

Features

- Frequency Range: 2.0 ~ 4.0GHz
- Gain: 25.5dB
- OP_{-1dB}: 16dBm
- Supply Voltage: +5V@80mA
- Die Size: 3.3mm×2.4mm×0.1mm

Typical Applications

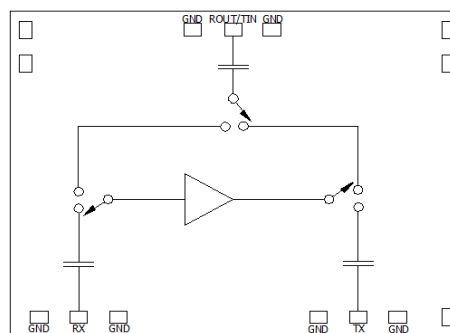
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming
- Phase Shift

General Description

SAC3608 is a bi-directional MMIC amplifier which operates between 2GHz to 4GHz. It is fabricated by GaAs process. It has bi-directional amplification function, and can be switched between forward/reverse amplification by external digital control signal. It provides 25.5dB gain and 16dBm OutputP_{-1dB} by consuming just 80mA current.

The chip is back-metalized to ensure better grounding. It can be die-mounted with AuSn eutectic preform or with electrically conductive epoxy.

Functional Diagram



Electrical Performance (T_A=+25°C, V_D=+5V, I_D=80mA, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency	2.0~4.0			GHz
Receive Gain	—	25.5	—	dB
Transmit Gain	—	25.5	—	dB
Receive Input VSWR	—	1.2	—	:1
Receive Output VSWR	—	1.5	—	:1
Transmit Input VSWR	—	1.6	—	:1
Transmit Output VSWR	—	1.6	—	:1
Output Power for 1 dB Compression	—	16	—	dBm
I _D	—	80	—	mA

Absolute Maximum Ratings

Input Power	18dBm	Operating Temperature	-55°C~+85°C
Control Voltage Range	-0.5~-5.5V	Storage Temperature	-65°C~+150°C
Channel temperature	150°C	ESD(HBM)	Class 1A

