TOSHIBA PHOTOINTERRUPTER INFRARED LED + PHOTOTRANSISTOR

TLP818

BURNER MOTOR ROTATING DETECTOR FOR THE OIL FAN HEATER

COIN PASSING DETECTOR FOR THE VENDING MACHINE

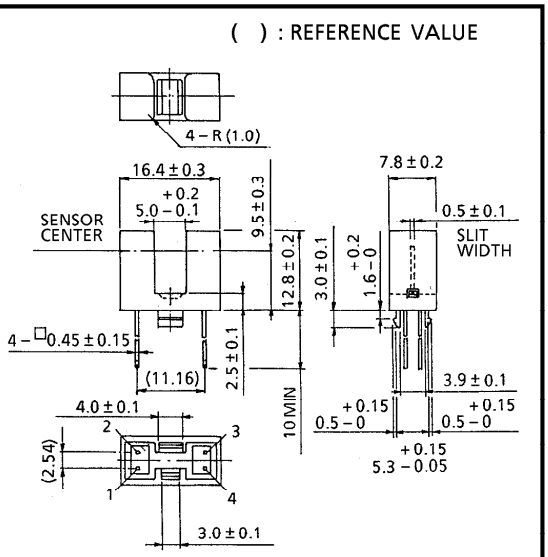
PAPER PASSING DETECTOR FOR THE TICKET VENDING MACHINE

PAPER DETECTOR FOR THE PRINTER AND FACSIMILE

The TLP818 is a phohointerrupter with a dustproof cover. It is not greatly influency by dust because there is no powdered dust accumulation at detecting slit part.

- Built-in dustproof cover
- Snap-in monting type (1.6mm thickness of PCB)
- Gap : 5mm
- Resulution : Slit width 0.5mm
- High current transfer ratio : $I_C / I_F = 2.5\%$ (Min.)
- Fast response speed : t_r, $t_f = 6\mu s$ (Typ.)
- It is not greatly influenced by disturbance beams of indoor lighting because detector has visible light cut resin.
- Material of the package : Polycarbonate

Unit in mm



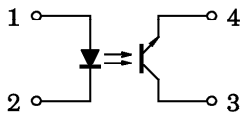
JEDEC	—
EIAJ	—
TOSHIBA	

Weight : 1.29g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating (Ta > 25°C)	ΔI_F / °C	−0.33	mA / °C
	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 (Ta > 25°C)	ΔP_C / °C	−1	mW / °C
	Collector Current	I_C	50	mA
Operating Temperature Range		T_{opr}	−25~85	°C
Storage Temperature		T_{stg}	−40~100	°C

PIN CONNECTION



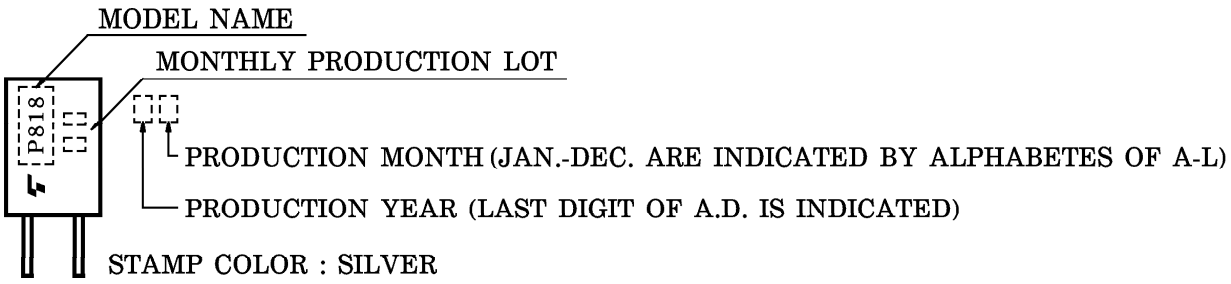
1. ANODE
2. CATHODE
3. COLLECTOR
4. EMITTER

