

# Low Noise 400 kHz Photoreceiver with Si PIN Photodiode



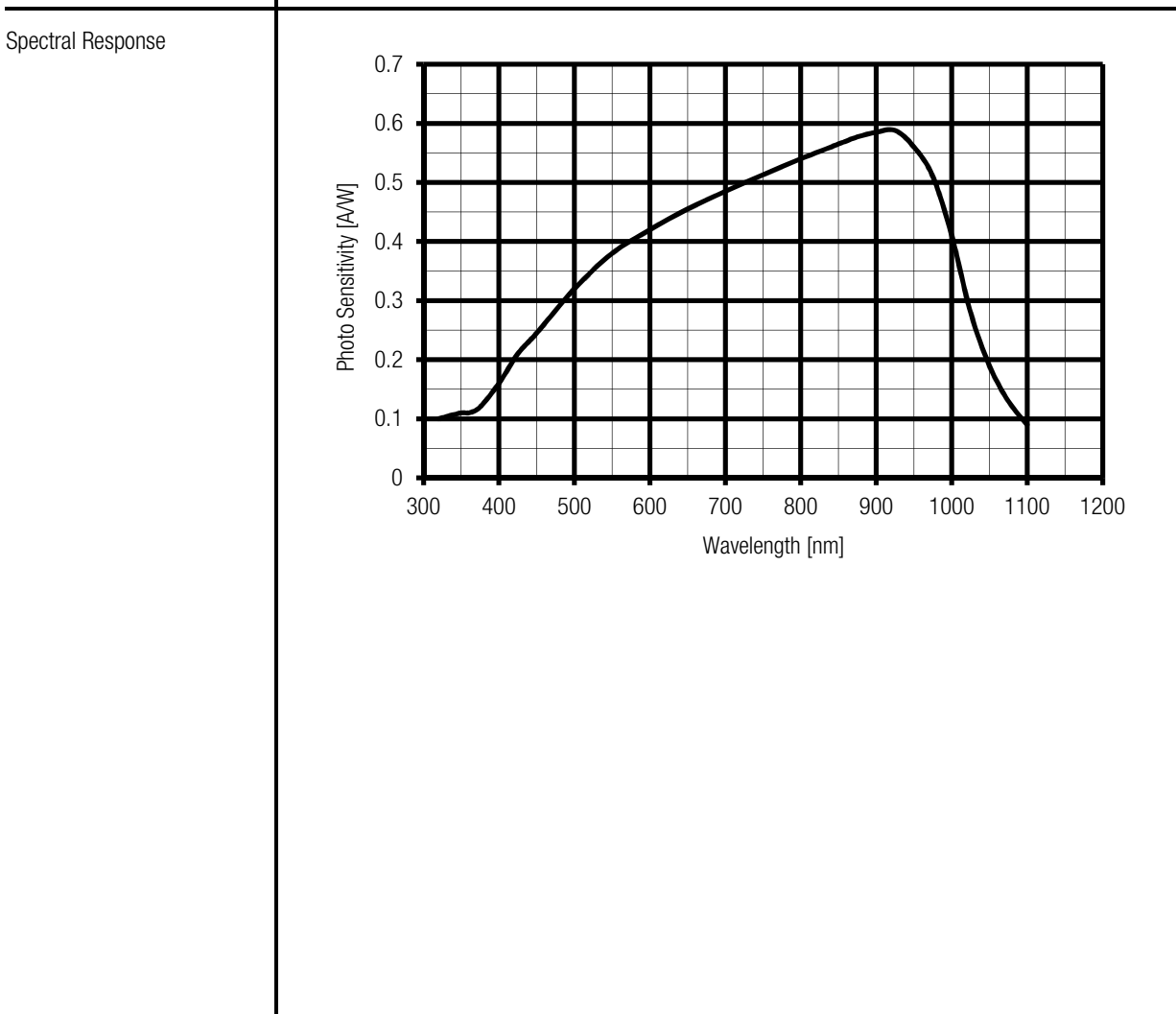
The photoreceiver will be delivered without post holder and post.

