

TOSHIBA PHOTO IC SILICON EPITAXIAL PLANAR

TPS807

PHOTO IC FOR PHOTO INTERRUPTER

Unit in mm

PHOTOELECTRIC COUNTER

POSITION AND ROTATIONAL SPEED SENSOR

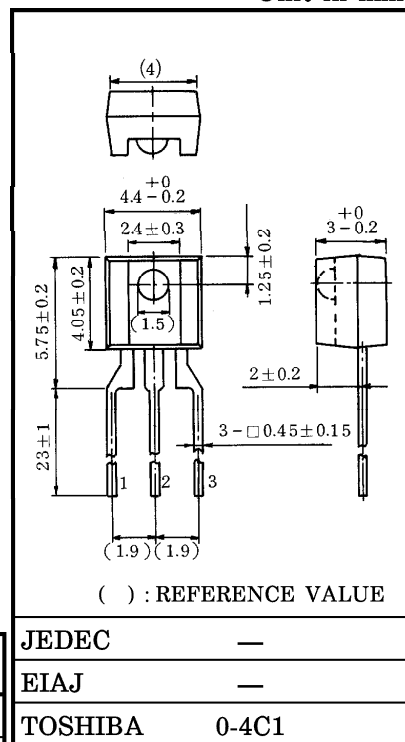
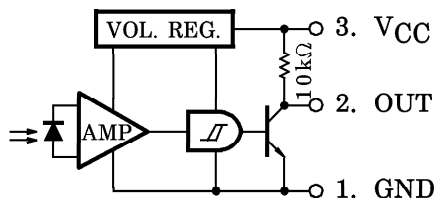
- TPS807 is a photo IC integrating photo diode, amplifier circuit and waveform shaping circuit in 1 chip.
- Visible light cut resin is used. : $\lambda_p=900\text{nm}$ (TYP.)
- The same external shape as the infrared LED TLN107A, and is best suited for combination with TLN107A as a photo interrupter.
- High speed response : $t_{pLH}=2\mu\text{s}$, $t_{pHL}=6\mu\text{s}$ (TYP.)
- When light is received, output becomes high level.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	17	V
High Level Output Voltage	V _{OH}	V _{CC} (Note)	V
Low Level Output Voltage	I _{OL}	50	mA
Low Level Output Current Derating (Ta > 25°C)	$\Delta I_{OL}/^\circ\text{C}$	-0.67	mA / °C
Power Dissipation	P _O	250	mW
Power Dissipation Derating (Ta > 25°C)	$\Delta P_O/^\circ\text{C}$	-3.33	mW / °C
Operating Temperature Range	T _{opr}	-25~85	°C
Storage Temperature Range	T _{stg}	-40~100	°C
Soldering Temperature (5s)	T _{sol}	260	°C

Note : V_{OH} keeps under V_{CC} Voltage.

PIN CONNECTION



JEDEC	—
EIAJ	—
TOSHIBA	0-4C1

Weight : 0.19g (TYP.)

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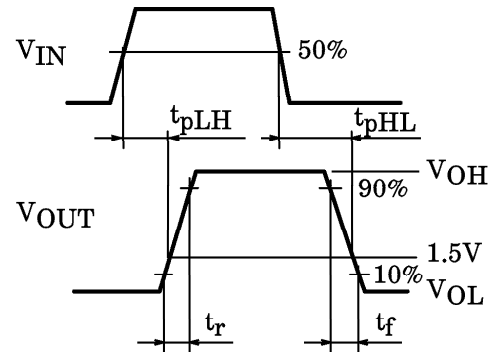
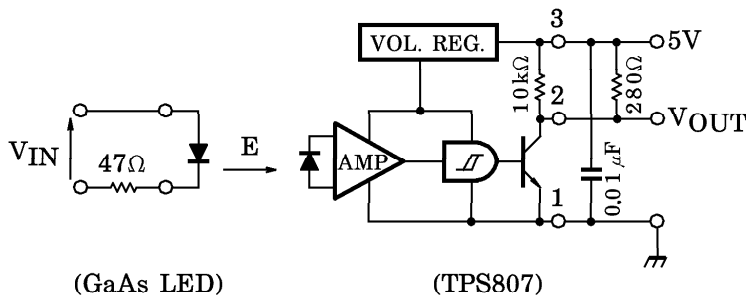
OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Ta = 0 ~ 70°C, Characteristics with no entry of Ta = 25°C in the test conditions. Typical values are all at 25°C.)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage		V _{CC}	—	4.5	—	17	V
Output Voltage	Low Level	V _{OL}	I _{OL} = 16mA, V _{CC} = 5V, E = 0	—	0.07	0.4	V
	High Level	V _{OH}	V _{CC} = 5V, E = 2mW/cm ²	4.5	5	—	V
Supply Current	Low Level	I _{CC(L)}	V _{CC} = 5V, E = 0	—	3.0	5.5	mA
	High Level	I _{CC(H)}	V _{CC} = 5V, E = 2mW/cm ²	—	1.2	3	mA
“L”→“H” Threshold Radiant Incidence (Note 1)		E _{LH}	V _{CC} = 5V, Ta = 25°C	—	0.1	0.3	mW/cm ²
			V _{CC} = 5V	—	—	0.6	
Histerisis Ratio		E _{HL} / E _{LH}	Ta = 25°C, V _{CC} = 5V	—	0.65	—	—
Peak Sensitivity Wavelength		λ _P	—	—	900	—	nm
Switching Time	Propagation Delay Time	“L”→“H”	Ta = 25°C, V _{CC} = 5V E = 2mW/cm ² R _L = 280Ω (Note 2)	—	2	—	μs
		“H”→“L”		—	6	—	
	Rise Time	t _r		—	0.1	—	
	Fall Time	t _f		—	0.03	—	