961001EBC2

OPTO-ELECTRICAL CHARACTERISTICS (Ta = 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 Light Emitting 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} = 5V, I_F = 20mA	2.5	—	32	%
	Reakage Current	I_{LEAK}	V_{CE} = 5V, I_F = 50mA Shutter in	—	—	10	μA
	Collector-Emitter Saturation Voltage	$V_{CE\ (sat)}$	I_F = 20mA, I_C = 0.25mA	—	0.15	0.4	V
	Rise Time	t_r	V_{CC} = 5V, I_C = 2mA	—	6	—	μs
	Fall Time	t_f	R_L = 100Ω	—	6	—	μs

PRODUCT INDICATION



PRECAUTION

Please be careful of the followings.

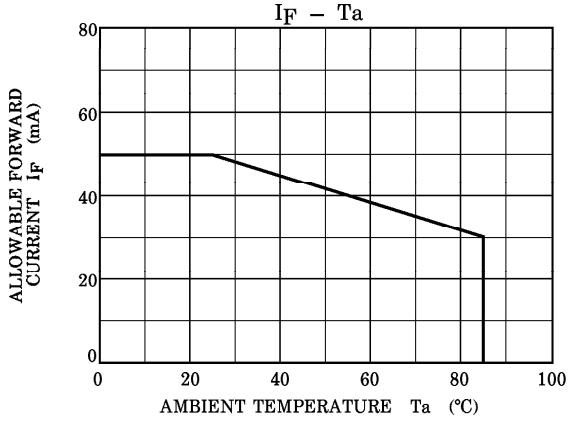
1. Soldering temperature : 260°C MAX. Soldering time : 5s MAX.
   (Soldering portion of lead : above 1.5mm form the body of the device)
2. Be careful that no solder is attached to the case body.
3. If the chemical are used for cleaning, the soldered surface only shall be cleaned with chemicals avoiding the whole cleaning of the package.
4. The container is made of polycarbonate. Polycarbonate is usually stable with acid, alcohol, and aliphatic hydrocarbons however, with pertochemicals (such as benzene, toluene, and acetone), alkali, aromatic hydrocarbons, or chloric hydrocarbons, polycarbonate becomes cracked, swollen, or melted. Please take care when chosing a packaging material by referencing the table below.

<Chemicals to avoid with polycarbonate>

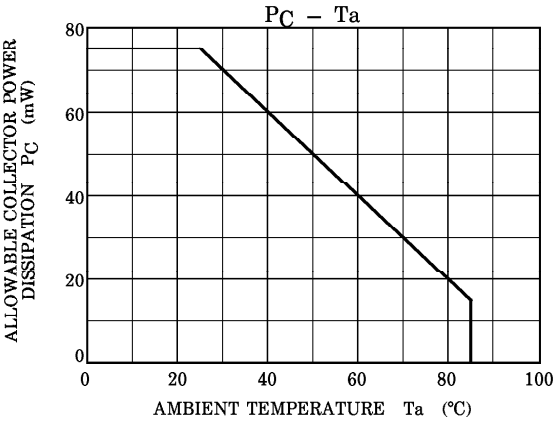
	PHENOMENON	CHEMICALS
A	Little deterioration but staining	• nitric acid (low concentration), hydrogen peroxide, chlorine
B	Cracked, crazed, or swollen	• acetic acid (70% or more) • gasoline • methyl ethyl ketone, ehtyl acetate, butyl acetate • ethyl methacrylate, ethyl ether, MEK • acetone, m-amino alcohol, carbon tetrachloride • carbon disulfide, trichloroethylene, cresol • thinners, oil of turpentine • triethanolamine, TCP, TBP
C	Melted { } : Used as solvent.	• concentrated sulfuric acid • benzene • styrene, acrylonitrile, vinyl acetate • ethylenediamine, diethylenediamine • {chloroform, methyl chloride, tetrachloromethane, dioxane, 1, 2-dichloroethane}
D	Decomposed	• ammonia water • other alkali

5. TLP818 shall be mounted on an unwarped surface.
6. This product contains dustproof cover at detecting slit part but does not contain at back surface.

