TOSHIBA PHOTOTRANSISTOR SILICON NPN EPITAXIAL PLANAR

TPS604

PHOTO TRANSISTOR FOR PHOTO SENSOR

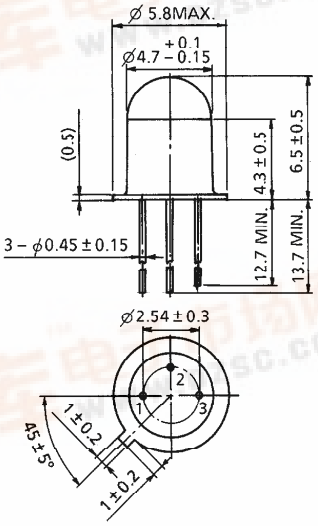
PHOTOELECTRIC COUNTER

VARIOUS KINDS OF READERS

POSITION DETECTION

- TO-18 metal package
- High sensitivity.
- Sharp directivity. Incident light can be effectively used.
  : $\theta\frac{1}{2} = \pm 10°$ (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 TPS604 with the base pin kept open.
- The same size TPS601A with the base pin is available.

Unit in mm



( ) : REFERENCE VALUE

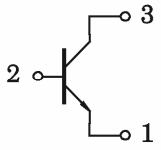
JEDEC	—
EIAJ	—
TOSHIBA	0-5B1

Weight : 0.37g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

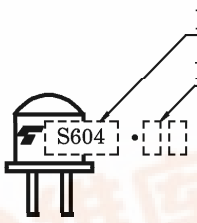
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CEO}	40	V
Collector-Base Voltage	V_{CBO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	50	mA
Collector Power Dissipation	P_C	150	mW
Collector Power Dissipation Derating (Ta > 25°C)	ΔP_C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

PIN CONNECTION



1. EMITTER
2. BASE
3. COLLECTOR (CASE)

PRODUCT INDICATION



MODEL NAME

MONTHLY PRODUCTION LOT

PRODUCTION MONTH
(JAN.-DEC. ARE INDICATED BY ALPHABETES OF A-L)

PRODUCTION YEAR (LAST DIGIT OF A.D. IS INDICATED)

STAMP COLOR : RED

961001EAA2

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 = 0.1mW / cm^2 (Note)	60	200	—	μA
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	I_C = 30μA, E = 0.1mW / cm^2 (Note)	—	0.25	0.4	V
Switching Time	Rise Time	t_r	V_{CC} = 10V, I_C = 10mA R_L = 100Ω	—	2	—	μs
	Fall Time	t_f		—	2	—	
Peak Sensitivity Wavelength		λ_P	—	—	800	—	nm
Half Value Angle		$\theta \frac{1}{2}$	—	—	±10	—	°

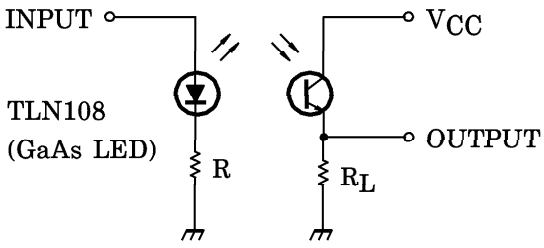
Note : Color temperature = 2870°K, Standard Tungsten Lamp

