SAC1003A

GaAs MMIC Envelope Detector
0.5~27GHz

Rev 1.0

Features

- Frequency：0.5~27GHz
- Dynamic Range：40dB
- Size：1.25mm×1.25mm×0.1mm

Typical Applications

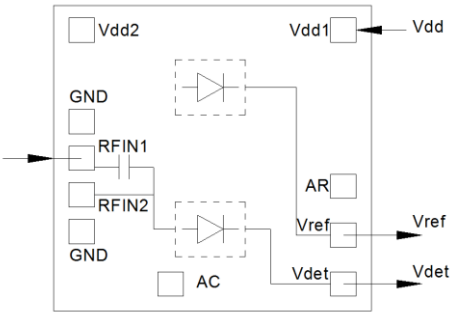
- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

General Description

SAC1003A is a GaAs MMIC Envelope Detector which operates between in 0.5~27GHz.

SAC1003A is used to many industries. And it has accurate TPC and typical commercial communication system.

Functional Diagram



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

Parameter	Min.	Typ.	Max.	Units
Frequency		0.5~27		GHz
Flatness	—	1	—	dB
Dynamic Range	—	40	—	dB
Return Loss	—	-10	—	dB
Rise Time	—	100	—	ns
Fall Time	—	300	—	ns
I_D Vdd=+5V	—	2.5	—	mA

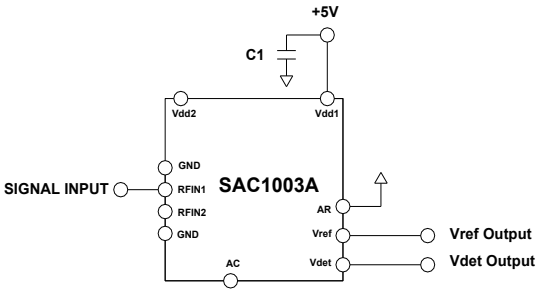
Absolute Maximum Ratings

Maximum Input Power detection	+20dBm	Operating temperature range	-55℃~+85℃
V_D	+6V	Storage temperature range	-65℃~+150℃

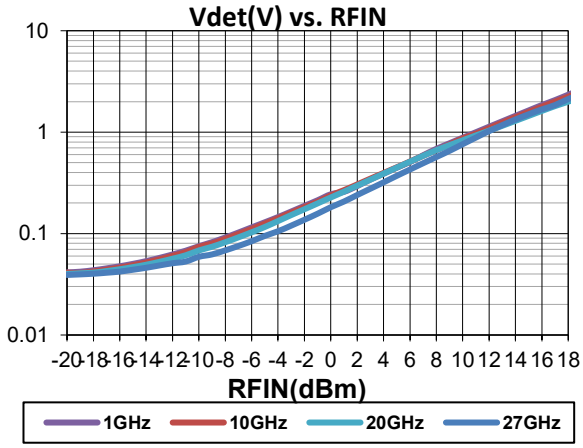
RoHS

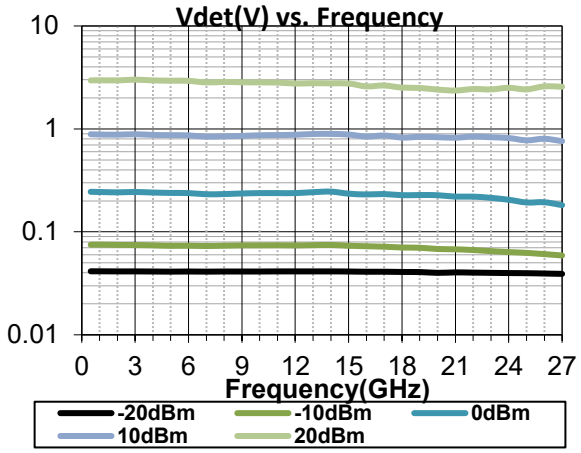
SuperApex, LLC
2801 Lakeside Drive, Suite 208, Bannockburn, IL 60015, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

