

TOSHIBA PHOTOINTERRUPTER INFRARED LED + PHOTOTRANSISTOR

TLP801A

OPTICAL SWITCH

POSITION AND ROTATION DETECTION

POSITION DETECTION OF FDD (FLOPPY DISK DRIVE)

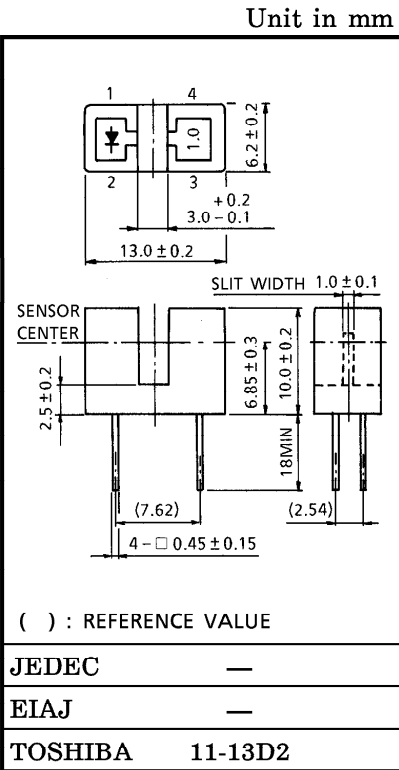
TIMING DETECTION OF COPYING MACHINE, PRINTER, FACSIMILE, ETC. INTERRUPTER.

TLP801A is a high speed position detecting type photointerrupter

- Gap : 3mm
- Resolution : Slit width 1mm
- Fast response speed : $t_r, t_f = 6\mu s$ (Typ.)
- High current transfer ratio : $I_C / I_F = 10\%$ (Min.)
- Printed wiring board direct mounting type
- Material of the package : Polycarbonate

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating ($T_a > 25^\circ C$)	$\Delta I_F / ^\circ C$	-0.33	mA / $^\circ C$
	Reverse Voltage	V_R	5	V
DETECTOR	Collector-Emitter Voltage	V_{CEO}	30	V
	Emitter Collector Voltage	V_{ECO}	5	V
	Collector Power Dissipation	P_C	75	mW
	Collector Power Dissipation Derating ($T_a > 25^\circ C$)	$\Delta P_C / ^\circ C$	-1	mW / $^\circ C$
	Collector Current	I_C	50	mA
Operating Temperature Range		T_{opr}	-25~85	$^\circ C$
Storage Temperature Range		T_{stg}	-40~100	$^\circ C$

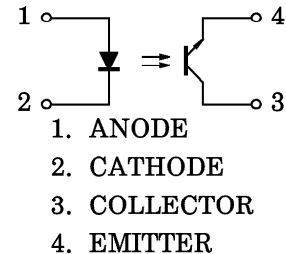


() : REFERENCE VALUE

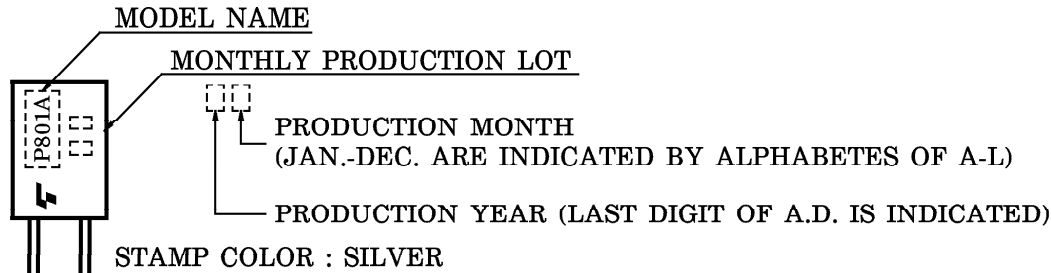
JEDEC	—
EIAJ	—
TOSHIBA	11-13D2

Weight : 0.78g (Typ.)

PIN CONNECTION



PRODUCT INDICATION



961001EBC2

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- The products described in this document are subject to foreign exchange and foreign trade control laws.
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- The information contained herein is subject to change without notice.