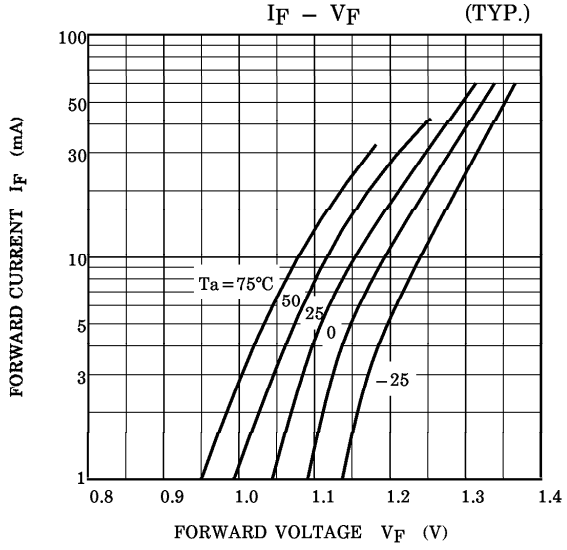
I_F – Ta



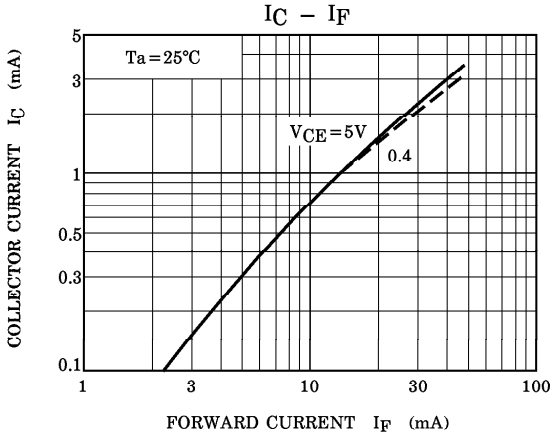
P_C – Ta



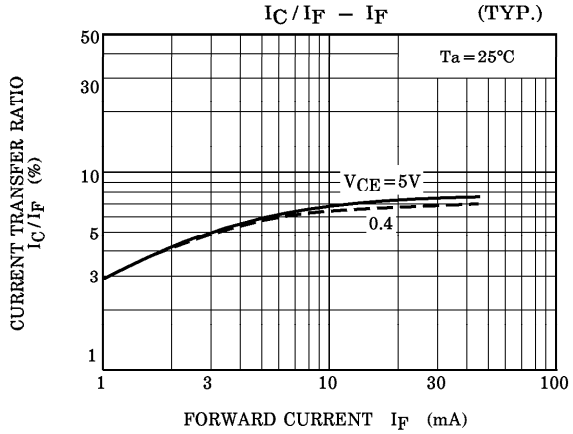
I_F – V_F (TYP.)



