



# HOA0902

Transmissive Encoder Sensor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)						
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>IR EMITTER</b>						
Forward Voltage	V <sub>F</sub>			1.6	V	I <sub>F</sub> =20 mA
Reverse Leakage Current	I <sub>R</sub>			10	μA	V <sub>R</sub> =3 V
<b>DETECTOR</b>						
Operating Supply Voltage	V <sub>CC</sub>	4.5		5.5	V	
Supply Current	I <sub>CC</sub>			12	mA	V <sub>CC</sub> =5.25 V
Tach Output, inactive	V <sub>OL,TACH</sub>	4.5			V	V <sub>CC</sub> =5 V, I <sub>OH</sub> =0
Tach Pulse Level, active				0.4	V	V <sub>CC</sub> =5 V, I <sub>OL</sub> =1.6 mA
Direction Output, B leads A	V <sub>OH,DIR</sub>	2.4			V	V <sub>CC</sub> =5 V, I <sub>OH</sub> =-10 μA
Direction Output, A leads B	V <sub>OL,DIR</sub>			0.4	V	V <sub>CC</sub> =5 V, I <sub>OL</sub> =1.6 mA
Tach Pulse Width	T <sub>PW</sub>	3.0		20	μs	V <sub>CC</sub> =5 V, I <sub>OL</sub> =1.6 mA
IRET Trigger Current	I <sub>FT</sub>				mA	V <sub>CC</sub> =5 V
HOA0902-011, -012				15	mA	

Notes  
1. It is recommended that a bypass capacitor, 0.1 μF typical, be added between V<sub>CC</sub> and GND near the device in order to stabilize power supply line.

ABSOLUTE MAXIMUM RATINGS		SCHEMATIC
(25°C Free-Air Temperature unless otherwise noted)		
Operating Temperature Range	-40°C to 70°C	
Storage Temperature Range	-40°C to 85°C	
Soldering Temperature (5 sec)	240°C	
<b>IR EMITTER</b>		
Power Dissipation	100 mW <sup>(1)</sup>	
Reverse Voltage	3 V	
Continuous Forward Current	50 mA	
<b>DETECTOR</b>		
Supply Voltage	5.5 V	
Duration of Output		
Short to V <sub>CC</sub> or Ground	1.0 sec.	

Notes  
1. Derate linearly 0.78 mW/°C above 25°C.

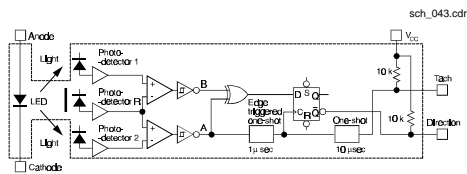
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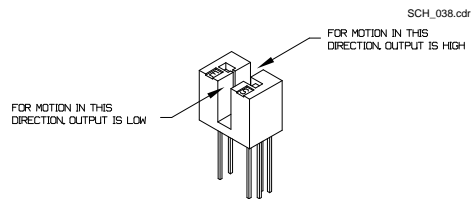
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## Transmissive Encoder Sensor

### FUNCTIONAL BLOCK DIAGRAM



### OUTPUT CONFIGURATION WITH MOTION



### OUTPUT TIMING DIAGRAM

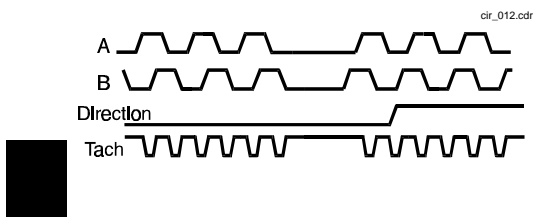


Fig. 1 IRED Forward Bias Characteristics

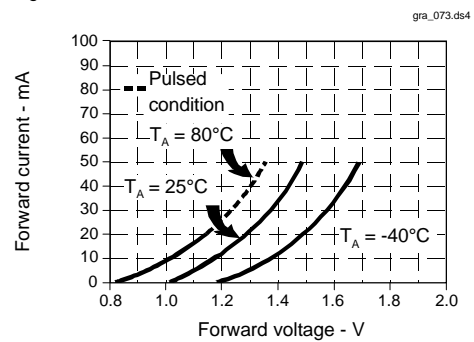
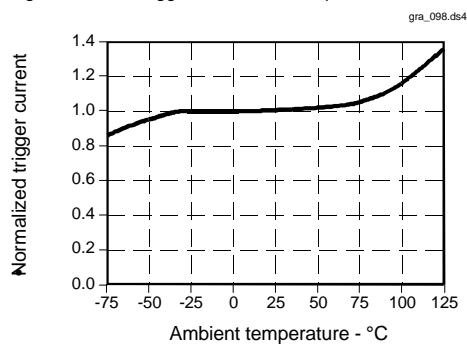


Fig. 2 IRED Trigger Current vs Temperature



All Performance Curves Show Typical Values

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