

TOSHIBA PHOTO DARLINGTON TRANSISTOR SILICON NPN EPITAXIAL PLANAR

TPS607A

PHOTO DARLINGTON TRANSISTOR FOR PHOTO INTERRUPTER

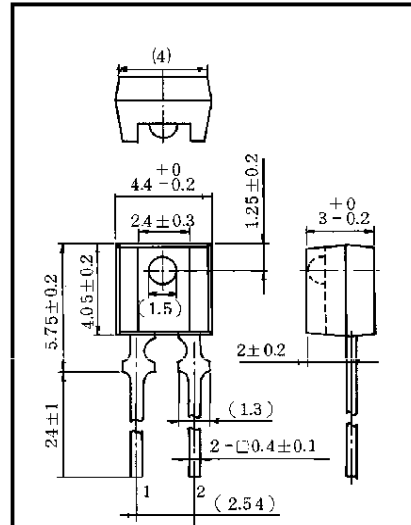
Unit in mm

PHOTOELECTRIC COUNTER

POSITION DETECTION

AUTOMATIC CONTROL UNIT

- High sensitivity : $I_L = 2\text{mA}$ (TYP.)
- The same external shape as the infrared LED TLN107A, and is best suited for combination with TLN107A as a photo interrupter.
- Maximum distance when used as a photo sensor :
 TLN107A at DC drive $\approx 40\text{mm}$ When
 TPS607A $I_L \approx 500\mu\text{A}$



() : REFERENCE VALUE

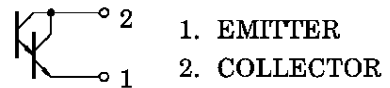
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	50	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}	-25~85	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40~100	$^\circ\text{C}$

JEDEC	—
EIAJ	—
TOSHIBA	0-4B1

Weight : 0.16g (TYP.)

PIN CONNECTION



OPTO-ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Dark Current	$I_D (I_{CEO})$	$V_{CE} = 16\text{V}, E = 0$	—	0.03	0.25	μA
Light Current	I_L (Note 1)	$V_{CE} = 3\text{V}, E = 0.1\text{mW}/\text{cm}^2$ (Note 2)	0.6	2	—	mA
Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$V_{CE} = 0.3\text{mA}, E = 0.1\text{mW}/\text{cm}^2$ (Note 2)	—	0.9	1.2	V
Switching Time	Rise Time	$V_{CC} = 5\text{V}, I_C = 10\text{mA}$ $R_L = 100\Omega$	—	200	—	μs
	Fall Time		—	150	—	
Peak Sensitivity Wavelength	λ_p	—	—	720	—	nm
Half Value Angle	$\theta_{\frac{1}{2}}$	—	—	± 15	—	$^\circ$

Note 1. I_L Classification A : 0.6~3.6mA, B : 2.5~15mA, C : 5mA or more.

2. Color temperature = 2870°K Standard Tungsten Lamp.

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RECOMMENDED OPERATING CONDITIONS

