

TOSHIBA PHOTO TRANSISTOR SILICON NPN EPITAXIAL PLANAR

# TPS616

FLOPPY DISK DRIVE

VCR

POSITION DETECTOR OF HOME ELECTRIC EQUIPMENT

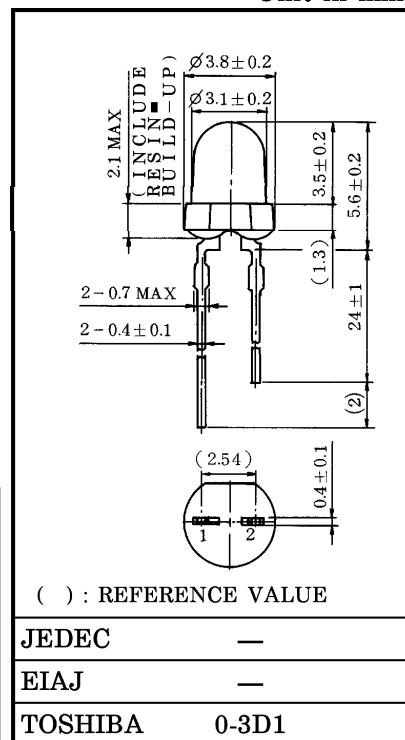
OPTO-ELECTRONIC SWITCH

- $\phi 3.1\text{mm}$  epoxy resin package. (black)
- Light current :  $I_L = 10\mu\text{A}$  (MIN.) at  $E = 0.1\text{mW}/\text{cm}^2$
- Half value angle :  $\theta_{\frac{1}{2}} = \pm 30^\circ$  (TYP.)
- Protected from external light by black mold packaging.

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

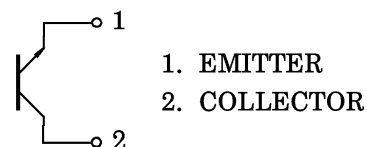
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Collector Voltage	$V_{ECO}$	5	V
Collector Current	$I_C$	20	mA
Collector Power Dissipation	$P_C$	75	mW
Collector Power Dissipation Derating ( $T_a > 25^\circ\text{C}$ )	$\Delta P_C / ^\circ\text{C}$	-1	mW / $^\circ\text{C}$
Operating Temperature Range	$T_{opr}$	-30~85	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-30~100	$^\circ\text{C}$

Unit in mm



Weight : 0.12g (TYP.)

PIN CONNECTION



961001EAA2

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## OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Dark Current	$I_D (I_{CEO})$	$V_{CE} = 24V$	—	0.01	0.1	$\mu A$
Light Current	$I_L$ (Note 2)	$V_{CE} = 3V, E = 0.1mW / cm^2$ (Note 1)	10	—	75	$\mu A$
Collector-Emitter Saturation Voltage	$V_{CE} (sat)$	$I_C = 5\mu A, E = 0.1mW / cm^2$ (Note 1)	—	0.2	0.4	V
Peak Sensitivity Wavelength	$\lambda_P$	—	—	900	—	nm
Half Vaule Angle	$\theta_{\frac{1}{2}}$	—	—	$\pm 30$	—	°
Switching Time	Rise time	$V_{CC} = 10V, I_C = 1mA$ $R_L = 1k\Omega$	—	9	—	$\mu s$
	Fall Time		—	10	—	

Note 1. Color temperature = 2870°K, Standard Tungsten Lamp.

