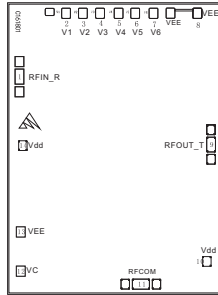


性能特点

- 工作频段：1.0~3.0GHz
- 噪声系数：7.0/5.0dB
- 增益：19dB/21dB
- 增益平坦度：±1.0dB/±1.0dB
- P1dB输出功率：16dBm/16dBm
- 饱和输出功率：17dBm/17dBm
- 输出IP3：26dBm/26dBm
- 单电源工作：+5V@60mA/+5V@60mA
- 输入/输出阻抗：50 Ohm
- 芯片尺寸：2.45mmx2.9mmx0.07mm

功能框图



概述

BW1792是一款工作于1-3.0GHz的GaAs单片集成数控增益双向放大器芯片，发射路在+5V、60mA工作电流下，可提供21B的增益和16dBm的P1dB输出功率；接收路在+5V、60mA工作电流下，可提供19dB增益和16dBm以上的P1dB输出功率，

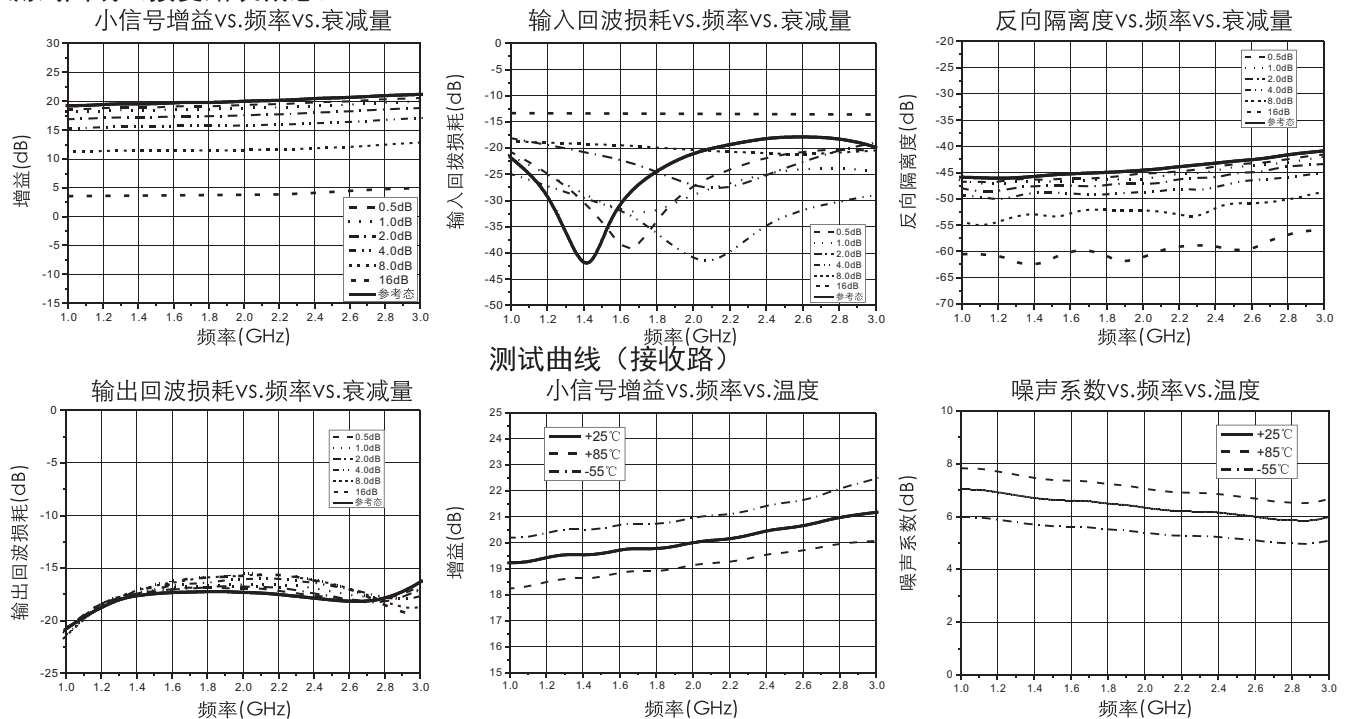
该数控增益双向放大器芯片采用了片上通孔金属化工艺保证良好接地，不需要额外的接地措施，使用简单方便。芯片背面进行了金属化处理，适用于共晶烧结或导电胶粘接工艺。

电性能表 (TA =+25℃, 50Ωsystem, Vdd=+5V,Idd= 60mA/60mA)