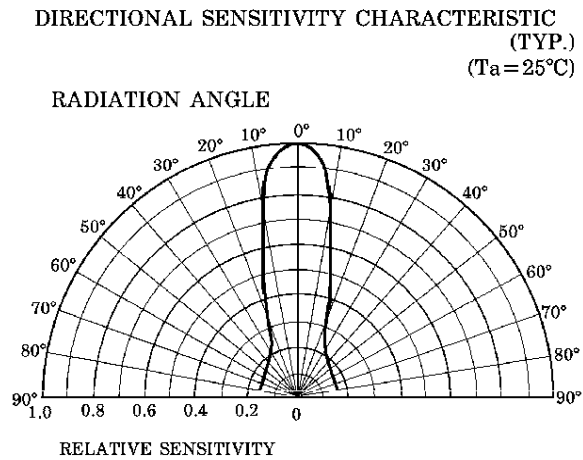
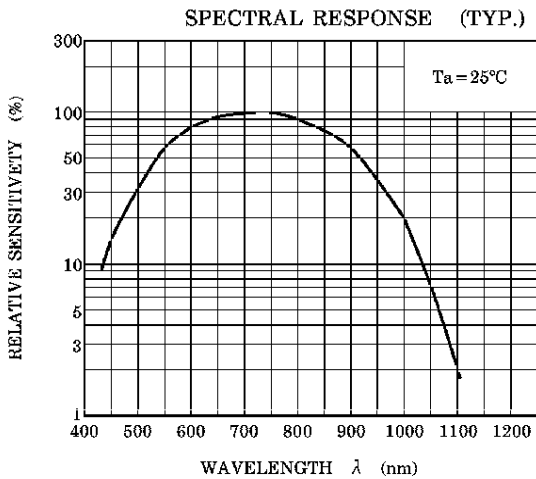
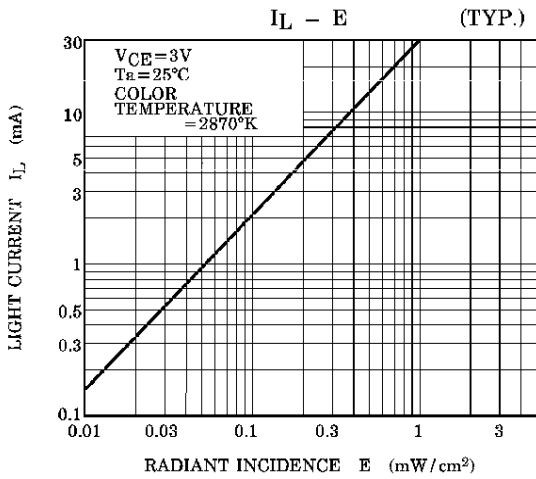
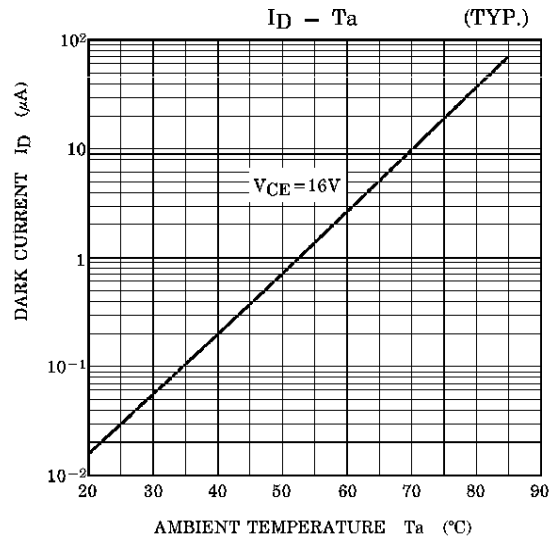
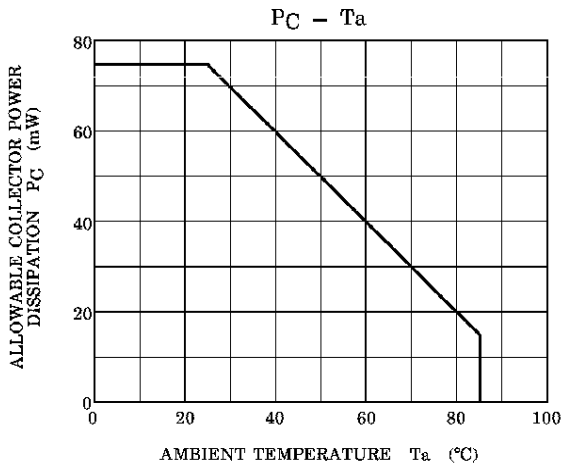
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}	—	5	16	V
Operating Temperature	T _{opr}	-25	—	75	°C

PRECAUTION

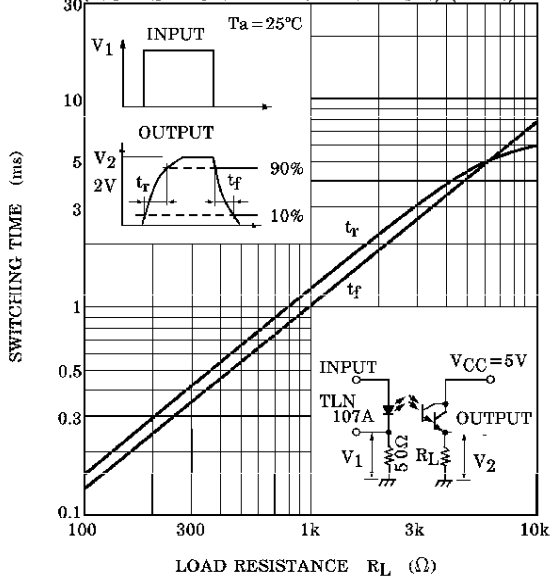
1. Soldering temperature : 260°C MAX.
Soldering time : 5s MAX.
(Soldering portion of lead : above 2mm from the body of the device)
2. If the lead is formed, the lead should be formed at a distance of 2mm from the body of the device.
Soldering shall be performed after lead forming.

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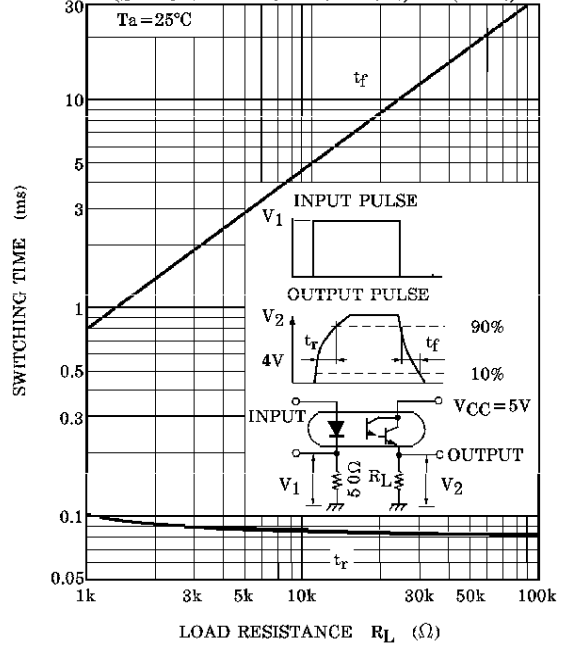
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SWITCHING CHARACTERISTICS
(NON SATURATED OPERATION) (TYP.)



SWITCHING CHARACTERISTICS
(SATURATED OPERATION) (TYP.)



RELATIVE $I_L - T_a$ (TYP.)

