

Linear power sensor PS 112

General Description

PS 112 is a general-purpose linear coaxial microwave power sensor based on temperature-compensated Zero-bias Schottky diode detector. With its min. time constant of 10 ms and max. throughput of approximately 65 measurement/s, the detector delivers DC voltage proportional to mean input power for various input signal waveforms.

The linearization circuits use a nominal correction curve for linearization and temperature compensation of the internal detector transfer characteristic. Precision calibration of individual units can be ordered separately.

Although optimized for 915 and 2450 MHz industrial applications, the sensor can be used in the range 10 MHz ÷ 3 GHz.

Output voltages in 0 ÷ 10 V range are proportional to measured powers in the range 0 ÷ 10 mW. Si-

multaneously, 0 ÷ 20 mA current output is provided for typical load resistance 50 Ω.

As an alternative, digital output via serial RS232 port is available, simply controlled and monitored with e.g. Microsoft Windows HyperTerminal.

Digital CAN output will also be available.



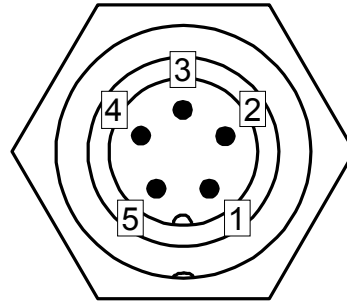
The device is delivered including a 3 m long connectorized output cable.

Specifications

| | |
|-----------------------------------|---|
| Input impedance | 50 Ω |
| Frequency range | 10 MHz ÷ 3 GHz |
| Sensitivity (voltage output) | 10 V ±5% / 10 mW @ f=2450 MHz |
| Sensitivity (current output) | 20 mA ±5% / 10 mW @ f=2450 MHz |
| Linearity | ±0.5 dB deviation from the best fit straight line |
| Max current output load impedance | 200 Ω |
| Polarity | Positive (optionally negative) |
| VSWR max | 1.6 |
| VSWR typ | 1.2 |
| Time constant | 10 ms ÷ 10 s |
| Max throughput | 65 measurements/s |
| Max input working power | 10 mW |
| Input power damage limit | 500 mW |
| Output offset (voltage output) | ±4 mV max |
| Supply voltage | 24 V ± 10% |
| Current consumption | 100 mA max |
| RF connector | N-male |
| DC connector | Triad™ 01 (trademark of Thomas & Betts) |
| Operating temperature | -10 ^o C ÷ 50 ^o C |
| Mass | 120 g |
| Dimensions in mm (L x W x H) | 106.2 x 31.5 x 20.2 |

Pin Assignment

| Pin | Signal |
|-----|---------------------------|
| 1 | Positive supply (+24 V) |
| 2 | DC voltage output |
| 3 | DC current output |
| 4 | GND (signal ground, mass) |
| 5 | Negative supply (0 V) |

