TLP802

(TLP802)

TIMING SENSOR

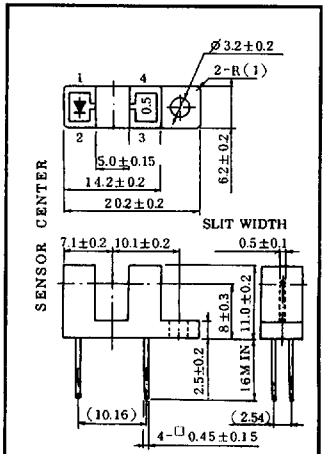
EDGE SENSOR

POSITION AND ROTATION SENSOR

TLP802 is a high speed position detecting type photo interrupter with a wide detecting groove width

- High detecting accuracy : Slit width 0.5mm
- Wide detecting gap : 5mm
- Fast response speed : t_r, t_f=6μs (TYP.)
- Material of the package : Polycarbonate

Unit in mm



( ): REFERENCE VALUE

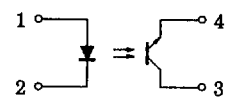
JEDEC	—
EIAJ	—
TOSHIBA	11-20B2

Weight : 0.87g (TYP.)

MAXIMUM RATINGS (Ta = 25°C)

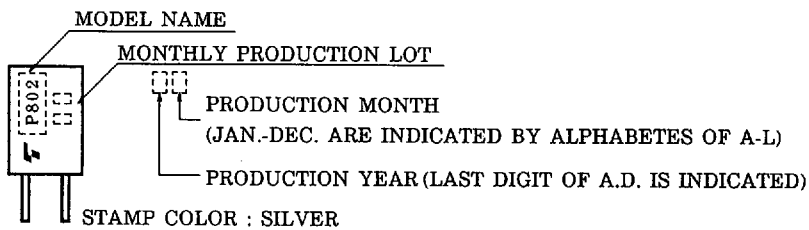
	CHARACTERISTIC	SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating (Ta > 25°C)	ΔI_F / °C	−0.33	mA / °C
	Reverse Voltage	V_R	5	V
DETECTOR	Collector-Emitter Voltage	V_{CEO}	30	V
	Emitter Collector Voltage	V_{ECO}	5	V
	Collector Power Dissipation	P_C	75	mW
	Collector Power Dissipation 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 Range		T_{stg}	−40~100	°C

PIN CONNECTION



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

PRODUCT INDICATION



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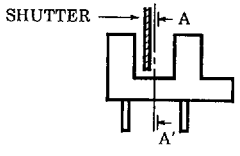
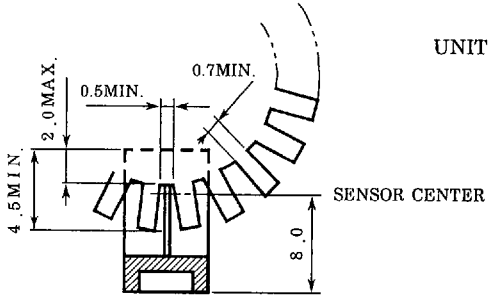
OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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_E = 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	2	—	60	%
	Collector-Emitter Saturation Voltage	$V_{CE\ (sat)}$	I_F = 20mA, I_C = 0.2mA	—	0.1	0.4	V
	Rise Time	t_r	V_{CC} = 5V, I_C = 2mA R_L = 100Ω	—	6	—	μs
	Fall Time	t_f		—	6	—	

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.





UNIT IN mm

A – A' CROSS SECTION

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PRECAUTION

Please be careful of the followings

1. Soldering temperature : 260°C MAX. Soldering time : 5s MAX.
   (Soldering portion of lead : above 1.5mm from the body of the device)
2. 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

3. The package may be dissolved or cracked by oil or chemicals as it uses polycarbonate.
4. TLP802 shall be mounted on an unwarped surface.
5. Screw shall be tightened to clamping torque of 0.59N·m.

