

Datasheet

LCA-S-400K-IN

Low Noise 400 kHz Photoreceiver
with InGaAs PIN Photodiode



The photoreceiver will be delivered without post holder and post.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|--|---|------------------------------|-----------------------|------------------------------|--|----------------------|-----------------------|-------------|--------------------|-------------------------|----|--|---------------------------------|---------|--|----------------------------|-----------|--|---------------|--------------|--|----------|-------------------|-----------------------|--|-------------|----------------------|--|-------------------|-----------------|--|-------|---------------------------------|--|--|--------------------------|---|--|----------|-------------------|---------------------|
| Features | <ul style="list-style-type: none"> • InGaAs PIN Detector, 0.5 mm Active Diameter • Spectral Range 900 ... 1700 nm • Amplifier Transimpedance (Gain) 1.0×10^7 V/A • Max. Conversion Gain 9.5×10^6 V/W @ 1550 nm • Bandwidth DC ... 400 kHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Applications | <ul style="list-style-type: none"> • Spectroscopy • General Purpose Opto-Electronic Measurements • Optical Front-End for Oscilloscopes, A/D Converters and Lock-In Amplifiers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Specifications | <p><i>Test Conditions</i> $V_s = \pm 15$ V, $T_a = 25^\circ$C</p> <table border="0"> <tr> <td>Gain</td> <td>Transimpedance</td> <td>1.0×10^7 V/A</td> <td>(@ ≥ 1 MΩ load)</td> </tr> <tr> <td></td> <td>Max. Conversion Gain</td> <td>9.5×10^6 V/W</td> <td>(@ 1550 nm)</td> </tr> <tr> <td rowspan="4">Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>DC</td> <td></td> </tr> <tr> <td>Upper Cut-Off Frequency (-3 dB)</td> <td>400 kHz</td> <td></td> </tr> <tr> <td>Rise/Fall Time (10% - 90%)</td> <td>1 μs</td> <td></td> </tr> <tr> <td>Gain Flatness</td> <td>± 0.5 dB</td> <td></td> </tr> <tr> <td rowspan="3">Detector</td> <td>Detector Material</td> <td>InGaAs PIN photodiode</td> <td></td> </tr> <tr> <td>Active Area</td> <td>$\varnothing 0.5$ mm</td> <td></td> </tr> <tr> <td>Spectral Response</td> <td>900 ... 1700 nm</td> <td></td> </tr> <tr> <td rowspan="3">Input</td> <td>Input Offset Compensation Range</td> <td>± 300 nA, adjustable by offset trimpot</td> <td></td> </tr> <tr> <td>Optical Saturation Power</td> <td>1 μW (for linear amplification, @ 1550 nm)</td> <td></td> </tr> <tr> <td>Min. NEP</td> <td>75 fW/\sqrtHz</td> <td>(@ 1550 nm, 10 kHz)</td> </tr> </table> | Gain | Transimpedance | 1.0×10^7 V/A | (@ ≥ 1 M Ω load) | | Max. Conversion Gain | 9.5×10^6 V/W | (@ 1550 nm) | Frequency Response | Lower Cut-Off Frequency | DC | | Upper Cut-Off Frequency (-3 dB) | 400 kHz | | Rise/Fall Time (10% - 90%) | 1 μ s | | Gain Flatness | ± 0.5 dB | | Detector | Detector Material | InGaAs PIN photodiode | | Active Area | $\varnothing 0.5$ mm | | Spectral Response | 900 ... 1700 nm | | Input | Input Offset Compensation Range | ± 300 nA, adjustable by offset trimpot | | Optical Saturation Power | 1 μ W (for linear amplification, @ 1550 nm) | | Min. NEP | 75 fW/ \sqrt Hz | (@ 1550 nm, 10 kHz) |
| Gain | Transimpedance | 1.0×10^7 V/A | (@ ≥ 1 M Ω load) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Max. Conversion Gain | 9.5×10^6 V/W | (@ 1550 nm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency Response | Lower Cut-Off Frequency | DC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Upper Cut-Off Frequency (-3 dB) | 400 kHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Rise/Fall Time (10% - 90%) | 1 μ s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Gain Flatness | ± 0.5 dB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Detector | Detector Material | InGaAs PIN photodiode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Active Area | $\varnothing 0.5$ mm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Spectral Response | 900 ... 1700 nm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input | Input Offset Compensation Range | ± 300 nA, adjustable by offset trimpot | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Optical Saturation Power | 1 μ W (for linear amplification, @ 1550 nm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Min. NEP | 75 fW/ \sqrt Hz | (@ 1550 nm, 10 kHz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

