# Honeywell

# **Honeywell Sensing and Control**

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## HOA6961-N55



HOA Series IR Transmissive Optoschmitt Sensor, Transistor Output, No Mounting Tab, Plastic Package

Actual product appearance may vary.

#### **Features**

Direct TTL interface Buffer or inverting logic available Three device output options Four mounting configurations Choice of detector aperture 0.125 in [3.18 mm] slot width

## Description

The HOA696X/697X series consists of an infrared emitting diode facing an Optoschmitt detector encased in a black thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The photodetector consists of a photodiode, amplifier, voltage regulator, Schmitt trigger and various output configurations. The user can choose from available options:(1) detector aperture, (2) mounting tab configuration, (3) detector output configuration, and (4) housing material.

The HOA696X series utilizes an IR transmissive polysulfone housing which

The HOA696X series utilizes an IR transmissive polysulfone housing which features smooth optical faces without external aperture openings; this feature is desirable when aperture blockage from airborne contaminants is a possibility. The HOA697X series employs an opaque polysulfone housing with aperture openings for use in applications in which maximum rejection of ambient light is important, and situations in which maximum position resolution is desired. The HOA696X/697X series employs plastic molded components. For additional component information see SEP8506 and SDP8XX4.

Housing material is polysulfone. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol. Device Polarity:

Buffer - Output is LO when optical path is blocked.

Buffer - Output is LO when optical path is blocked. Inverter - Output is HI when optical path is blocked.

