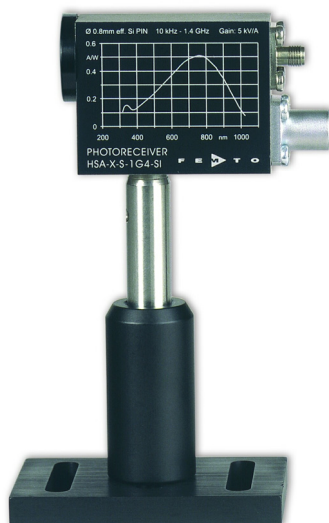


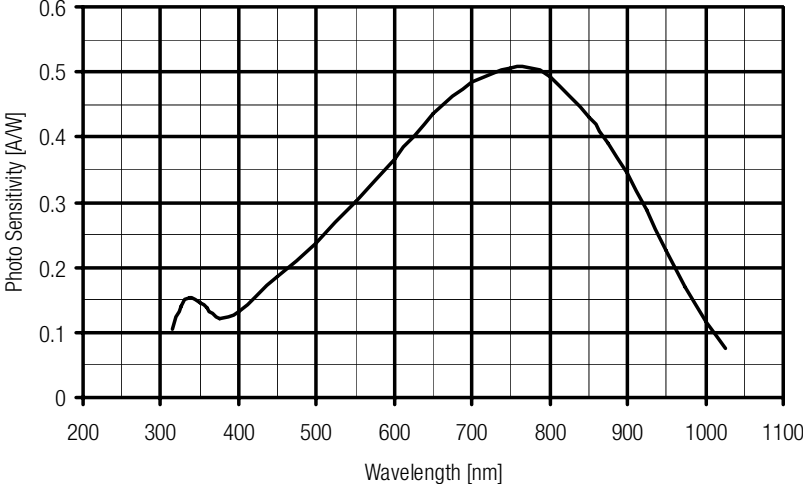
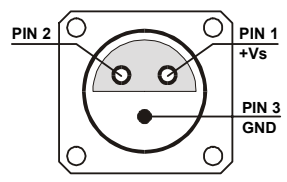
## Ultra High Speed Photoreceiver with Si PIN Photodiode



