模块参数		
参数名称	参数值	备注
模块型号	AD8362	
模块类型	射频对数检波	
模块供电电压	DC5V	
模块供电电流	25mA	
输入信号形式	单端	
输入电压范围	-55dBm--+15dBm	
输入频率范围	50Hz-3.8GHz	由于仪器限制，3G以上参数未测定;信号输入默认配置500MHz-3GHz巴伦耦合，测量低频需要去掉巴伦修改电路。
输入阻抗	50欧	
输出电压范围	0.35V-4V	以实测值为准，不同模块之间有差异
输入信号特点	输入耦合	可为连续正弦波或者脉冲，脉冲测量需要修改电路，模块默认为连续均值检波
输出电流	10mA（max）	输出为电压信号，一般不带电流。
模块动态范围	优于65dB	
模块重量	10g	
模块保护	无	无反接保护，无限流保护
模块重量	10g	
模块规格	50*27*13mm	长*宽*高-PCB尺寸
模块屏蔽	无屏蔽盖	
模块发热因素		供电电压过大损坏芯片或者模块有损坏
模块工作温度	-40℃--+85℃	工业级
模块特点		模块供电电源LED指示、巴伦匹配、电压跟随输出
应用范围		发射机功率控制，功率放大器线性化/控制回路等
模块接口类型		SMA信号输入输出，3.81-2PIN电源座

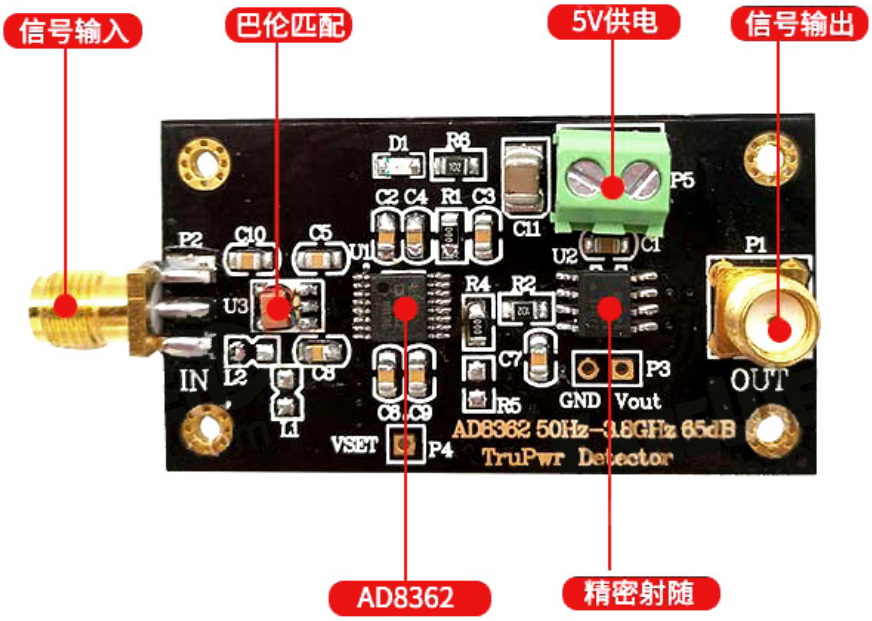
3 模块描述

AD8362是一款真均方根响应功率检波器，测量范围为65dB,主要用于各种高频通信系统和要求对信号功率精确响应的仪器仪表。可对波动输出进行滤波，并将其与一个相同平方器的输出进行比较，平方器的输入为施加于VTGT引脚的固定直流电压，通常为VREF引脚上提供的1.25 V精确基准电压。