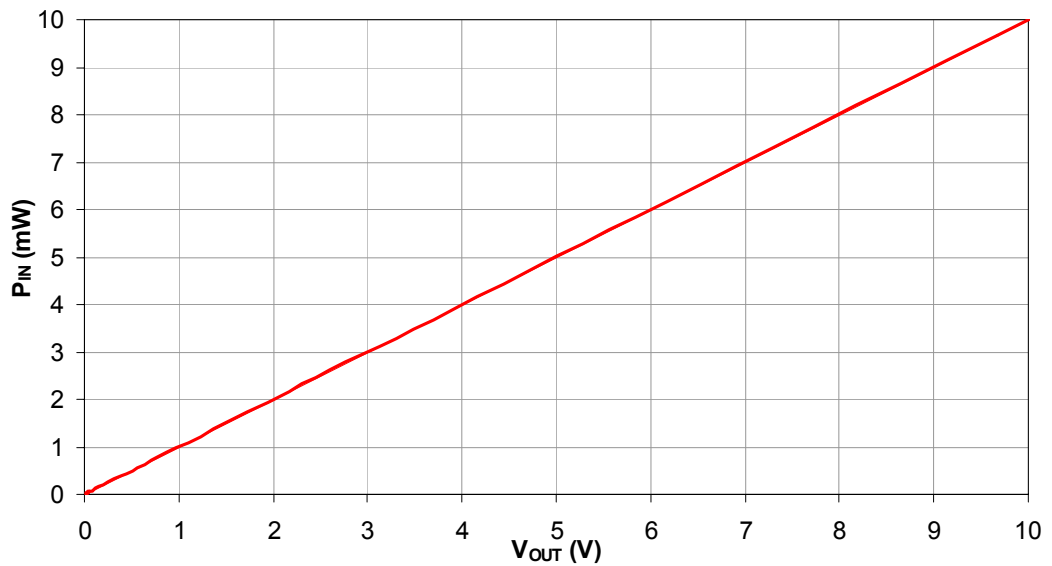


Pin Assignment (Digital Output Option)

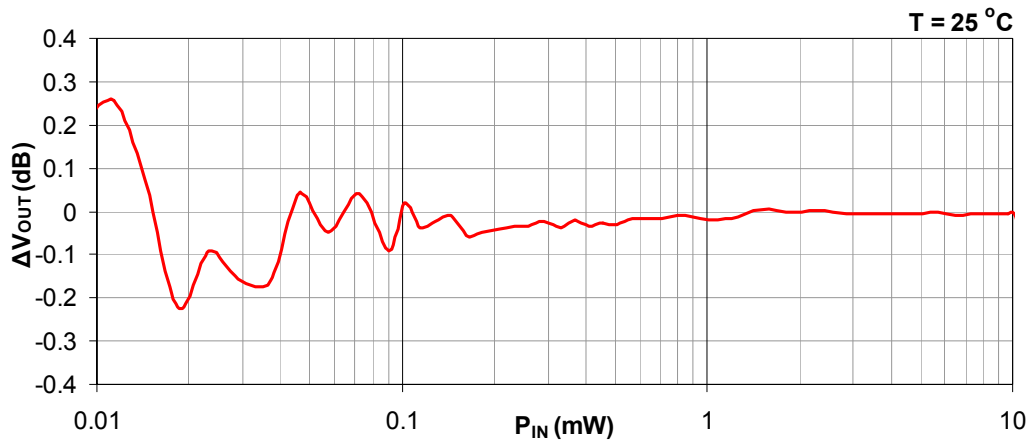
| Pin | Signal |
|-----|---------------------------|
| 1 | Positive supply (+24 V) |
| 2 | TX (RS232) or CAN H (CAN) |
| 3 | RX (RS232) or CAN L (CAN) |
| 4 | GND (signal ground, mass) |
| 5 | Negative supply (0 V) |

Note: Negative supply voltage input (pin 5) is isolated from signal ground GND.

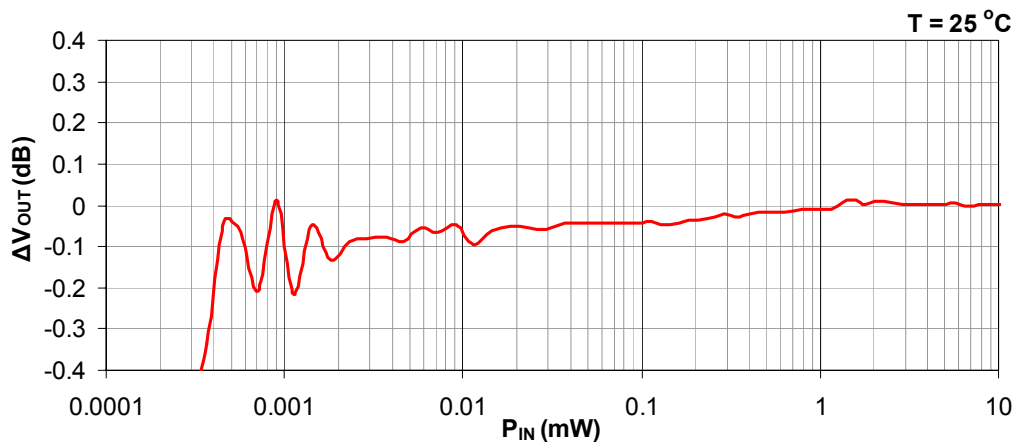
Nominal Transfer Characteristic (voltage output)



