

TOSHIBA PHOTO TRANSISTOR SILICON NPN EPITAXIAL PLANAR

# TPS606, TPS606 (LB)

TAPE, CARD READERS

PRINTER, TERMINAL

OPTO-ELECTRONIC SWITCH

- Micro-package (epoxy resin package)  
 Double end type : TPS606  
 DIP type : TPS606 (LB)
- Mountable at a 2.5mm pitch
- High speed response :  $t_r = 2\mu s$ ,  $t_f = 3\mu s$  (TYP.)
- Half value angle :  $\theta_{\frac{1}{2}} = \pm 20^\circ$  (TYP.)
- Maximum distance when used as an opto electronic switch  
 TLN104 at DC drive  $\approx 5\text{mm}$  at TPS606  $I_L \approx 100\mu A$

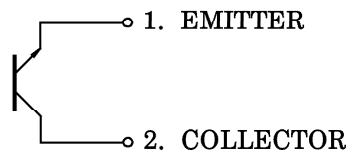
MAXIMUM RATINGS (Ta = 25°C)

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	$P_C$	50	mW
Collector Power Dissipation Derating (Ta > 25°C)	$\Delta P_C / ^\circ C$	-0.91	mW / °C
Operating Temperature Range	$T_{opr}$	-25~85	°C
Storage Temperature Range	$T_{stg}$	-30~100	°C
Soldering Temperature (3s)	$T_{sol}$	260	°C

RECOMMENDED OPERATING CONDITION

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	$V_{CC}$	—	5	16	V

PIN CONNECTION



Unit in mm

TPS606

( ) : REFERENCE VALUE

JEDEC	—
EIAJ	—
TOSHIBA	0-2C1

TPS606 (LB)

( ) : REFERENCE VALUE

JEDEC	—
EIAJ	—
TOSHIBA	0-2C101

Weight : 0.08g (TYP.)

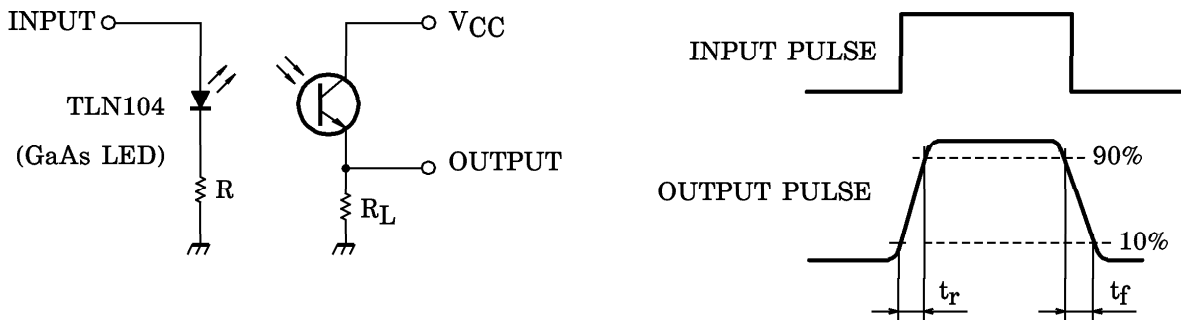
961001EAA2

● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Dark Current	$I_D$	$V_{CE} = 10V, E = 0$	—	0.01	0.1	$\mu A$
Light Current (Note 1)	$I_L$	$V_{CE} = 3V, E = 0.1mW/cm^2$ (Note 2)	10	40	—	$\mu A$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2\mu A, E = 0.1mW/cm^2$ (Note 2)	—	0.2	0.4	V
Peak Sensitivity Wavelength	$\lambda_P$	—	—	720	—	nm
Half Vaule Angle	$\theta_{\frac{1}{2}}$	—	—	$\pm 20$	—	°
Switching Time	Rise time	$V_{CC} = 10V, I_C = 1mA$ $R_L = 100\Omega$ (Note 3)	—	2	—	$\mu s$
	Fall Time		—	3	—	

