

TOSHIBA PHOTO IC SILICON EPITAXIAL PLANAR

TPS805

PHOTO IC FOR PHOTO INTERRUPTER

Unit in mm

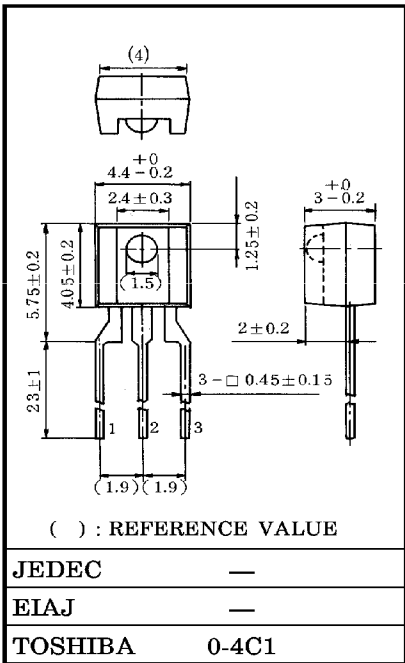
PHOTOELECTRIC COUNTER

POSITION AND ROTATIONAL SPEED SENSOR

- TPS805 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 become high level.

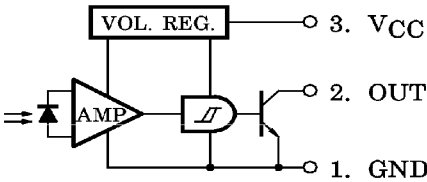
MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	17	V
High Level Output Voltage	V_{OH}	30	V
Low Level Output Current	I_{OL}	50	mA
Low Level Output Current Derating ($T_a>25^\circ\text{C}$)	$\Delta I_{OL}/^\circ\text{C}$	-0.67	mA / $^\circ\text{C}$
Power Dissipation	P_O	250	mW
Power Dissipation Dissipation ($T_a>25^\circ\text{C}$)	$\Delta P_O/^\circ\text{C}$	-3.33	mW / $^\circ\text{C}$
Operating Temperature Range	T_{opr}	-25~85	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40~100	$^\circ\text{C}$
Soldering Temperature (5s)	T_{sol}	260	$^\circ\text{C}$



Weight : 0.19g (TYP.)

PIN CONNECTION



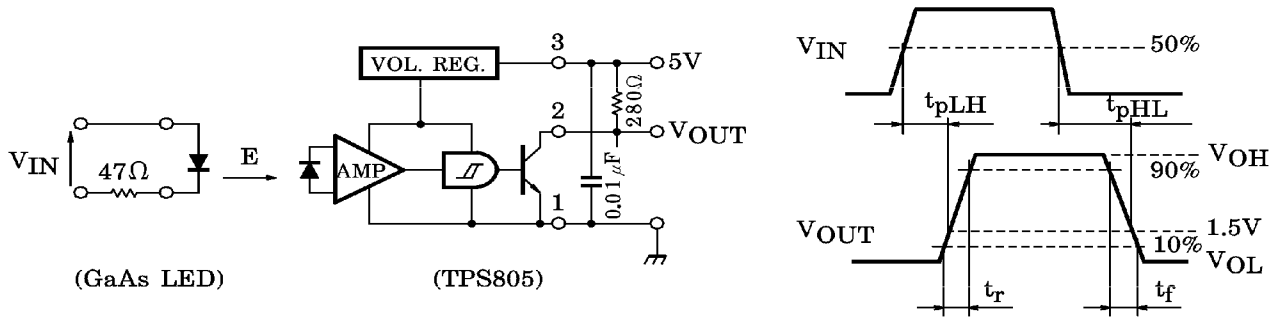
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OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)
(Ta = 0~70°C, Characteristics with no entry of Ta = 25°C in the test conditions. Typical values are all at 25°C.)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage		V _{CC}	—	4.5	—	17	V
Low Level Output Voltage		V _{OL}	I _{OL} = 16mA, V _{CC} = 5V, E = 0	—	0.07	0.4	V
High Level Output Current		I _{OH}	V _{CC} = 5V, V _{OH} = 30V E = 2mW / cm ²	—	—	100	μA
Low Level Supply Current		I _{CC} L	V _{CC} = 5V, E = 0	—	2.5	5	mA
High Level Supply Current		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” “H”→“L”	t _{pLH} t _{pHL}	Ta = 25°C, V _{CC} = 5V E = 2mW / cm ² R _L = 280Ω (Note 2)		—	μs
	Rise Time		t _r			—	
	Fall Time		t _f			—	
						—	

