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# Honeywell

### **Honeywell Sensing and Control**

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HOA Series IR Transmissive

Package

**Optoschmitt Sensor, Transistor** 

Output, Two Mounting Tabs, Plastic

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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 24.0 in [610 mm] min. 26 AWG UL 1429 wire leads

#### Description

The HOA698X/699X series consists of an infrared emitting diode facing an Optoschmitt detector encased in a black thermoplastic housing. Detector sw itching takes place w henever an opaque object passes through the slot betw een 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 HOA698X 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 HOA699X 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 HOA698X/699X 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 w hen optical path is blocked. Inverter - Output is HI w hen optical path is blocked.

Wire color code and functions are:

Red - IRED Anode

Black - IRED Cathode

- Green Detector Ground
- White Detector Vcc
- Blue Detector Output

# Supporting Documentation Dimensions Schematics and

Performance Charts



Product Specifications	
Series Name	Optoschmitt Sensor
Product Type	IR Switch



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Output LogicInverterMounting ConfigurationTwo Mounting TabsPackage ComponentsPlasticPackage ColorBlackContinuous Forward Current50 mAForward Voltage3 VReverse Breakdown Voltage3 VReverse Current10 µAMaximum Trigger Current15 mAHousing MaterialPolysulfone, IR TransmissivePower Dissipation100 mWOperating Temperature Range4.0°C to 70°C [-40°F to 158°F]Hysteresis (H)0.05Operating Supply Voltage12.0 VdcHigh Level Output Current15 mALow Level Supply Current15 mALow Level Supply Current15 mAOutput Rise Time0.01 Au maximumOutput Rise Time50 nsOutput Rise Time50 nsOutput Rime50 nsOutput Fall Time10 nsPropagation Delay, Low-High, High15 mAIRED Anode ColorRedRike Charde ColorBlackDetector Vcc ColorBlackDetector Ground ColorBlackDetector Ground ColorGroenCammentCibalAvailabilityGlobalStati KithGlobalStati KithSicon Sicon Sic	Output	Open-Collector
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Reverse Breakdown Voltage3 VReverse Current10 µAMaximum Trigger Current15 mAHousing MaterialPolysulfone, IR TransmissivePower Dissipation100 mWOperating Temperature Range-40 °C to 70 °C [-40 °F to 158 °F]Hysteresis (H)0.05Operating Supply Voltage4.5 V to 12.0 VSupply Voltage12.0 VdcHigh Level Output Current100 µA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High Low5.0 µSIRED Trigger Current15 mAIRED Trigger Current15 mAIRED Cathode ColorRedIRED Cathode ColorBlackDetector Vcc ColorWhiteDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Continuous Forward Current	50 mA
Reverse Current10 µAMaximum Trigger Current15 mAHousing MaterialPolysulfone, IR TransmissivePower Dissipation100 mWOperating Temperature Range-40 °C to 70 °C [-40 °F to 158 °F]Hysteresis (H)0.05Operating Supply Voltage4.5 V to 12.0 VSupply Voltage12.0 VdcHigh Level Output Current100 µA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Output Voltage70 nsOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High tow5.0 µSDuration of Output Short Vcc or Ground1.0 secondIRED Trigger Current15 mAIRED Trigger CurrentBlackDetector Vcc ColorWhiteDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Forward Voltage	1.6 V
Maximum Trigger Current15 mAHousing MaterialPolysulfone, IR TransmissivePower Dissipation100 mWOperating Temperature Range-40 °C to 70 °C [-40 °F to 158 °F]Hysteresis (H)0.05Operating Supply Voltage4.5 V to 12.0 VSupply Voltage12.0 VdcHigh Level Output Current100 µA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High Low5.0 µsIRED Trigger Current15 mAIRED Trigger Current15 mAIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorWhiteDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Reverse Breakdown Voltage	3 V
Housing MaterialPolysulfone, IR TransmissivePower Dissipation100 mWOperating Temperature Range-40 °C to 70 °C [-40 °F to 158 °F]Hysteresis (H)0.05Operating Supply Voltage4.5 V to 12.0 VSupply Voltage12.0 VdcHigh Level Output Current100 µA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High Low5.0 µsIRED Trigger Current15 mAIRED Trigger Current15 mAIRED Anode ColorBlackDetector Vcc ColorWhiteDetector Output ColorBlueDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Reverse Current	10 µA
Power Dissipation100 mWOperating Temperature Range-40 °C to 70 °C [-40 °F to 158 °F]Hysteresis (H)0.05Operating Supply Voltage4.5 V to 12.0 VSupply Voltage12.0 VdcHigh Level Output Current100 µA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High ow5.0 µsIRED Trigger Current15 mAIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorWhiteDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Maximum Trigger Current	15 mA
Operating Temperature Range-40 °C to 70 °C [-40 °F to 158 °F]Hysteresis (H)0.05Operating Supply Voltage4.5 V to 12.0 VSupply Voltage12.0 VdcHigh Level Output Current100 µA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High Cow5.0 µsIRED Trigger Current15 mAIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorWhiteDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Housing Material	Polysulfone, IR Transmissive
Hysteresis (H)0.05Operating Supply Voltage4.5 V to 12.0 VSupply Voltage12.0 VdcHigh Level Output Current100 μA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High Low5.0 μsIRED Trigger Current15 mAIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorWhiteDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Power Dissipation	100 mW
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High Level Output Current100 μA maximumHigh Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High Cow5.0 μsDuration of Output Short Vcc or Ground1.0 secondIRED Trigger Current15 mAIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorBlueDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Operating Supply Voltage	4.5 V to 12.0 V
High Level Supply Current15 mALow Level Output Voltage0.4 V maximumLow Level Supply Current15 mAOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High,High Low5.0 µsDuration of Output Short Vcc or Ground1.0 secondIRED Trigger Current15 mAIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorWhiteDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Supply Voltage	12.0 Vdc
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Low Level Supply Current15 m AOutput Rise Time70 nsOutput Fall Time70 nsPropagation Delay, Low-High, High- Low5.0 μsDuration of Output Short Vcc or Ground1.0 secondIRED Trigger Current15 m AIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorBlueDetector Output ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	High Level Supply Current	15 mA
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Output Fall Time70 nsPropagation Delay, Low-High, High Low5.0 µsDuration of Output Short Vcc or Ground1.0 secondIRED Trigger Current15 mAIRED Anode ColorRedIRED Cathode ColorBlackDetector Vcc ColorBlueDetector Output ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Low Level Supply Current	15 mA
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Detector Output ColorBlueDetector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	IRED Cathode Color	Black
Detector Ground ColorGreenCommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Detector Vcc Color	White
CommentOutput is HI when incident light intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Detector Output Color	Blue
intensity is above the turn-on threshold level.AvailabilityGlobalSensor Aperture1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Detector Ground Color	Green
Sensor Aperture         1,52 mm x 1,27 mm [0.060 in x 0.050 in]	Comment	intensity is above the turn-on
0.050 in]	Availability	Global
Slot Width 3,18 mm [0.125 in]	Sensor Aperture	
	Slot Width	3,18 mm [0.125 in]