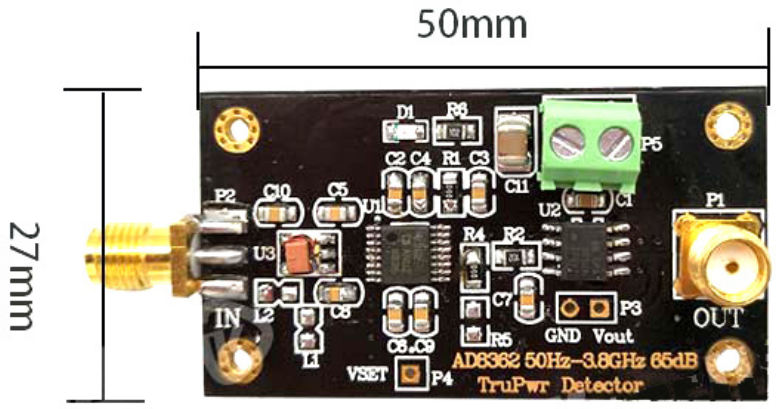
当用作功率测量器件时，VOUT与VSET搭接。这样，输出与输入的均方根值的对数成比例关系。换言之将直接以dB显示读数，并可方便地按每10倍1V或50mV/dB的比例调整，其它斜率也很容易实现。

在PWDN引脚上施加逻辑高电平时，AD8362进入省电模式，功耗为1.3mW。在25°C时，它可以在大约20μs内上电至标称工作电流20mA。

4 模块接口图


信号输入
巴伦匹配
5V供电
信号输出
D1
R6
C2 C4 R1 C3
C11
P5
P2
C10
C5
U1
U2
C1
P1
U3
R4
R2
C7
P3
IN
L2
C8
L1
C6 C9
R5
GND Vout
OUT
VSET
P4
AD8362 50Hz-3.8GHz 65dB
TruPwr Detector
AD8362
精密射随

