TOSHIBA PHOTO IC SILICON EPITAXIAL PLANAR

TPS825

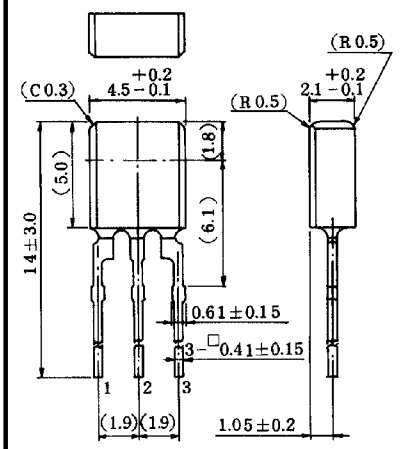
PHOTO IC FOR PLASTIC FIBER / POLYMER CLAD FIBER

Unit in mm

TPS825 contains a light receiving IC integrating photo diode, amplifier circuit, waveform shaping circuit, etc. in 1 chip.

Output is directly connectable to IC as it changes digitally. When light is received, output becomes high level.

- Compatible with TTL, LSTTL and CMOS.
- Wide operating supply voltage (V_{CC} = 4.5 to 17V)



( ) = REFERENCE VALUE

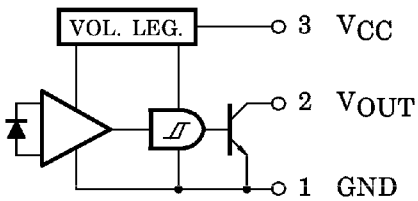
JEDEC	—
EIAJ	—
TOSHIBA	0-5H2

Weight : 0.12g (TYP.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	17	V
Low Level Output Current	I_{OL}	50	mA
Allowable Power Dissipation	P_O	250	mW
Operating Temperature Range	T_{opr}	−25~85	°C
Storage Temperature Range	T_{stg}	−40~100	°C
Soldering Temperature · Time	T_{sol}	260°C · 3s	

PIN CONNECTION



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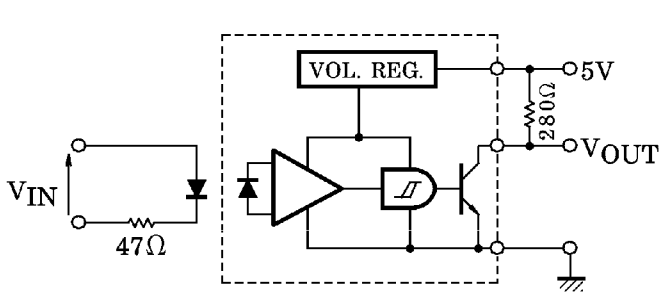
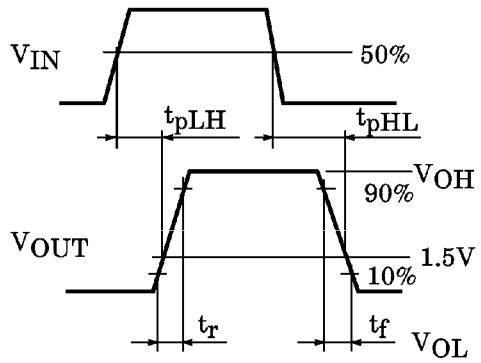
OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC			SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage			V_{CC}	Ta = 25°C	4.5	—	17	V
Output Current	Low Level		V_{OL}	I_{OL} = 16mA, V_{CC} = 5V	—	0.1	0.4	V
	High Level		V_{OH}	VCC = 5V, Pf = 50μW	4.0	—	—	
Supply Current	Low Level		I_{CCL}	V_{CC} = 5V	—	2.5	5.0	mA
	High Level		I_{CCH}	V_{CC} = 5V, P_f = 50μW	—	1.2	3.0	
H→L Threshold Light Input(Note)			P_{fLH}	V_{CC} = 5V, Ta = 25°C, λ_p = 660nm	—	5.0	10.0	μW
					—	−23	−20	dBm
Switching Time	Propagation Time	L→H	t_{pLH}	Ta = 25°C, V_{CC} = 5V, R_L = 280Ω, P_f = 0⇆50W	—	2.0	—	μs
		H→L	t_{pHL}		—	6.0	—	
	Rise Time		t_r		—	0.1	—	
	Fall Time		t_f		—	0.05	—	

(Note) Equivalent to the optical output at the end of a plastic fiber in the core diameter 1mm.

