

TOSHIBA

TPS614

TOSHIBA PHOTO TRANSISTOR SILICON NPN EPITAXIAL PLANAR

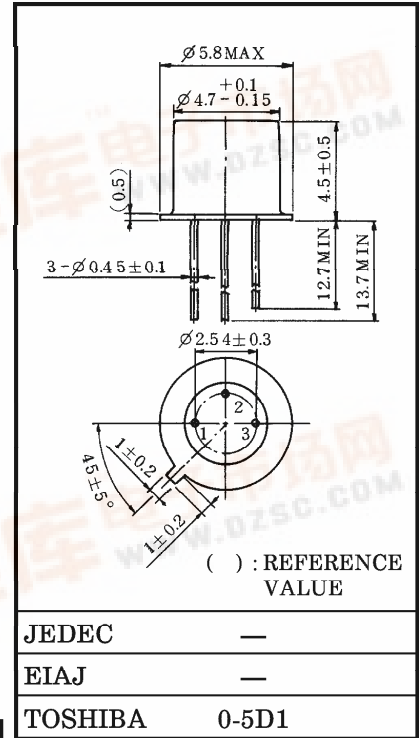
TPS614

FOR PHOTO SENSOR

Unit in mm

PHOTOELECTRIC COUNTER
VARIOUS KINDS OF READERS
POSITION DETECTION

- TO-18 metal package
- High sensitivity : $I_L = 1.5\text{mA}$ (TYP.)
- Wide half value angle facilitates mechanical design.
: $\theta_{\frac{1}{2}} = \pm 42^\circ$ (TYP.)
- Countermeasure against disturbance light, improvement of response speed and enable operation can be taken by use of the base pin. Avoid the use of TPS614 with the base pin kept open.
- TLN108, TLN201, etc. are available as the recommended infrared LEDs.

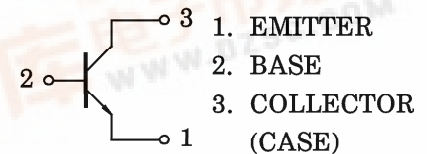


MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	50	mA
Collector Power Dissipation	P_C	150	mW
Collector Power Dissipation Derating (Ta > 25°C)	$\Delta P_C / ^\circ\text{C}$	-1.2	mW / °C
Operating Temperature Range	T_{opr}	-40~125	°C
Storage Temperature Range	T_{stg}	-55~150	°C

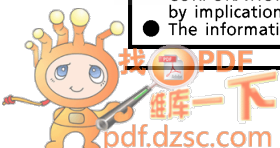
Weight : 0.27g (TYP.)

PIN CONNECTION



961001EAA2

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OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Dark Current		$I_D (I_{CEO})$	$V_{CE} = 30V, E = 0$	—	0.01	0.2	μA
Light Current		I_L	$V_{CE} = 3V, E = 10mW / cm^2$ (Note)	0.6	1.5	—	mA
Collector-Emitter Saturation Voltage		$V_{CE} (sat)$	$I_C = 0.3mA, E = 10mW / cm^2$ (Note)	—	0.25	0.4	V
Switching Time	Rise Time	t_r	$V_{CC} = 5V, I_C = 10mA$ $R_L = 100\Omega$ (Fig. 1)	—	2	—	μs
	Fall Time	t_f		—	2	—	
Peak Sensitivity Wavelength		λ_P	—	—	800	—	nm
Half Value Angle		$\theta \frac{1}{2}$	—	—	± 42	—	°

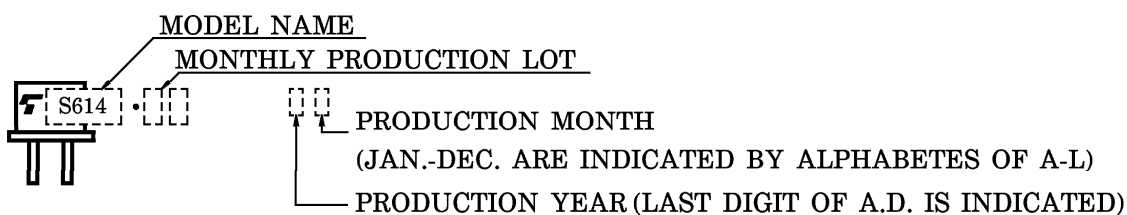
Note : Color temperature = 2870°K, Standard Tungsten Lamp.