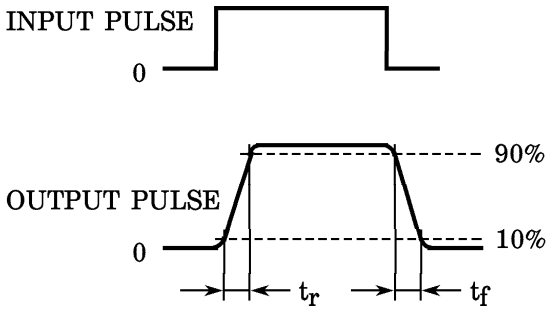
PRECAUTION

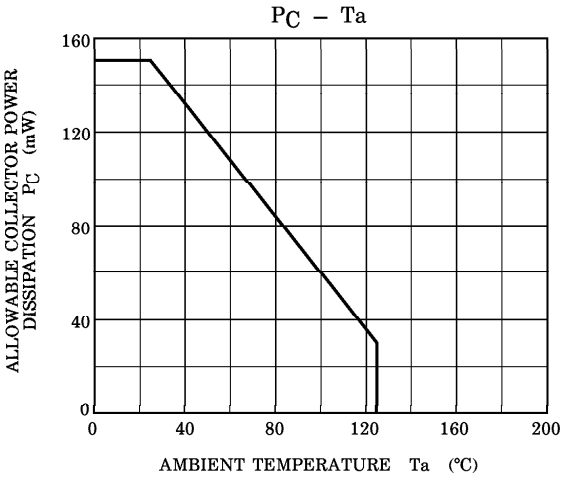
Please be careful of the followings.

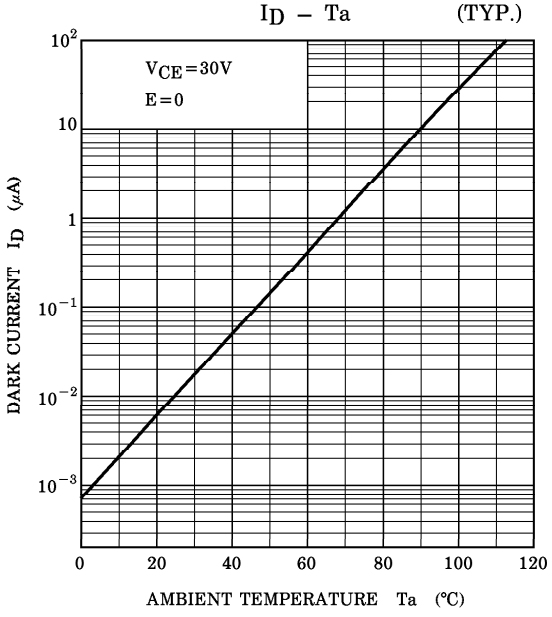
1. Soldering temperature : 260°C MAX.
   Soldering time : 5s MAX.
   (Soldering portion of lead : above 1.5mm from the body of the device)
2. If the lead is formed, the lead should be formed at a distance of 2mm from the body of the device.
   Soldering shall be performed after lead forming.