Datasheet

LCA-S-400K-IN

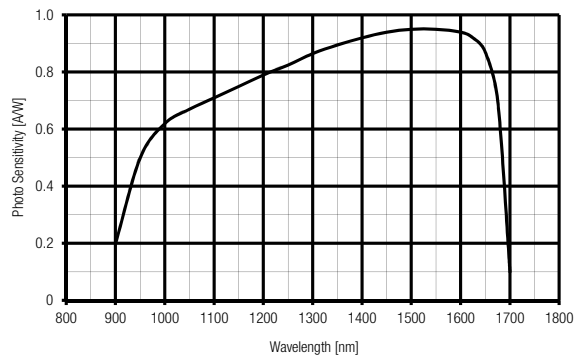
**Low Noise 400 kHz Photoreceiver
with InGaAs PIN Photodiode**

Specifications (continued)

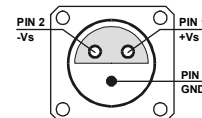
| | | | |
|-------------------|-----------------------|---------------------------------|---|
| Output | Output Voltage Range | ± 10 V | (@ ≥ 1 M Ω load) |
| | Max. Output Current | ± 30 mA | |
| | Output Impedance | 50 Ω | (designed for ≥ 1 M Ω load) |
| | Output Noise | ca. 12 mV peak-peak or 2 mV rms | (@ ≥ 1 M Ω load, no signal on detector) |
| Power Supply | Supply Voltage | ± 15 V | |
| | Supply Current | ± 40 mA typ. | (depends on operating conditions, recommended power supply capability minimum ± 150 mA) |
| Case | Weight | 210 g (0.5 lbs) | |
| | Material | AlMg4.5Mn, nickel-plated | |
| Temperature Range | Storage Temperature | - 40 ... + 100 °C | |
| | Operating Temperature | 0 ... + 60 °C | |

| | | |
|--------------------------|----------------------|------------|
| Absolute Maximum Ratings | Optical Input Power | 10 mW |
| | Power Supply Voltage | ± 22 V |

Spectral Response



| | | |
|------------|--------------|--|
| Connectors | Input | 25 mm round flange for free space applications (fiber optic input available as customized unit) |
| | Output | BNC |
| | Power Supply | LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND |



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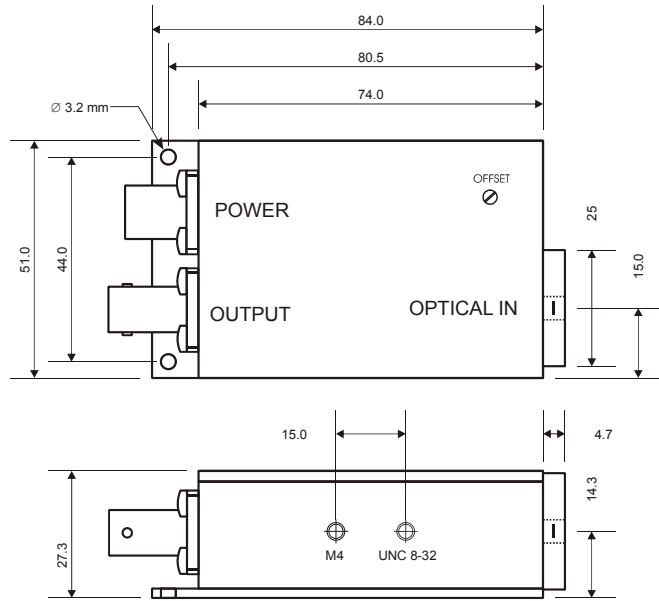
**Low Noise 400 kHz Photoreceiver
with InGaAs PIN Photodiode**

Available Models

LCA-S-400K-IN-FS
LCA-S

free space input
customized version available on request

Dimensions



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SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

