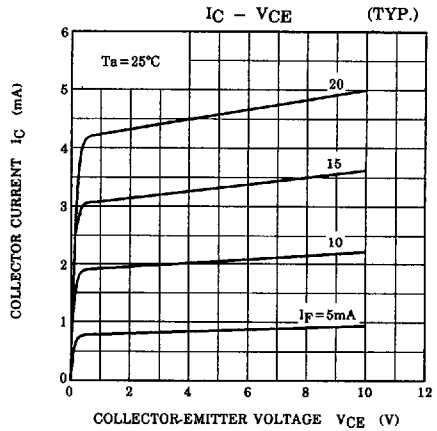
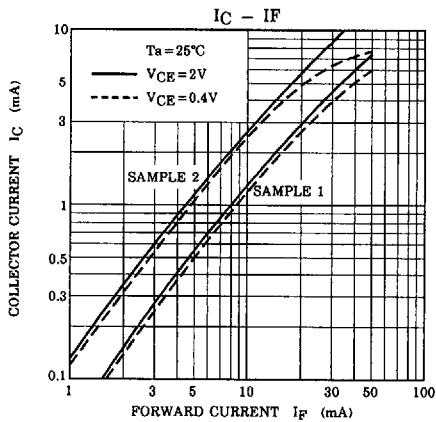
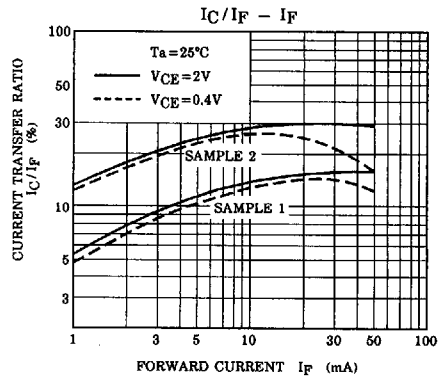
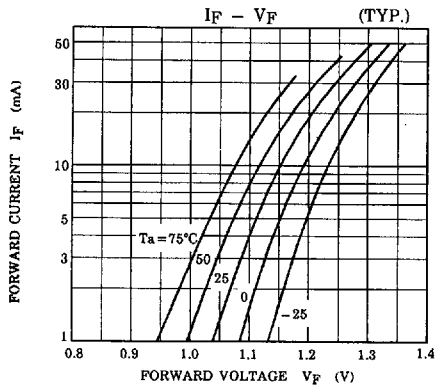
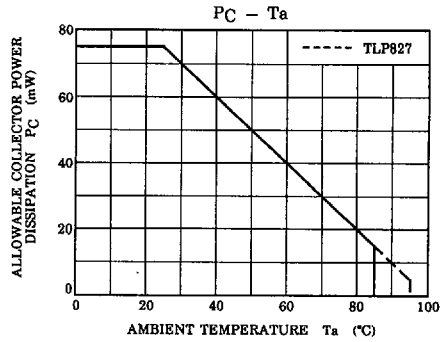
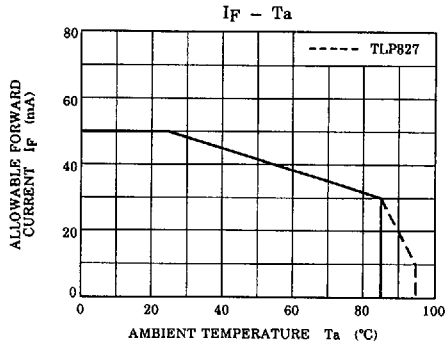
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OUTLINE DRAWINGS