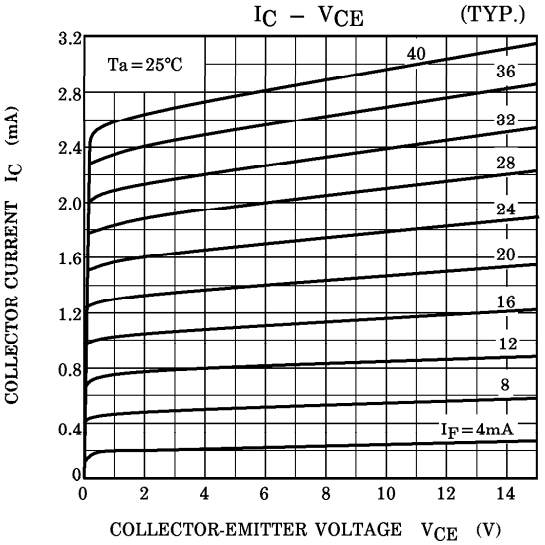
I_C – I_F



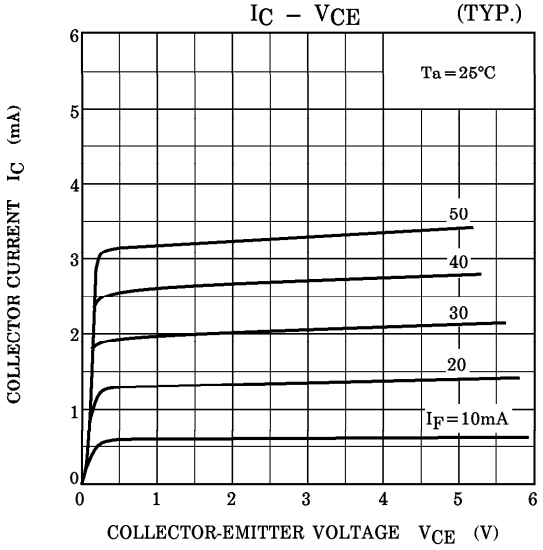
I_C / I_F – I_F (TYP.)



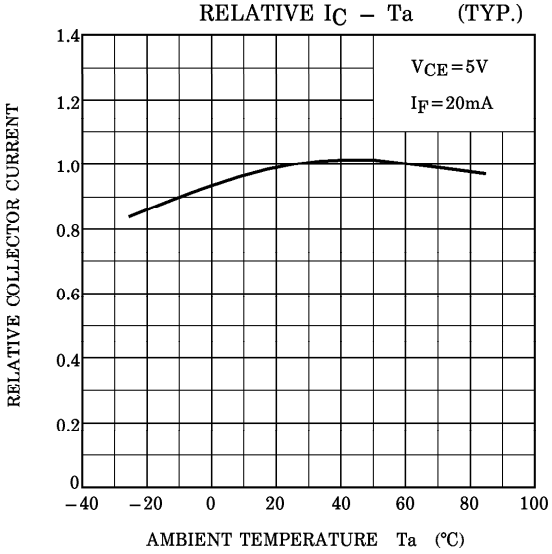
I_C – V_{CE} (TYP.)



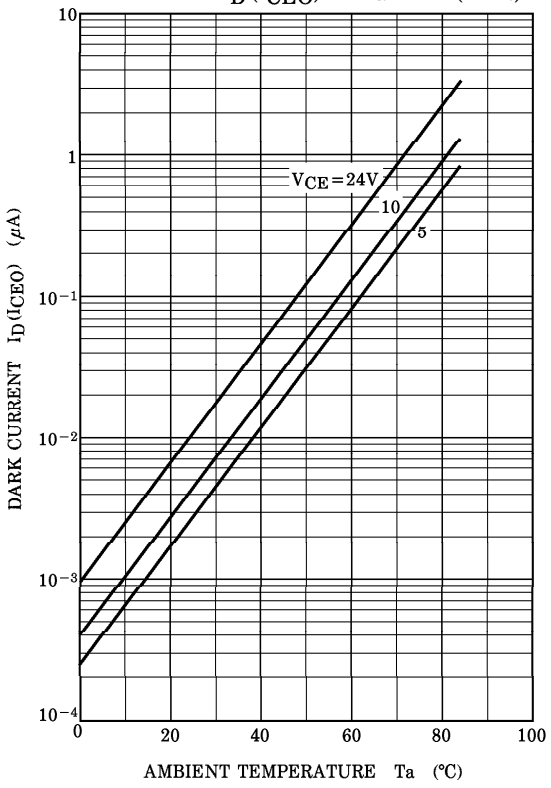
$I_C - V_{CE}$ (TYP.)



