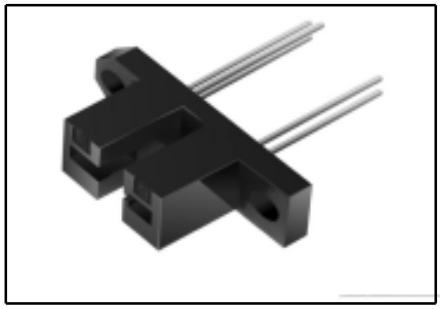
For the radial code detector HOA0901

characteristic



Dual channel integrated circuit

Direct reverse logic output

to TTL level interface

Resolution of 0.229mm

integrated temperature compensation

Two installation structures with 3.2mm slot width

The HOA0901 sensor incorporates a dual-channel integrated circuit detector and an infrared LED, housed within a black thermoplastic housing. This device is typically used with a shielding strip or code disk to encode the speed and direction of mechanical motion. Typical applications include linear displacement encoders and rotary encoders. It is particularly suitable for encoding functions in optical mice. The detector generates two output signals that, after processing, provide velocity and directional information.

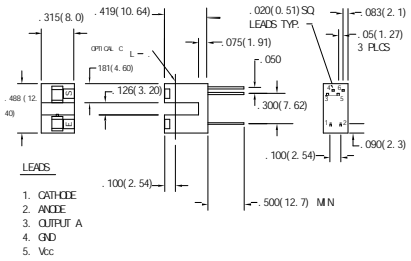
The detector is a monolithic integrated circuit comprising two closely spaced photodiodes, an amplifier, and a Schmitt trigger output unit. Its NPN collector output features a 10kΩ pull-up resistor, enabling direct drive of TTL loads. The device incorporates a temperature-sensing compensation circuit that mitigates power drift in LED outputs caused by ambient temperature variations.

The sensitive area of the integrated circuit is 0.203mm wide, 0.381mm high, 0.0254mm apart, 0.229mm center to center, and 0.432mm edge to edge.

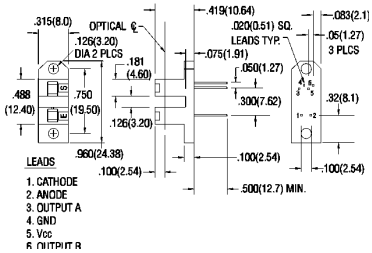
The HOA0901 series uses plastic encapsulated components. For electrical parameters, see SEP8506 and HLC2701

Dimensions in inches (mm)

HOA0901-011



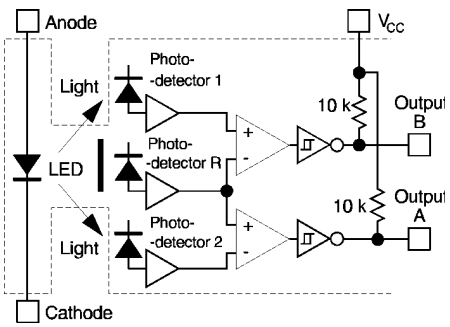
HOA0901-012



electrical parameter

parameter	symbol	least value	representative value	crest value	unit	test condition
fR ejector						
direct voltage	V_F			1.6	V	I_F=20mA
reverse leakage current	I_R			10.0	mA	V_R=3V
prober						
service voltage	Vcc	4.5		5.5	V	
supply current	Icc			7.0	mA	Vcc=5.25V
High level output voltage (A and B)	V_{OH}	4.5			V	Vcc=5V,I_{OH}=0,I_F=0
Low level output voltage (A and B)	V_{OL}			0.4	V	Vcc=5V, I_{OL}=1.6mA, I_F=15mA
Propagation delays, low-to-high, high-to-low	t_{PLH},t_{PHL}		5	ms		Vcc=5V, R_L=1Kohm
Output rise and fall	t_r,t_f		100	ns		Vcc=5V, R_L=1Kohm
coupling property						
IRED Triggering current	I_{FT}			15.0	mA	Vcc=5V

