SD4324-002/XXX
Schmitt Detector

DESCRIPTION
The SD4324-002/XXX is a fiber optic Schmitt detector, designed for high speed in use in fiber optic links. The fiber optic connector contains a voltage regulator, photodiode and a Schmitt Trigger. This device provides a high level logic output voltage of 2.4 V, and low level output of 0.4 V.

The SD4324-002/XXX fiber optic connector aligns its optical axis with the axis of the optical fiber. This is accomplished by referencing the precision outside diameter of the window can.

FEATURES
- Fiber optic Schmitt detector
- High speed: 80 ns typical
- High sensitivity: 3 µW typical
- Mounting options
  - SMA single hole
  - ST single hole
  - SMA PCB
  - ST PCB
  - SMA 4 hole

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ELECTRO-OPTICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>UNITS</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>TEST CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Sensitivity (1)</td>
<td>$P_{IN}$</td>
<td>µW</td>
<td>3</td>
<td>5</td>
<td>$\lambda = 850 \text{ nm}$</td>
<td></td>
</tr>
<tr>
<td>High Level Logic Output Voltage</td>
<td>$V_{OH}$</td>
<td>V</td>
<td></td>
<td>2.4</td>
<td></td>
<td>$V_{CC} = 5 \text{ VDC}, P_{IN} \geq 5 \mu W, I_{OL} = 100 \mu A$</td>
</tr>
<tr>
<td>Low Level Logic Output Voltage</td>
<td>$V_{OL}$</td>
<td>V</td>
<td></td>
<td>0.4</td>
<td></td>
<td>$V_{CC} = 5 \text{ VDC}, P_{IN} \leq 0.5 \mu W, I_{OL} = -8 \mu A$</td>
</tr>
<tr>
<td>Propagation Delay (2)</td>
<td>$T_{DLH}$</td>
<td>µs</td>
<td></td>
<td>3</td>
<td>5</td>
<td>$V_{CC} = 5 \text{ VDC}, R_{L} = 560 \Omega$</td>
</tr>
<tr>
<td>Propagation Delay (2)</td>
<td>$T_{DHL}$</td>
<td>µs</td>
<td></td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Response Time (2)</td>
<td>Rise Time</td>
<td>ns</td>
<td></td>
<td>80</td>
<td>150</td>
<td>$V_{CC} = 5 \text{ VDC}, R_{L} = 560 \Omega$</td>
</tr>
<tr>
<td>Response Time (2)</td>
<td>Fall Time</td>
<td>ns</td>
<td></td>
<td>10</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Supply Current</td>
<td>$I_{CC}$</td>
<td>mA</td>
<td>8</td>
<td>12</td>
<td>$V_{CC} = 5 \text{ VDC}$</td>
<td></td>
</tr>
</tbody>
</table>

Notes
1. Tested with a 100 µm, 0.28 NA fiber as optical source.
2. See Transition/Delay Time Test Circuit.

ABSOLUTE MAXIMUM RATINGS
(25°C Free-Air Temperature unless otherwise noted)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage temperature</td>
<td>-40 to +100°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case operating temperature</td>
<td>-40 to +100°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead solder temperature</td>
<td>260°C, 10 s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply voltage</td>
<td>4.5 to 12 VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous output sink current</td>
<td>18 mA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.

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ORDER GUIDE

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<tr>
<td>Fiber optic Schmitt input</td>
<td>SD4324-002/XXX</td>
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</table>

MOUNTING OPTIONS

Substitute XXX with one of the following 3 letter combinations
- SMA single hole - AAA
- ST single hole - BAA
- SMA PCB - ABA
- ST PCB - BBA
- SMA 4 hole - ADA

Dimensions on page 441

CAUTION

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.

FIBER INTERFACE

Honeywell detectors are designed to interface with multimode fibers with sizes (core/cladding diameters) ranging from 50/125 to 200/230 microns. Honeywell performs final tests using 100/140 micron core fiber. The fiber chosen by the end user will depend upon a number of application issues (distance, link budget, cable attenuation, splice attenuation, and safety margin). The 50/125 and 62.5/125 micron fibers have the advantages of high bandwidth and low cost, making them ideal for higher bandwidth installations. The use of 100/140 and 200/230 micron core fibers results in greater power being coupled by the transmitter, making it easier to splice or connect in bulkhead areas. Optical cables can be purchased from a number of sources.

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Downloaded from Arrow.com.
**SD4324-002/XXX**

**Schmitt Detector**

### Switching Waveform

![Switching Waveform Diagram](FIBER008.CIR)

**Fig. 1** Angular Response

![Angular Response Graph](FIBER047.GR)

### Spectral Responsivity

![Spectral Responsivity Graph](FIBER067.GR)

**Fig. 2** Spectral Responsivity

### Delay Time vs Temperature

![Delay Time vs Temperature Graph](FIBER068.GR)

**Fig. 3** Delay Time vs Temperature

### Relative Input Power vs Temperature

![Relative Input Power Graph](FIBER069.GR)

**Fig. 4** Relative Input Power vs Temperature

### Rise/Fall Time vs Temperature

![Rise/Fall Time Graph](FIBER070.GR)

**Fig. 5** Rise/Fall Time vs Temperature

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Fig. 6  Pulse Stretching vs Received Power

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European Connectorized Receivers

Honeywell receiver components are available in the following connector styles. Each style has a three-digit reference used in the order guides.

SMA SINGLE HOLE MOUNTING (REF.: AAA)

ST SINGLE HOLE MOUNTING (REF.: BAA)

SMA PCB MOUNTING (REF.: ABA)

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European Connectorized Receivers

ST PCB MOUNTING (REF.: BBA)

SMA 4 HOLE MOUNTING (REF.: ADA)