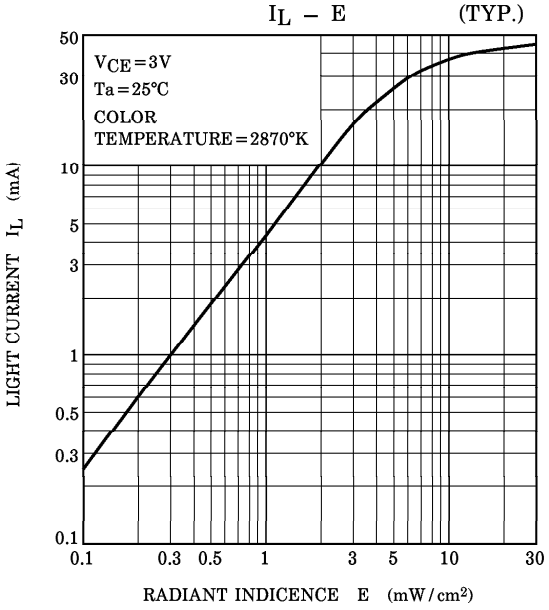
Fig.1 SWITCHING TIME TEST CIRCUIT

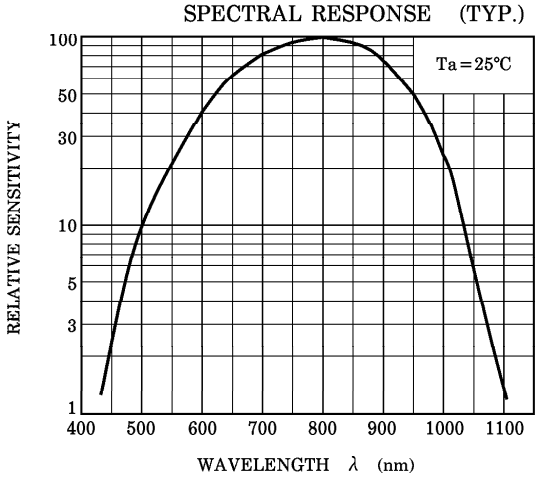






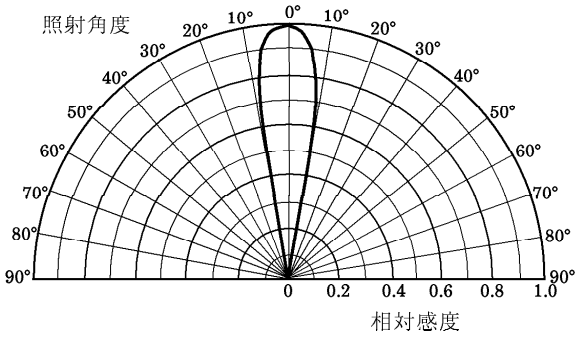




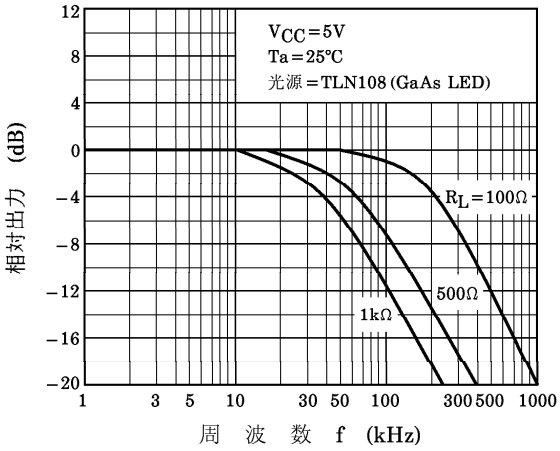


指向感度特性 (標準値)

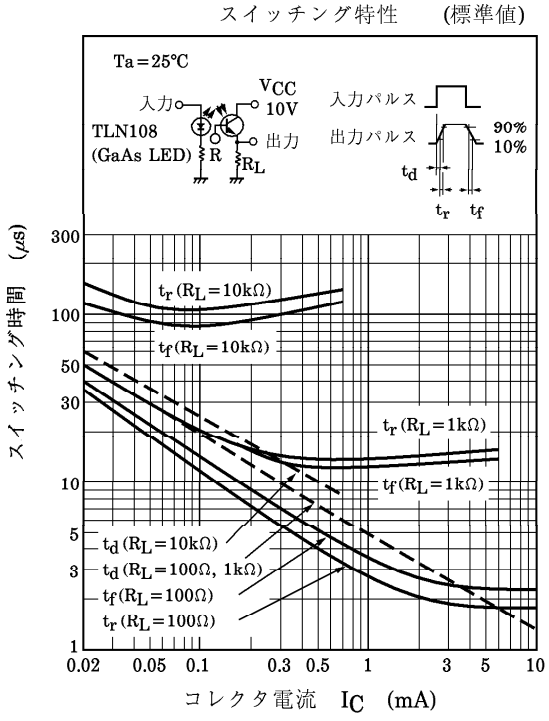
(Ta＝25℃)



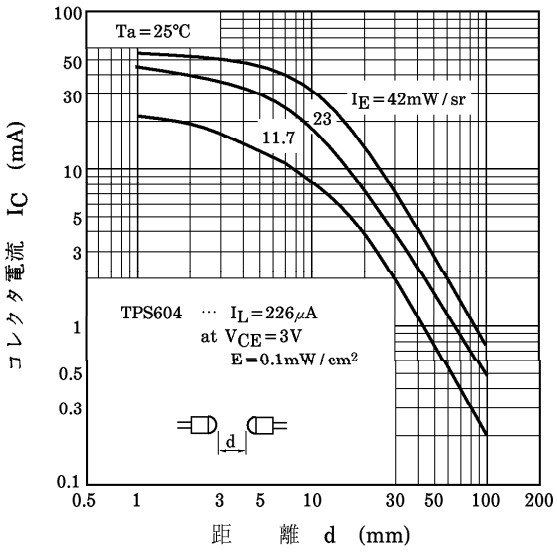
周波数特性 (標準値)



スイッチング特性 (標準値)



TLN108との結合特性



RELATIVE I_L – Ta (TYP.)