

GaAs Monolithic microwave envelope detector  
1~40GHz

**key indicator**

Frequency range: 1~40GHz

Dynamic range: 30dB

BCB protection

Chip size: 1.25mm×1.25 mm×0.1mm

**typical application**

Radar and electronic countermeasures RF/

Microwave Circuit

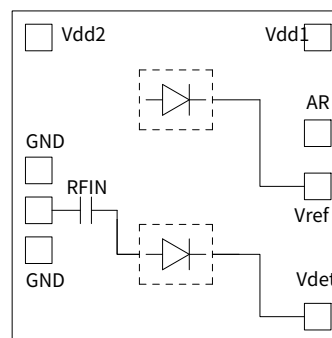
Test measurement Instrumentation

**Product Introduction**

AY9667 is a GaAs MMIC envelope detector chip that integrates internal matching detector diode (Vdet) and differential mode reference voltage (Vref).

The chip has a wide range of applications, accurate transmission power control System and typical commercial communication systems.

The chip uses an on-chip metallization process to ensure good grounding, The back of the chip is metallized, which is suitable for eutectic sintering or conducting Electric glue bonding process.

**Functional block diagram****Electrical performance (T<sub>A</sub>=25°C,V<sub>D</sub>=+5V,Z<sub>0</sub>=50Ω)**

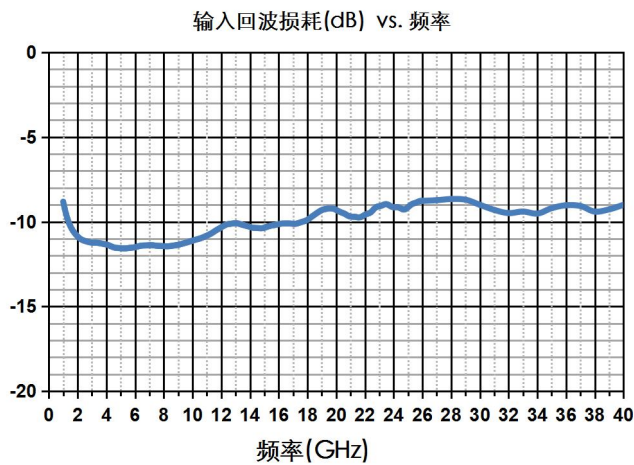
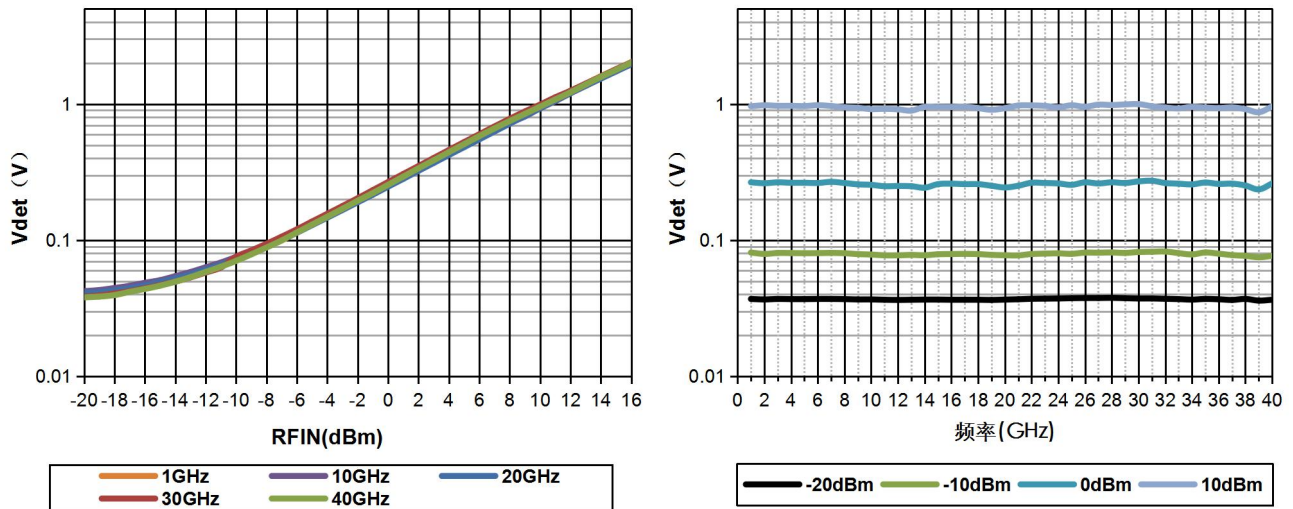
parameter name	Parameter value			unit
	MIN	TYP	MAX	
Frequency Range	1	—	40	GHz
flatness	—	1	—	dB
Dynamic Range	—	30	—	dB
Input return loss	—	-10	—	dB
Rising edge	—	50	—	ns
Falling edge	—	300	—	ns
Current	—	2	—	mA