Note 1 : Color temperature = 2870°K, Standard Tungsten Lamp.

Note 2 : Switching time test circuit.



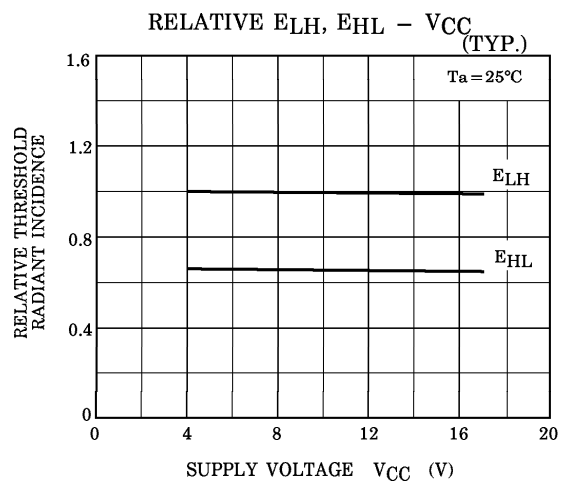
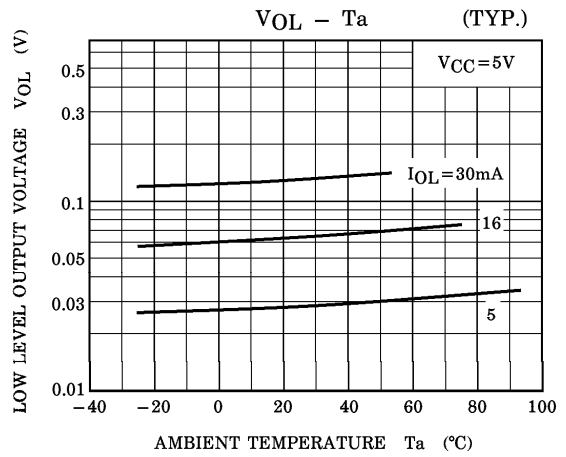
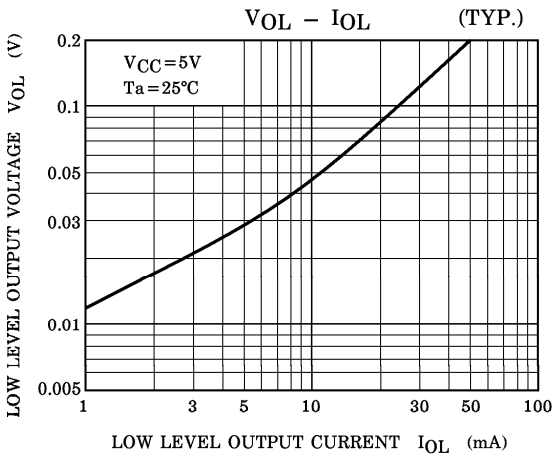
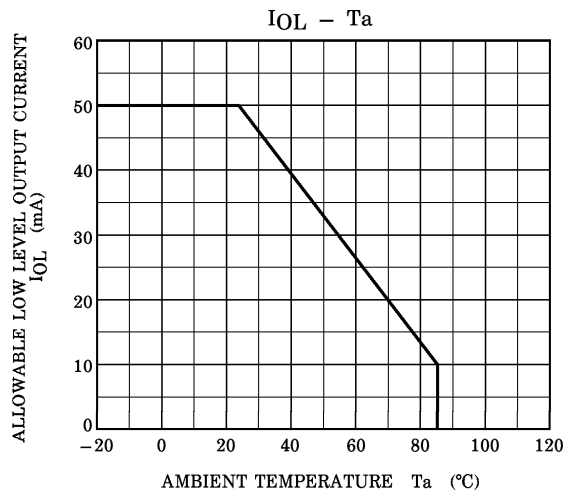
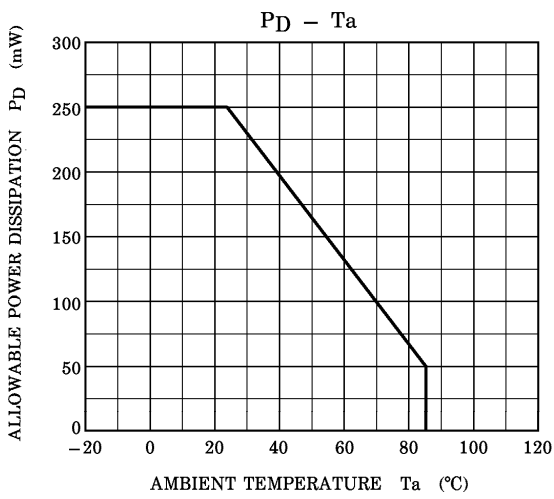
RECOMMENDED OPERATING CONDITIONS