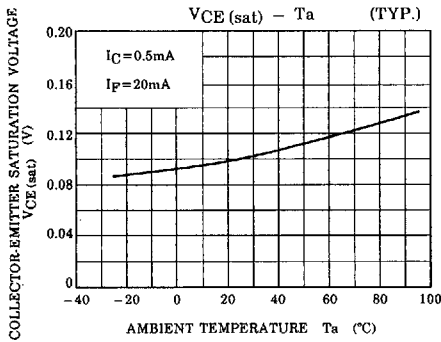
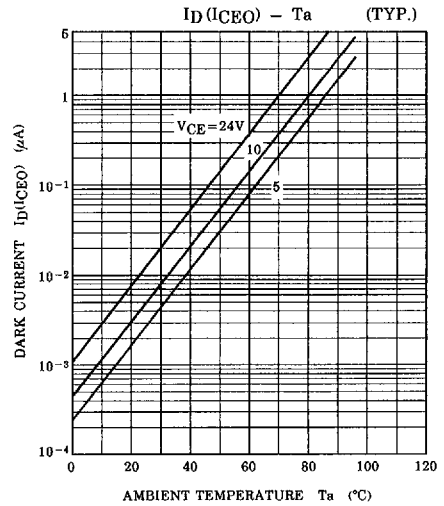
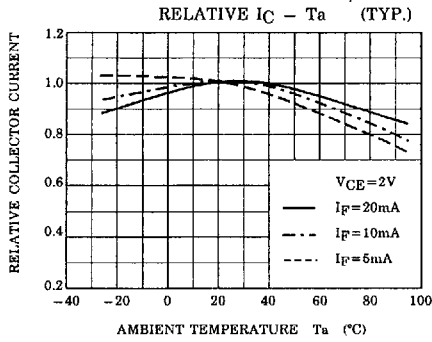
Unit in mm

<p>TLP822</p>  <p>() : REFERENCE VALUE</p>	<p>TLP826</p>  <p>() : REFERENCE VALUE</p>
<p>JEDEC —</p>	<p>JEDEC —</p>
<p>EIAJ —</p>	<p>EIAJ —</p>
<p>TOSHIBA 11-20B2</p>	<p>TOSHIBA 11-14A1</p>
<p>TLP827</p>  <p>() : REFERENCE VALUE</p>	<p>Weight : 0.87g (TYP.) (TLP822) 0.65g (TYP.) (TLP826) 0.72g (TYP.) (TLP827)</p> <p>PIN CONNECTION</p>  <ol style="list-style-type: none"> 1. ANODE 2. CATHODE 3. COLLECTOR 4. EMITTER
<p>JEDEC —</p>	<p>JEDEC —</p>
<p>EIAJ —</p>	<p>EIAJ —</p>
<p>TOSHIBA 11-15B1</p>	<p>TOSHIBA 11-15B1</p>