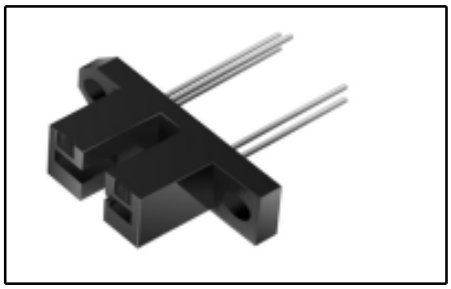
functional block diagram



For the radial code detector HOA0902

characteristic

- ☐ Dual channel integrated circuit
- ☐ Direct to TTL level interface
- ☐ The resolution is 0.457mm
- ☐ Integrated temperature compensation
- ☐ 3.2mm slot width
- ☐ Two installation structures

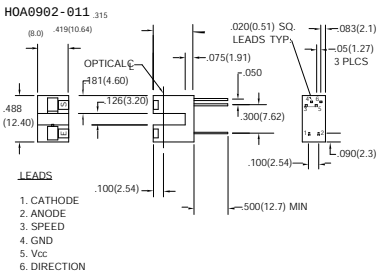


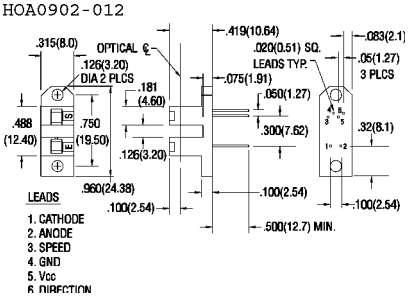
The HOA0902 sensor incorporates a dual-channel integrated circuit detector and an infrared LED, housed within a black thermoplastic casing. This device is typically paired with a shielding strip or code disk to encode the speed and direction of mechanical motion. Common applications include linear displacement encoders and rotary encoders. It is particularly well-suited for encoding functions in optical mice.

The detector is a monolithic integrated circuit comprising two closely spaced photodiodes, an amplifier, and an orthogonal logic circuit capable of generating dual outputs. The first output provides periodic low-level valid rotational pulse counts triggered when illumination exceeds a threshold. A directional output channel determines the logic state (high or low) based on which channel is illuminated first. The rotational output utilizes an NPN collector with a 10KΩ pull-up resistor, while the directional output employs a push-pull circuit − both can directly drive TTL loads. The detector incorporates a temperature-sensitivity compensation circuit to mitigate power drift in LED outputs caused by temperature variations.

Speed pulses are generated both when the light intensity exceeds and falls below the threshold, so two speed pulses are generated for each mechanical cycle of the blocking action. For more specifications of the components, see SEP8506 and HLC2705.

Dimensions in inches (mm)

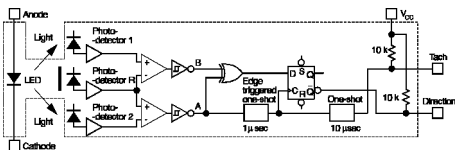




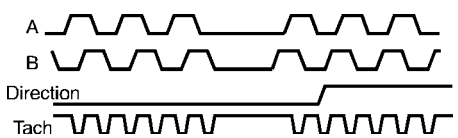
electrical parameter

parameter	symbol	least value	representative value	crest value	unit	test condition
IR ejector						
direct voltage	V_F			1.6	V	I_F=20mA
Reverse leakage voltage	I_R			10.0	uA	V_R=3V
prober						
service voltage	Vcc	4.5		5.5	V	
supply current	Icc			12.0	mA	Vcc=5.25V
Speed output, non-triggered state	$V_{OL,TACH}$	4.5			V	Vcc=5V,I_{OH}=0
Speed pulse level, trigger state				0.4	V	Vcc=5V,I_{OL}=1.6mA
Directional output, from B to A	$V_{OH,DR}$	2.4			V	Vcc=5V,I_{OH}=10uA
Directional output, from A to B	V_{OLDIR}			0.4	V	Vcc=5V,I_{OL}=1.6mA
Speed pulse width	T_{pw}	3		20	us	Vcc=5V,I_{OL}=1.6mA
coupling property						
IRED Triggering current	I_{PT}			15.0	mA	Vcc=5V

functional block diagram



Output timing diagram



深圳市杰晟兴电子有限公司 JM Components Limited

地址：深圳市福田区中航路7号鼎诚国际大厦南座2007室 **邮编：518031**

手机：13662266995 马少良 电话：0755-83951311 **传真：0755-83952401**

官网：cn-sensor.com **电邮：jackson@jmcomponents.com**