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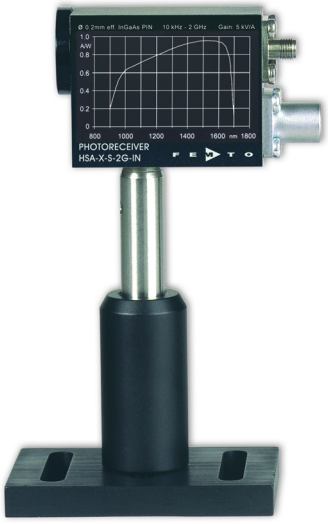
# Datasheet HSA-X-S-2G-IN

## Ultra High Speed Photoreceiver with InGaAs Photodiode




The picture shows the HSA-X-S-2G-IN-FS with free space input.
The photoreceiver will be delivered without post holder and post.

### Features

- **Bandwidth 10 kHz ... 2 GHz**
- **InGaAs Detector, ∅ 0.2 mm Effective Active Diameter**
- **Spectral Range 900 ... 1700 nm**
- **Amplifier Transimpedance (Gain) 5 x $10^3$ V/A**
- **Max. Conversion Gain 4.8 x $10^3$ V/W @ 1550 nm**

### Applications

- **Spectroscopy**
- **Ultra Fast Pulse and Transient Measurements**
- **Optical Triggering**
- **Optical Front-End for Oscilloscopes and Ultra Fast A/D Converters**

### Specifications

*Test Conditions* — *Vs = + 15 V, Ta = 25°C, System Impedance = 50 Ω*

| | | | |
|---|---|---|---|
| Gain | Amplifier Transimpedance | 5 x $10^3$ V/A | (@ 50 Ω load) |
| | Conversion Gain | 4.8 x $10^3$ V/W | (@ 1550 nm) |
| Frequency Response | Lower Cut-Off Frequency | 10 kHz | |
| | Upper Cut-Off Frequency (- 3 dB) | 2 GHz | (± 10 %) |
| | Rise/Fall Time (10% - 90%) | 180 ps | |
| | Gain Flatness | ± 1 dB | |
| Input / Detector | Detector Material | InGaAs photodiode | |
| | Active Area | effective ∅ 0.2 mm (actual ∅ 0.1 mm plus ball lens) | |
| | Spectral Range | 900 ... 1700 nm | |
| | Max. Optical Peak Input Power | 240 µW | (for linear amplification, @ 1550 nm) |
| Noise | Min. NEP | 14 pW/√Hz | (@ 1550 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 InGaAs Photodiode

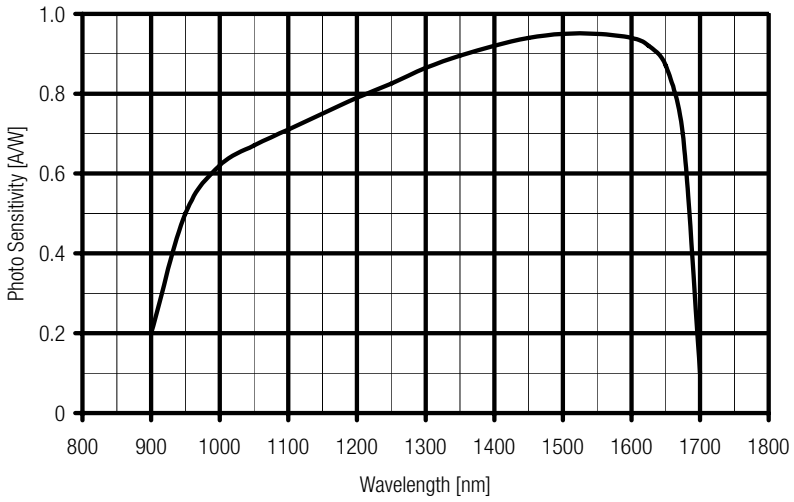
## Specifications (continued)

| | | |
|---|---|---|
| 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

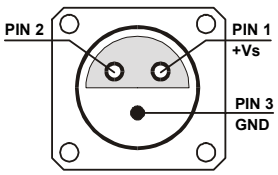
| | |
|---|---|
| Power Supply Voltage | ± 22 V |
| Optical Input Power | 10 mW (averaged) |

## Spectral Response




## Connectors

| | | |
|---|---|---|
| Input | HSA-X-S-2G-IN-FS | 25 mm round flange for free space applications |
| | HSA-X-S-2G-IN-FC | FC fiber optic receptacle |
| Output | SMA | |
| Power Supply | LEMO series 1S, 3-pin fixed socket<br>Pin 1: + 15V<br>Pin 2: n.c.<br>Pin 3: GND | |



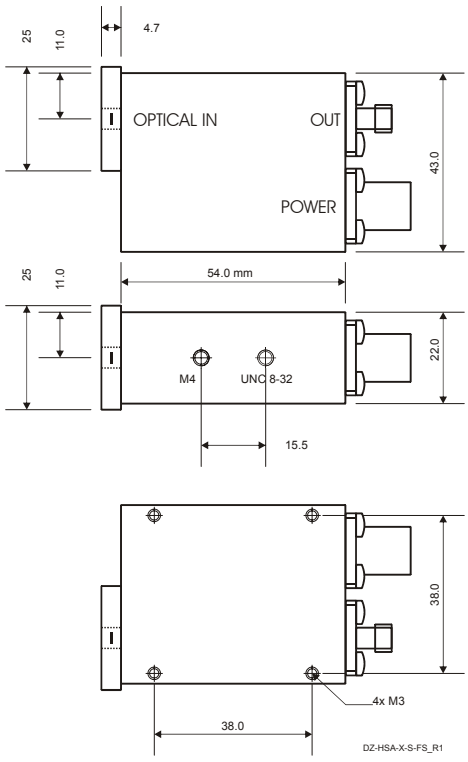

## Available Models

| | |
|---|---|
| HSA-X-S-2G-IN-FS | free space input |
| HSA-X-S-2G-IN-FC | FC fiber optic receptacle |
| HSA-X-S | customized versions available on request |

# Ultra High Speed Photoreceiver with InGaAs Photodiode

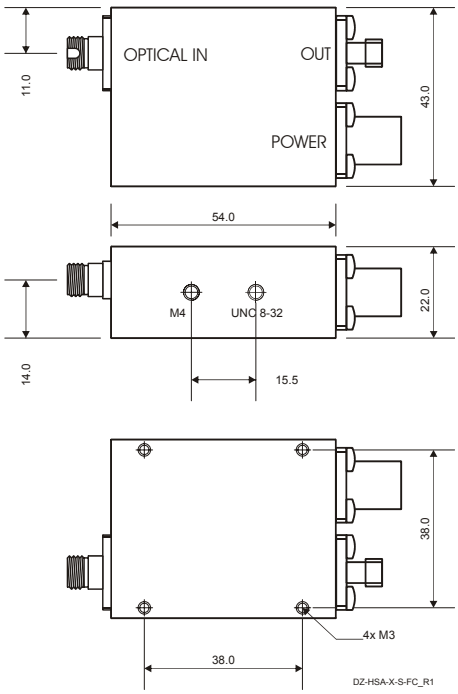
Dimensions

HSA-X-S-2G-IN-FS




all measures in mm unless otherwise noted

HSA-X-S-2G-IN-FC




all measures in mm unless otherwise noted

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