

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

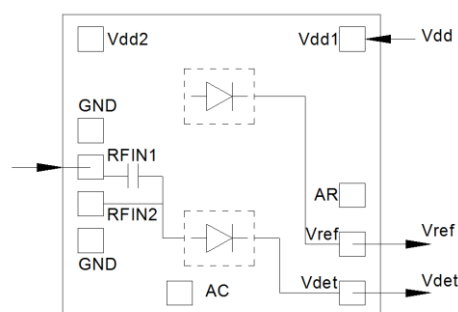
- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

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°C, V_D=+5V, Z₀=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 V _{DD} =+5V	—	2.5	—	mA

Absolute Maximum Ratings

Maximum Input Power detection	+20dBm	Operating temperature range	-55°C~+85°C
V _D	+6V	Storage temperature range	-65°C~+150°C

SuperApex, LLC

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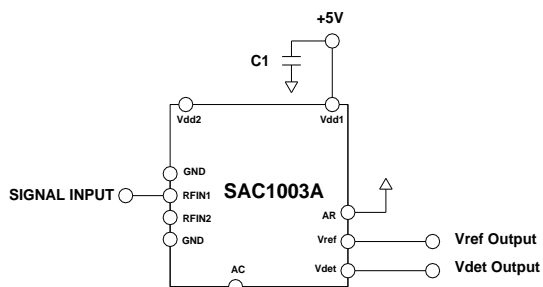
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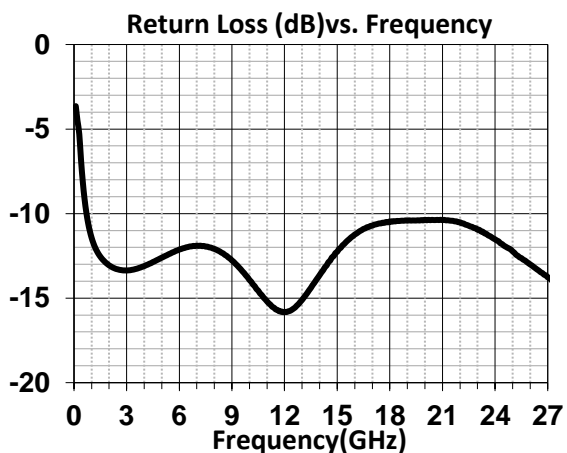
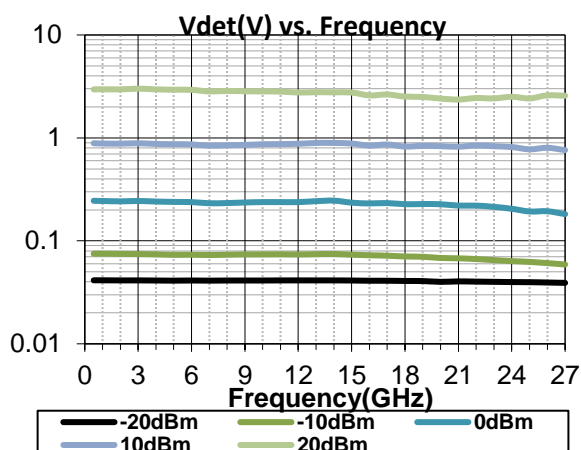
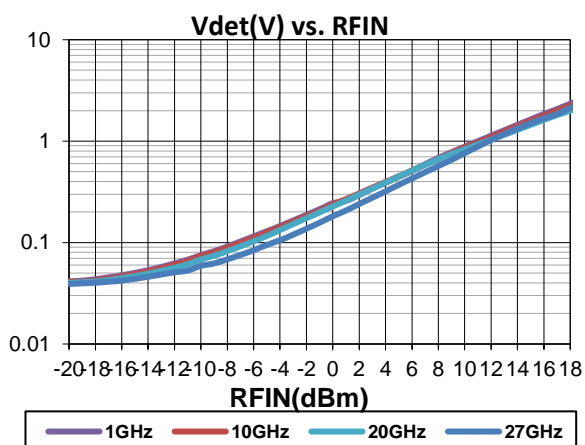
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Application 1 (0.5~27GHz Detector)



Application 1 Typical Performance Curve



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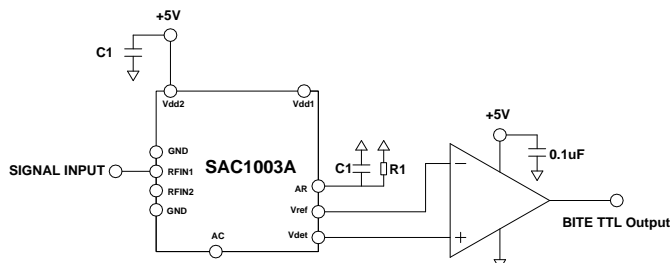
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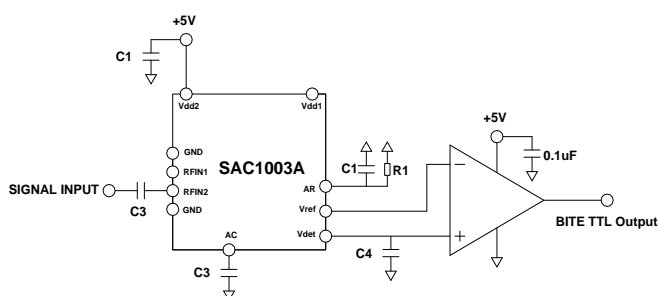
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Application 2(0.5~27GHz BITE)



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: 510Ohm~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: 510Ohm~5.1KOhm.

Bill of Material

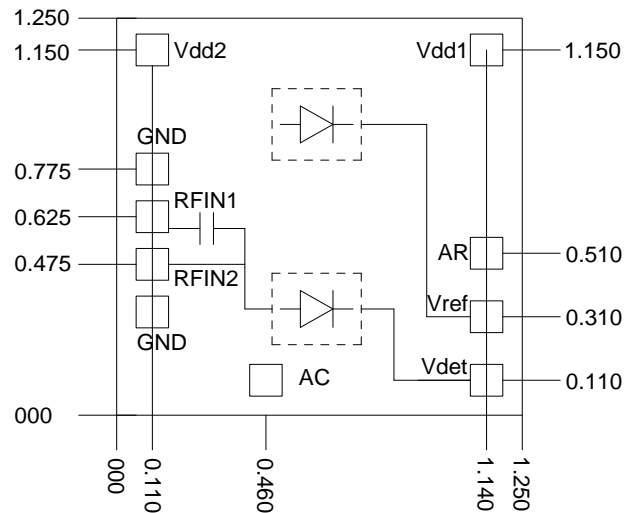
Reference Des	Value	Part Number	Manuf	Description
C1	330pF	116RM331M050TT	ATC	—
C2	10nF	GRM155R71H103KA88D	MURATA	0402
C3	1000pF	116RM102M050TT	ATC	—
C4	200pF	116RM201M050TT	ATC	—
R1	510Ohm~5.1KOhm		MURATA	0603

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Outline Drawing (All dimensions are in mm)



Chip thickness: 100um
Chip size: 1.25x1.25x0.1mm±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.