

TOSHIBA PHOTO TRANSISTOR SILICON NPN EPITAXIAL PLANAR

TPS621, TPS622

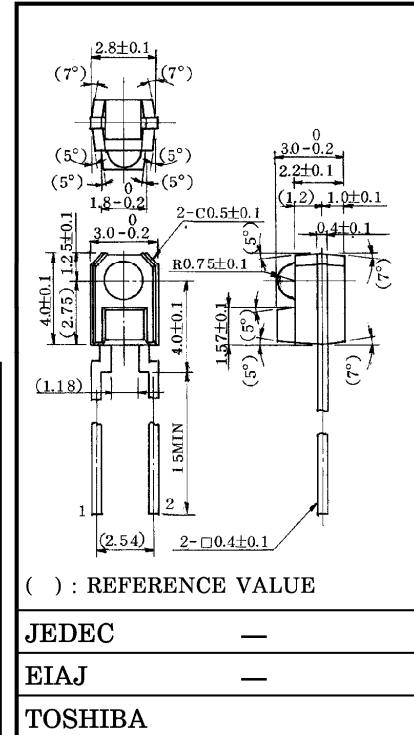
OPTO-ELECTRONIC SWITCH
 FLOPPY DISK DRIVE
 OPTICAL MOUSE
 OPTICAL TOUCH SWITCH

UNIT IN : mm

- Small side view epoxy resin package
- Fast response speed : $t_r, t_f = 6\mu s$ (TYP.)
- Half value angle : $\theta_{\frac{1}{2}} = \pm 15^\circ$ (TYP.)
- Visible light cut type (black package) : TPS622
- Optimum in combination with infrared LED TLN117 which has identical external dimensions.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	50	mA
Collector Power Dissipation	P_C	75	mW
Collector Power Dissipation Derating (Ta > 25°C)	$\Delta P_C / ^\circ C$	-1	mW / °C
Operating Temperature Range	T_{opr}	-25~85	°C
Storage Temperature Range	T_{stg}	-40~100	°C
Soldering Temperature (5s)	T_{sol}	260 (Note 1)	°C



() : REFERENCE VALUE

JEDEC	—
EIAJ	—
TOSHIBA	TOSHIBA

Weight : 0.1g (TYP.)

Note 1. Soldering portion of lead : above 2mm from the body of the device.

OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Dark Current	$I_D (I_{CEO})$	$V_{CE} = 24V, E = 0$	—	0.005	0.1	μA	
Light Current	I_L	$E = 0.1mW / cm^2, V_{CE} = 3V$ (Note 2, 3)	TPS621	40	100	—	μA
			TPS622	27	70	—	
Collector-Emitter Saturation Voltage	$V_{CE (sat)}$	$E = 0.1mW / cm^2, I_C =$ (Note 4)	—	0.15	0.4	V	
Peak Sensitivity Wavelength	λ_p	—	TPS621	—	820	—	nm
			TPS622	—	870	—	
Half Value Angle	$\theta_{\frac{1}{2}}$	—	—	± 15	—	°	
Switching Time	Rise Time	$V_{CC} = 5V, I_C = 2mA, R_L = 100\Omega$	—	6	—	μs	
	Fall Time		—	6	—		

961001EAA2

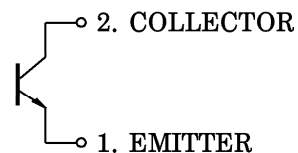
- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing 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.
- 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.

Note 2. Color temperature = 2870°K Standard Tungsten Lamp
 3. I_L Classification

RANK	I_L (μA)	
	TPS621	TPS622
(A)	40~120	27~80
(B)	80~240	55~165
—	40MIN.	27MIN.

