

Assemblies Optical Encoder

T-41-73

HOA902 SERIES

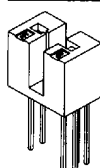
The HOA902 optical encoder assembly consists of a dual channel IC sensor, and a GaAs IRED (Infrared Emitting Diode) mounted in an opaque plastic housing. The sensor is a monolithic IC, consisting of two narrow adjacent photodiodes, amplifier stages, and logic circuitry which supplies two outputs. One is a fixed duration, low level active tachometer (counting) pulse. It is generated whenever the illumination level on one photodiode passes through the threshold level. The second is a direction output which is set to a logic high or a logic low depending on which channel is illuminated first. The tachometer output is an NPN collector, internally connected to V_{CC} through a 10 kohm (nominal) resistor. The direction output is a totem-pole configuration. Both are capable of directly driving TTL loads. Sensitivity compensation circuitry is included (output power versus IRED temperature characteristic).

The tachometer pulse is generated at both the increasing and decreasing illumination thresholds of the sensing channel, resulting in two tach pulses for each mechanical period of the interrupter. The HOA902 is designed to work with a mechanical period as small as 0.036", providing resolution to 0.018".

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

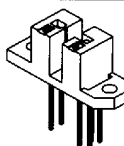
Parameter	Test Condition	Sym.	Min.	Max.	Units
EMITTER					
Forward Voltage	$I_F = 20 \text{ mA}$	V_F	—	1.5	V
Reverse Current	$V_R = 3.0 \text{ VDC}$	I_R	—	100	μA
SENSOR					
Supply Current	$V_{CC} = 5.25 \text{ VDC}$	I_{CC}	—	12.0	mA
Tach Output, inactive	$V_{CC} = 5.0 \text{ VDC}$ $I_{OH} = 0 \text{ mA}$	$V_{OH, TACH}$	4.5	—	V
Tach Pulse Level, active	$V_{CC} = 5.0 \text{ VDC}$ $I_{OL} = 1.6 \text{ mA}$	$V_{OL, TACH}$	—	0.4	V
Direction Output, B leads A	$V_{CC} = 5.0 \text{ VDC}$ $I_{OH} = -10 \mu\text{A}$	$V_{OH, DIR}$	2.4	—	V
Direction Output, A leads B	$V_{CC} = 5.0 \text{ VDC}$ $I_{OL} = 1.6 \text{ mA}$	$V_{OL, DIR}$	—	0.4	V
Tach Pulse Width	$V_{CC} = 5.0 \text{ VDC}$ $I_{OL} = 1.6 \text{ mA}$	T_{PW}	3	20	μsec
COUPLED					
IRED Operating Current	$V_{CC} = 5.0 \text{ VDC}$	I_{OP}	—	15	mA

ORDER GUIDE



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Catalog Listing	Description
HOA902-11	Optical encoder assembly, PCB mount



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HOA902-12	Optical encoder assembly, chassis mount, with mounting tabs
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