AY9661G

GaAs Single-chip envelope detector
0.5~27GHz

key indicator

Frequency range: 0.5~27GHz
Dynamic range: 40dB
Chip size: 1.25mm×1.25 mm×0.1mm

typical application

Radar and electronic countermeasures RF/

Microwave Circuit

Test measurement Instrumentation

Product Introduction

AY9661G is a GaAs MMIC envelope detector chip that integrates internal

matching detector diode (Vdet) and differential mode reference voltage (Vref).

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. The chip has a wide range of

applications, accurate Transmission power control and typical commercial

communication systems.

Functional block diagram
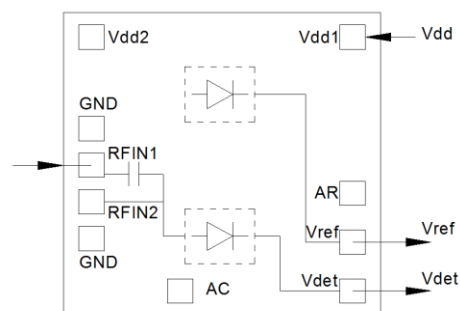

Electrical performance (T_A=25℃,V_D=+5V,Z_0=50Ω)

parameter name	Parameter value			unit
	MIN	TYP	MAX	
Frequency Range	0.5	—	27	GHz
flatness	—	1	—	dB
Dynamic Range	—	40	—	dB
Input return loss	—	-10	—	dB
Rising edge	—	100	—	ns
Falling edge	—	300	—	ns
Current	—	2.5	—	mA

Absolute maximum rating

Maximum input RF power	+ 20dBm	Operating temperature	-55℃～+85℃
Voltage	+ 6V	Storage temperature	-65℃～+150℃

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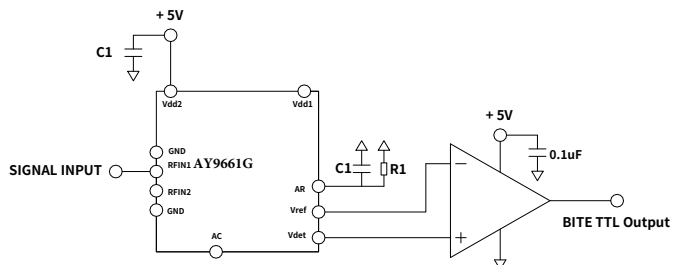**Application 1 (0.5~27GHz   Detector)**
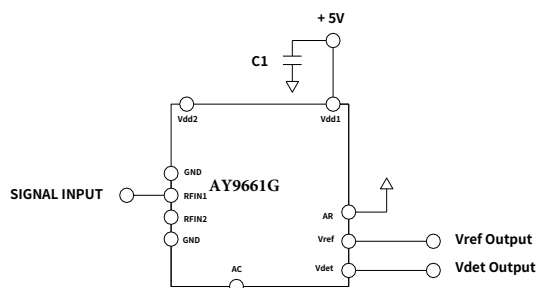
**Application 1 Typical performance test curve (0.5~27GHz Detector)**

