

# Assemblies Optical Encoder

## HOA901 SERIES

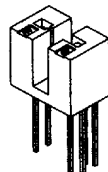
The HOA901 optical encoder assembly consists of a dual channel IC sensor, and a GaAs IRED (Infrared Emitting Diode) mounted in an opaque plastic housing. The sensor is a monolithic IC, consisting of two narrow adjacent photodiodes, amplifiers, and Schmitt trigger output stages. The NPN collector outputs have internal pull-up to  $V_{CC}$  to directly drive TTL loads. Sensitivity compensation circuitry is included (output power versus IRED temperature characteristic).

The IC sensing areas are each 0.008" wide, with 0.001" separation, for center-to-center spacing of 0.009", and outside edge-to-edge distance of 0.017". The HOA901 can operate with an encoder pattern period as small as 0.036". With proper processing logic, it can resolve motion to 0.009".

## ELECTRICAL CHARACTERISTICS (at -40 to +85°C, unless otherwise noted)

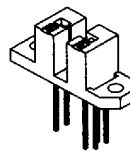
Parameter	Test Condition	Sym.	Min.	Max.	Units
<b>EMITTER</b>					
Forward Voltage	$I_f = 20 \text{ mA}$	$V_F$	—	1.5	V
Reverse Current	$V_R = 3.0 \text{ VDC}$	$I_R$	—	100	$\mu\text{A}$
<b>SENSOR</b>					
Supply Current	$V_{CC} = 5.25 \text{ VDC}$	$I_{CC}$	—	7.0	mA
High Level Output Voltage (A and B)	$V_{CC} = 5.0 \text{ VDC}$ $I_{OH} = 0 \text{ mA}$	$V_{OH}$	4.5	—	V
Low Level Output Voltage (A and B)	$V_{CC} = 5.0 \text{ VDC}$ $I_{OL} = 1.6 \text{ mA}$	$V_{OL}$	—	0.4	V
Internal Pull-up Resistor (A and B)		$R_{INT}$	5	20	kohm
Propagation Delay Time Lo-Hi and Hi-Lo	$V_{CC} = 5.0 \text{ VDC}$ $R_L = 390\Omega$ $T_A = 25^\circ\text{C}$	$t_{PLH}$ $t_{PHL}$	—	5	$\mu\text{sec}$ $\mu\text{sec}$
Rise Time	$V_{CC} = 5.0 \text{ VDC}$	$t_r$	—	100	nsec
Fall Time	$R_L = 390\Omega$ $T_A = 25^\circ\text{C}$	$t_f$	—	100	nsec
<b>COUPLED</b>					
IRED Operating Current	$V_{CC} = 5.0 \text{ VDC}$	$I_{OP}$	—	15	mA

## ORDER GUIDE



Drawing 80  
Page 48

Catalog Listing	Description
HOA901-11	Optical encoder assembly, PCB mount



Drawing 81  
Page 49

HOA901-12	Optical encoder assembly, chassis mount, with mounting tabs
-----------	---