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 Emission Wavelength	λ _P	I _F = 20mA	—	940	—	nm
DETECTOR	Dark Current	I _D (I _{CEO})	V _{CE} = 24V, I _F = 0	—	—	0.1	μA
	Peak Sensitivity Wavelength	λ _P		—	820	—	nm
COUPLED	Current Transfer Ratio	I _C / I _F	V _{CE} = 5V, I _F = 20mA	10	—	165	%
	Collector-Emitter Saturation Voltage	V _{CE} (sat)	I _F = 20mA, I _C = 1mA	—	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	—	

PRECAUTION

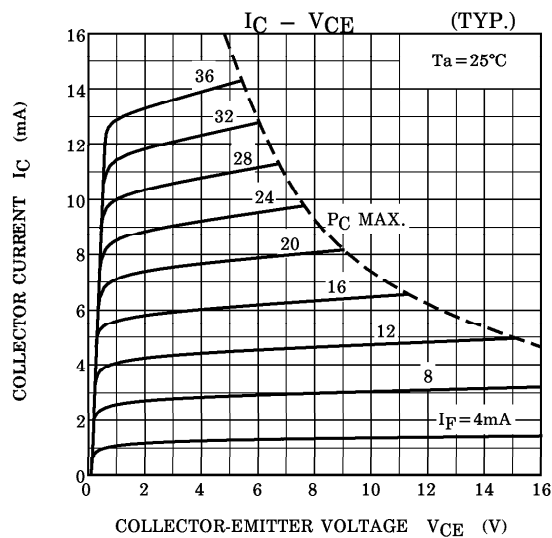
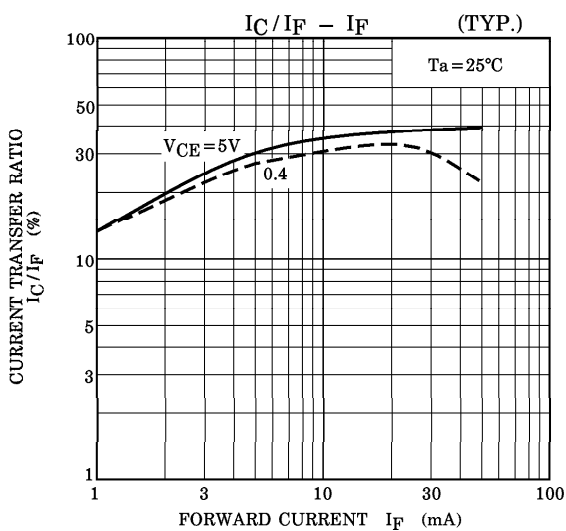
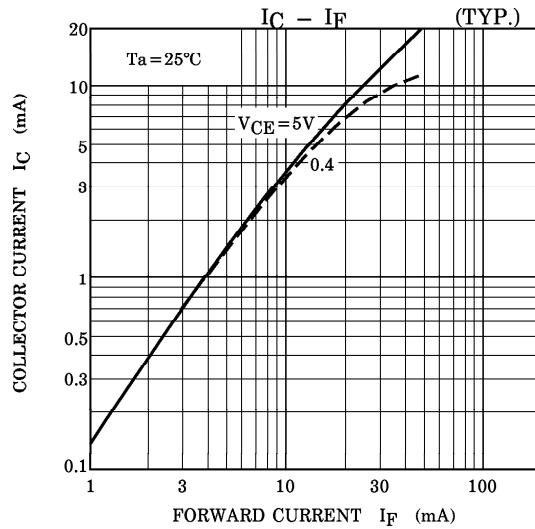
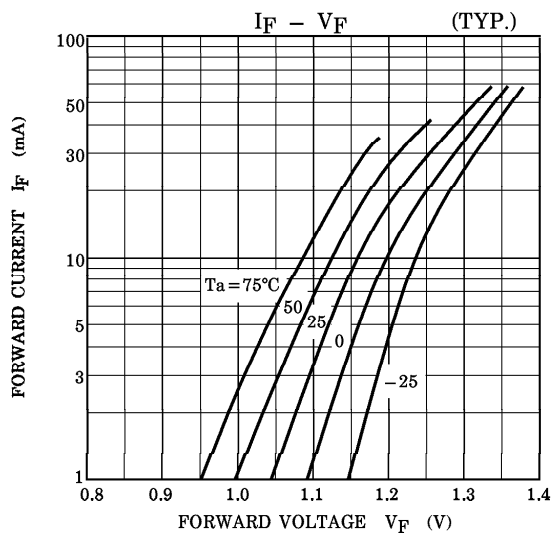
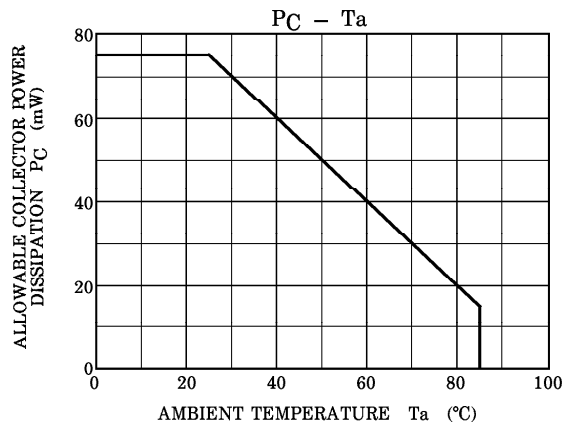
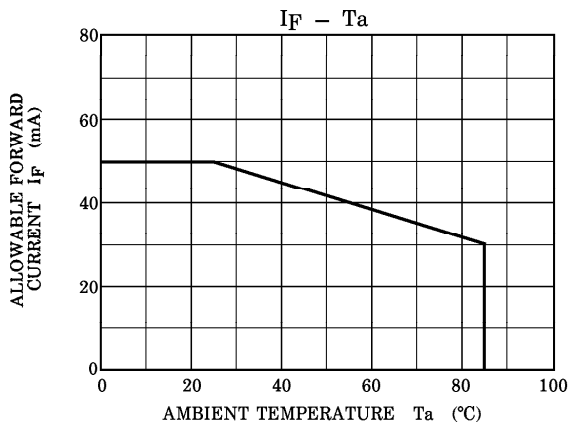
Please be careful of the followings.