5 模块尺寸图



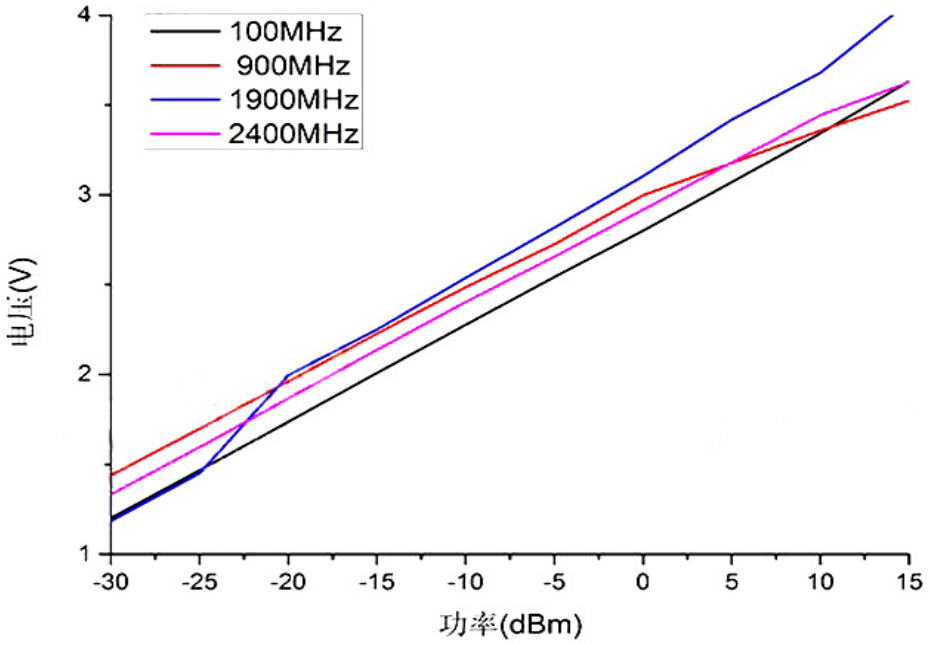
6 模块使用注意事项

（1）检波器模块最大输入功率为+15dBm。检波器动态范围70dB，线性输出。

（2）模块无反接、无限流保护，使用模块时一定要注意不要反接，否则容易损坏芯片或模块。

（3）检波器模块在不同频率下的响应和动态范围会差别，不同的模块之间也有差异，属于正常现象，并非模块问题

7 模块测试图



AD8362 带宽50Hz-3800Hz 动态范围65dB

频率(MHz) / 电压(V) / 功率(dBm)	100	900	1900	2400
15	3.6310	3.5240	4.0750	3.6270
10	3.3410	3.3570	3.6790	3.4430
5	3.0710	3.1770	3.4170	3.1790
0	2.8010	2.9980	3.1040	2.9160
-5	2.5430	2.7250	2.8180	2.6550
-10	2.2760	2.4860	2.5380	2.4020
-15	2.0080	2.2270	2.2500	2.1370
-20	1.7360	1.9613	1.9970	1.8668
-25	1.4673	1.6985	1.4507	1.5950
-30	1.2012	1.4389	1.1847	1.3324
-35	0.9506	1.1765	0.9183	1.0802
-40	0.6850	1.9318	0.6085	0.8204
-45	0.4657	0.6444	0.4378	0.5529
-50	0.4015	0.4266	0.3988	0.3326
-55	0.3409	0.4730	0.3558	0.3756
-60	0.3451	0.3770		0.3971

8 常见问题解答

Q:测量脉冲功率是无反应？输出是一条直线。

A:模块默认功能为功率检波，不能检测脉冲或者瞬时功率大小，需要将C9电容换为小电容值才能检测脉冲和瞬时功率，一般对瞬时要求越高，那么C9电容就要够小。

Q:买了3个模块，同一检测条件输出电压有差异，是正常现象么？

A:模块之间存在个体差异，详情实测图为典型数据，具体参数以实测为准。

Q:为什么低频信号输入无反应?

A:模块默认输入信号大于500MHz,若需要低频信号则将巴伦去掉用L1、L2做匹配，R2、C7可以组成低通滤波器。

9

芯片简介

ANALOG DEVICES

50 Hz to 3.8 GHz 65 dB TruPwr™ Detector

AD8362

FEATURES

- Complete, fully calibrated measurement/control system
- Accurate rms-to-dc conversion from 50 Hz to 3.8 GHz
- Input dynamic range of >65 dB: −52 dBm to +8 dBm in 50 Ω
- Waveform and modulation independent, such as GSM/CDMA/TDMA
- Linear-in-decibels output, scaled 50 mV/dB
- Law conformance error of 0.5 dB
- All functions temperature and supply stable
- Operates from 4.5 V to 5.5 V at 24 mA
- Power-down capability to 1.3 mW

APPLICATIONS

- Power amplifier linearization/control loops
- Transmitter power controls
- Transmitter signal strength indication (TSSI)
- Radio frequency (RF) instrumentation

GENERAL DESCRIPTION

The AD8362 is a true rms-responding power detector that has a 65 dB measurement range. It is intended for use in a variety of high frequency communication systems and in instrumentation requiring an accurate response to signal power. It is easy to use, requiring only a single supply of 5 V and a few capacitors. It operates from arbitrarily low frequencies to over 3.8 GHz and accepts inputs from −52 dBm to +8 dBm with crest factors that are typical of quadrature amplitude modulation (QAM) and orthogonal frequency division multiplexing (OFDM) modulation schemes.

The AD8362 has a 1.3 mW power consumption when powered down by a logic high applied to the PWDN pin. It powers up within about 20 µs to its nominal operating current of 20 mA at 25°C. The AD8362 is supplied in a 16-lead TSSOP for operation over the temperature range of −40°C to +85°C.

FUNCTIONAL BLOCK DIAGRAM

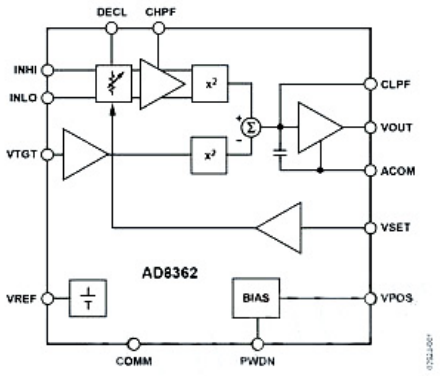


Figure 1.

Table 1. Next Generation Upgrades for the AD8362

Device No.	Product Description
ADL5902	Improved temperature stability, single-ended input drive.
HMC1120	Improved sensitivity and range, includes envelope tracking and peak-hold function, single-ended input drive.
ADL5906	Improved temperature stability, single-ended input drive. Slightly lower input range.
AD8363	Improved temperature stability, single-ended input drive. Lower input range.
ADL5903	Lower range, significantly lower power consumption, single-ended input drive.
ADL5501	Lower range, significantly lower power consumption, linear in V/V output, single-ended input drive.

Rev. F
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