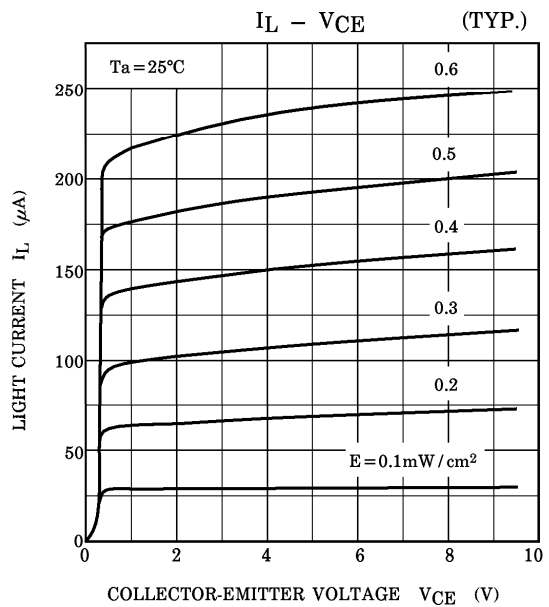
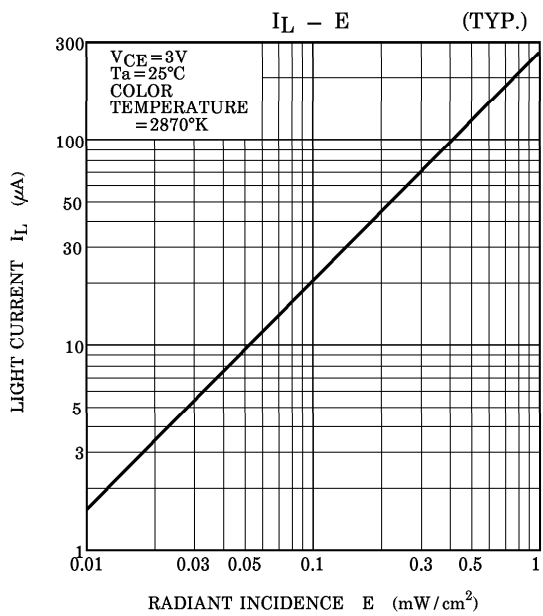
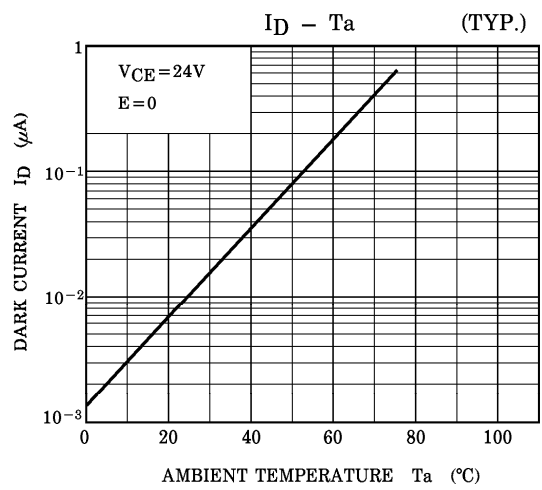
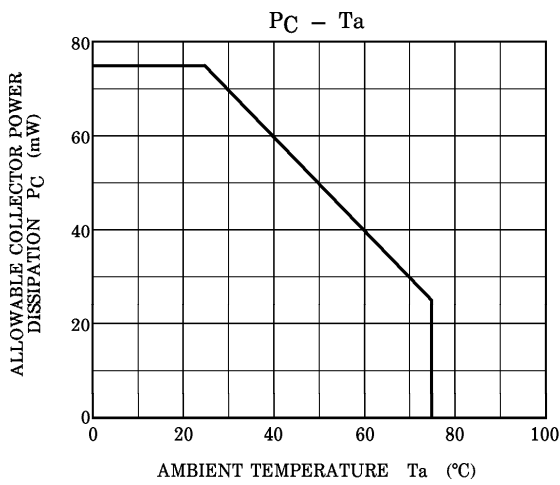
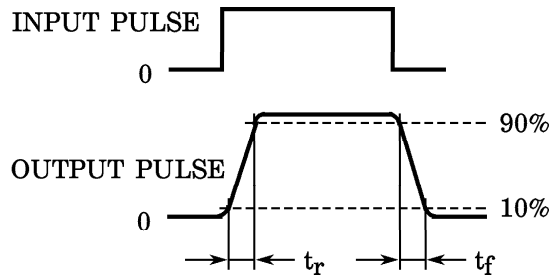
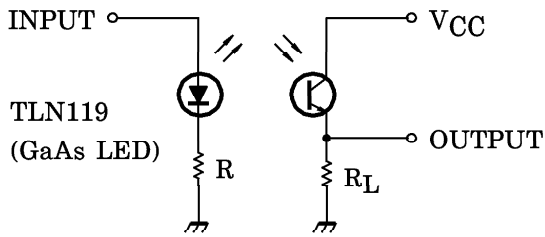
Note 2.  $I_L$  Classification A : 10~25 $\mu A$ , B : 17~42.5 $\mu A$ , C : 30~75 $\mu A$ ,  
AB : 10~42.5 $\mu A$ , BC : 17~75 $\mu A$