4. TPS621 : 15 μA , TPS622 : 10 μA

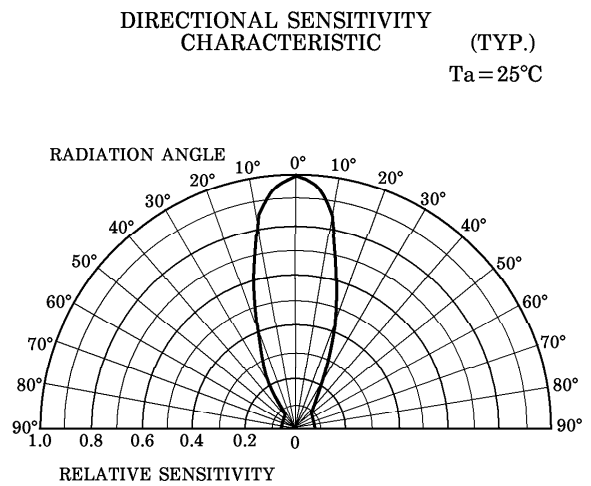
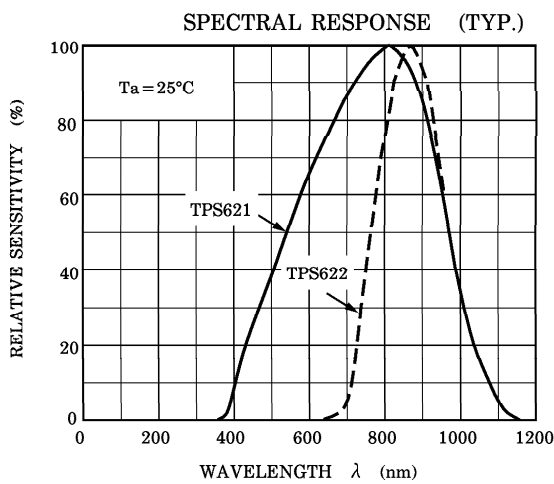
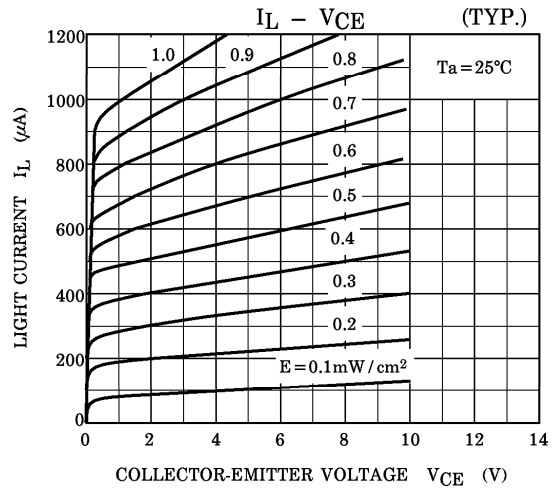
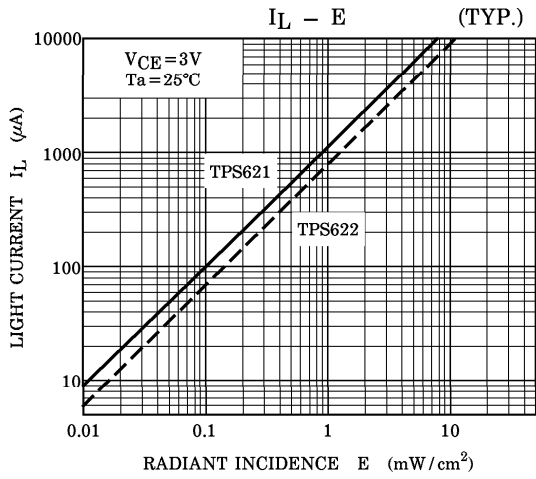
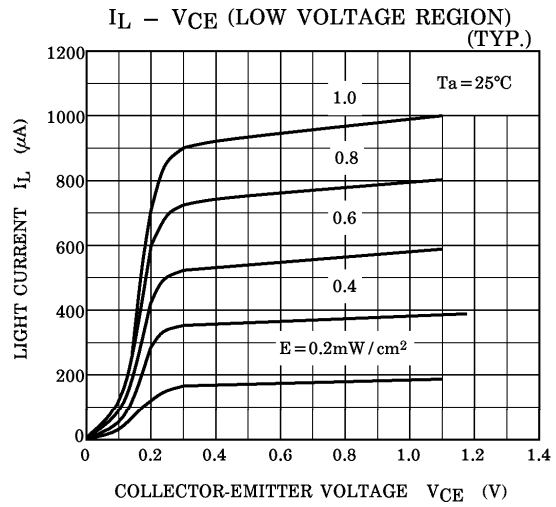
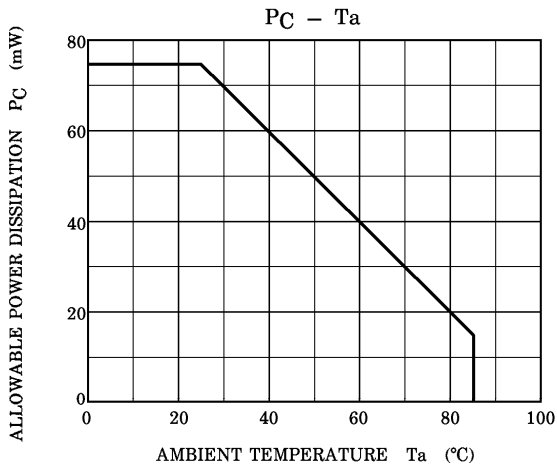
PIN CONNECTION

