

MWSD6 6GHz Microwave Sensor

Power meters used with diode power sensors are a good choice for measuring RF power in many applications. The MWSD6 is a diode sensor designed for the DPM1A digital RF power meter.

Today's power meters provide accurate RF power results, typically in the range of ± 0.5 dB. Such accuracy is possible because the meters and sensors are characterized and correction factors are applied to remove any non-linearities that may arise during conversion from RF power to DC voltage.



Key Features

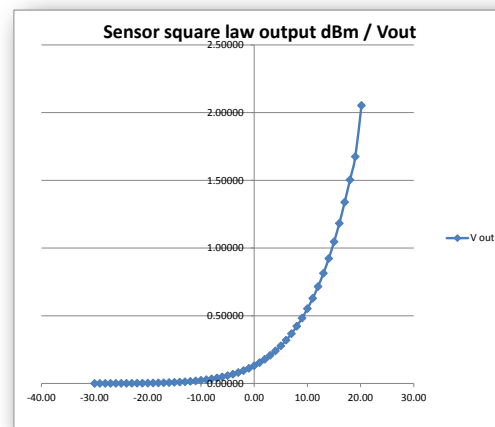
- ✦ Excellent 6 GHz BW to cost ratio
- ✦ Superior linearity
- ✦ Meets most Ham radio requirements
- ✦ 50 dBm dynamic range
- ✦ Microwave construction
- ✦ Outstanding accuracy
- ✦ Measure microwave power

Power sensors convert high frequency power to a DC or low frequency signal that can be measured and related to an RF or microwave power level through calibration. Different types of sensor technology are in use today: heat-based sensors such as thermistors and thermocouple sensors and diode-detector-based sensors.

Square Law Diode Sensor

Diode-based sensors do not measure the heat content of a signal, but instead rectify the signal, converting high frequency energy to DC by means of the diode's non-linear current-voltage characteristics.

As seen in the plot of the MWSD6 sensor below, in the square law region, the diode's detected output



voltage is proportional to the input power, and power can be measured directly. The square law region extends from approximately -60 dBm to -10 dBm, giving a dynamic range of 50 dB. Above -10 dBm, the square law no longer applies and correction factors must be applied to ensure accurate power measurements.



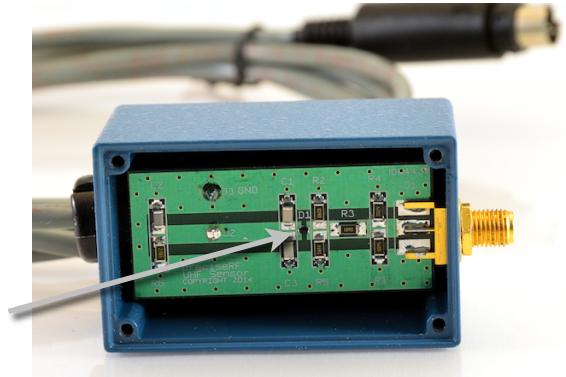
Precision Ham Radio Measurements

DATA SHEET

MWSD6 MICROWAVE SENSOR®

Microwave Design

The MWSD6 sensor employs a 50 ohm strip line microwave design. The detector is a Schottky diode selected for exceptional low reverse recovery time, very low series inductance and low stray capacitance. This configuration allows detection at microwave frequencies. Such a diode is physically very small as seen in the close-up at right. As the demand and manufacturing volume is limited, each MWSD6 sensor must be hand assembled and soldered under a microscope using SMD manufacturing processes and manually tested.



Specifications:

Item	Specification
Maximum input power	100 mw
Sensor power range	-20 dBm to + 20 dBm
Enhanced power range DPM1A digital RF power meter option	-30 dBm to + 20 dBm
Bandwidth	2 MHz - 6 GHz
Uncertainty at 15-35 deg. C	+/- 0.5 dB
Port	SMA

All products are calibrated and tested to meet or exceed published specifications. The optional NIST calibration certificate is provided for users needing a calibration reference showing the actual performance achieved. This calibration is done using NIST traceable instruments. Some test and measurement equipment was calibrated at the PreciseRF laboratory using NIST traceable instruments. The item calibrated may be used as a calibration reference only, and shall not be used as a NIST calibration standard. This certificate shall not be reproduced without the express written permission from the calibration facility.

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