**Absolute maximum rating**

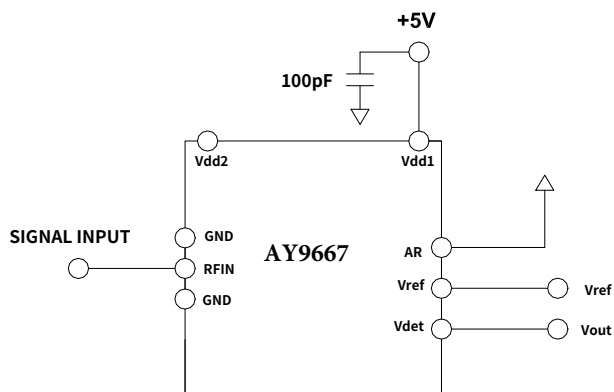
Maximum input RF power	+ 18dBm	Operating temperature	-55°C~+85°C
Voltage	+ 6V	Storage temperature	-65°C~+150°C

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## Application 1 Typical test curve (1~40GHz detector)



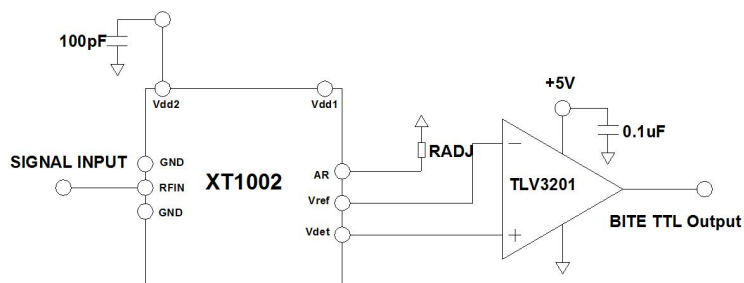
## Application 1 (1~40GHz detector)



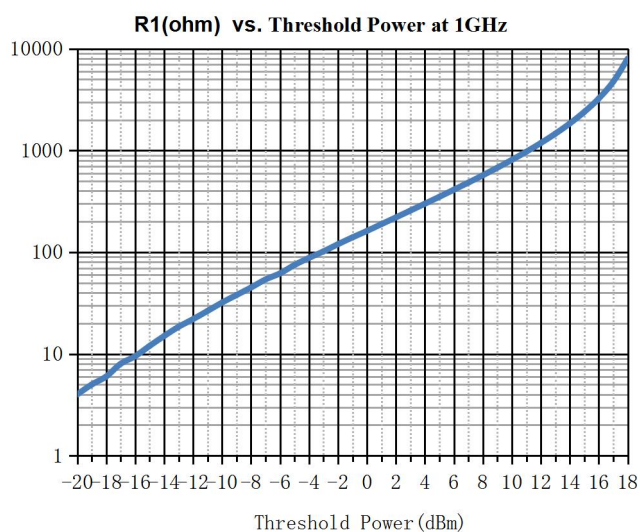
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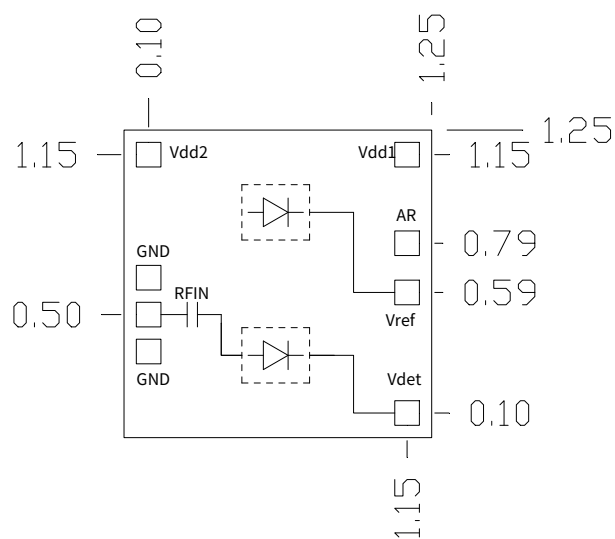
## Application 2 (1~40GHz BITE)



This circuit is used for system self-checking. The resistance R1 sets the threshold power. When the input signal is higher than the threshold power, the comparator outputs TTL high level. R1 setting range: 510Ω~5.1KΩ.



## Dimensions (mm)



Chip thickness: 100μm

Chip size: 1.25×1.25×0.1mm±35μm

Pad: 100/100μm



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## Precautions

1. The chip is stored in a dry, nitrogen environment and used in an ultra-clean environment;
2. GaAs material is brittle and cannot touch the surface of the chip, so you must be careful when using it;
3. Chips are sintered with conductive glue or alloy (the alloy temperature cannot exceed 300°C, and the time cannot exceed 30 seconds) to make it fully grounded;
4. The gap between the chip's microwave port and the substrate should not exceed 0.05mm. Use  $\Phi 25\mu\text{m}$  double gold wire for bonding. The recommended length of gold wire is 250~400 $\mu\text{m}$ ;
5. The chip is sensitive to static electricity, so pay attention to anti-static during storage and use.