



**GaAs** Monolithic microwave envelope detector  
**2~67GHz**

**key indicator**

Frequency Range:2~67GHz  
Dynamic Range:30dB  
BCB protect  
Chip size:0.85mm×0.85mm×0.1mm

**typical application**

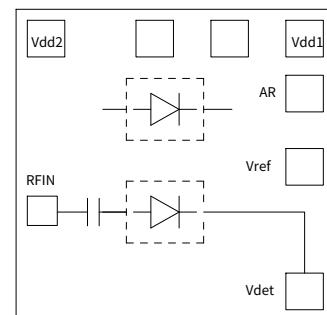
Radar and electronic countermeasures RF/Microwave  
circuit Military and aerospace  
Test measurement Instrumentation

**Product Introduction**

AY9668 is a GaAs MMIC envelope detector chip that integrates internal matching detector diode ( $V_{det}$ ) and differential mode reference voltage ( $V_{ref}$ ).

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

The chip uses an on-chip metallization process to ensure good grounding, and the back of the chip is metallized, which is suitable for eutectic sintering or conductive adhesive bonding processes.

**Functional block diagram****Electricity( $T_A=25^\circ C$ , $V_D=+5V$ , $Z_0=50\Omega$ )**

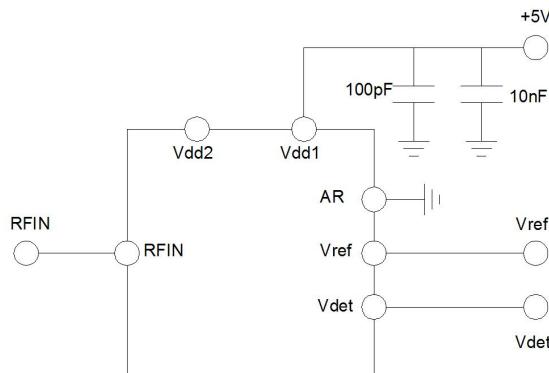
parameter name	Parameter value			unit
	MIN	TYP	MAX	
Frequency Range	2~67			GHz
flatness	—	3	—	dB
Dynamic Range	—	30	—	dB
Input standing wave ratio	—	1.6	—	:1
Rising edge	—	25	—	ns
Falling edge	—	75	—	ns
Current	—	2	—	mA

**Absolute maximum rating**

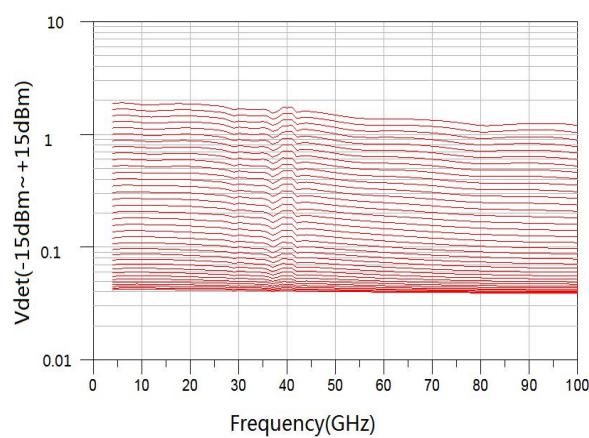
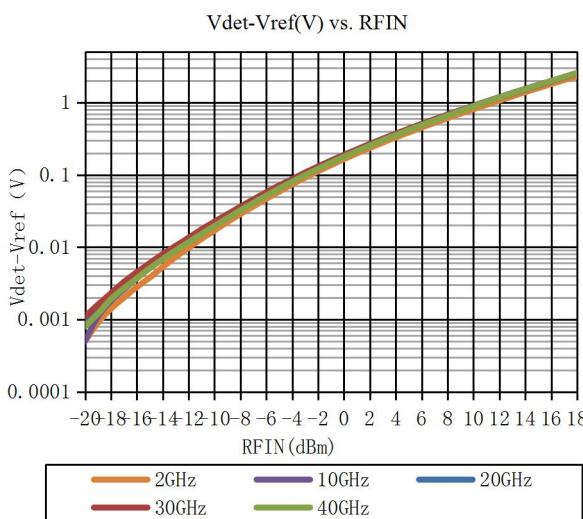
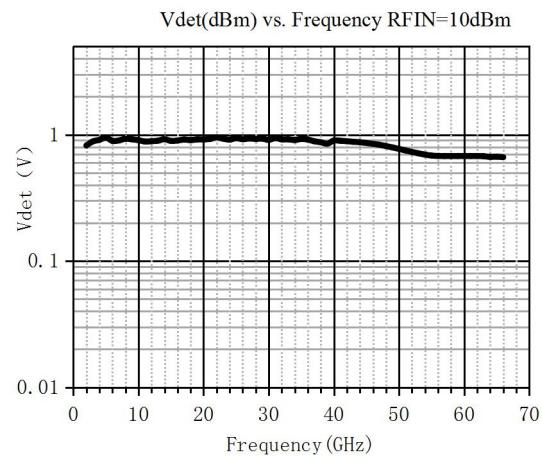
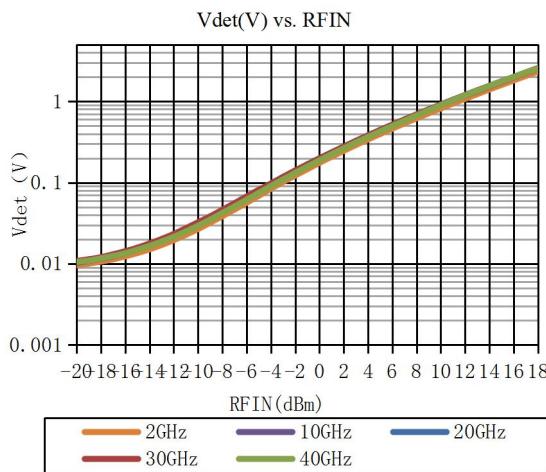
Maximum input RF power	+ 18dBm	Operating temperature	-55°C~+85°C
Voltage	+ 6V	Storage temperature	-65°C~+150°C

