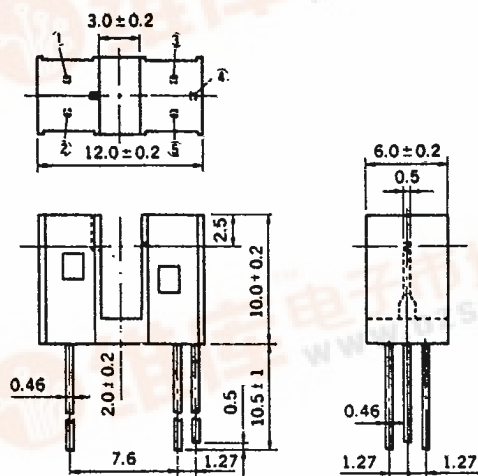


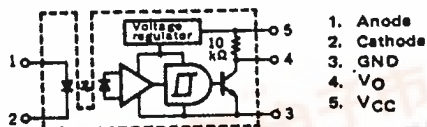
PHOTO INTERRUPTER PS5003HR

PHOTO IC INTERRUPTER

PACKAGE DIMENSIONS (Unit : mm)



CONNECTION DIAGRAM



APPLICATIONS

- PPC
- FACSIMILE
- PRINTER
- FDD

DESCRIPTION

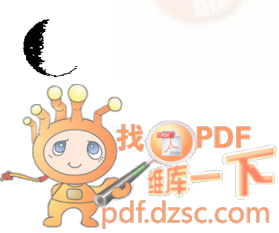
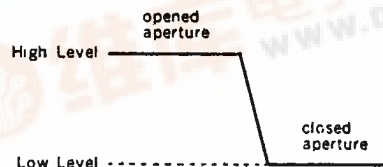
The PS5003HR photo interrupter module is a GaAs Light Emitting Diode coupled to a Si monolithic integrated circuit including a Photo Diode in a plastic housing.

The output incorporates a Schmitt Trigger circuit which provides hysteresis for noise immunity and pulse shaping.

FEATURES

- Built-in Schmitt Trigger circuit
- Low threshold input current ($I_{FLH} = 5 \text{ mA MAX.}$)
- TTL, LSTTL, CMOS compatible
- Wide supply voltage capability ($V_{CC} = 4.5 \text{ to } 17 \text{ V}$)
- High On/Off resolution (Slit width: 0.5 mm (equivalent to 0.5 mm^2 aperture))
- High speed switching ($t_{PLH} (t_{PHL}) = 3 \mu\text{s TYP.}$
 $t_r = 100 \text{ ns}, t_f = 50 \text{ ns TYP.}$
 $@ R_L = 280 \Omega$)
- Active "High"
- Built-in pull up resistor

OUTPUT PATTERN



PS5003HR

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Diode			
Reverse Voltage	V _R	6	V
Forward Current	I _F	50	mA
Power Dissipation	P _D	75	mW
Detector			
Supply Voltage	V _{CC}	17	V
Low Level Output Current	I _{OL}	50	mA
Power Dissipation	P _C	250	mW
Storage Temperature	T _{stg}	-40 to +100	°C
Operating Temperature	T _{opt}	-30 to +85	°C

RECOMMENDED OPERATING CONDITIONS (T_a = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Operating Temperature	T _{opt}	-10		+60	°C
Supply Voltage	V _{CC}	4.5	5	12	V
Forward Current	I _F	5		20	mA

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

CHARACTERISTIC		SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Diode	Forward Voltage	V _F		1.1	1.4	V	I _F = 5 mA
	Reverse Current	I _R			10	μA	V _R = 5 V
	Junction Capacitance	C _t		20		pF	V = 0, f = 1 MHz
Detector	Operating Supply Voltage	V _{CC}	4.5		17	V	
	Low Level Output Voltage	V _{OL}		0.15	0.4	V	I _{OL} = 16 mA, V _{CC} = 5 V
	High Level Output Voltage	V _{OH}	4.9			V	V _{CC} = 5 V, I _F = 5 mA
	Low Level Supply Current	I _{CCL}		2.5	5	mA	V _{CC} = 5 V, I _F = 0
	High Level Supply Current	I _{CCH}		1	3	mA	V _{CC} = 5 V, I _F = 5 mA
Coupled	Threshold Input Current	I _{FLH}			5	mA	V _{CC} = 5 V
	Hysteresis Ratio	I _{FHL} /I _{FLH}		0.7			V _{CC} = 5 V
	Propagation Delay Time	t _{PLH}		3	9	μs	V _{CC} = 5 V
		t _{PHL}		3	9	μs	
	Rise Time	t _r		100	300	ns	I _F = 5 mA
Fall Time	t _f		50	150	ns	R _L = 280 Ω	

Test Circuit for Switching Time