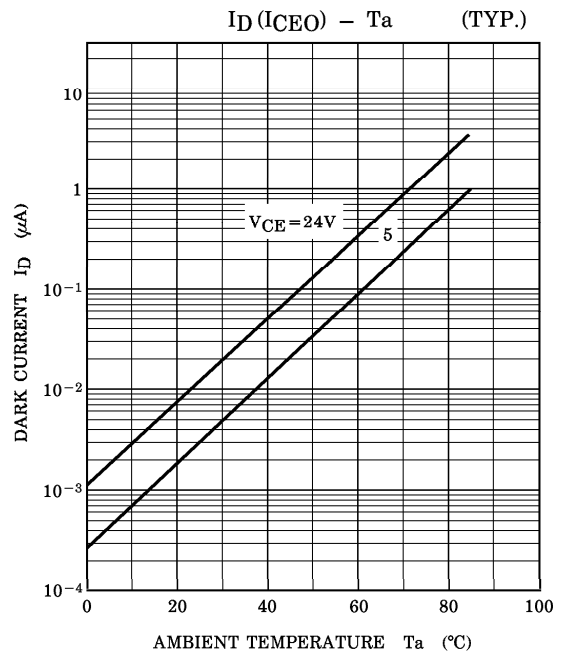
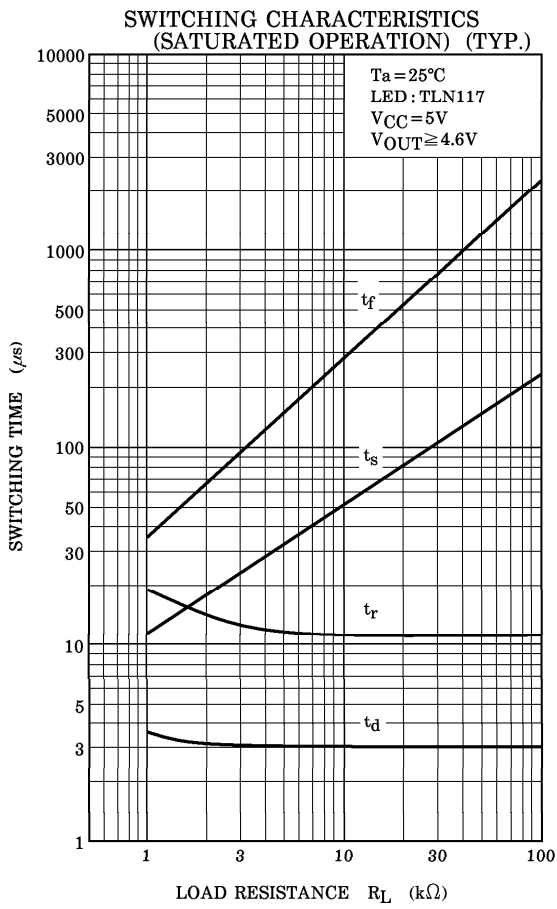


PRECAUTION

Please be careful of the followings.

1. When the lead is formed, the lead shall be formed at a distance of 2mm from the body without leaving forming stress to the body of the device.
 Soldering shall be performed after lead forming.





SWITCHING TIME TEST CIRCUIT

