

TOSHIBA PHOTOINTERRUPTER INFRARED + PHOTODARLINGTONTRANSISTOR

TLP 853

TIMING SENSOR

EDGE SENSOR

POSITION AND ROTATION SPEED SENSOR

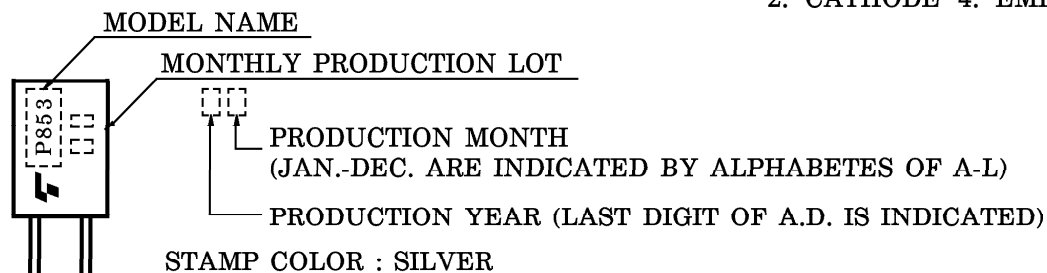
TLP853 is a photointerrupter with a wide gap.

- Resolution : Slit width=0.5mm
- Wide detecting gap : 5mm
- High current transfer ratio : $I_C / I_F = 20\%$ (min)
- The detector side is of visible light cut type.
- Material of the package : Polycarbonate

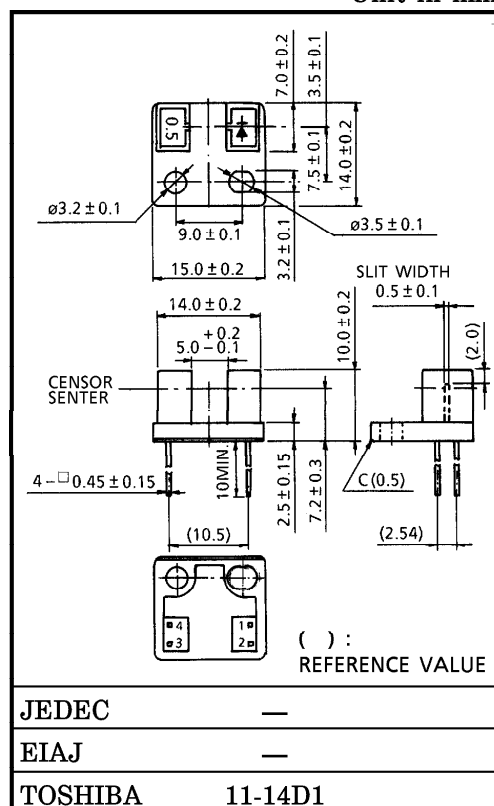
MAXIMUM RATINGS (T_a = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating ($T_a > 25^\circ\text{C}$)	$\Delta I_F / ^\circ\text{C}$	-0.33	mA / $^\circ\text{C}$
	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 ($T_a > 25^\circ\text{C}$)	$\Delta P_C / ^\circ\text{C}$	-1	mW / $^\circ\text{C}$
	Collector Current	I_C	50	mA
	Operating Temperature Range	T_{opr}	-25~85	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-40~100	$^\circ\text{C}$

PRODUCT INDICATION

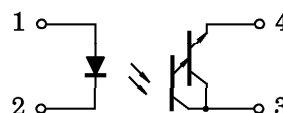


Unit in mm



Weight : 0.98g (typ.)

PIN CONNECTION



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

961001EBC2

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OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.00	1.15	1.30	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Peak Emission Wavelength	λ_P	$I_F = 10\text{mA}$	—	940	—	nm
DETECTOR	Dark Current	I_D (I_{CEO})	$V_{CE} = 16\text{V}$, $I_F = 0$	—	—	0.25	μA
	Peak Sensitivity Wavelength	λ_P		—	870	—	nm
COUPLED	Current Transfer Ratio	I_C / I_F	$V_{CE} = 2\text{V}$, $I_F = 10\text{mA}$	20	100	—	%
	Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_F = 10\text{mA}$, $I_C = 1\text{mA}$	—	0.85	1.2	V
	Rise Time	t_r	$V_{CC} = 5\text{V}$, $I_C = 10\text{mA}$	—	80	—	μs
	Fall Time	t_f	$R_L = 100\Omega$	—	70	—	