Truth Table

	V2	V1
Receive	-5	0
Transmit	0	-5

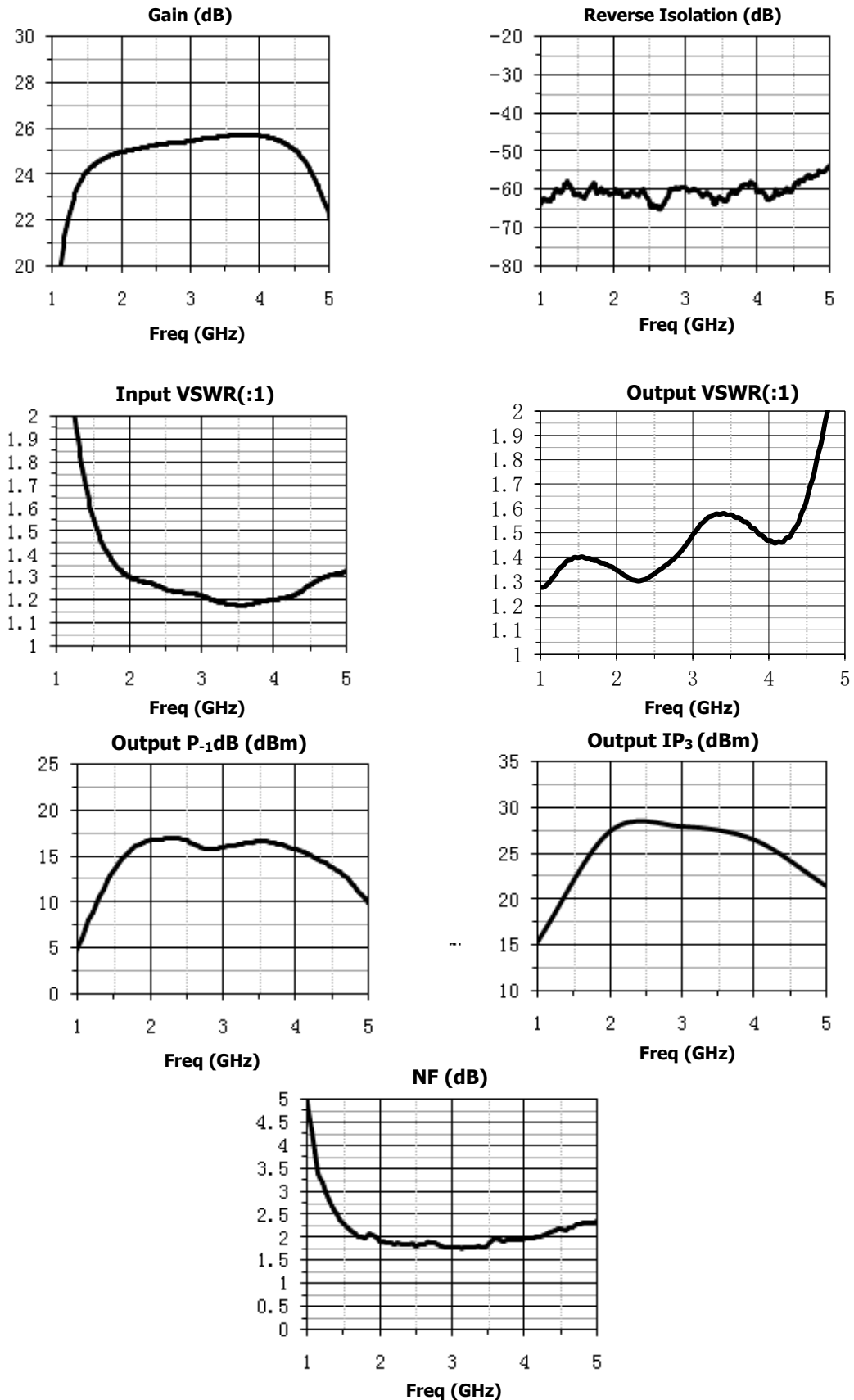
SAC3608



GaAs MMIC Bilateral Amplifier
2.0~4.0GHz

Rev 2.2

Typical Test Curve (Rx State)



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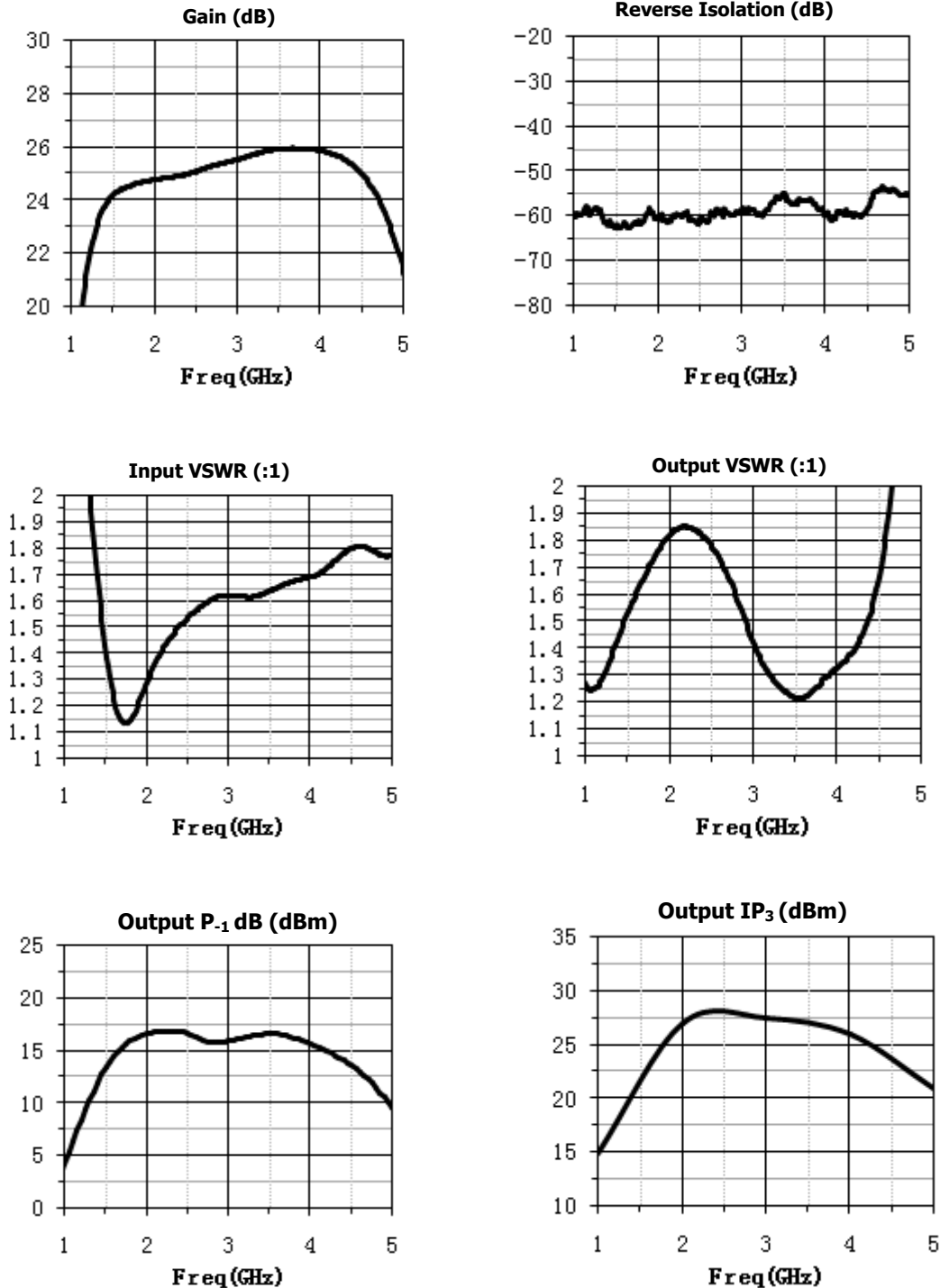
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GaAs MMIC Bilateral Amplifier
2.0~4.0GHz