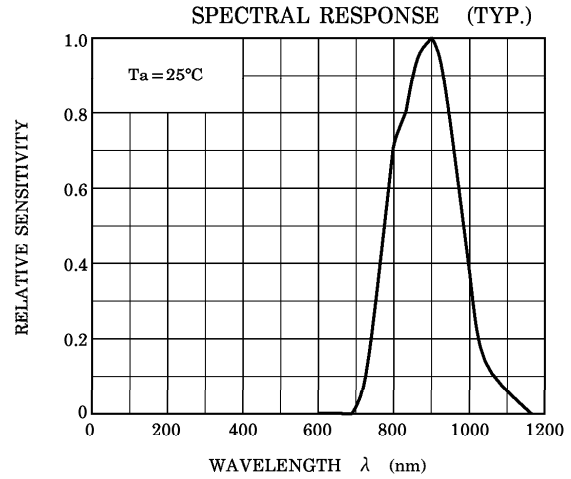
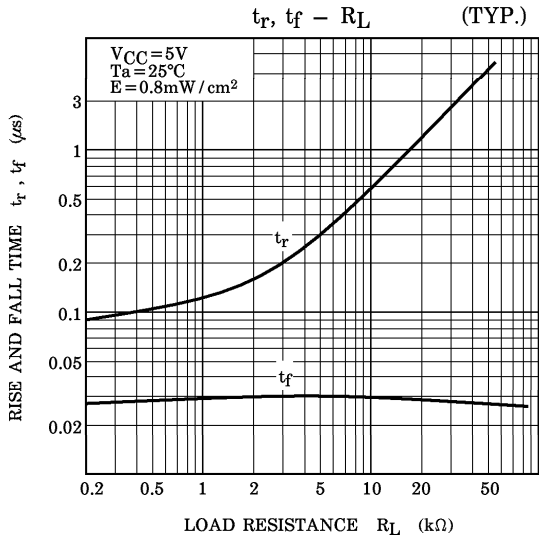
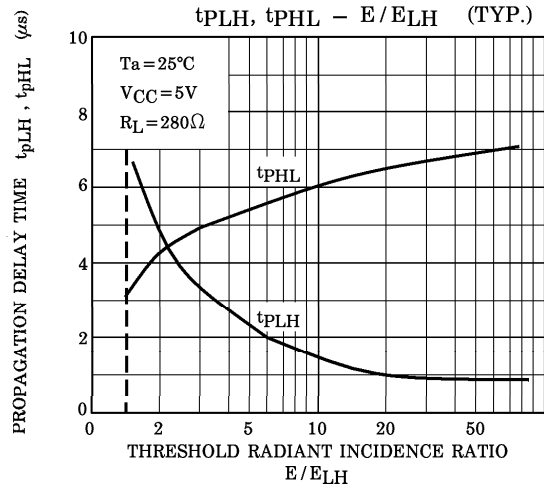
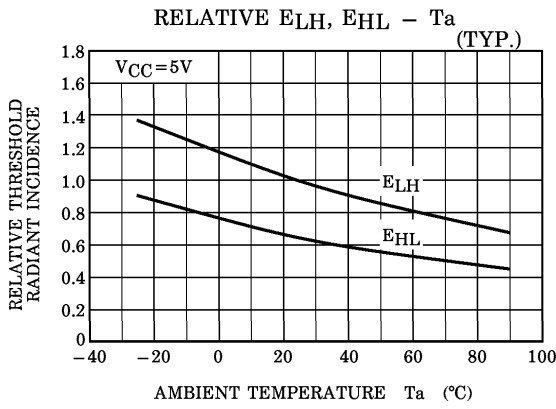
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}	4.5	5	16	V
High Level Output Voltage	V _{OH}	4.5	—	V _{CC}	V
Radiant Incidence	E	0.8	—	—	mW/cm ²
Operating Temperature	T _{opr}	0	—	70	°C

PRECAUTION

Please be careful of the followings.

1. 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.
(Soldering portion of lead : above 2mm from the body of the device.)
2. Supply the by-pass condenser up to 0.01 μ F between V_{CC} and GND near device to stabilize the power supply line.
3. During 100 μ s after turning on V_{CC}, output voltage changes for stabilizing the inner circuit.





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