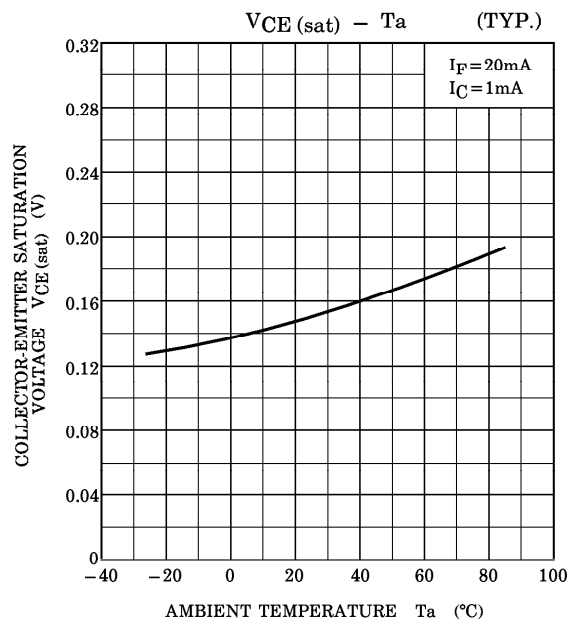
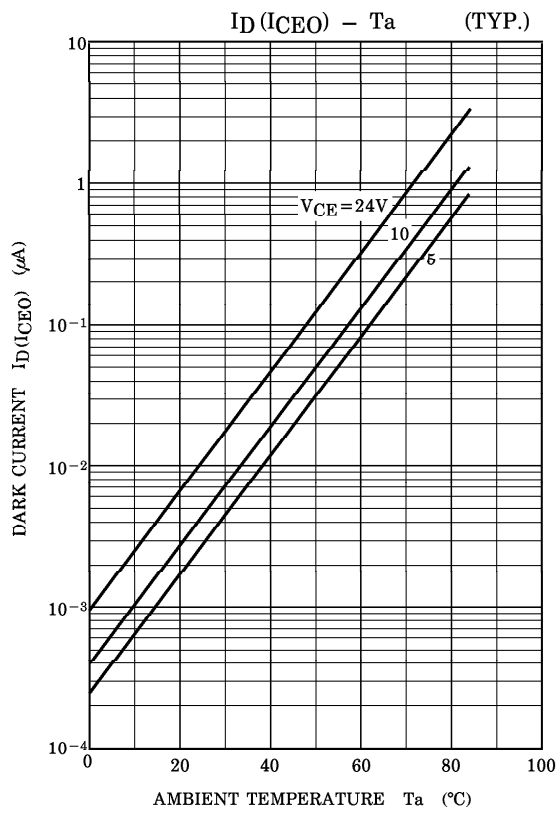
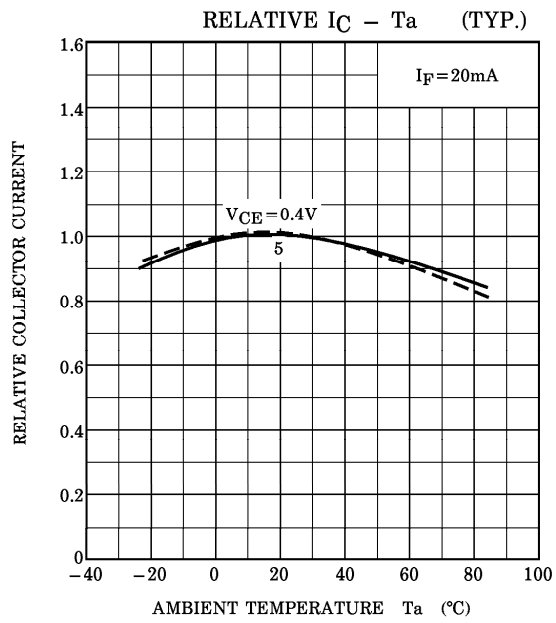
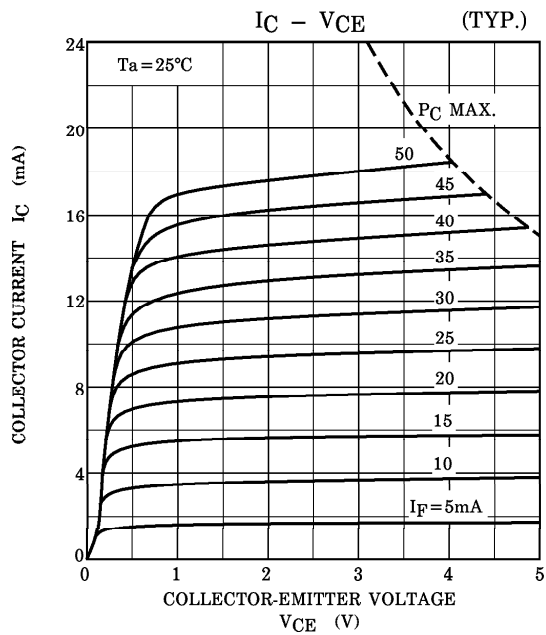
- Soldering temperature : 260°C MAX. Soldering time : 5s MAX.
(Soldering portion of lead : above 1.5mm from the body of the device)
- If chemical are used for cleaning, the soldered surface only shall be cleaned with chemicals avoiding the whole cleaning of the package.
- The container is made of polycarbonate. 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>