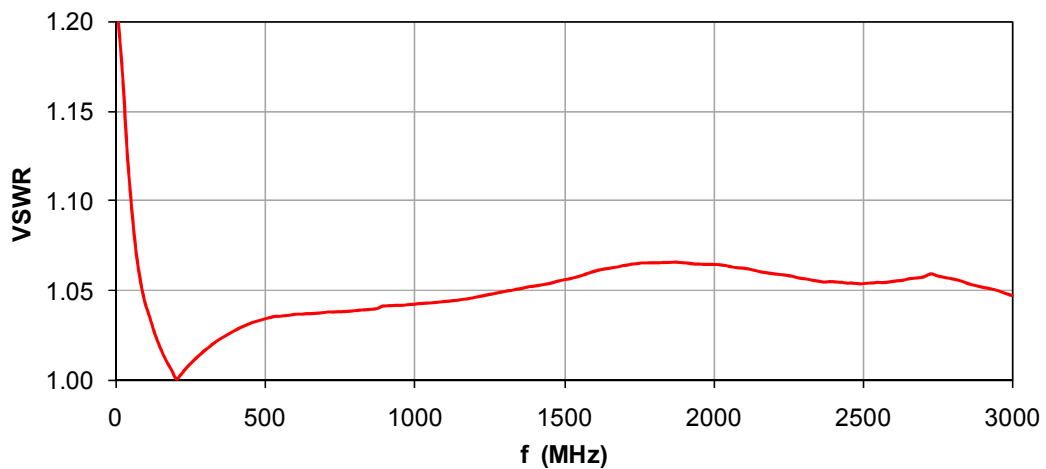
Typical Linearity Error (0 ÷ 10 V voltage output)



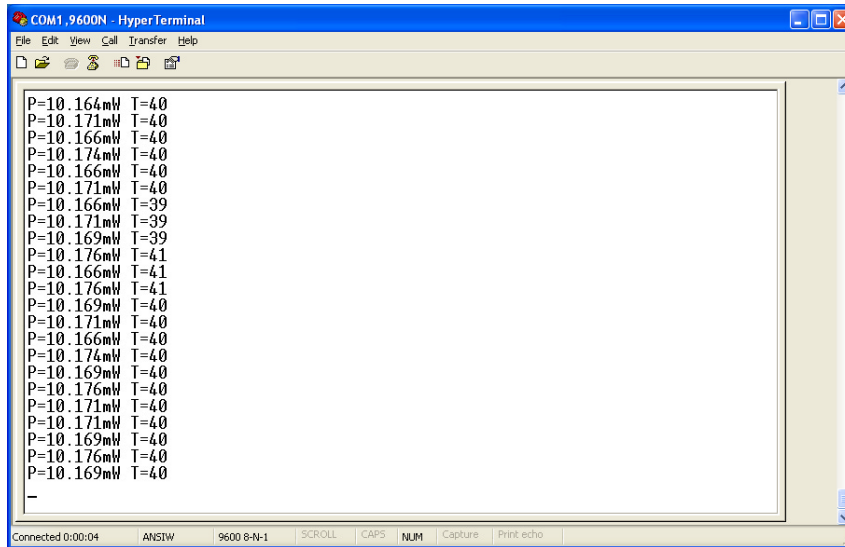
Typical Linearity Error (RS232 Output)



Typical Input Voltage Standing Wave Ratio



Example of HyperTerminal-Received Digital Output



Dimensional Drawing (all dimensions in millimeters)