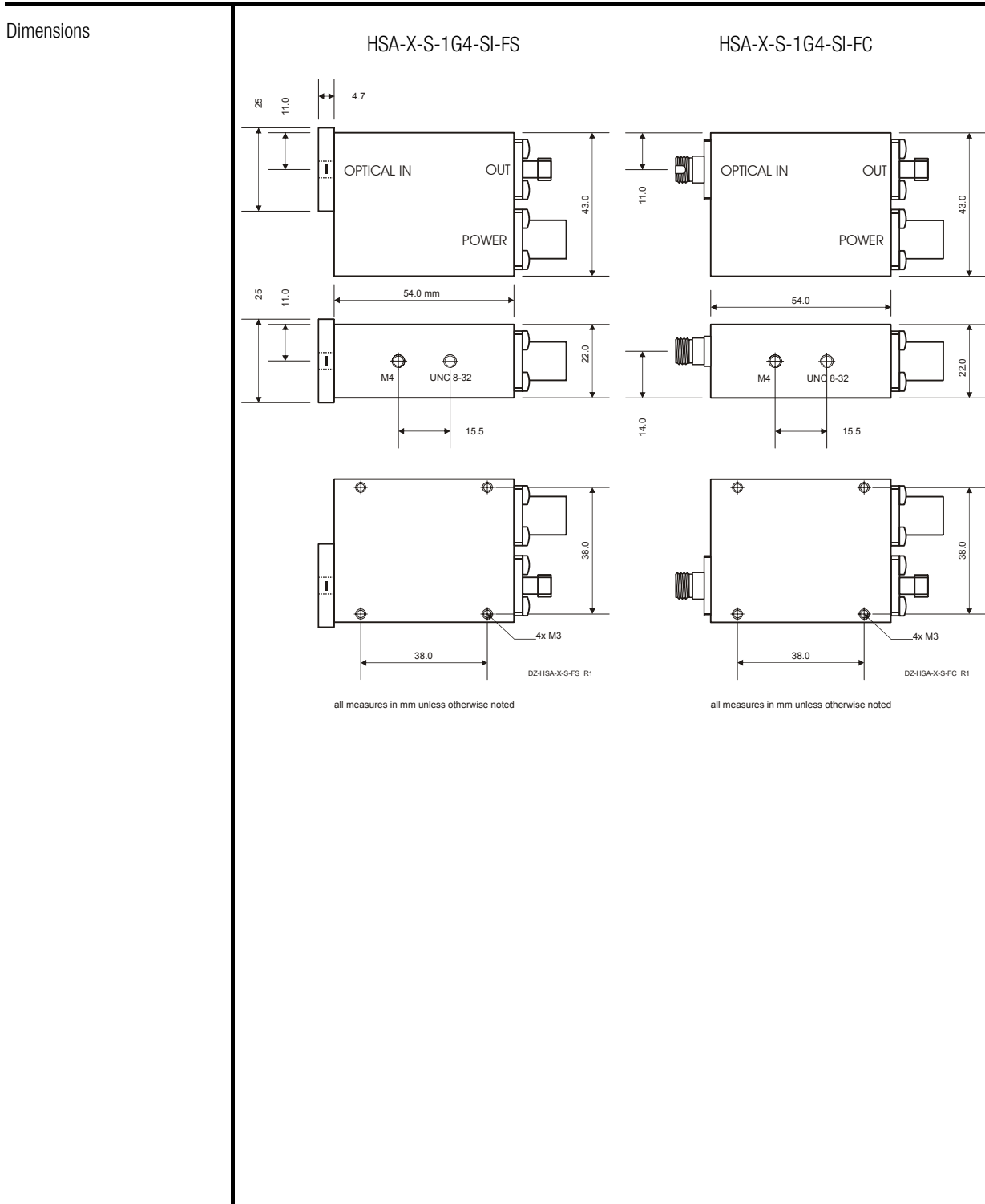
The picture shows the HSA-X-S-1G4-SI-FS with free space input. The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none"> <li>• <b>Bandwidth 10 kHz ... 1.4 GHz</b></li> <li>• <b>Si PIN Detector, Ø 0.8 mm Effective Active Diameter</b></li> <li>• <b>Spectral Range 320 ... 1000 nm</b></li> <li>• <b>Amplifier Transimpedance (Gain) <math>5 \times 10^3</math> V/A</b></li> <li>• <b>Max. Conversion Gain <math>2.5 \times 10^3</math> V/W @ 760 nm</b></li> </ul>																																																								
Applications	<ul style="list-style-type: none"> <li>• <b>Spectroscopy</b></li> <li>• <b>Ultra Fast Pulse and Transient Measurements</b></li> <li>• <b>Optical Triggering</b></li> <li>• <b>Optical Front-End for Oscilloscopes and Ultra Fast A/D Converters</b></li> </ul>																																																								
Specifications	<p><i>Test Conditions</i> <span style="float: right;"><i>V<sub>s</sub> = + 15 V, T<sub>a</sub> = 25°C, System Impedance = 50 Ω</i></span></p> <table border="0"> <tr> <td style="vertical-align: top;">Gain</td> <td>Amplifier Transimpedance</td> <td><math>5 \times 10^3</math> V/A</td> <td>(@ 50 Ω load)</td> </tr> <tr> <td></td> <td>Conversion Gain</td> <td><math>2.5 \times 10^3</math> V/W</td> <td>(@ 760 nm)</td> </tr> <tr> <td style="vertical-align: top;">Frequency Response</td> <td>Lower Cut-Off Frequency</td> <td>10 kHz</td> <td></td> </tr> <tr> <td></td> <td>Upper Cut-Off Frequency (- 3 dB)</td> <td>1.4 GHz</td> <td>(± 10 %)</td> </tr> <tr> <td></td> <td>Rise/Fall Time (10% - 90%)</td> <td>250 ps</td> <td></td> </tr> <tr> <td></td> <td>Gain Flatness</td> <td>± 1 dB</td> <td></td> </tr> <tr> <td style="vertical-align: top;">Input / Detector</td> <td>Detector Material</td> <td colspan="2">Si PIN photodiode</td> </tr> <tr> <td></td> <td>Active Area</td> <td colspan="2">effective Ø 0.8 mm (actual Ø 0.4 mm plus ball lens)</td> </tr> <tr> <td></td> <td>Spectral Range</td> <td colspan="2">320 ... 1000 nm</td> </tr> <tr> <td></td> <td>Max. Optical Peak Input Power</td> <td>400 μW</td> <td>(for linear amplification, @ 760 nm))</td> </tr> <tr> <td style="vertical-align: top;">Noise</td> <td>Min. NEP</td> <td>26 pW/√Hz</td> <td>(@ 760 nm, 100 MHz)</td> </tr> <tr> <td style="vertical-align: top;">Output</td> <td>Output Impedance</td> <td>50 Ω</td> <td>(designed for 50 Ω load)</td> </tr> <tr> <td></td> <td>Max. Output Voltage</td> <td>1.9 Vpp</td> <td>(@ 50 Ω load, for linear amplification)</td> </tr> <tr> <td style="vertical-align: top;">Power