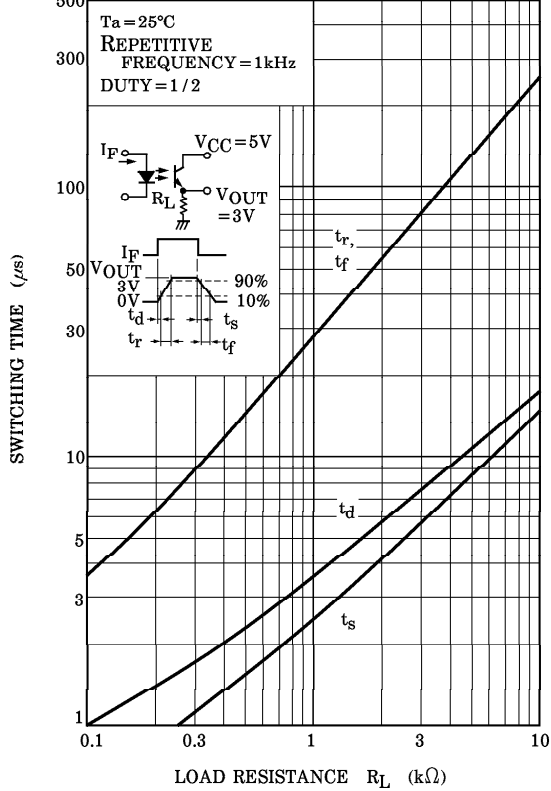
	PHENOMENON	CHEMICALS
A	Little deterioration but staining	<ul style="list-style-type: none"> nitric acid (low concentration), hydrogen peroxide, chlorine
B	Cracked, crazed, or swollen	<ul style="list-style-type: none"> acetic acid (70% or more) gasoline methyl ethyl ketone, ethyl acetate, butyl acetate 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

- TLP801A shall be mounted on an unwarped surface.