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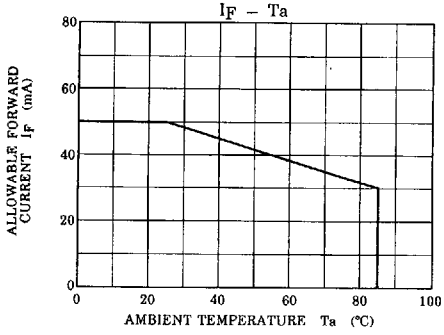
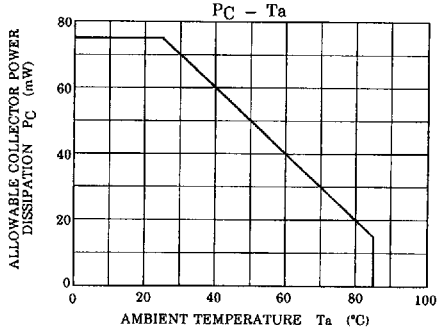
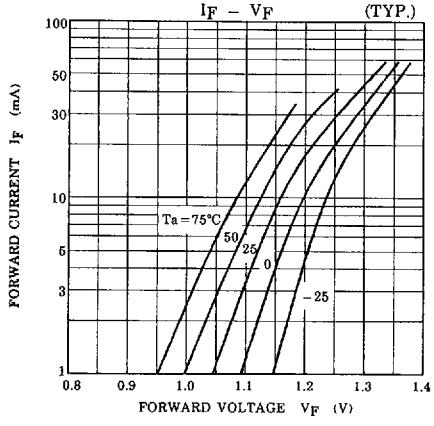
I_F – Ta



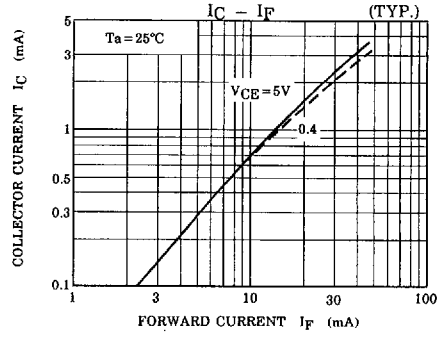
P_C – Ta



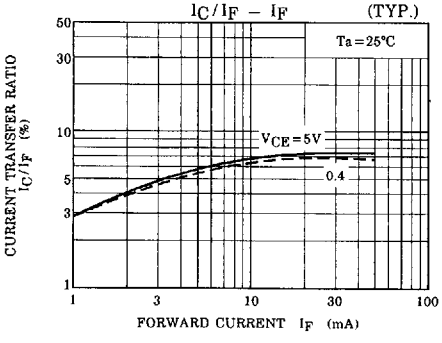
I_F – V_F (TYP.)



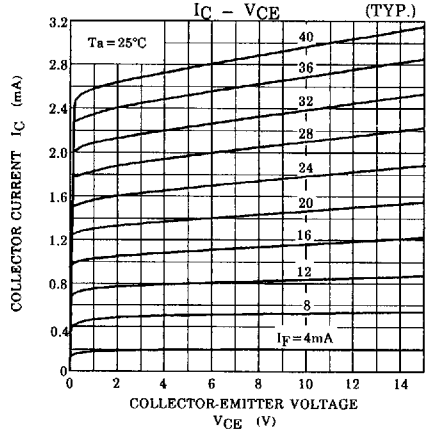
I_C – I_F (TYP.)



I_C/I_F – I_F (TYP.)



I_C – V_{CE} (TYP.)



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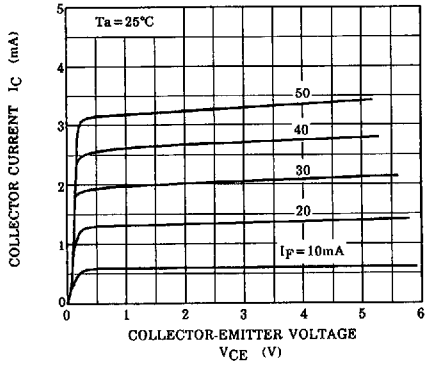
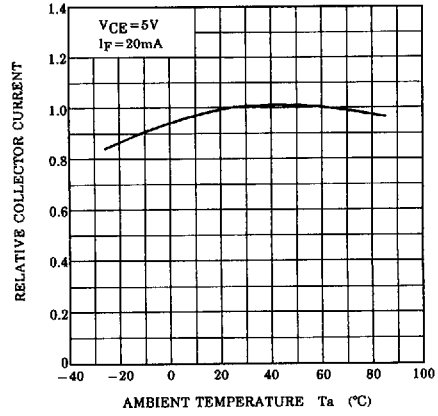
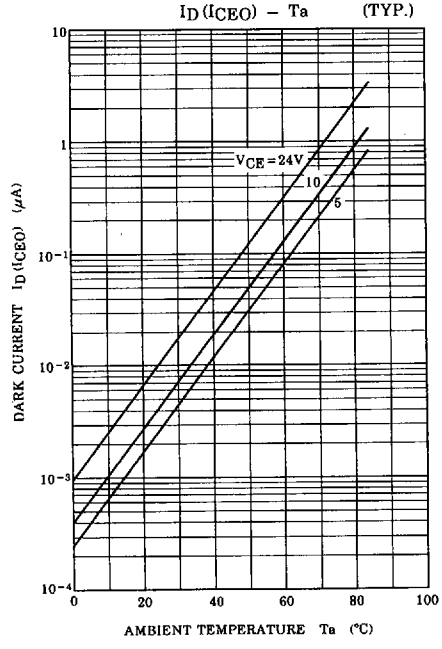
$I_C - V_{CE}$ (TYP.)