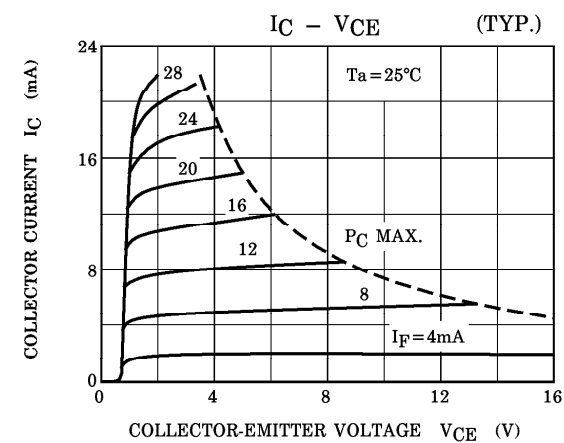
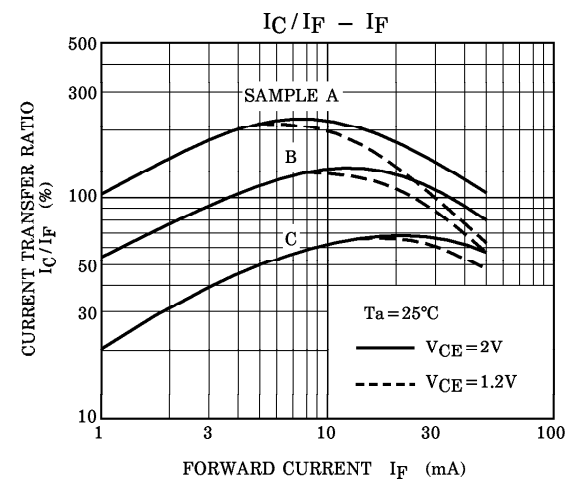
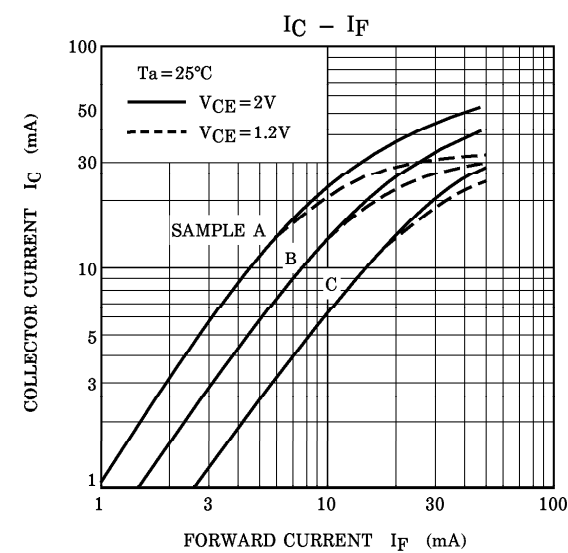
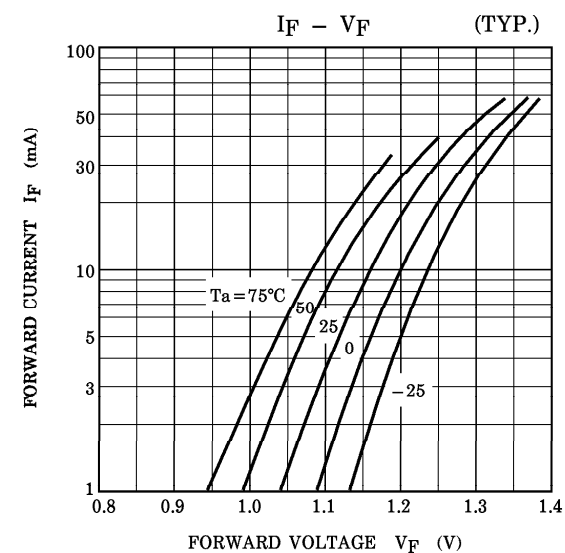
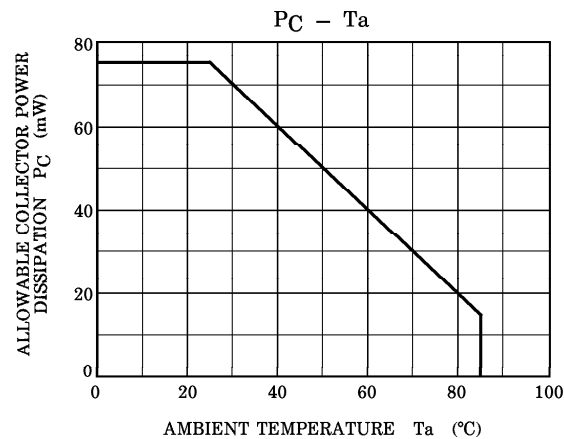
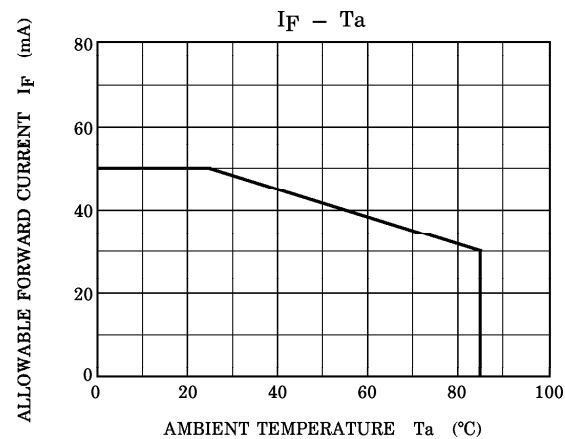
PRECAUTION