SWITCHING TIME TEST CIRCUIT



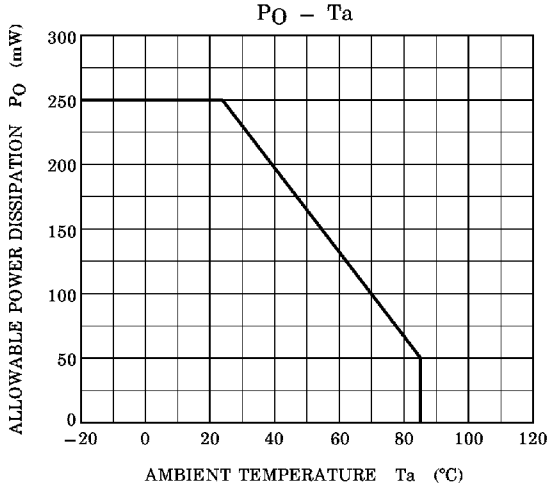


PRECAUTION

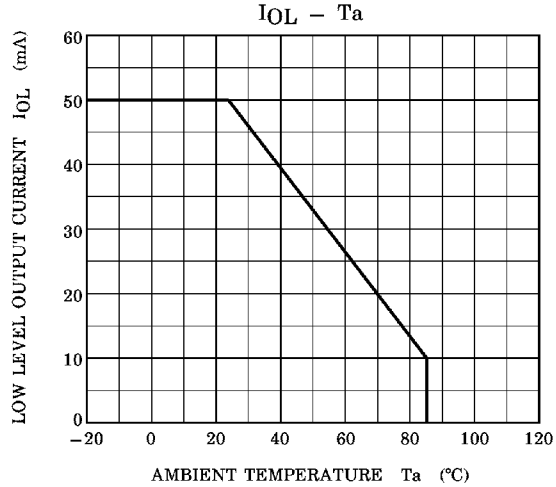
Please be careful of the followings.

1. Lead forming shall be performed before soldering.
   (Soldering portion of lead : above 1.5mm from the body of the device)
2. During 100μs after turning on V_{CC}, output voltage changes for stabilizing the inner circuit.
3. Pin surge voltage (Note) : MAX 150V
   (Note) Surge voltage chargeable between optional 2 pins at storage charge below 200pF.