(Note 1) Color temperature = 2870°K, Standard Tungsten Lamp
(Note 2) Switching time test circuit



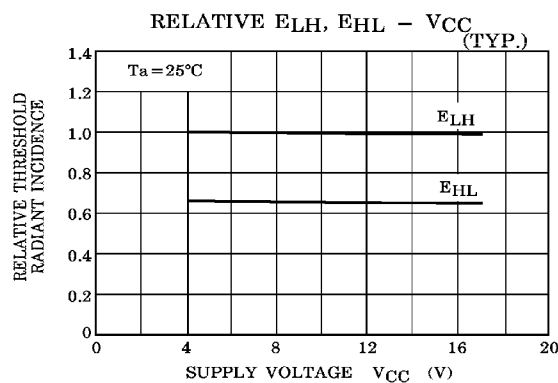
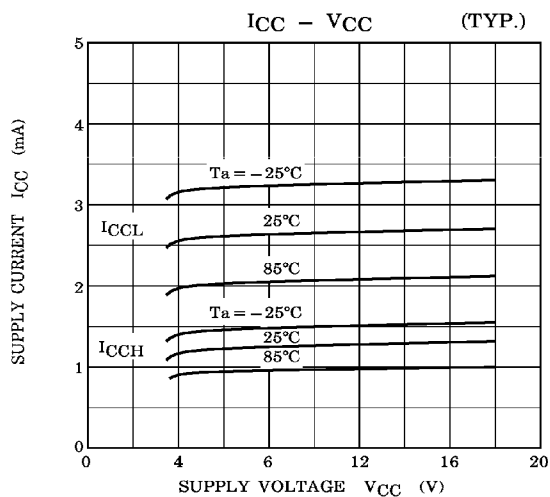
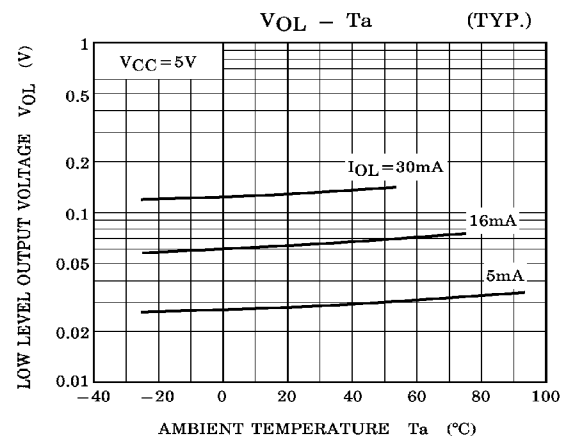
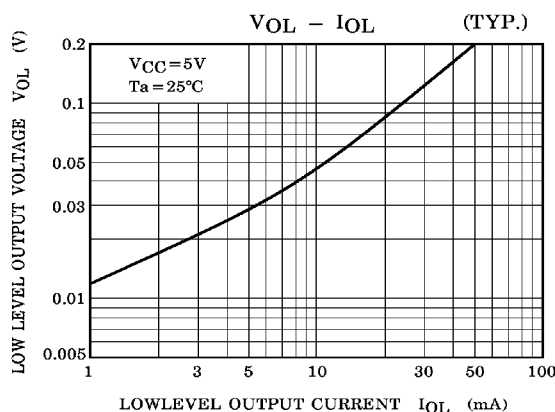
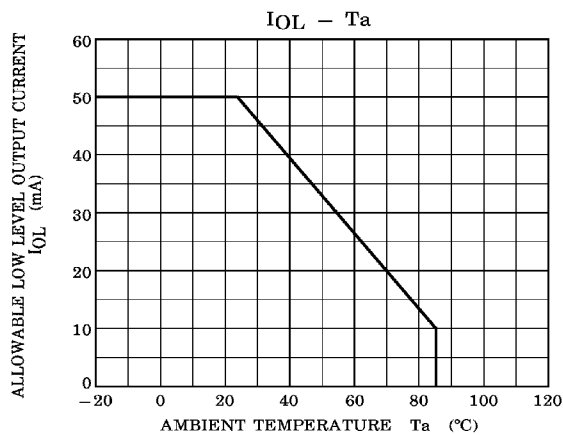
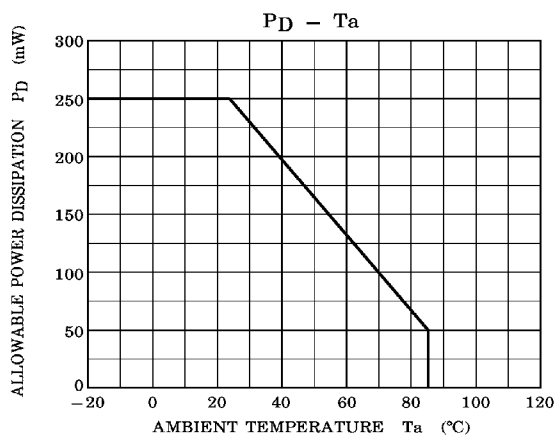
RECOMMENDED OPERATING CONDITIONS