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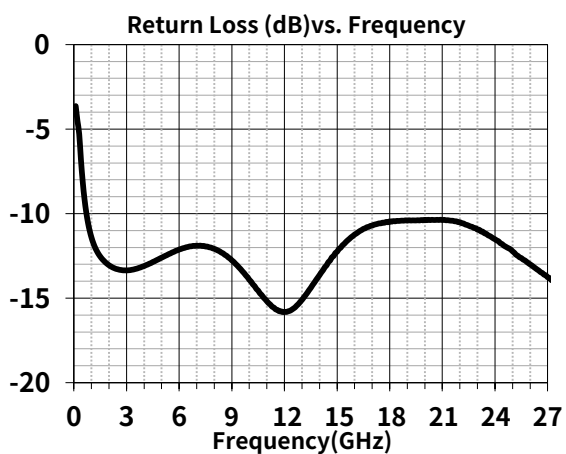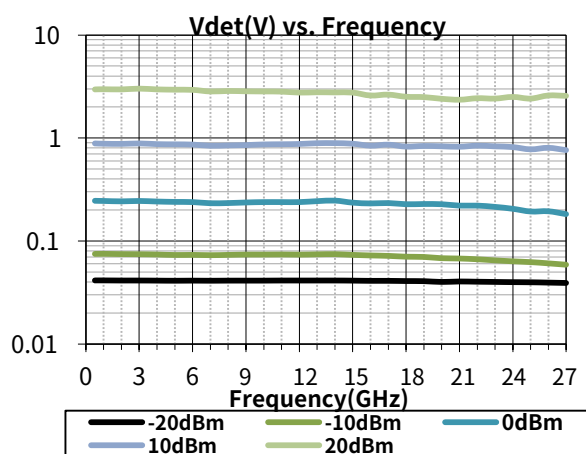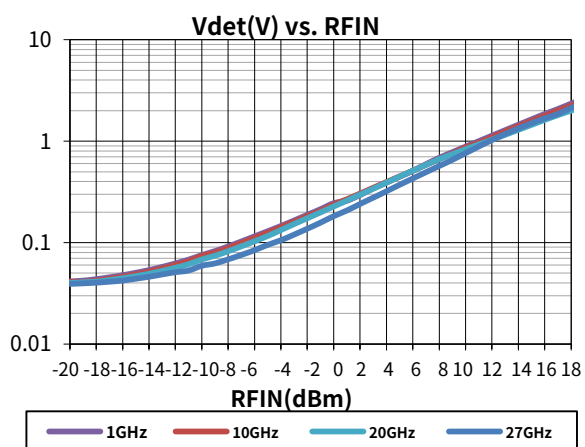
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Application 2 (0.5~27GHz BITE)

This circuit is used for system self-check, resistor R1 sets the gate

Limit power, when the input signal is higher than the threshold power, compare

The output of TTL high level. R1 Setting range: 51Ohm～5.1KOhm.

Application 3 (0.5~27GHz BITE)
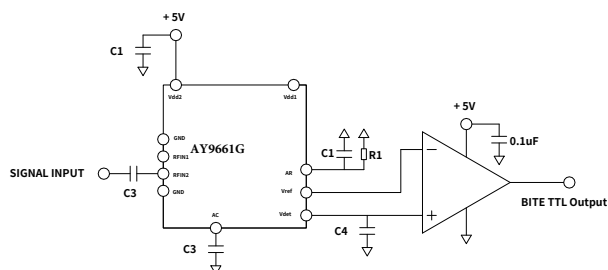
This circuit is used for system self-check, resistor R1 sets the gate

Power, when the input signal is higher than the threshold power, the comparator

Output TTL high level. R1 setting range Circumference: 51Ohm~5.1KOhm.

Component list

serial number	Numerical value	model	manufacturer	size
C1	330pF	116RM331M050TT	ATC	—
C2	10nF	GRM155R71H103KA88D	MURATA	0402
C3	1000pF	116RM102M050TT	ATC	—
C4	200pF	116RM201M050TT	ATC	—
R1	51Ohm~5.1KOhm		MURATA	0603

Dimensions (mm)
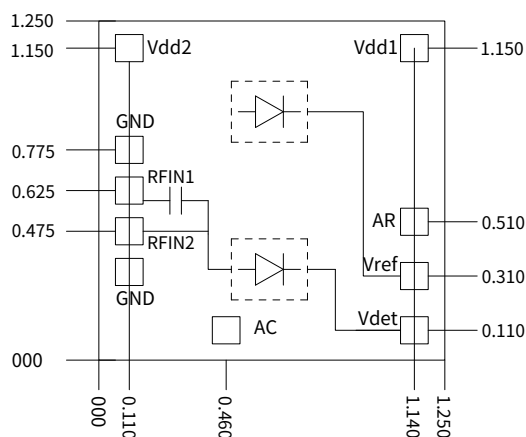
Chip thickness:100μm
Chip size:1.25×1.25×0.1mm±35μm
Pad:100/100μm

3

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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.