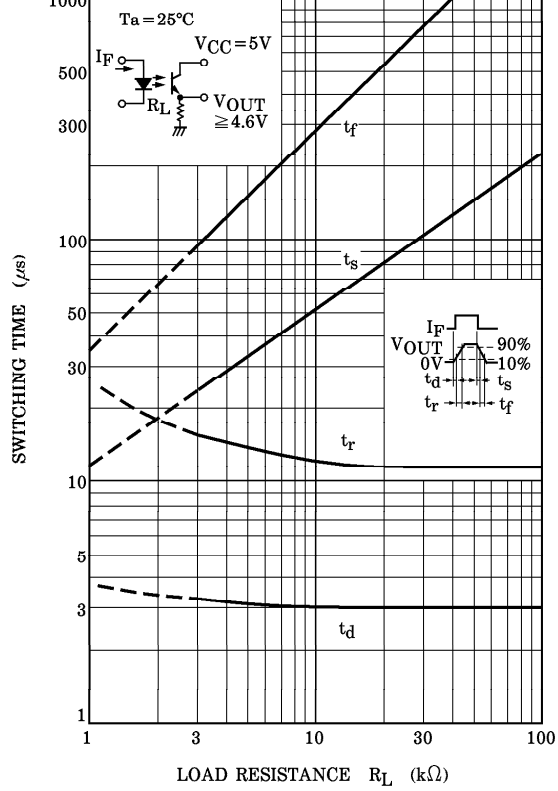




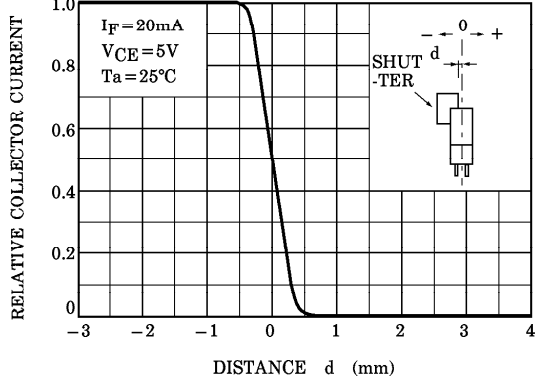
SWITCHING CHARACTERISTICS (NON SATURATED OPERATION) (TYP.)



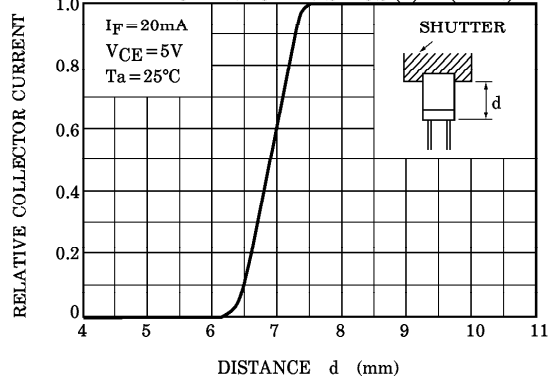
SWITCHING CHARACTERISTICS (SATURATED OPERATION) (TYP.)



DETECTION POSITION CHARACTERISTICS (1) (TYP.)



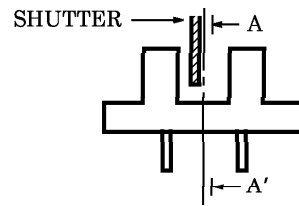
DETECTION POSITION CHARACTERISTICS (2) (TYP.)



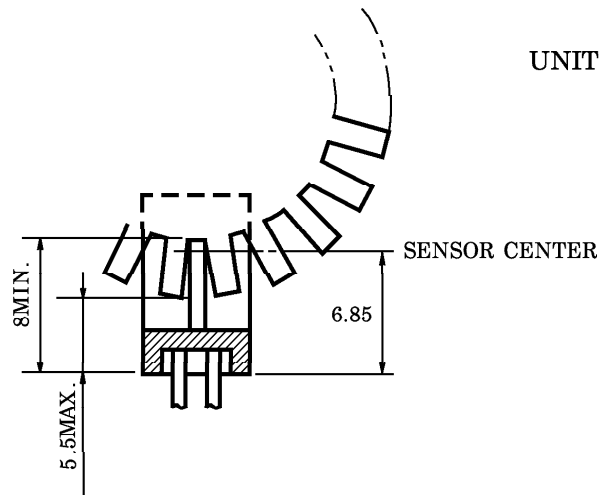
POSITIONING OF SHUTTER AND DEVICE

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

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



UNIT IN mm



A-A' CROSS SECTION