

TOSHIBA PHOTO TRANSISTOR SILICON NPN EPITAXIAL PLANAR

TPS603A

PHOTO TRANSISTOR FOR PHOTO SENSOR

PHOTOELECTRIC COUNTER

VARIOUS KINDS OF READERS

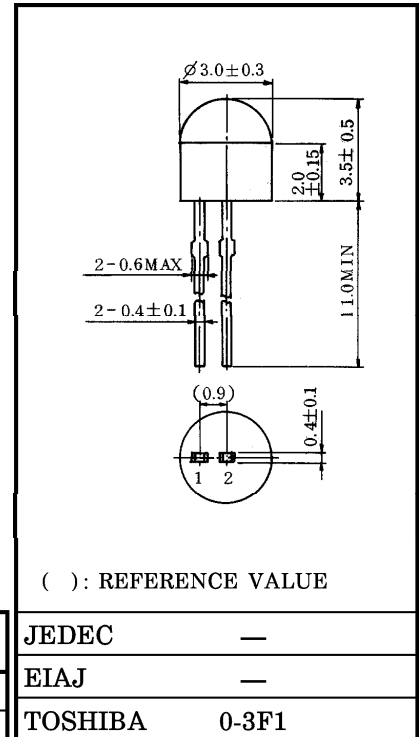
POSITION DETECTION

CONTROLLER OF HOME ELECTRIC EQUIPMENT

DETECTOR FOR STOBOSCOPIC CONTROL

- $\phi 3\text{mm}$ resin package
- Wide half value angle facilitates setting. $\theta_{\frac{1}{2}} = \pm 55^\circ$ (TYP.)
- The same size TLN103A is available as an infrared LED.

Unit in mm



() : REFERENCE VALUE

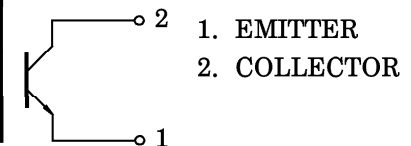
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
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 / $^\circ\text{C}$
Operating Temperature Range	T_{opr}	-20~75	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-30~100	$^\circ\text{C}$

JEDEC	—
EIAJ	—
TOSHIBA	0-3F1

Weight : 0.08g (TYP.)

PIN CONNECTION



OPTO-ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Dark Current	$I_D (I_{CEO})$	$V_{CE} = 10\text{V}, E = 0$	—	0.01	0.1	μA
Light Current	$I_L (I_C)$	$V_{CE} = 3\text{V}, E = 0.1\text{mW/cm}^2$ (Note)	6	20	—	μA
Collector-Emitter Saturation Voltage	$V_{CE} (\text{sat})$	$I_C = 1\mu\text{A}, E = 0.1\text{mW/cm}^2$ (Note)	—	0.2	0.4	V
Switching Time	Rise Time	$V_{CC} = 10\text{V}, I_C = 1\text{mA}$ $R_L = 1\text{k}\Omega$ (Fig. 1)	—	9	—	μs
	Fall Time		—	10	—	
Peak Sensitivity Wavelength	λ_P		—	720	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$		—	± 55	—	$^\circ$

Note : Color temperature = 2870°K, Standard Tungsten Lamp.