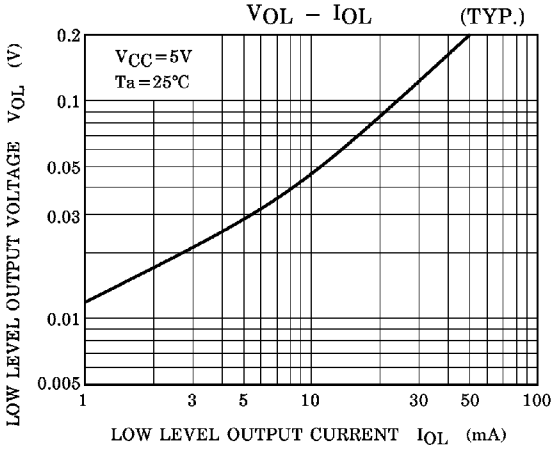
P_O – Ta



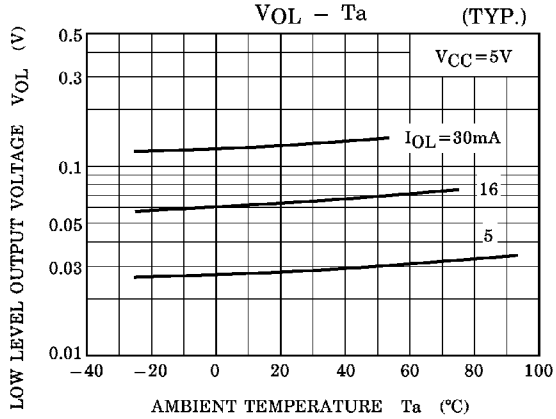
I_{OL} – Ta



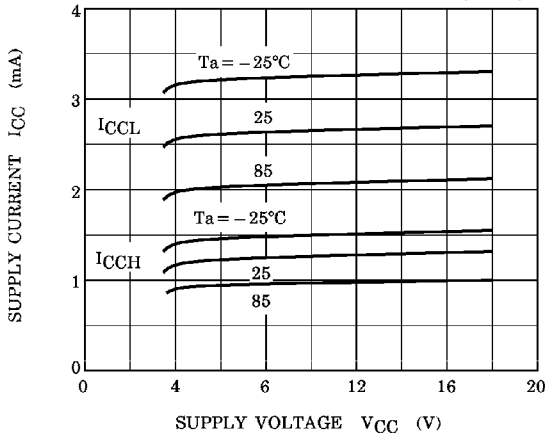
V_{OL} – I_{OL} (TYP.)



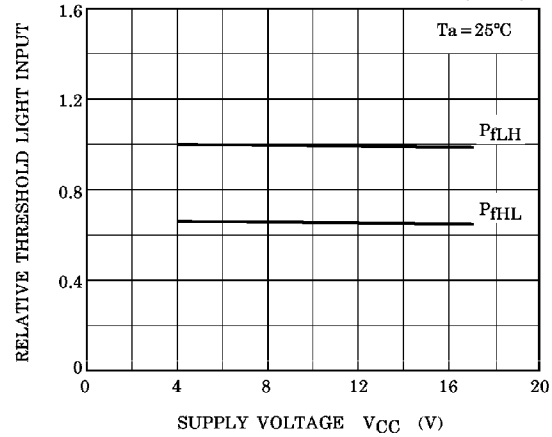
V_{OL} – Ta (TYP.)



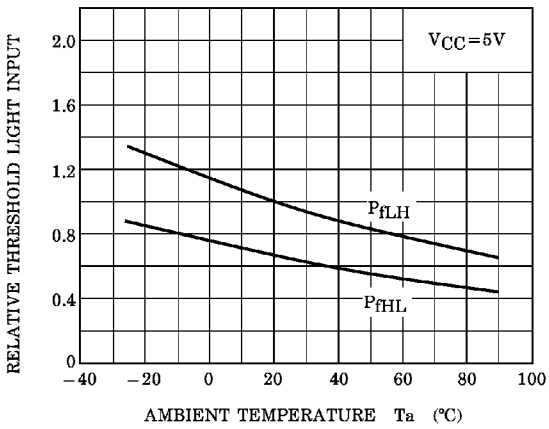
I_{CC} – V_{CC} (TYP.)



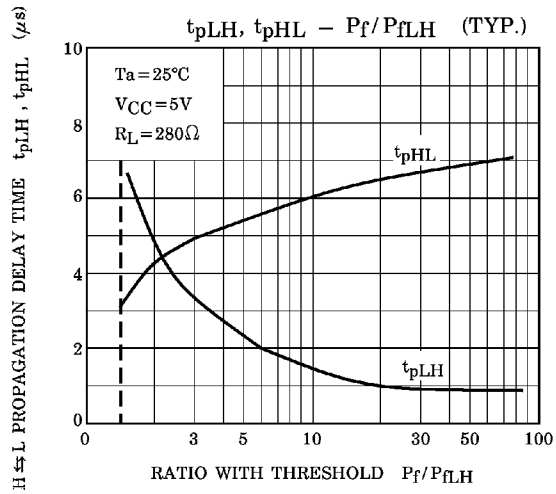
P_{fLH}, P_{fHL} – V_{CC} (TYP.)



P_{fLH}, P_{fHL} – Ta (TYP.)



t_{pLH}, t_{pHL} – P_f/P_{fLH} (TYP.)



t_r, t_f – R_L (TYP.)