#### **Supporting Documentation**

Dimensions



Engineering Drawing

Series Name Optoschmitt Sensor  Product Type IR Switch  Output Open - Collector  Output Logic Buffer  Mounting Configuration No Mounting Tab  Package Components Plastic  Package Color Black  Continuous Forward Current 50 mA  Forward Voltage 1.6 V  Reverse Breakdown Voltage 3 V  Reverse Breakdown Voltage 10 µ A  Maximum Trigger Current 15 mA  Housing Material Polysulfone, IR Transmissive  Power Dissipation 100 mW  Operating Temperature Range -40 °C to 70 °C [ -40 °F to 158 °F]  Hysteresis (H) 0.05  Operating Supply Voltage 12.0 Vdc  High Level Output Current 15 mA  Low Level Output Voltage 0.4 V maximum  Low Level Supply Current 15 mA  Applied Output Voltage 35 V  Output Rise Time 70 ns  Output Rise Time 70 ns  Propagation Delay, Low - High, High - 5 on µ s  Comment Output Short Vcc or frought is above the turn - on threshold level.	Product Specifications	
Output         Open - Collector           Output Logic         Buffer           Mounting Configuration         No Mounting Tab           Package Components         Plastic           Package Color         Black           Continuous Forward Current         50 mA           Forward Voltage         1.6 V           Reverse Breakdown Voltage         3 V           Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         10 μ μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Output Rise Time         70 ns           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - 5.0 μ s           Low <t< td=""><td>Series Name</td><td>Optoschmitt Sensor</td></t<>	Series Name	Optoschmitt Sensor
Output Logic         Buffer           Mounting Configuration         No Mounting Tab           Package Components         Plastic           Package Color         Black           Continuous Forward Current         50 mA           Forward Voltage         1.6 V           Reverse Breakdown Voltage         3 V           Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Output Rise Time         70 ns           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second	Product Type	IR Switch
Mounting Configuration         No Mounting Tab           Package Components         Plastic           Package Color         Black           Continuous Forward Current         50 mA           Forward Voltage         1.6 V           Reverse Breakdown Voltage         3 V           Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - 5.0 μ s         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current <td< td=""><td>Output</td><td>Open - Collector</td></td<>	Output	Open - Collector
Package Components         Plastic           Package Color         Black           Continuous Forward Current         50 mA           Forward Voltage         1.6 V           Reverse Breakdown Voltage         3 V           Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low -High, High - 5.0 μ s           Low         Untraition of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Output is LO when incident light intensity is above the turn - on	Output Logic	Buffer
Package Color         Black           Continuous Forward Current         50 mA           Forward Voltage         1.6 V           Reverse Breakdown Voltage         3 V           Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - 5.0 μ s           Low         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Mounting Configuration	No Mounting Tab
Continuous Forward Current         50 mA           Forward Voltage         1.6 V           Reverse Breakdown Voltage         3 V           Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low High, High To Son Propagation Delay, Low High, High To Son Propagation Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Package Components	Plastic
Forward Voltage	Package Color	Black
Reverse Breakdown Voltage         3 V           Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Rise Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Continuous Forward Current	50 mA
Reverse Current         10 μ A           Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Forward Voltage	1.6 V
Maximum Trigger Current         15 mA           Housing Material         Polysulfone, IR Transmissive           Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Reverse Breakdown Voltage	3 V
Housing Material   Polysulfone, IR Transmissive	Reverse Current	10 μ A
Power Dissipation         100 mW           Operating Temperature Range         -40 °C to 70 °C [ -40 °F to 158 °F]           Hysteresis (H)         0.05           Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Maximum Trigger Current	15 mA
Operating Temperature Range	Housing Material	Polysulfone, IR Transmissive
Hysteresis (H) 0.05 Operating Supply Voltage 4.5 V to 12.0 V Supply Voltage 12.0 Vdc High Level Output Current 100 μ A maximum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Applied Output Voltage 35 V Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low - High, High - 5.0 μ s  Duration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment 0utput is LO when incident light intensity is above the turn - on	Power Dissipation	100 mW
Operating Supply Voltage         4.5 V to 12.0 V           Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Operating Temperature Range	-40 °C to 70 °C [ -40 °F to 158 °F]
Supply Voltage         12.0 Vdc           High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Hysteresis (H)	0.05
High Level Output Current         100 μ A maximum           High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low Low         - High, High - 5.0 μ s           Under the Country of Country Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Operating Supply Voltage	4.5 V to 12.0 V
High Level Supply Current         15 mA           Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low Low - High, High - 5.0 μ s         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Supply Voltage	12.0 Vdc
Low Level Output Voltage         0.4 V maximum           Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - Low         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	High Level Output Current	100 μ A maximum
Low Level Supply Current         15 mA           Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low Low         - High, High - 5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	High Level Supply Current	15 mA
Applied Output Voltage         35 V           Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low - High, High - 5.0 μ s         5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Low Level Output Voltage	0.4 V maximum
Output Rise Time         70 ns           Output Fall Time         70 ns           Propagation Delay, Low Low         - High, High - 5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Low Level Supply Current	15 mA
Output Fall Time         70 ns           Propagation Delay, Low Low         -High,High - 5.0 μ s           Duration of Output Short Vcc or Ground         1.0 second           IRED Trigger Current         15 mA           Comment         Output is LO when incident light intensity is above the turn - on	Applied Output Voltage	35 V
Propagation Delay, Low -High, High - 5.0 µ s  Duration of Output Short Vcc or Ground 1.0 second  IRED Trigger Current 15 mA  Comment Output is LO when incident light intensity is above the turn - on	Output Rise Time	70 ns
Low Duration of Output Short Vcc or Ground  1.0 second  IRED Trigger Current  15 mA  Comment Output is LO when incident light intensity is above the turn - on	Output Fall Time	70 ns
Ground  IRED Trigger Current  15 mA  Comment  Output is LO when incident light intensity is above the turn - on		5.0 μs
Comment Output is LO when incident light intensity is above the turn - on		1.0 second
intensity is above the turn - on	IRED Trigger Current	15 mA
	Comment	intensity is above the turn - on
Availability Global	Availability	Global
Sensor Aperture 1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Sensor Aperture	
Slot Width 3,18 mm [0.125 in]	Slot Width	3,18 mm [0.125 in]

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