PRECAUTION

Please be careful of the followings.

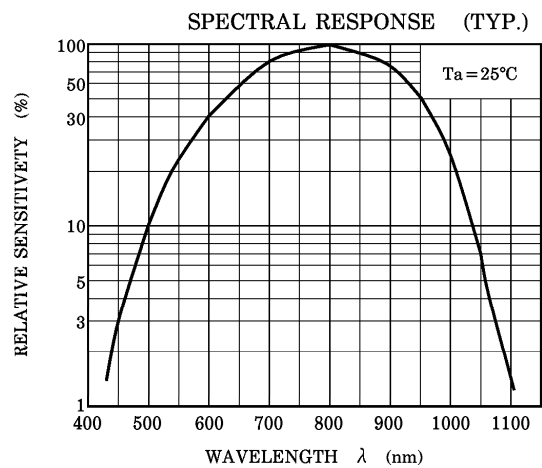
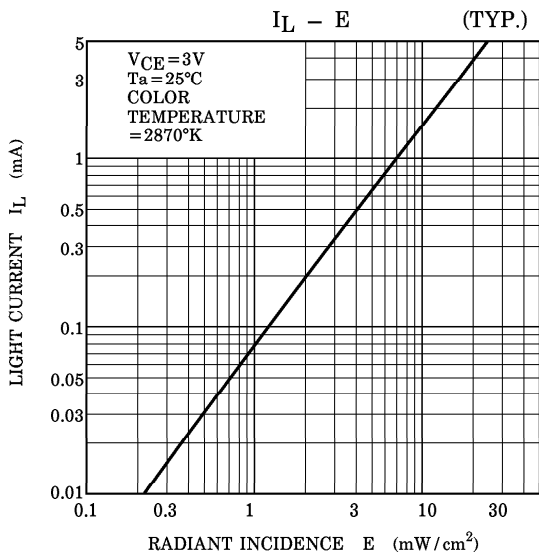
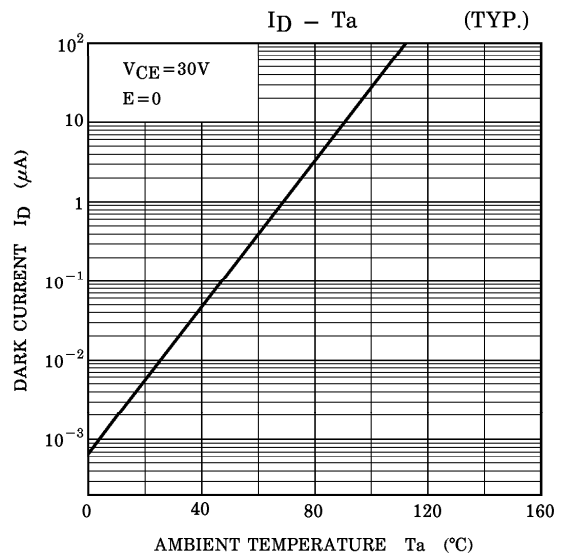
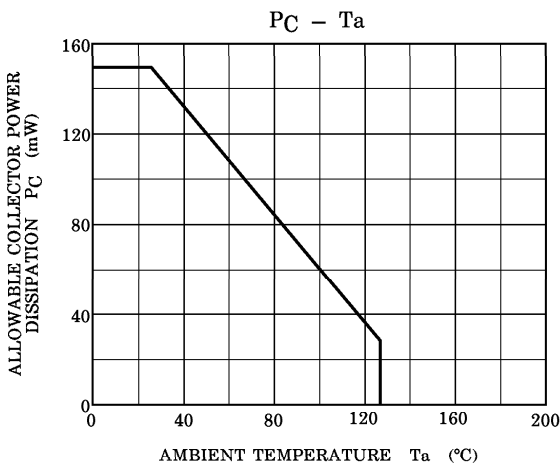
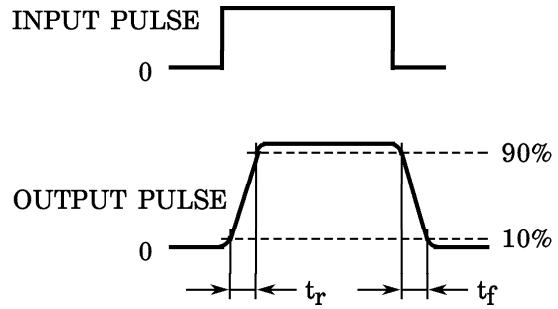
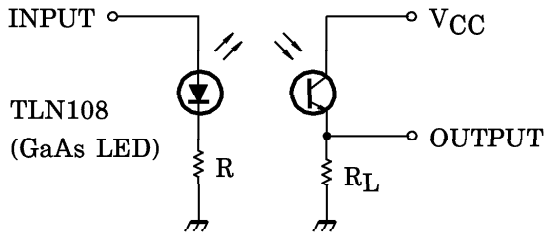
1. Soldering temperature : 260°C MAX. Soldering time : 5s MAX.
(Soldering portion of lead : above 1.5mm from the body of the device)
2. If the lead is formed, the lead should be formed at a distance of 2mm from the body of the device.
Soldering shall be performed after lead forming.

