

TOSHIBA PHOTO TRANSISTOR SILICON NPN EPITAXIAL PLANAR

# TPS603A

PHOTO TRANSISTOR FOR PHOTO SENSOR

PHOTOELECTRIC COUNTER

VARIOUS KINDS OF READERS

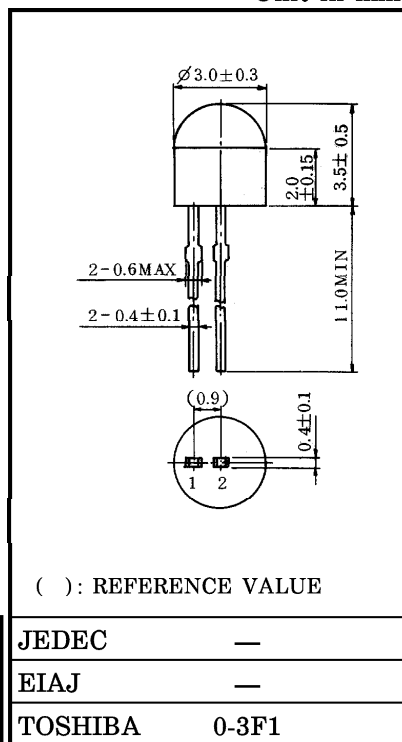
POSITION DETECTION

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

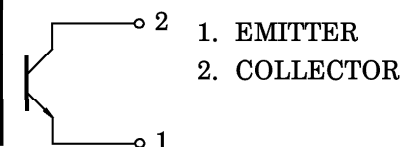


MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V <sub>CEO</sub>	20	V
Emitter-Collector Voltage	V <sub>ECO</sub>	5	V
Collector Current	I <sub>C</sub>	20	mA
Collector Power Dissipation	P <sub>C</sub>	75	mW
Collector Power Dissipation Derating (Ta > 25°C)	$\Delta P_C / ^\circ\text{C}$	-1	mW / °C
Operating Temperature Range	T <sub>opr</sub>	-20~75	°C
Storage Temperature Range	T <sub>stg</sub>	-30~100	°C

Weight : 0.08g (TYP.)

PIN CONNECTION



OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Dark Current	I <sub>D</sub> (I <sub>CEO</sub> )	V <sub>CE</sub> = 10V, E = 0	—	0.01	0.1	μA
Light Current	I <sub>L</sub> (I <sub>C</sub> )	V <sub>CE</sub> = 3V, E = 0.1mW / cm <sup>2</sup> (Note)	6	20	—	μA
Collector-Emitter Saturation Voltage	V <sub>CE</sub> (sat)	I <sub>C</sub> = 1μA, E = 0.1mW / cm <sup>2</sup> (Note)	—	0.2	0.4	V
Switching Time	Rise Time	V <sub>CC</sub> = 10V, I <sub>C</sub> = 1mA R <sub>L</sub> = 1kΩ (Fig. 1)	—	9	—	μs
	Fall Time		—	10	—	
Peak Sensitivity Wavelength	λ <sub>P</sub>		—	720	—	nm
Half Value Angle	θ <sub>1/2</sub>		—	±55	—	°

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

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PRECAUTION

Please be careful of the followings.