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Typical Test Curve (Tx State)



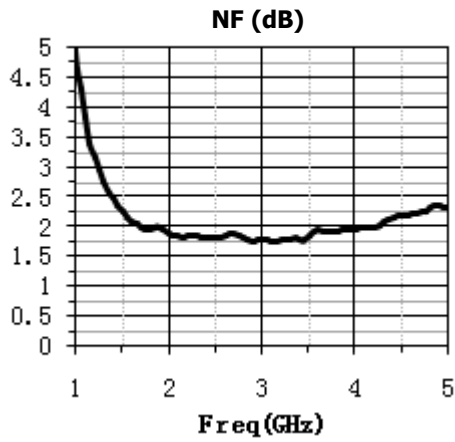
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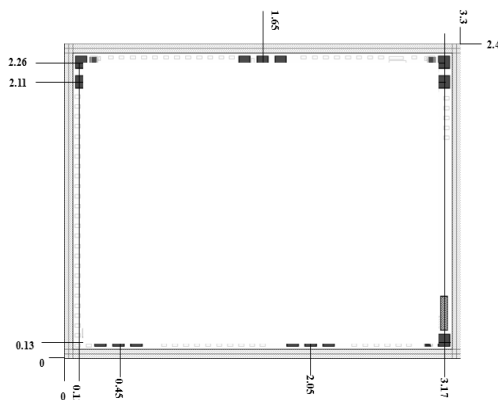
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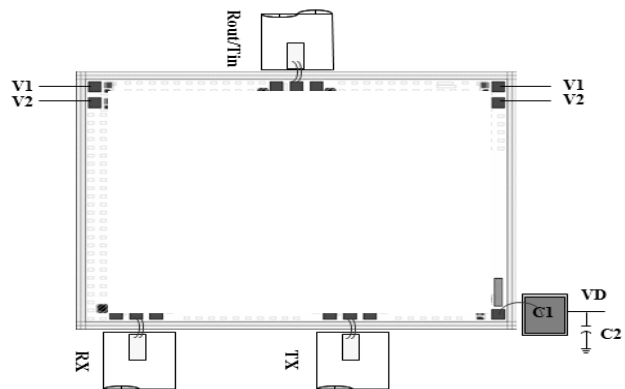
Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	100pF	—	RADVISTA	Chip
C2	10nF	GRM1857U1A103JA44	MURATA	0603

Die Outline (All dimensions in mm)



Assembly Diagram



Attention:

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