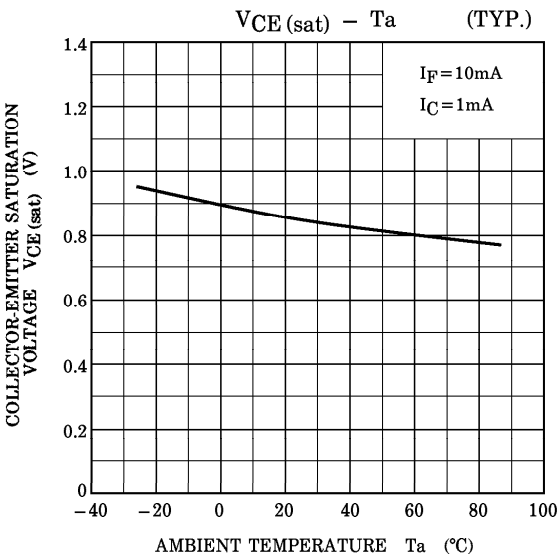
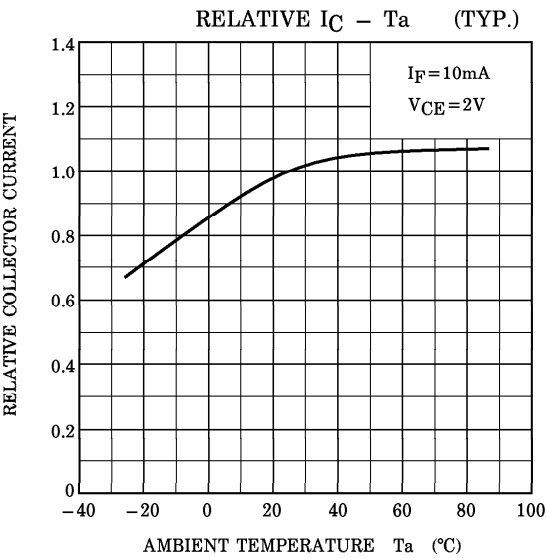
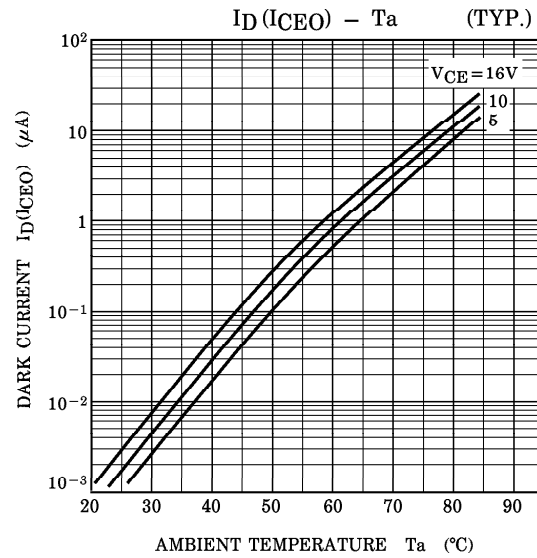
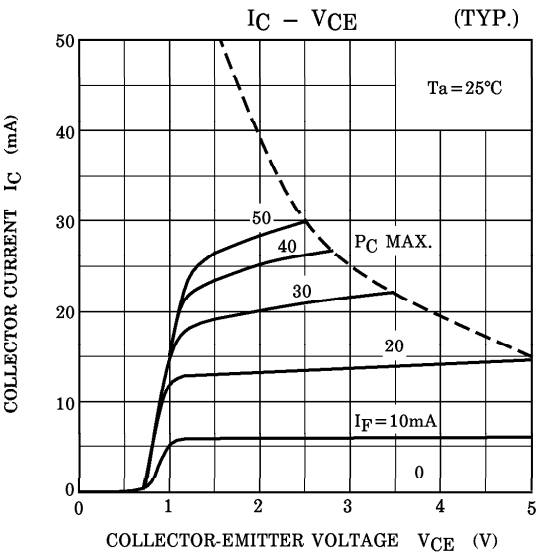
Please be careful of the followings.