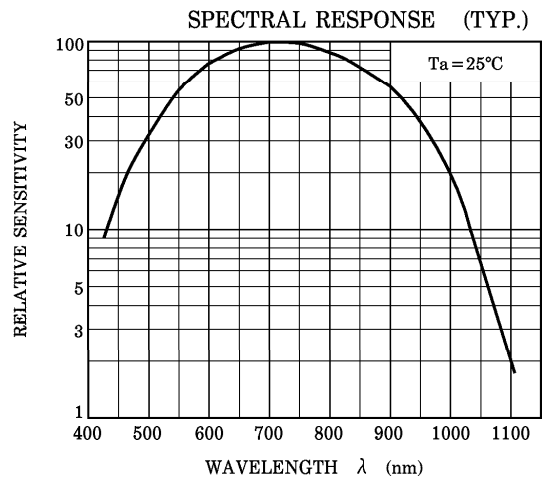
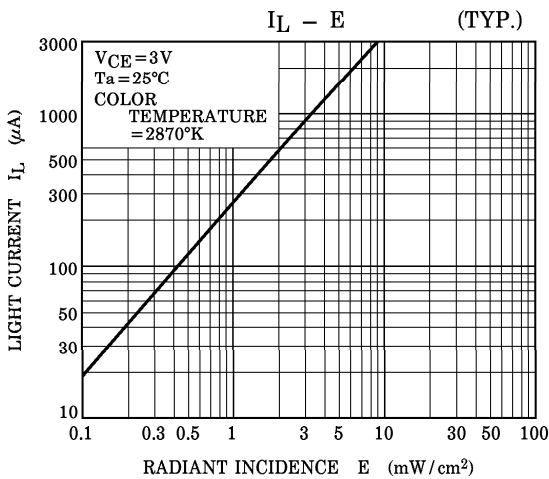
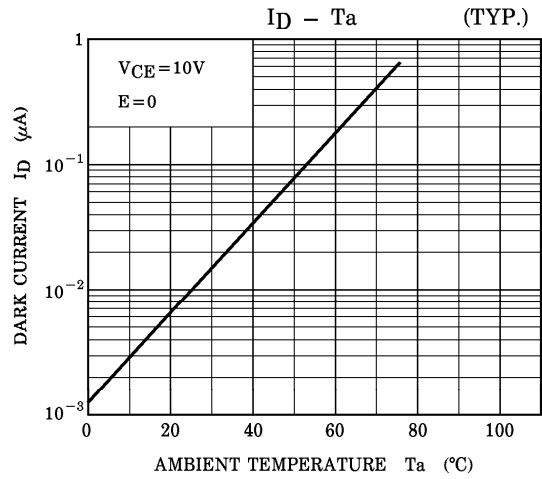
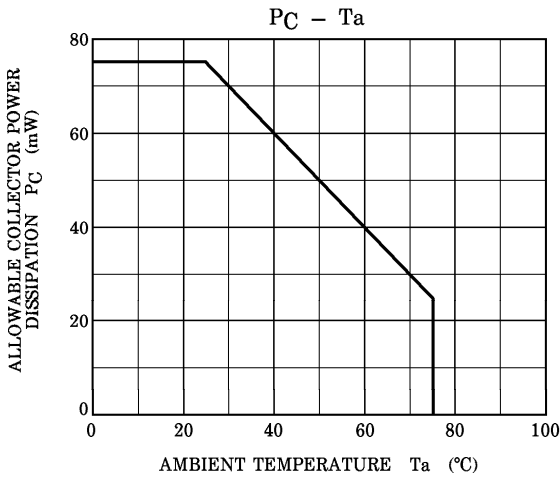
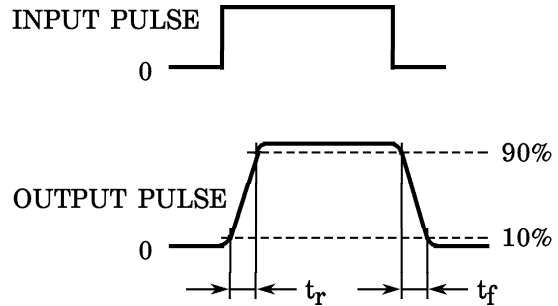
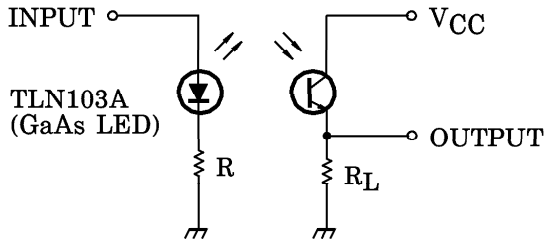
1. Soldering temperature : 260°C MAX. Soldering time : 3s MAX.  
(Soldering portion of lead : above 1.5mm from the body of the device)
2. If the lead is formed, the lead should be formed at a distance of 2mm from the body of the device.  
Soldering shall be performed after lead forming.

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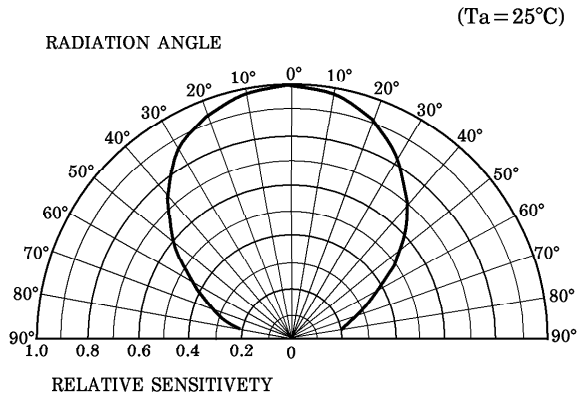
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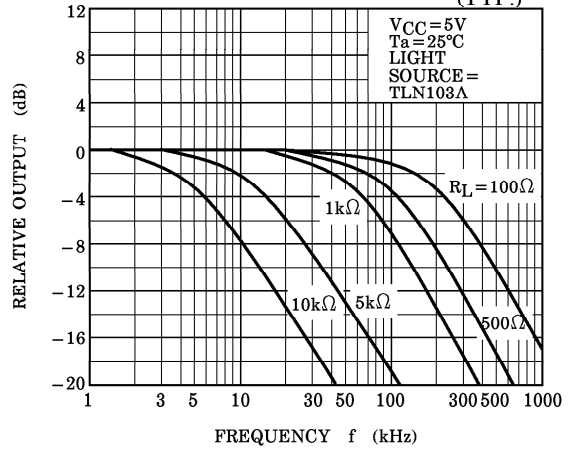
Fig. 1 SWITCHING TIME TEST CIRCUIT



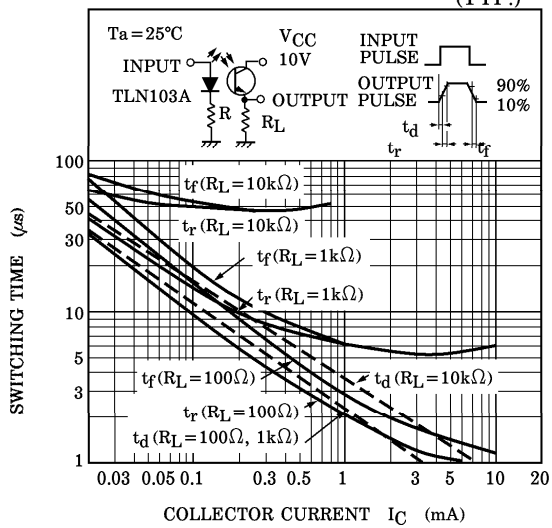
DECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)



FREQUENCY CHARACTERISTICS (TYP.)



SWITCHING CHARACTERISTICS (TYP.)



RELATIVE  $I_L - T_a$  (TYP.)

