

# XT1001

GaAs monolithic microwave  
envelope detector DC~20GHz

Rev 2.4

## key indicator

- Frequency range: DC~20GHz
- Dynamic range: 30dB
- BBCCBB protection
- Chip size: 1.25mm×1.25mm×0.1mm

## typical application

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

## Product Introduction

XT1001 is a GaAs MMIC envelope detector chip, which integrates

The internal matching detector diode (Vdet) and the differential mode reference voltage (Vref) are matched.

The chip has a wide range of applications, accurate transmission power control

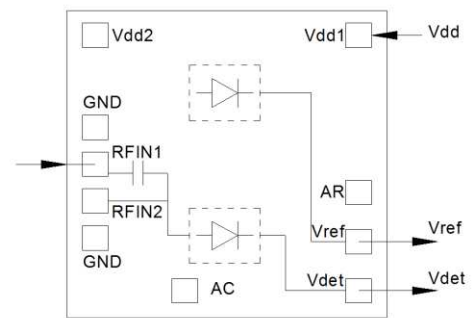
System and typical commercial communication systems.

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



## Electricity ( T=25 °C , V=+5V, Z=50Ω )

parameter name	Parameter value			unit
	MIN	TYPE	MAX	
Frequency Range	DC	-	twenty	GHz
flatness	-	one	-	dB
Dynamic Range	-	thirty	-	dB
Input standing wave ratio	-	1.6	-	one
Rising edge	-	fifty	-	ns
Falling edge	-	300	-	ns
Current	-	2.5	-	mA

## Absolute maximum rating

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







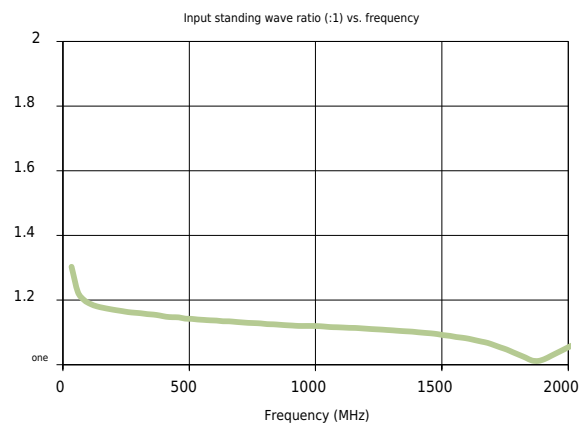
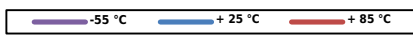
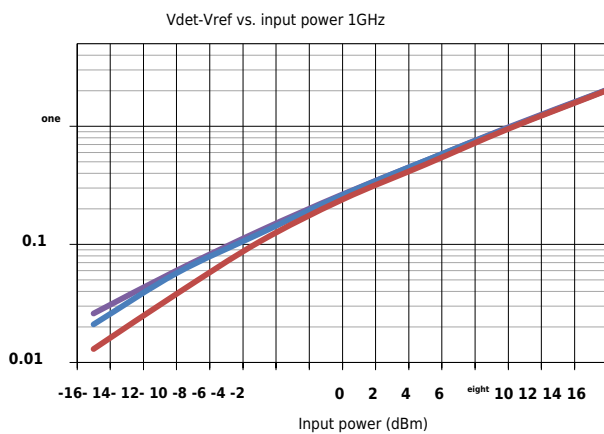
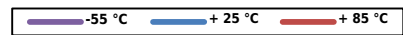
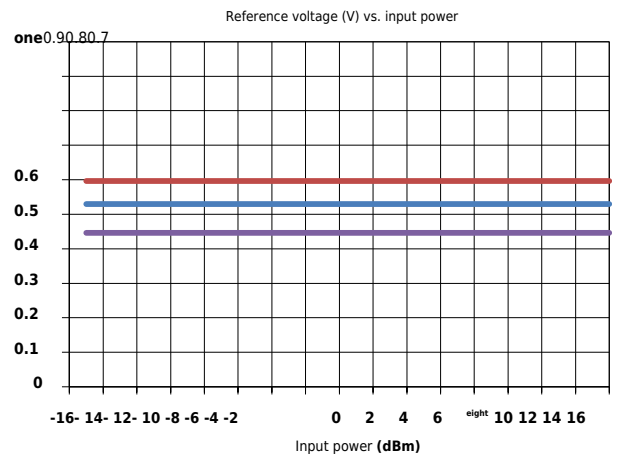
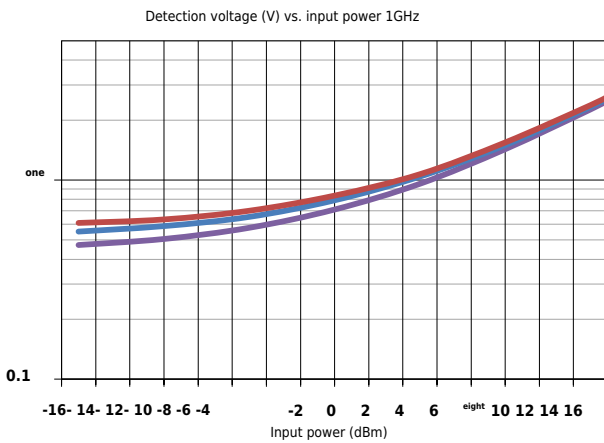
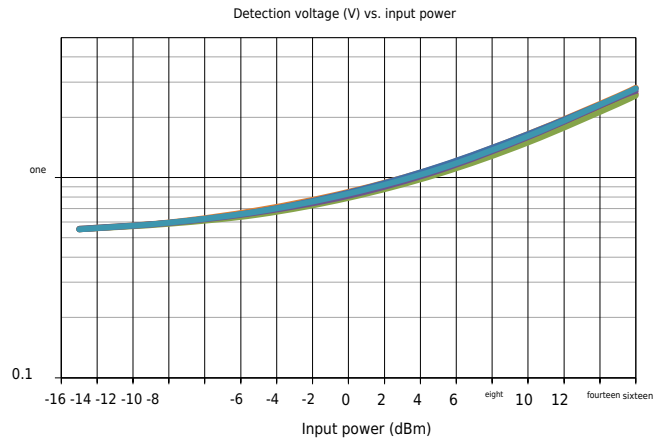
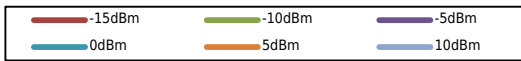
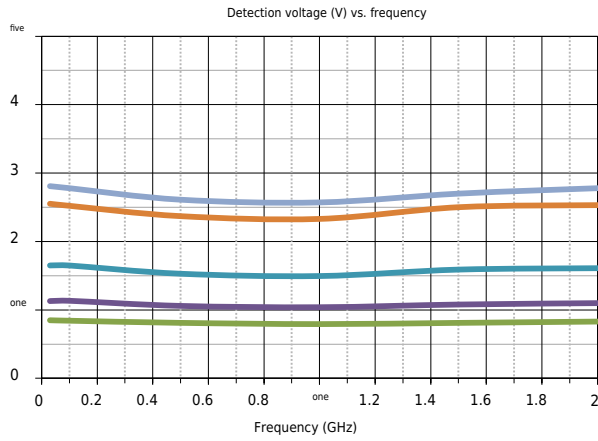
# AY9669

