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DC – 2.5 GHz 50 dB TruPwr™ Detector

Preliminary Technical Data **AD8362**

FEATURES

- **True RMS-to-DC Conversion**
- **Input Dynamic Range >50 dB**
  - **-60 to –10 dBm in 50 ohms**
- **Flat Response from DC to 2.5 GHz**
- **Accuracy 1 dB Over Temperature**
- **Modulation Independent (GSM/CDMA/TDMA, etc.)**
- **Temperature-Stable Linear-in-dB Response**
- **Operation from –40 to +85 °C**
- **Operation at 2.7 to 5.5 V**

APPLICATIONS

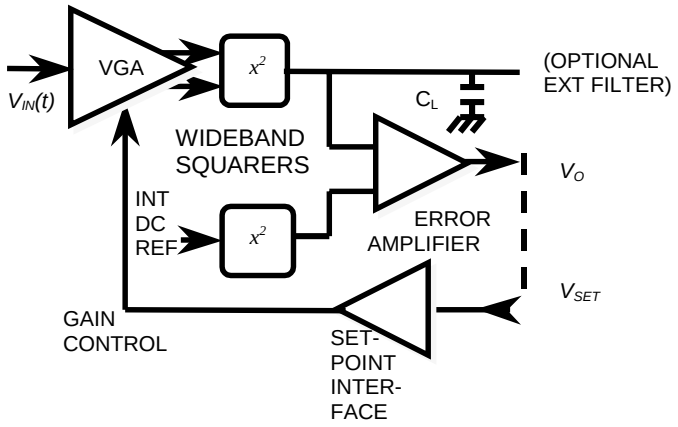
- **Accurate Measurement of RF/IF Power**
  - **(CDMA, WCDMA, GSM, DCS, PCS, EDGE, etc.)**
- **Power Amplifier Linearization/Control Loops**
- **Transmitter Power Control**
- **Transmitter Signal Strength Indication (TSSI)**
- **RF Instrumentation**

PRODUCT DESCRIPTION

The AD8362 is a complete low-power RMS-responding RF detector (RMS to DC converter) for use in high frequency (up to 2.5 GHz) receiver and transmitter signal chains. It is very easy to apply, requiring a single supply between 2.7 and 5.5 V, decoupling and DC block input coupling capacitors for most applications. The averaging filter time constant may be increased through the addition of an optional external capacitor to extend the lower frequency operation limit to arbitrarily low frequency.

The input signal is applied to a variable gain amplifier (VGA) operating as a linear-in-dB AGC amplifier, the gain of which is controlled by a true RMS detector in its feedback loop. The true RMS detector is comprised of two identical wideband differential squaring cells, an error amplifier, an internal filter capacitor and a set point interface amplifier. The constant voltage output of the VGA is applied to one of the squaring cells. An accurate, internal DC reference voltage is applied to the other squaring cell. The outputs of the squaring cells are connected to an error amplifier, which, when its feedback loop is externally completed (by connecting VOUT to VSET), adjusts the gain of the VGA to force the difference between its two input signals to zero. Thus, the output voltage of the error amplifier follows the input RMS voltage to the VGA in a linear-in-dB manner.

The AD8362 is available in a 14-pin TSSOP package and consumes 30 mA from a 2.7 V to 5.5 V supply.



REV. 0

Preliminary Rev. 0 12/12/00

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