Supply</td> <td>Supply Voltage</td> <td colspan="2">+ 15 V, 130 mA typ. (depends on operating conditions, recommended power supply capability minimum 200 mA)</td> </tr> </table>	Gain	Amplifier Transimpedance	$5 \times 10^3$ V/A	(@ 50 Ω load)		Conversion Gain	$2.5 \times 10^3$ V/W	(@ 760 nm)	Frequency Response	Lower Cut-Off Frequency	10 kHz			Upper Cut-Off Frequency (- 3 dB)	1.4 GHz	(± 10 %)		Rise/Fall Time (10% - 90%)	250 ps			Gain Flatness	± 1 dB		Input / Detector	Detector Material	Si PIN photodiode			Active Area	effective Ø 0.8 mm (actual Ø 0.4 mm plus ball lens)			Spectral Range	320 ... 1000 nm			Max. Optical Peak Input Power	400 μW	(for linear amplification, @ 760 nm))	Noise	Min. NEP	26 pW/√Hz	(@ 760 nm, 100 MHz)	Output	Output Impedance	50 Ω	(designed for 50 Ω load)		Max. Output Voltage	1.9 Vpp	(@ 50 Ω load, for linear amplification)	Power Supply	Supply Voltage	+ 15 V, 130 mA typ. (depends on operating conditions, recommended power supply capability minimum 200 mA)	
Gain	Amplifier Transimpedance	$5 \times 10^3$ V/A	(@ 50 Ω load)																																																						
	Conversion Gain	$2.5 \times 10^3$ V/W	(@ 760 nm)																																																						
Frequency Response	Lower Cut-Off Frequency	10 kHz																																																							
	Upper Cut-Off Frequency (- 3 dB)	1.4 GHz	(± 10 %)																																																						
	Rise/Fall Time (10% - 90%)	250 ps																																																							
	Gain Flatness	± 1 dB																																																							
Input / Detector	Detector Material	Si PIN photodiode																																																							
	Active Area	effective Ø 0.8 mm (actual Ø 0.4 mm plus ball lens)																																																							
	Spectral Range	320 ... 1000 nm																																																							
	Max. Optical Peak Input Power	400 μW	(for linear amplification, @ 760 nm))																																																						
Noise	Min. NEP	26 pW/√Hz	(@ 760 nm, 100 MHz)																																																						
Output	Output Impedance	50 Ω	(designed for 50 Ω load)																																																						
	Max. Output Voltage	1.9 Vpp	(@ 50 Ω load, for linear amplification)																																																						
Power Supply	Supply Voltage	+ 15 V, 130 mA typ. (depends on operating conditions, recommended power supply capability minimum 200 mA)																																																							