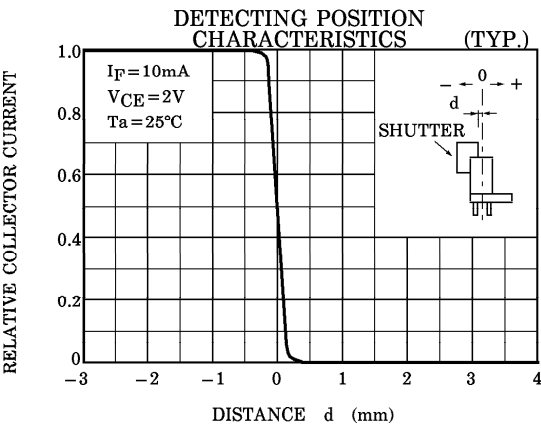
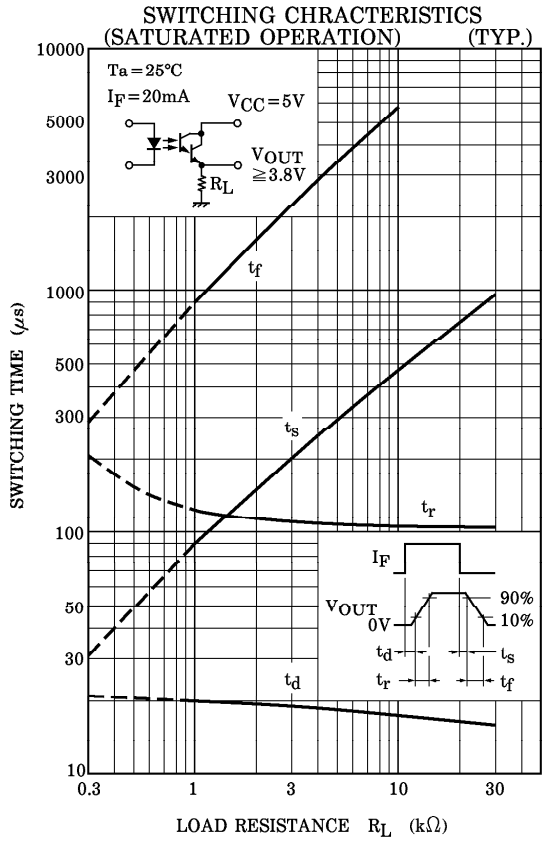
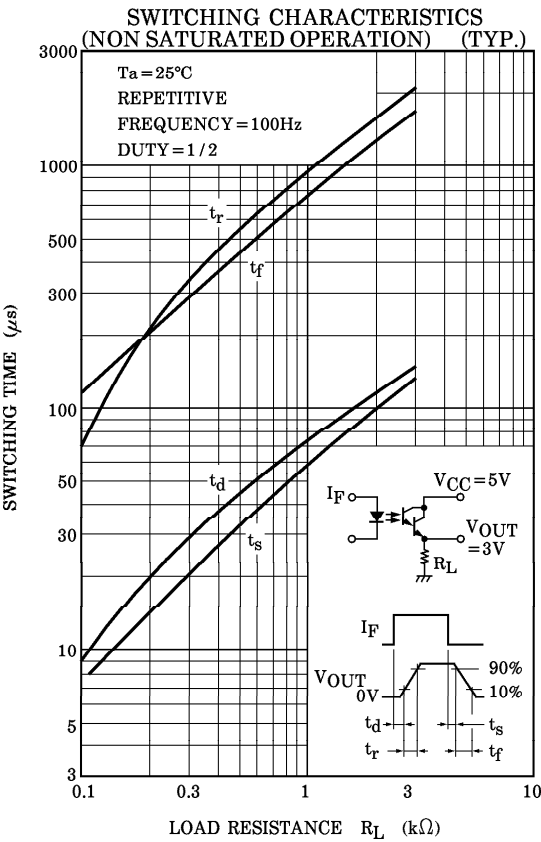
- Soldering temperature : 260°C max Soldering time : 5s max
(Soldering portion of lead : above 1.5mm from the body of the device)
- If chemical are used for cleaning, the soldered surface only shall be cleaned with chemicals avoiding the whole cleaning of the package.
- The container is made of polycarbonate. 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	nitric acid (low concentration), hydrogen peroxide, chlorine
B	Cracked, crazed, or swollen	- 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.	- concentrated sulfuric acid - benzene - styrene, acrylonitrile, vinyl acetate - ethylenediamine, diethylenediamine {chloroform, methyl chloride, tetrachloromethane, dioxane, 1, 2-dichloroethane}
D	Decomposed	- ammonia water - other alkali

- TLP853 shall be mounted on an unwarped surface.
- Screw shall be tightened to clamping torque of 0.59N·m.







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