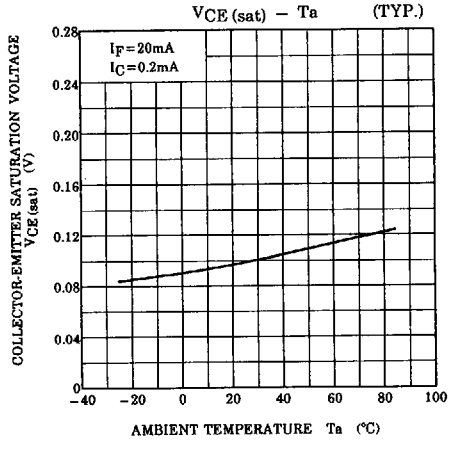
RELATIVE I_C – Ta (TYP.)



I_D (I_{CEO}) – Ta (TYP.)



V_{CE} (sat) – Ta (TYP.)



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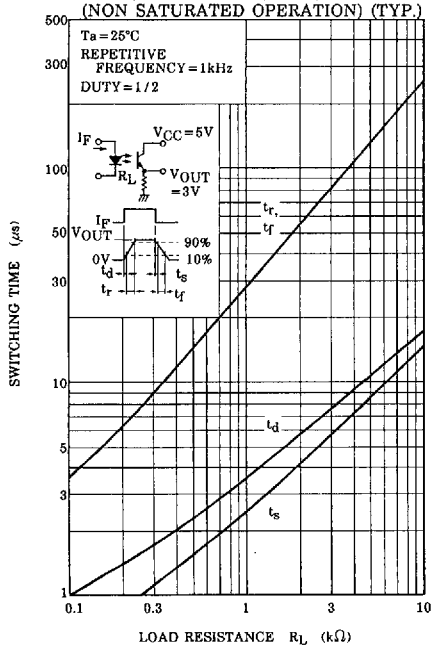
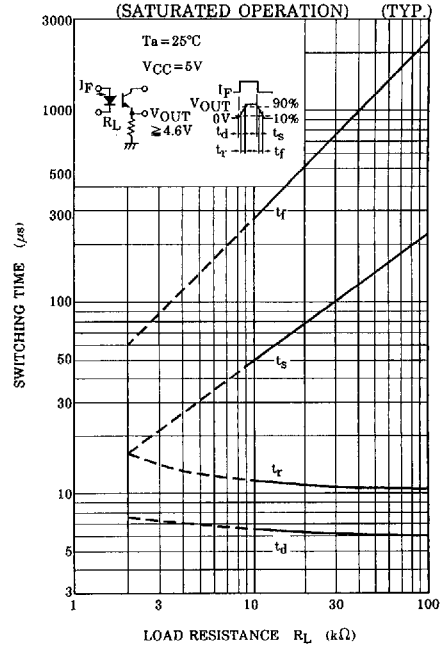
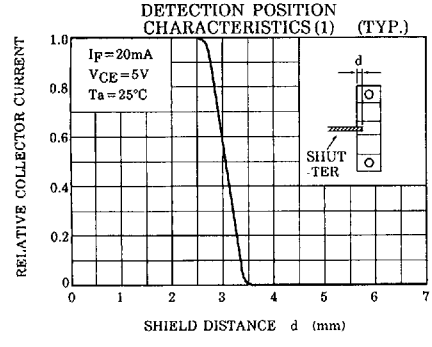
SWITCHING CHARACTERISTICS
(NON SATURATED OPERATION) (TYP.)



SWITCHING CHARACTERISTICS
(SATURATED OPERATION) (TYP.)



DETECTION POSITION
CHARACTERISTICS (1) (TYP.)



DETECTION POSITION
CHARACTERISTICS (2) (TYP.)