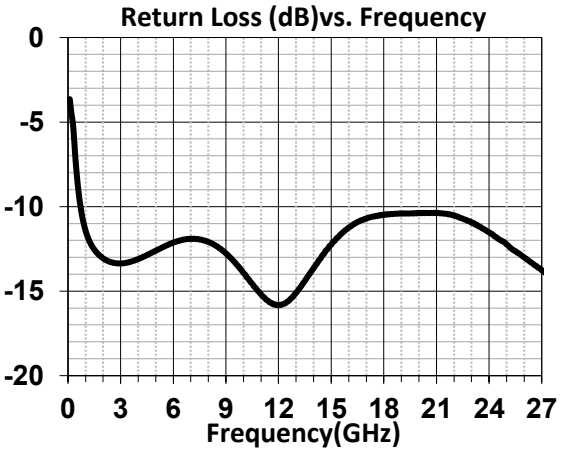
Application 1 (0.5~27GHz Detector)



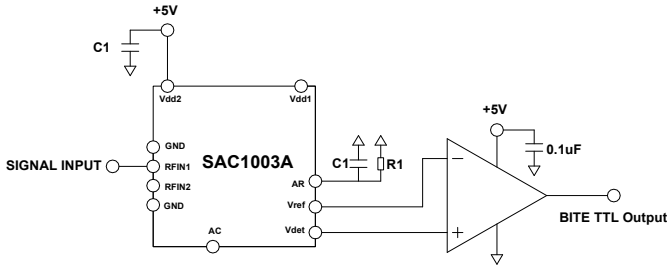
Application 1 Typical Performance Curve





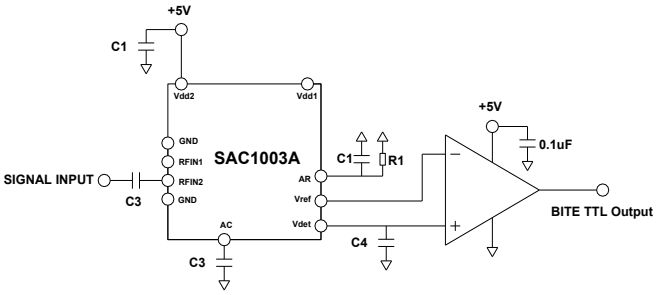


Application 2(0.5~27GHz BITE)



The circuit is used in built-in test equipment. Resistor R1 sets threshold power. When the input signal is higher than threshold power, the comparator generates output TTL high level. R1: 51Ohm~5.1KOhm.

Application 3(0.5~27GHz BITE)



The circuit is used in Built-In Test Equipment. Resistor R1 sets threshold power. when the input signal is higher than threshold power, the comparator output TTL high level.R1: 51Ohm～5.1KOhm.

Bill of Material

Reference Des	Value	Part Number	Manuf	Description
C1	330pF	116RM331M050TT	ATC	—
C2	10nF	GRM155R71H103KA88D	MURATA	0402
C3	1000pF	116RM102M050TT	ATC	—
C4	200pF	116RM201M050TT	ATC	—
R1	51Ohm~5.1KOhm		MURATA	0603

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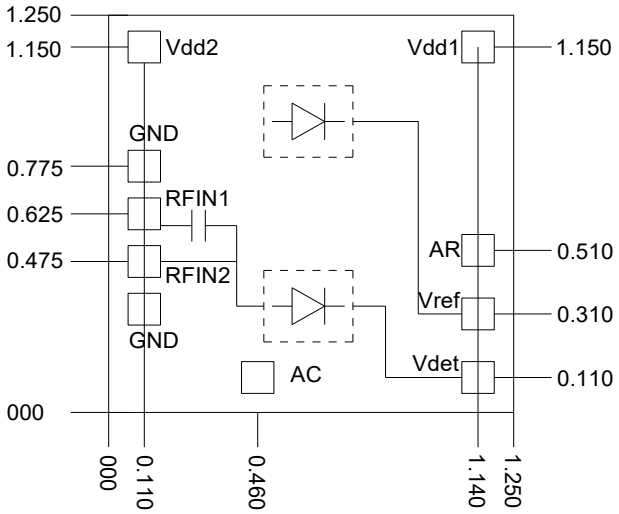
Outline Drawing
(All dimensions are in mm)



Chip thickness: 100um
Chip size: 1.25×1.25×0.1mm±35um
Pads size: 100/100um

Attention:

GaAs MMIC devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.