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**Application 1 (Detector)**



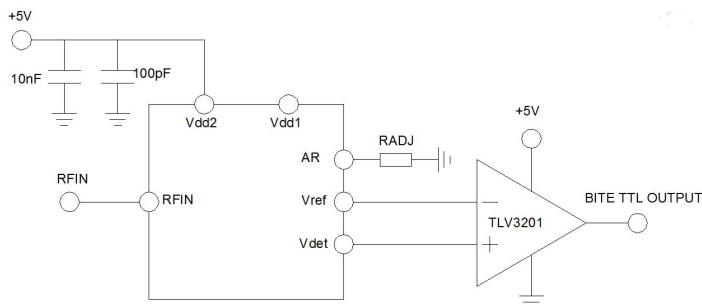
**Application 1 Typical test curve**





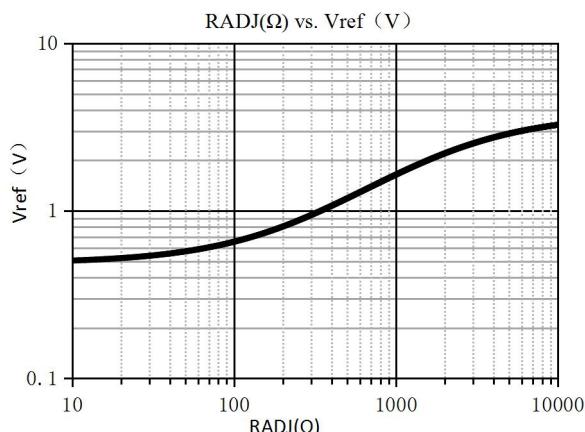
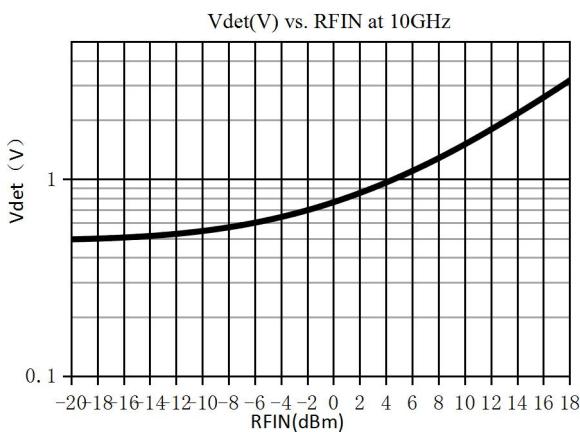
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## Application 2(BITE)

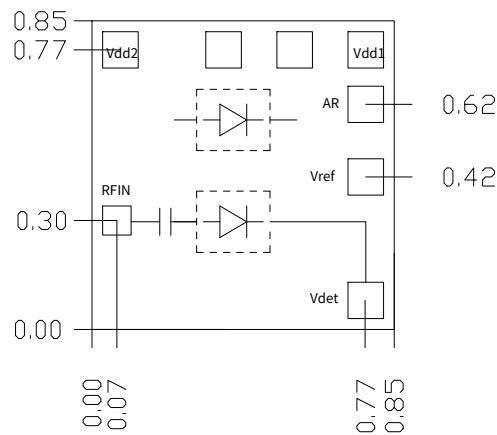


This circuit is used for system self-checking, the resistance RADJ sets the threshold power, when the input signal is higher than the threshold power, the comparator Tlv3201 outputs TTL high level. R1 setting range: 10Ohm~10KOhm.

Application 2 Typical test curve



Dimensions(mm)



Chip thickness:100μm  
 Chip size:0.85×0.85×0.1mm±35μm RFIN  
 Pad: 80/80μm, Other pads: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 microwave port of the chip and the substrate should not exceed 0.05mm. Use Φ25μm double gold wire for bonding. The recommended length of gold wire is 250～400μm;
5. The chip is sensitive to static electricity, so pay attention to anti-static during storage and use.