GaAs monolithic microwave envelope detector

DC~20GHz

Rev 2.4

## Application 3 typical test curve (R1=00hm)





GaAs monolithic microwave envelope detector

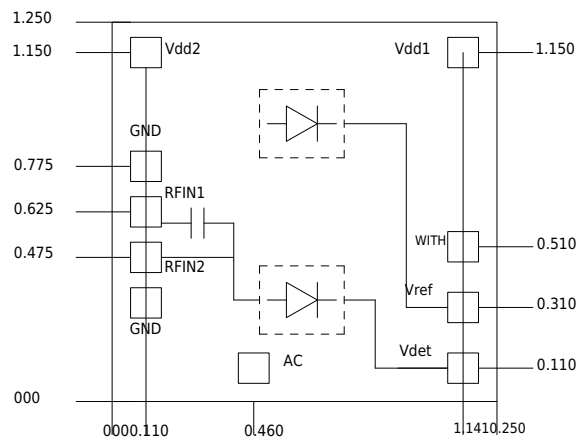
DC~20GHz

Rev 2.4

### Original list

serial number	Numerical value	model	manufacturer	Encapsulation
C1	330pF	116RM331M050TT	ATC	-
C2	10nF	GRM155R71H103KA88D	MURATA	0402
C3	1000pF	116RM102M050TT	ATC	-
C4	200pF	116RM201M050TT	ATC	-
R1	510hm~5.1KOhm		MURATA	0603

### Dimensions (mm)



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

### 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 µm double gold wire for bonding. The recommended length of gold wire is 250~400 µm;
5. The chip is sensitive to static electricity, so pay attention to anti-static during storage and use.