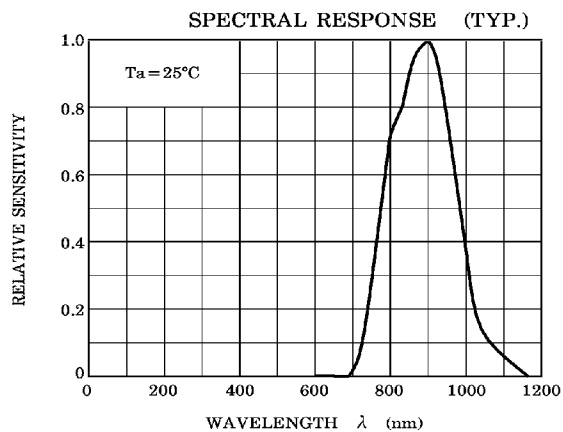
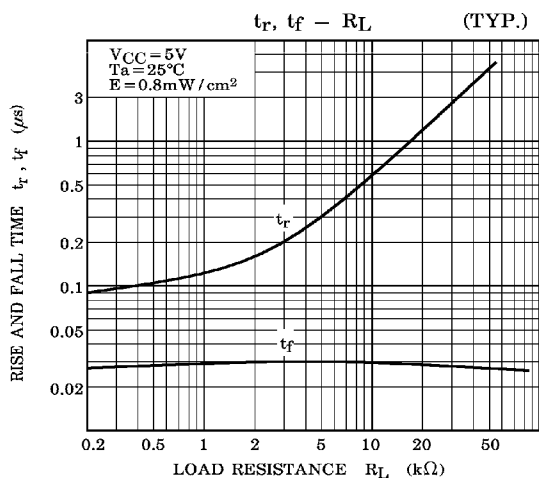
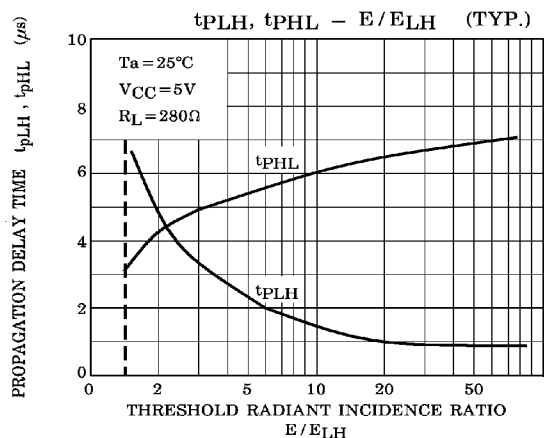
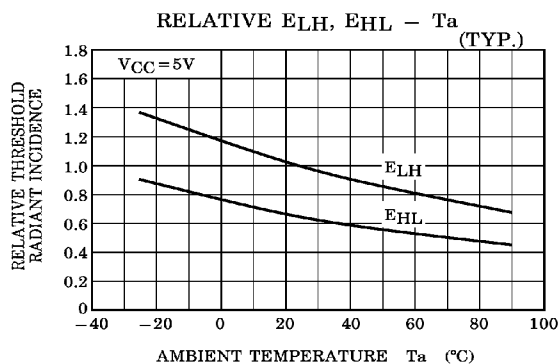
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}	4.5	5	16	V
High Level Output Voltage	V _{OH}	4.5	—	27	V
Radiant Incidence	E	0.8	—	—	mW / cm ²
Operating Temperature	T _{opr}	0	—	70	°C

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.)