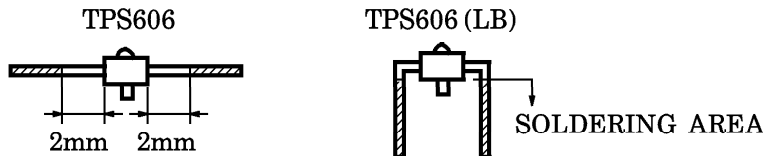
- Note 1.  $I_L$  Classification B : 10~30 $\mu A$ , C : 20~60 $\mu A$ , D : 40~125 $\mu A$   
 2. Color temperature = 2870°K, Standard Tungsten Lamp  
 3. Switching time test circuit



PRECAUTION

Please be careful of the followings.

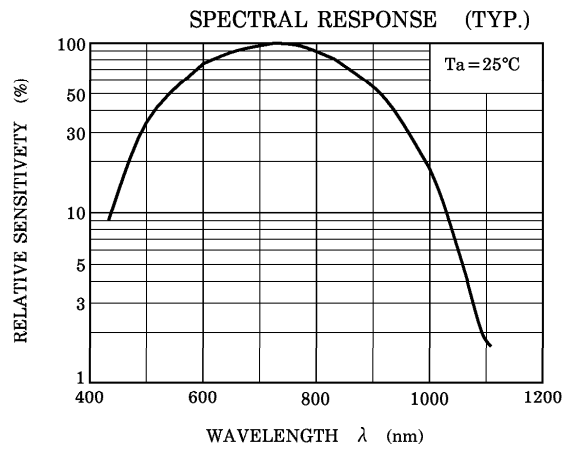
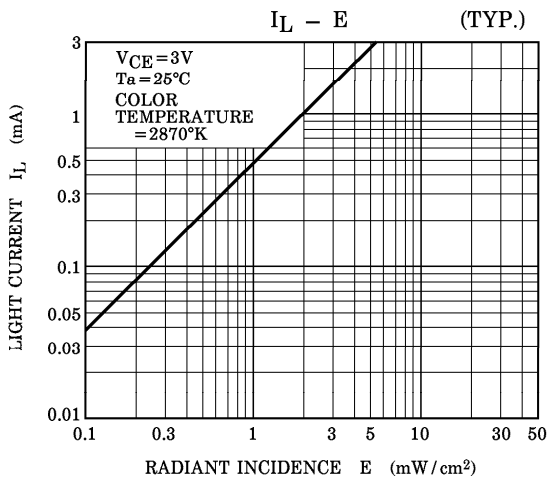
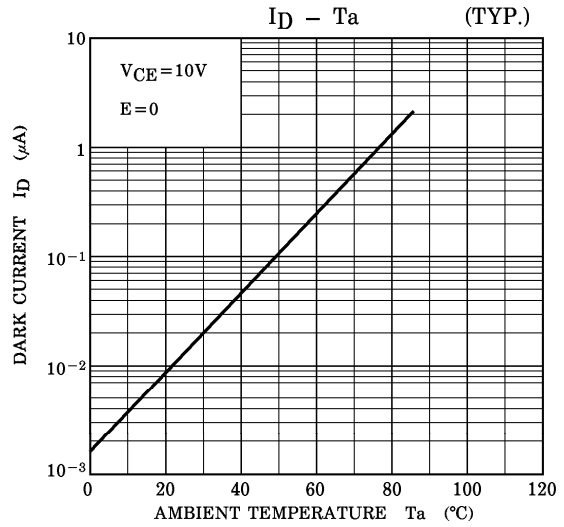
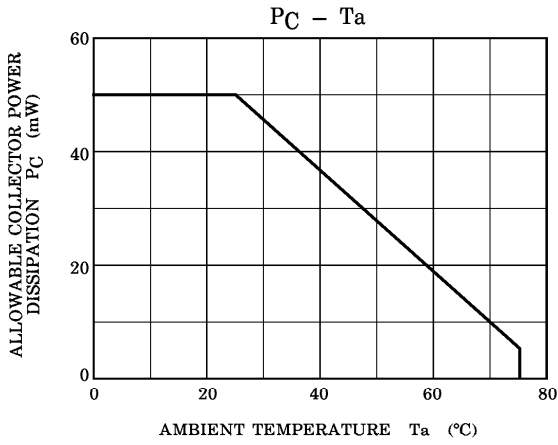
1. If the lead is formed, the lead should be formed at a distance of 0.8mm from the body of the device. Soldering shall be performed after lead forming. However, in case of TPS605 (LB), no lead forming shall be performed.
2. Soldering shall be performed within the range shown below.