## Ultra High Speed Photoreceiver with Si PIN Photodiode

Specifications (continued)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 2px;">Case</td> <td style="padding: 2px;">Weight</td> <td style="padding: 2px;">100 g (0.23 lbs)</td> </tr> <tr> <td></td> <td style="padding: 2px;">Material</td> <td style="padding: 2px;">AlMg4.5Mn, nickel-plated</td> </tr> <tr> <td style="padding: 2px;">Temperature Range</td> <td style="padding: 2px;">Storage Temperature</td> <td style="padding: 2px;">- 40 ... + 100 °C</td> </tr> <tr> <td></td> <td style="padding: 2px;">Operating Temperature</td> <td style="padding: 2px;">0 ... + 60 °C</td> </tr> </table>	Case	Weight	100 g (0.23 lbs)		Material	AlMg4.5Mn, nickel-plated	Temperature Range	Storage Temperature	- 40 ... + 100 °C		Operating Temperature	0 ... + 60 °C									
Case	Weight	100 g (0.23 lbs)																				
	Material	AlMg4.5Mn, nickel-plated																				
Temperature Range	Storage Temperature	- 40 ... + 100 °C																				
	Operating Temperature	0 ... + 60 °C																				
Absolute Maximum Ratings	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 2px;">Power Supply Voltage</td> <td style="padding: 2px;"><math>\pm 22</math> V</td> </tr> <tr> <td style="padding: 2px;">Optical Input Power</td> <td style="padding: 2px;">10 mW (averaged)</td> </tr> </table>	Power Supply Voltage	$\pm 22$ V	Optical Input Power	10 mW (averaged)																	
Power Supply Voltage	$\pm 22$ V																					
Optical Input Power	10 mW (averaged)																					
Spectral Response	 <p style="text-align: center;">Wavelength [nm]</p>																					
Connectors	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 2px;">Input</td> <td style="padding: 2px;">HSA-X-S-1G4-SI-FS</td> <td style="padding: 2px;">25 mm round flange for free space applications</td> </tr> <tr> <td></td> <td style="padding: 2px;">HSA-X-S-1G4-SI-FC</td> <td style="padding: 2px;">FC fiber optic receptacle</td> </tr> <tr> <td style="padding: 2px;">Output</td> <td colspan="2" style="padding: 2px;">SMA</td> </tr> <tr> <td style="padding: 2px;">Power Supply</td> <td colspan="2" style="padding: 2px;">LEMO series 1S, 3-pin fixed socket</td> </tr> <tr> <td></td> <td colspan="2" style="padding: 2px;">Pin 1: + 15V</td> </tr> <tr> <td></td> <td colspan="2" style="padding: 2px;">Pin 2: n.c.</td> </tr> <tr> <td></td> <td colspan="2" style="padding: 2px;">Pin 3: GND</td> </tr> </table> <div style="text-align: center; margin-top: 10px;">  </div>	Input	HSA-X-S-1G4-SI-FS	25 mm round flange for free space applications		HSA-X-S-1G4-SI-FC	FC fiber optic receptacle	Output	SMA		Power Supply	LEMO series 1S, 3-pin fixed socket			Pin 1: + 15V			Pin 2: n.c.			Pin 3: GND	
Input	HSA-X-S-1G4-SI-FS	25 mm round flange for free space applications																				
	HSA-X-S-1G4-SI-FC	FC fiber optic receptacle																				
Output	SMA																					
Power Supply	LEMO series 1S, 3-pin fixed socket																					
	Pin 1: + 15V																					
	Pin 2: n.c.																					
	Pin 3: GND																					
Available Models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">HSA-X-S-1G4-SI-FS</td> <td style="padding: 2px;">free space input</td> </tr> <tr> <td style="padding: 2px;">HSA-X-S-1G4-SI-FC</td> <td style="padding: 2px;">FC fiber optic receptacle</td> </tr> <tr> <td style="padding: 2px;">HSA-X-S</td> <td style="padding: 2px;">customized versions available on request</td> </tr> </table>	HSA-X-S-1G4-SI-FS	free space input	HSA-X-S-1G4-SI-FC	FC fiber optic receptacle	HSA-X-S	customized versions available on request															
HSA-X-S-1G4-SI-FS	free space input																					
HSA-X-S-1G4-SI-FC	FC fiber optic receptacle																					
HSA-X-S	customized versions available on request																					

# Ultra High Speed Photoreceiver with Si PIN Photodiode



FEMTO Messtechnik GmbH  
 Klosterstr. 64  
 D-10179 Berlin · Germany  
 Tel.: +49-(0)30-280 4711-0  
 Fax: +49-(0)30-280 4711-11  
 E-Mail: info@femto.de  
 http://www.femto.de

Specifications are subject to change without notice. Information furnished herein is believed to be accurate and reliable. However, no responsibility is assumed by FEMTO Messtechnik GmbH for its use, nor for any infringement of patents or other rights granted by implication or otherwise under any patent rights of FEMTO Messtechnik GmbH. Product names mentioned may also be trademarks used here for identification purposes only.  
 © by FEMTO Messtechnik GmbH  
 Printed in Germany