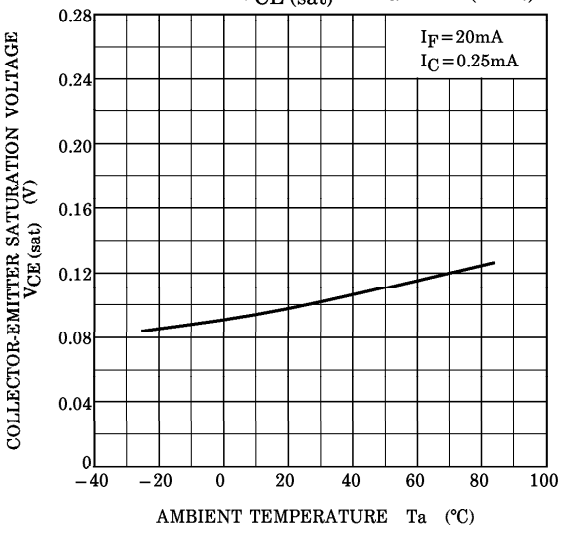
RELATIVE I_C – Ta (TYP.)



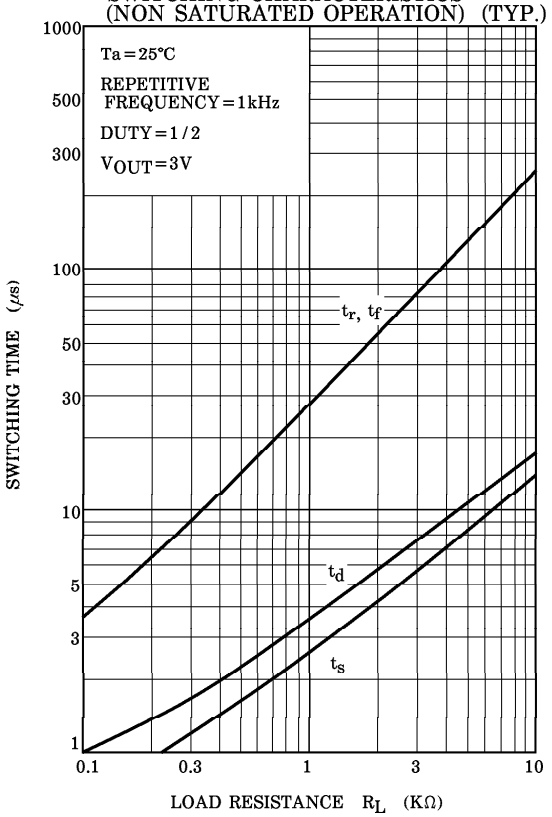
I_D (I_{CEO}) – Ta (TYP.)



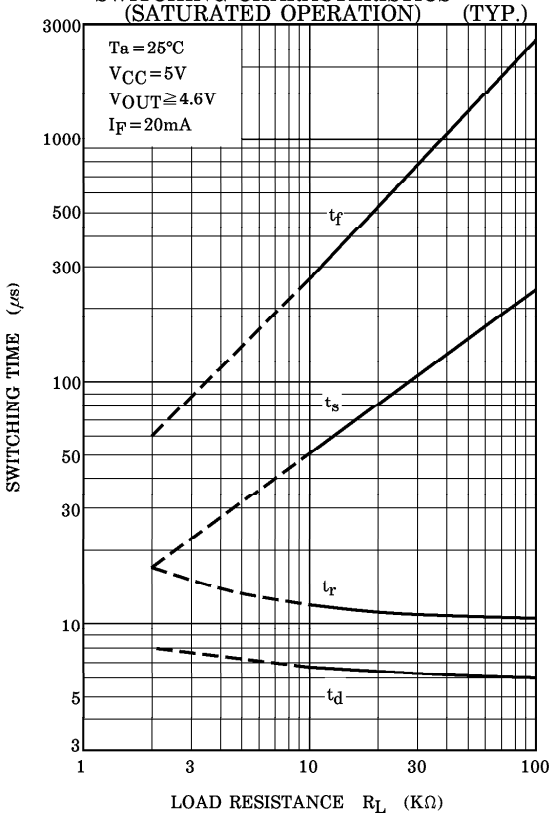
$V_{CE\,(sat)}$ – Ta (TYP.)