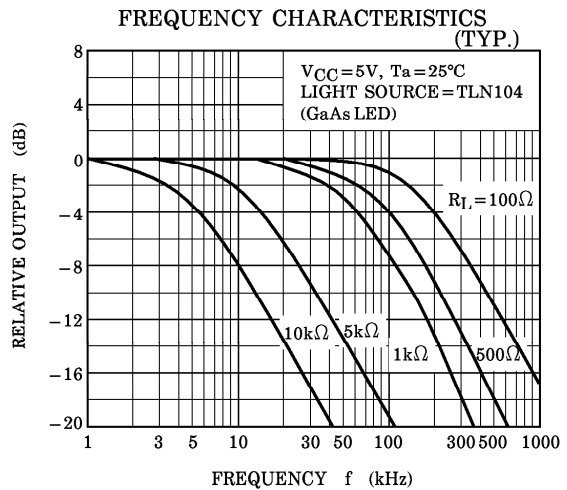
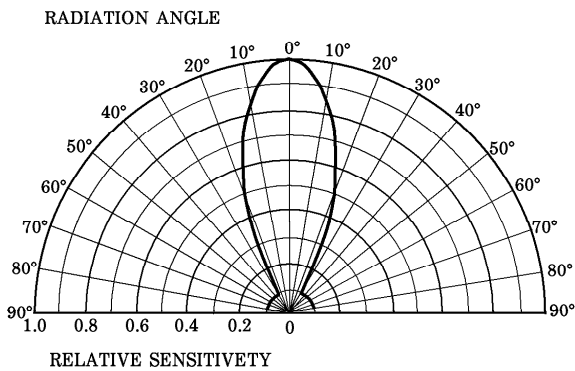
AREA 2mm AWAY FROM THE PACKAGE ENDS

961001EAA2'

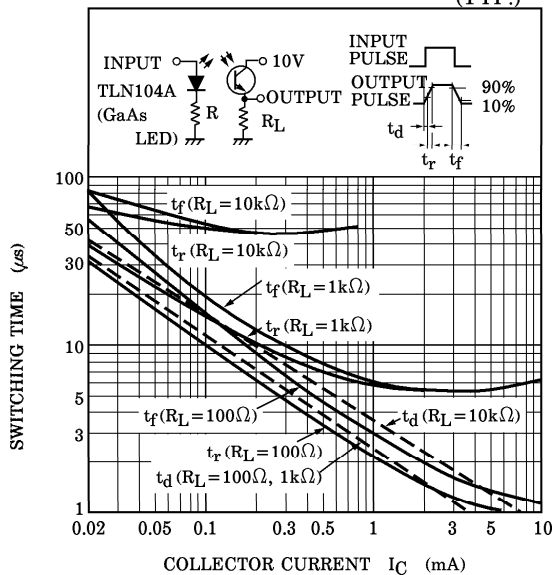
● The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.  
 ● The information contained herein is subject to change without notice.



**DIRECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)**  
( $T_a = 25^\circ C$ )



**SWITCHING CHARACTERISTICS (TYP.)**



**RELATIVE  $I_L$  -  $T_a$  (TYP.)**