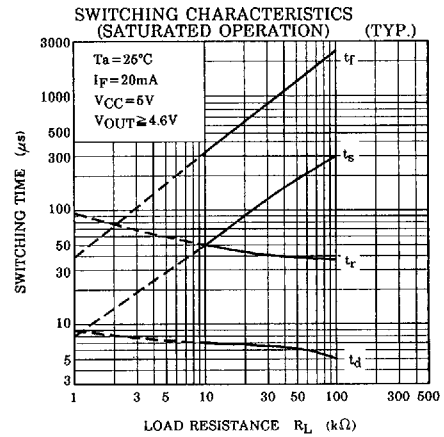
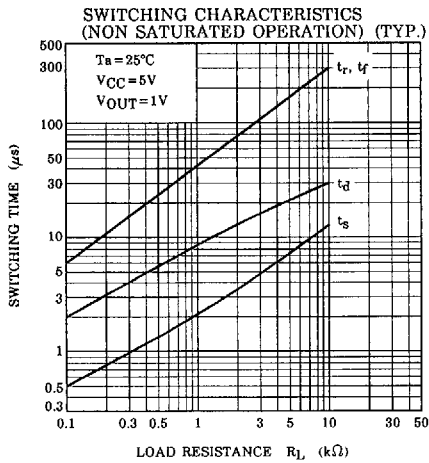
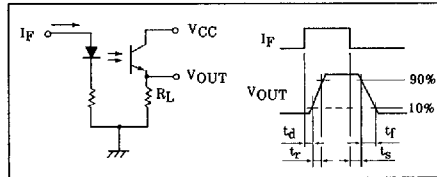
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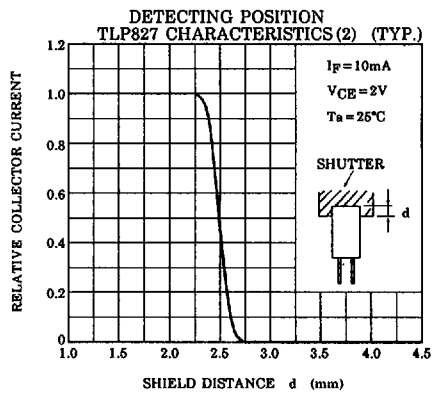
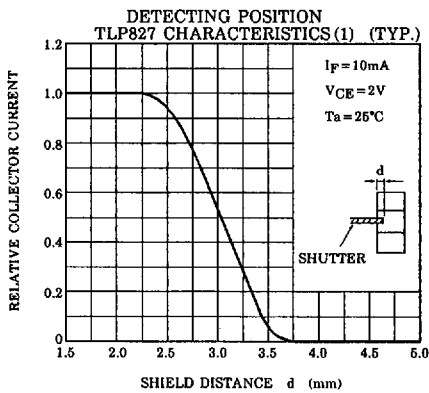
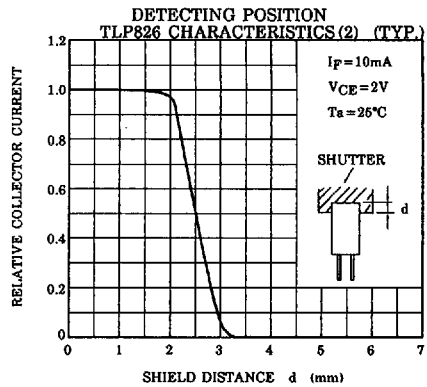
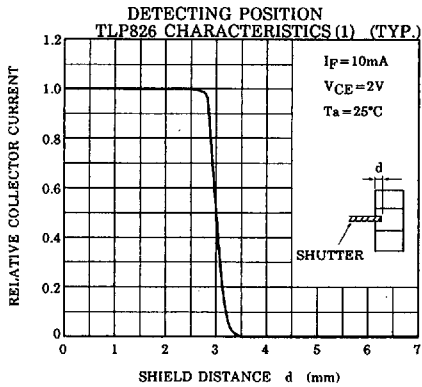
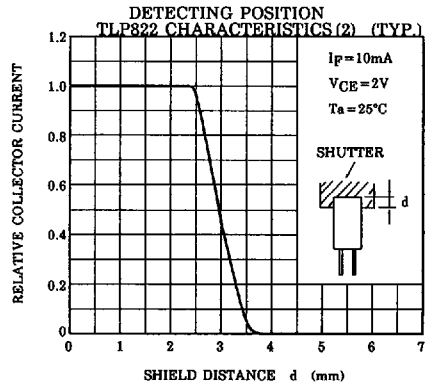
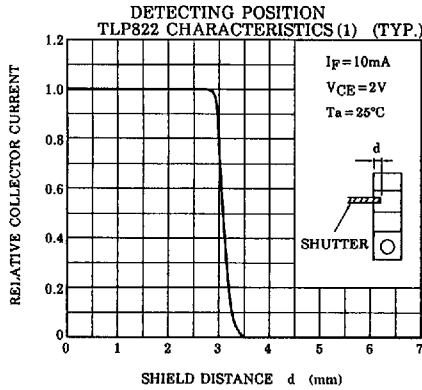


SWITCHING TIME TEST CIRCUIT



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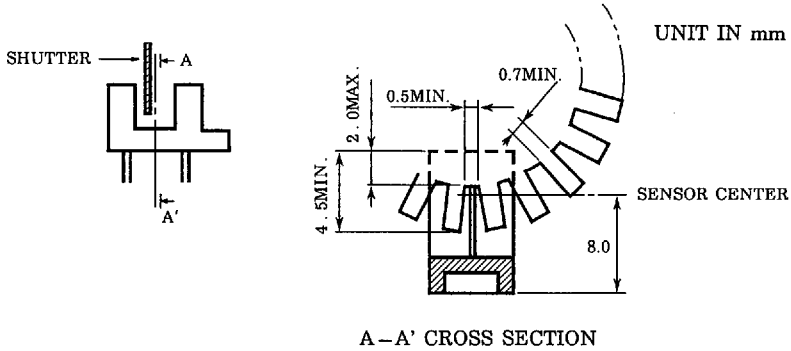


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DESIGN SLIT FOR ROTATING LIGHT BLOCKING BOARD.

Design the pitch between slits taking the following into consideration :
release time, light block time, and switching time of photo interrupter when the disk is rotating.

TLP822



TLP826

