

TOSHIBA PHOTO IC SILICON EPITAXIAL PLANAR

TPS823

PHOTO IC FOR PLASTIC FIBER / POLYMER CLAD FIBER

Unit in mm

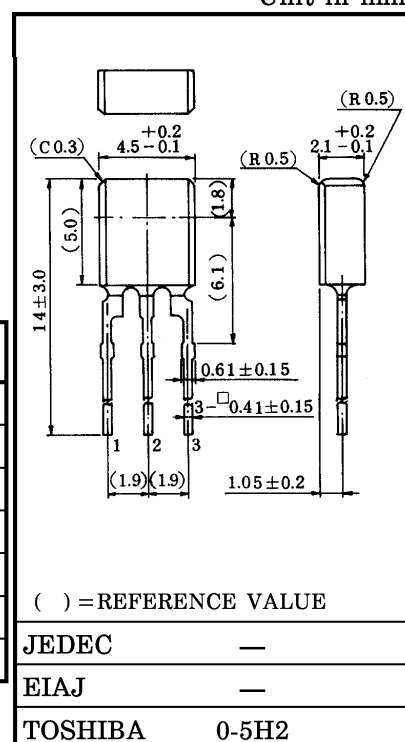
TPS823 contains a light receiving IC integrating photo diode, amplifier circuit, open collector output circuit, in 1 chip.

Output is directly connectable to IC as it changes digitally.

When light is received, output becomes low level.

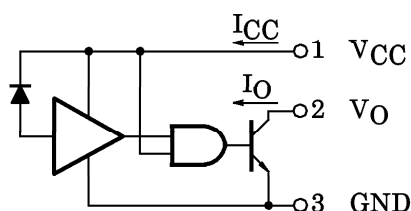
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	5.5	V
Output Voltage	V_O	5.5	V
Output Current	I_O	50	mA
Output Collector Power Dissipation	P_O	85	mW
Operating Temperature Range	T_{opr}	$-25 \sim 85$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-40 \sim 100$	$^\circ\text{C}$
Lead Temperature : Time	T_{sol}	$260^\circ\text{C} \cdot 3\text{s}$	



Weight : 0.12g (TYP.)

PIN CONNECTION



961001EAA2

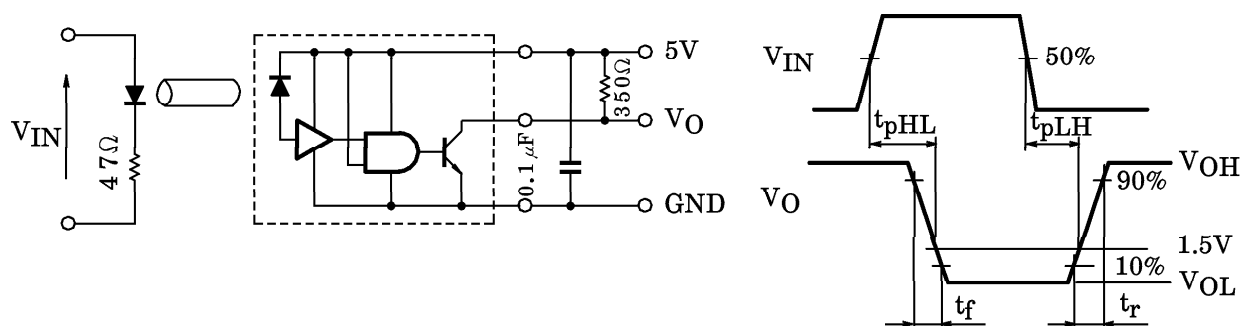
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OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC			SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage			V _{CC}	Ta=25°C	4.5	5.0	5.5	V
Output Current	Low Level		V _{OL}	I _{OL} =13mA, V _{CC} =5.5V, P _f =120μW	—	0.4	0.6	V
	High Level		I _{OH}	V _{CC} =V _O =5.5V	—	0.001	250	μA
Supply Current	Low Level		I _{CCL}	V _{CC} =5.5V, P _f =120μW	—	12	18	mA
	High Level		I _{CCH}	V _{CC} =5.5V	—	7	15	
“L”→“H” Threshold Radiant Incidence (Note)			P _{fHL}	V _{CC} =5.5V, Ta=25°C, λ _p =660nm, V _O =1.5V	—	26	60	μW
					—	−15.9	−12.3	dBm
Switching Time	Propagation Delay Time	“L”→“H”	t _{pLH}	Ta=25°C, V _{CC} =5V, R _L =350Ω, P _f =0↔120μW	—	70	—	ns
		“H”→“L”	t _{pHL}		—	80	—	
	Rise Time		t _r		—	20	—	
	Fall Time		t _f		—	45	—	

Note : Equivalent to the optical output at the end of a plastic fiber in the core diameter 980μm.

SWITCHING TIME TEST CIRCUIT



PRECAUTION

Please be careful of the followings.

1. Soldering temperature : 260°C MAX. Soldering time : 3s MAX.
(Soldering portion of lead : above 2mm from the body of the device).
2. As the output photo IC contains a very high sensitivity amplifier, a bypass capacitor 0.1μF having good high frequency characteristic shall be mounted between Pins 1 and 3 at a position within 1cm from the pins for preventing oscillation. If not, proper speed or ON/OFF operation may not be obtained.
3. Pin surge voltage (Note) : MAX 150V
(Note) Surge voltage chargeable between optional 2 pins at storage charge below 200pF.
4. Tensile strength of lead : MAX 100g