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PRECAUTION

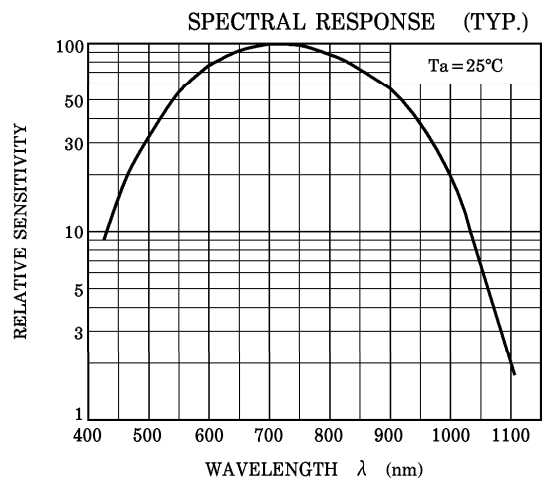
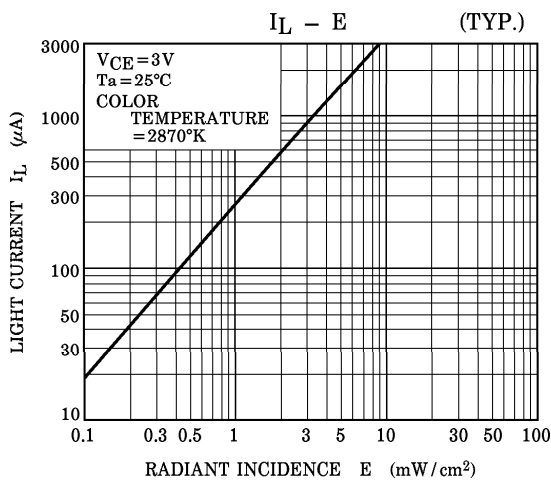
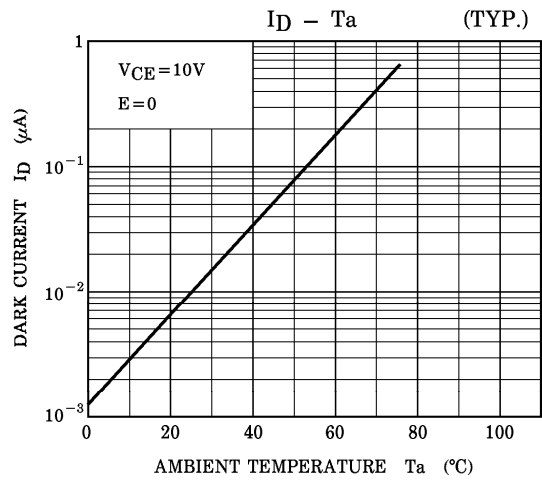
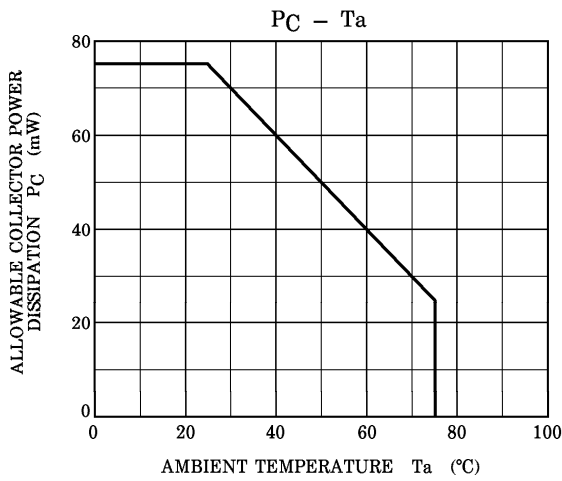
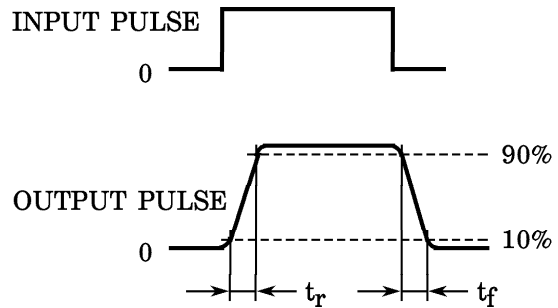
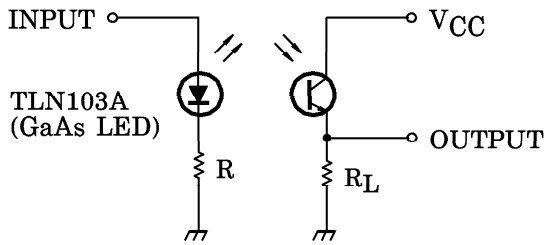
Please be careful of the followings.

1. Soldering temperature : 260°C MAX. Soldering time : 3s MAX.
(Soldering portion of lead : above 1.5mm from the body of the device)
2. If the lead is formed, the lead should be formed at a distance of 2mm from the body of the device.
Soldering shall be performed after lead forming.

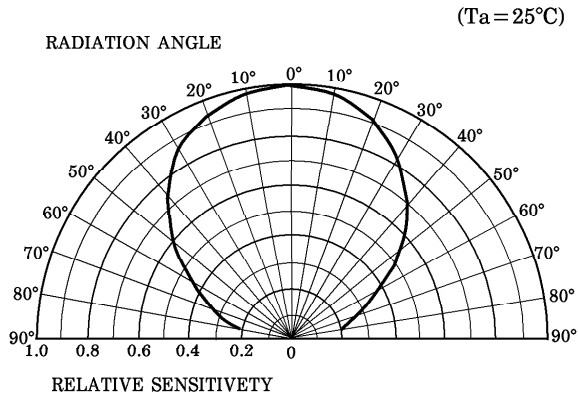
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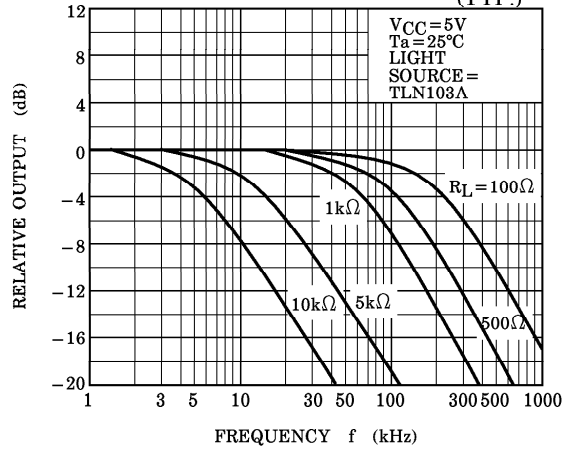
Fig. 1 SWITCHING TIME TEST CIRCUIT



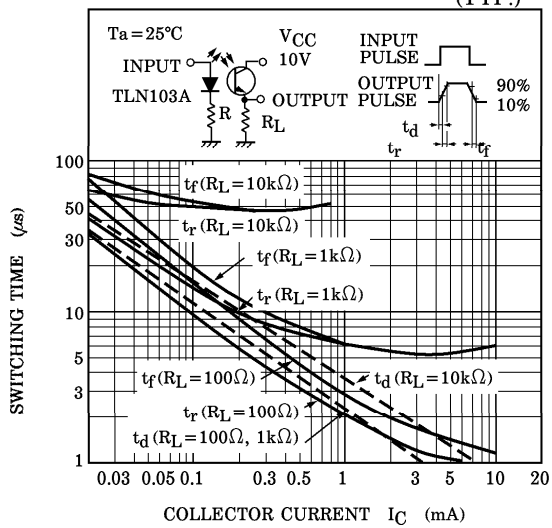
DECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)



FREQUENCY CHARACTERISTICS (TYP.)



SWITCHING CHARACTERISTICS (TYP.)



RELATIVE I_L - T_a (TYP.)