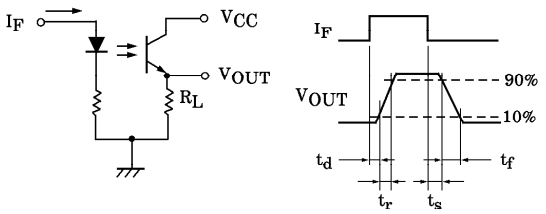
SWITCHING CHARACTERISTICS
(NON SATURATED OPERATION) (TYP.)



SWITCHING CHARACTERISTICS
(SATURATED OPERATION) (TYP.)

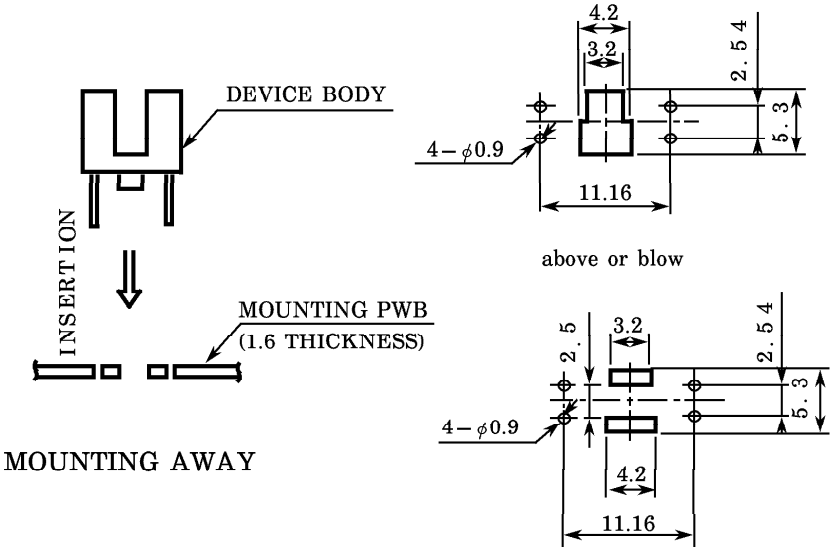


SWITCHING TIME TEST CIRCUIT



RECOMMENDED MOUNTING HOLE

Unit in mm

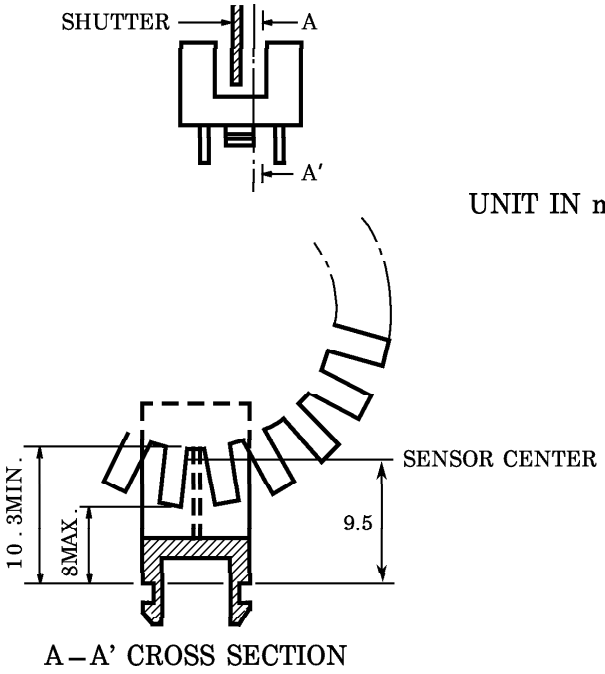


RECOMMENDED MOUNTING HOLE

POSITIONING OF SHUTTER AND DEVICE

To operate correctly, make sure that the shutter and the device are positioned as shown in the figure below.

The shit pitch of the shutter must be set wider than the slit width of the device.
Determine the width taking the switching time into consideration.



A−A' CROSS SECTION