

Honeywell Sensing and Control

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HOA6972-T51



HOA Series IR Opaque Optoschmitt Sensor, Transistor Output, Two **Mounting Tabs, 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 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.

Inverter - Output is HI when optical path is blocked.

Supporting Documentation

Dimensions



Engineering **Drawing**

Series Name Optoschmitt Sensor Product Type IR Switch Output Totem - Pole Output Logic Inverter Mounting Configuration Two Mounting Tabs 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, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Fall Time 70 ns Propagat	Product Specifications	
Output Logic Inverter Mounting Configuration Two Mounting Tabs 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, Opaque Power Dissipation 100 mW Operating Temperature Range -40 °C to 70 °C [-40 °F to 158 °F] Hysteresis (H) 0.05 Operating Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Output Voltage 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Propagation Delay, Low -High, High - To 15 mA Comment 15 mA	Series Name	Optoschmitt Sensor
Output Logic Inverter Mounting Configuration Two Mounting Tabs 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, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low -High, High - for July Second 5.0 μ s Urger Current 15 mA Comment 15 mA Co	Product Type	IR Switch
Mounting Configuration Two Mounting Tabs 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, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when i	Output	Totem - Pole
Package Conponents 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, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when incident light intensity is above the turn on threshold level.	Output Logic	Inverter
Package Color 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, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 15 mA Low Level Output Voltage 0.4 V maximum Low Level Output Voltage 15 mA Short Circuit Output Current 15 mA Short Circuit Output Current 0utput Rise Time 70 ns Propagation Delay, Low -High,High - 5.0 μ s Low Duration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment 0utput is HI when incident light intensity is above the turn - on threshold level. Availability Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Mounting Configuration	Two Mounting Tabs
Continuous Forward Current Forward Voltage Reverse Breakdown Voltage Reverse Current 10 μ A Maximum Trigger Current 15 mA Housing Material Polysulfone, Opaque Power Dissipation 100 mW Operating Temperature Range -40 °C to 70 °C [-40 °F to 158 °F] Hysteresis (H) Operating Supply Voltage 7.0 Vdc High Level Output Voltage High Level Output Voltage Low Level Supply Current 15 mA Short Circuit Output Current Curput Fall Time Propagation Delay, Low Low Duration of Output Short Vcc or Ground IRED Trigger Current Availability Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Package Components	Plastic
Forward Voltage 1.6 V Reverse Breakdown Voltage 3 V Reverse Current 10 μ A Maximum Trigger Current 15 mA Housing Material Polysulfone, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low - High, High - 100 mA 1.0 second IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in x 0.010 in]	Package Color	Black
Reverse Breakdown Voltage 3 V Reverse Current 10 μ A Maximum Trigger Current 15 mA Housing Material Polysulfone, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low - High, High - Low 5.0 μ s Low 1.0 second Brown of Output Short Vcc or Ground 1.0 second RED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010	Continuous Forward Current	50 mA
Reverse Current Maximum Trigger Current Housing Material Polysulfone, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage Low Level Supply Current 15 mA Low Level Supply Current 15 mA Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Propagation Delay, Low -High, High - 5.0 µ s Low Duration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Forward Voltage	1.6 V
Maximum Trigger Current Housing Material Polysulfone, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low -High, High - 5.0 µ s Ouration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Reverse Breakdown Voltage	3 V
Housing Material Polysulfone, Opaque 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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low -High, High - 5.0 µ s Ouration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn -on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	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 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when incident light intensity is above the turn -on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Maximum Trigger Current	15 mA
Operating Temperature Range -40 °C to 70 °C [-40 °F to 158 °F] Hysteresis (H) 0.05 Operating Supply Voltage 4.5 V to 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Housing Material	Polysulfone, Opaque
Hysteresis (H) 0.05 Operating Supply Voltage 4.5 V to 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when incident light intensity is above the turn -on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Power Dissipation	100 mW
Operating Supply Voltage 4.5 V to 7.0 V Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Operating Temperature Range	-40 °C to 70 °C [-40 °F to 158 °F]
Supply Voltage 7.0 Vdc High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low -High, High - Low Low Duration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Hysteresis (H)	0.05
High Level Output Voltage 2.4 V minimum High Level Supply Current 15 mA Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Operating Supply Voltage	4.5 V to 7.0 V
High Level Supply Current Low Level Output Voltage Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low -High, High - Low Duration of Output Short Vcc or Ground IRED Trigger Current Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 15 mA 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Supply Voltage	7.0 Vdc
Low Level Output Voltage 0.4 V maximum Low Level Supply Current 15 mA Short Circuit Output Current -20 mA to -100 mA 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 HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	High Level Output Voltage	2.4 V minimum
Low Level Supply Current Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low - High, High - Low Duration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 15 mA Global 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	High Level Supply Current	15 mA
Short Circuit Output Current -20 mA to -100 mA Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low - High, High - Low Duration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture -20 mA to -100 mA -100 mB -	Low Level Output Voltage	0.4 V maximum
Output Rise Time 70 ns Output Fall Time 70 ns Propagation Delay, Low Low - High, High - Low Duration of Output Short Vcc or Ground 1.0 second IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Low Level Supply Current	15 mA
Output Fall Time 70 ns Propagation Delay, Low Low - High, High - Low Duration of Output Short Vcc or Ground 1.0 second IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Short Circuit Output Current	- 20 mA to - 100 mA
Propagation Delay, Low Low - High, High - 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 HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Output Rise Time	70 ns
Low Duration of Output Short Vcc or Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Output Fall Time	70 ns
Ground IRED Trigger Current 15 mA Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	1	5.0 μ s
Comment Output is HI when incident light intensity is above the turn - on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]		1.0 second
intensity is above the turn -on threshold level. Availability Global Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	IRED Trigger Current	15 mA
Sensor Aperture 1,52 mm x 0,25 mm [0.060 in x 0.010 in]	Comment	intensity is above the turn - on
0.010 in]	Availability	Global
Slot Width 3,18 mm [0.125 in]	Sensor Aperture	_
	Slot Width	3,18 mm [0.125 in]

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