## PRECAUTION

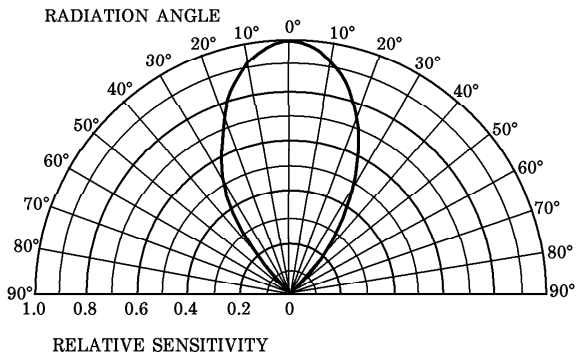
Please be careful of the followings.

- Soldering temperature : 260°C MAX. Soldering time : 3s MAX.  
(Soldering portion of lead : above 1.5mm from the body of the device)
- 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.

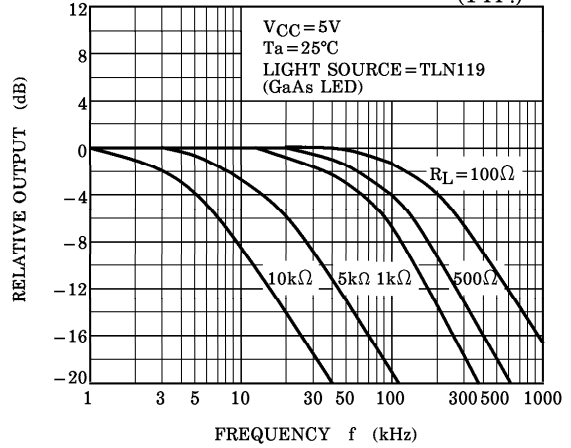
Fig.1 SWITCHING TIME TEST CIRCUIT



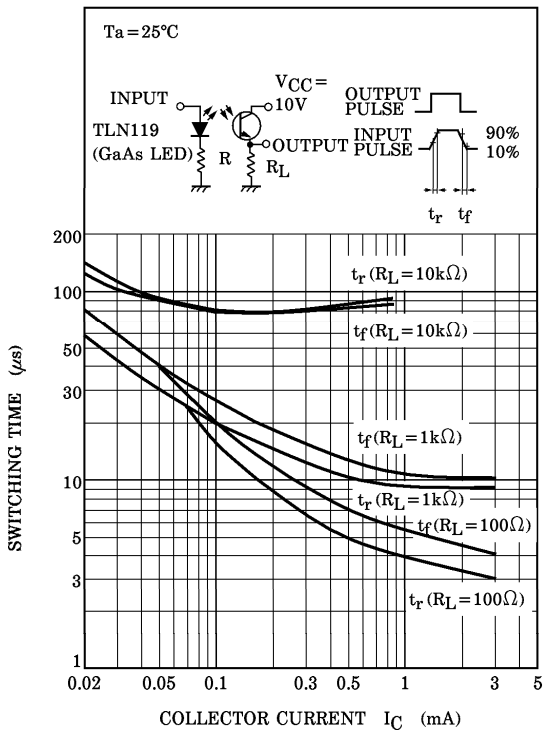
DIRECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)  
( $T_a = 25^\circ\text{C}$ )



FREQUENCY CHARACTERISTICS (TYP.)



SWITCHING CHARACTERISTICS (TYP.)



COUPLING CHARACTERISTICS WITH TLN119