PRODUCT INDICATION

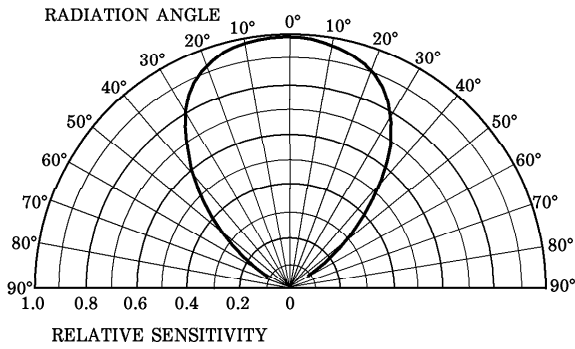


STAMP COLOR : RED

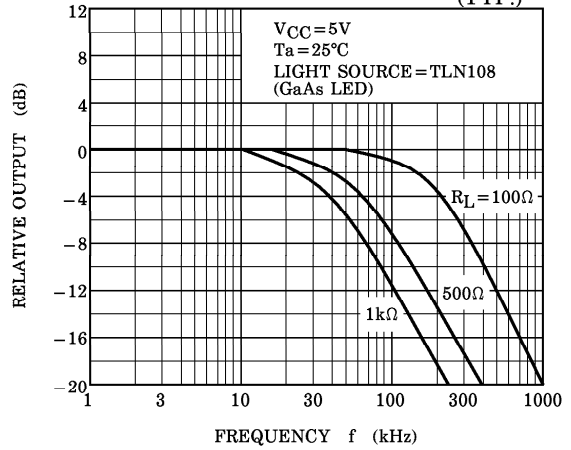
Fig. 1 SWITCHING TIME TEST CIRCUIT



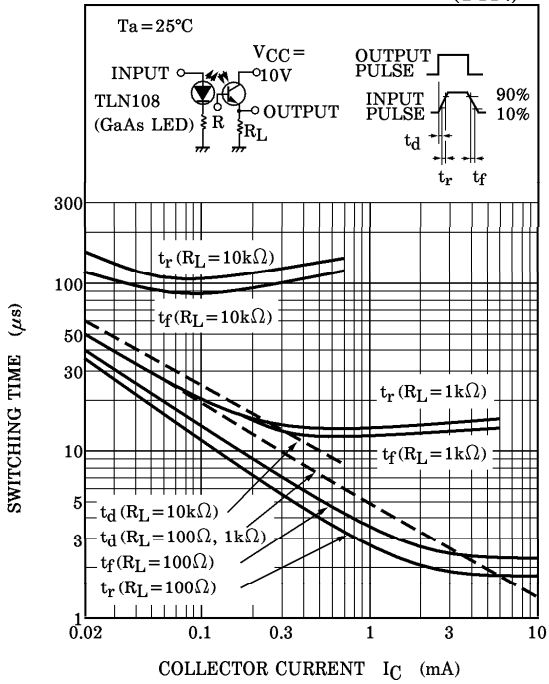
DIRECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)
($T_a = 25^\circ\text{C}$)



FREQUENCY CHARACTERISTICS (TYP.)



SWITCHING CHARACTERISTICS (TYP.)



RELATIVE $I_L - T_a$ (TYP.)