<p>Features</p>	<ul style="list-style-type: none"> <li>• <b>Large Area Si PIN Detector, 3.0 mm Active Diameter</b></li> <li>• <b>Spectral Range 320 ... 1060 nm</b></li> <li>• <b>Amplifier Transimpedance Gain 1.0 x 10<sup>7</sup> V/A</b></li> <li>• <b>Max. Conversion Gain 5.9 x 10<sup>6</sup> V/W @ 920 nm</b></li> <li>• <b>Bandwidth DC ... 400 kHz</b></li> </ul>																																												
<p>Applications</p>	<ul style="list-style-type: none"> <li>• <b>Spectroscopy</b></li> <li>• <b>General Purpose Opto-Electronic Measurements</b></li> <li>• <b>Optical Front-End for Oscilloscopes, A/D Converters and Lock-In Amplifiers</b></li> </ul>																																												
<p>Specifications</p>	<p><i>Test Conditions</i> <span style="float: right;"><i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C, load impedance ≥ 100 kΩ</i></span></p> <table border="0"> <tr> <td style="vertical-align: top;">Gain</td> <td>Transimpedance</td> <td>1.0 x 10<sup>7</sup> V/A</td> <td></td> </tr> <tr> <td></td> <td>Max. Conversion Gain</td> <td>5.9 x 10<sup>6</sup> V/W</td> <td>(@ 920 nm)</td> </tr> <tr> <td style="vertical-align: top;">Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>DC</td> <td></td> </tr> <tr> <td></td> <td>Upper Cut-Off Frequency (- 3 dB)</td> <td>400 kHz</td> <td></td> </tr> <tr> <td></td> <td>Rise/Fall Time (10 % - 90 %)</td> <td>900 ns</td> <td></td> </tr> <tr> <td style="vertical-align: top;">Detector</td> <td>Detector Material</td> <td>Si PIN photodiode</td> <td></td> </tr> <tr> <td></td> <td>Active Area</td> <td>Ø 3.0 mm</td> <td></td> </tr> <tr> <td></td> <td>Spectral Response</td> <td>320 ... 1060 nm</td> <td></td> </tr> <tr> <td style="vertical-align: top;">Input</td> <td>Input Offset Compensation Range</td> <td>± 300 nA</td> <td>adjustable by offset trim-pot</td> </tr> <tr> <td></td> <td>Optical Saturation Power</td> <td>1.6 µW</td> <td>(@ 920 nm)</td> </tr> <tr> <td></td> <td>NEP</td> <td>120 fW/√Hz</td> <td>(@ 920 nm, 10 kHz)</td> </tr> </table>	Gain	Transimpedance	1.0 x 10 <sup>7</sup> V/A			Max. Conversion Gain	5.9 x 10 <sup>6</sup> V/W	(@ 920 nm)	Frequency Response	Lower Cut-Off Frequency	DC			Upper Cut-Off Frequency (- 3 dB)	400 kHz			Rise/Fall Time (10 % - 90 %)	900 ns		Detector	Detector Material	Si PIN photodiode			Active Area	Ø 3.0 mm			Spectral Response	320 ... 1060 nm		Input	Input Offset Compensation Range	± 300 nA	adjustable by offset trim-pot		Optical Saturation Power	1.6 µW	(@ 920 nm)		NEP	120 fW/√Hz	(@ 920 nm, 10 kHz)
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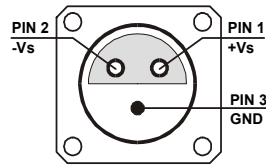
Specifications (continued)	
Output	Output Voltage Range $\pm 10$ V Max. Output Current $\pm 30$ mA Output Impedance $50 \Omega$ (terminate with $\geq 100$ k $\Omega$ for best performance) Output Noise                        ca. $10$ mV <sub>pp</sub> ( $1.6$ mV <sub>RMS</sub> ) (no signal on detector)
Power Supply	Supply Voltage $\pm 15$ V Supply Current $\pm 40$ mA typ. (depends on operating conditions, recommended power supply capability minimum $\pm 150$ mA)
Case	Weight $210$ g ( $0.5$ lbs) Material                                AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature $- 40 \dots + 100$ °C Operating Temperature $0 \dots + 60$ °C

Absolute Maximum Ratings	Optical Input Power $10$ mW Power Supply Voltage $\pm 22$ V
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# Low Noise 400 kHz Photoreceiver with Si PIN Photodiode

Connectors	<p><b>Input</b> 25 mm round flange for free space applications (fiber optic input available as customized unit)</p> <p><b>Output</b> BNC</p> <p><b>Power Supply</b> LEMO series 1S, 3-pin fixed socket                  Pin 1: + 15V                  Pin 2: - 15V                  Pin 3: GND</p>
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Available Models	<p>LCA-S-400K-SI-FS free space input</p> <p>LCA-S customized version available on request</p>
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Dimensions

DZ-LCA-S-400K-SI\_R1

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