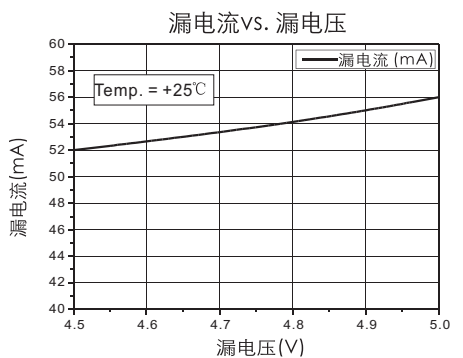
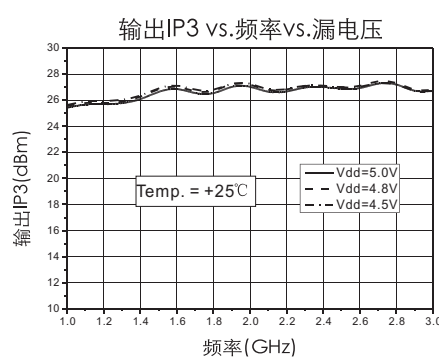
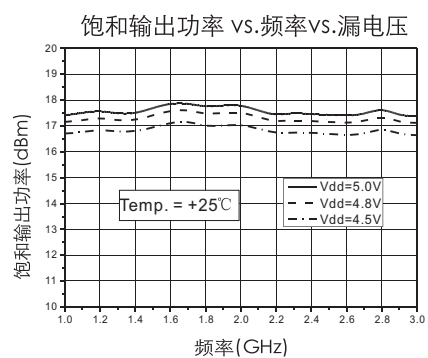
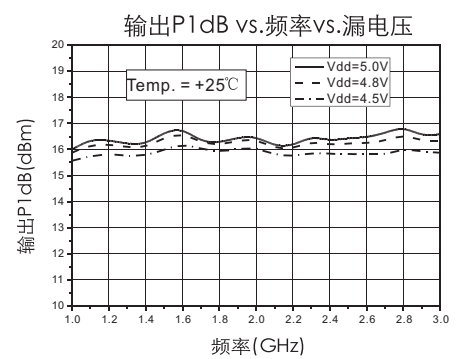
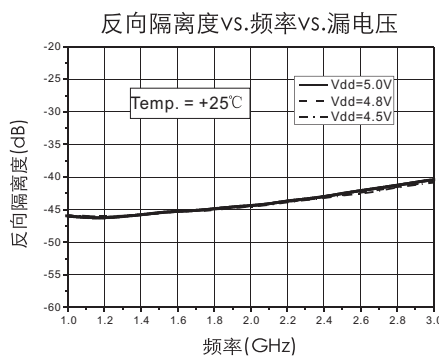
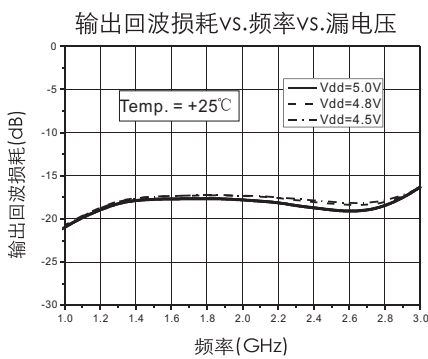
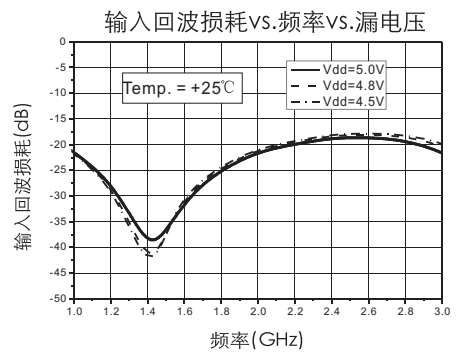
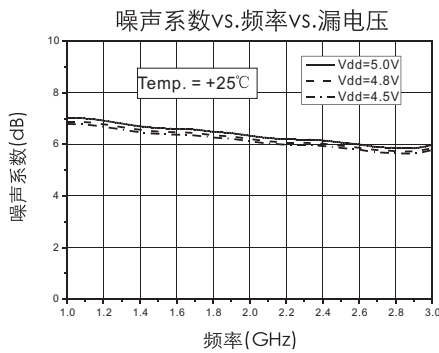
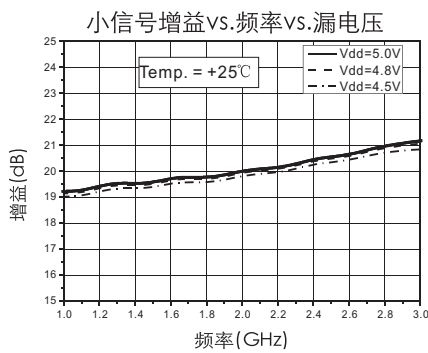
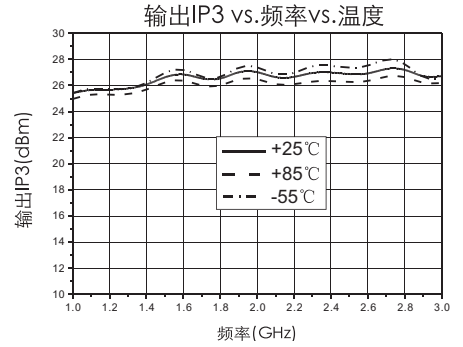
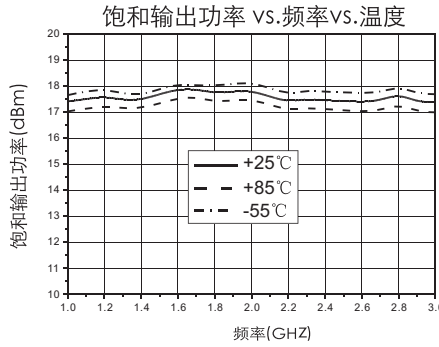
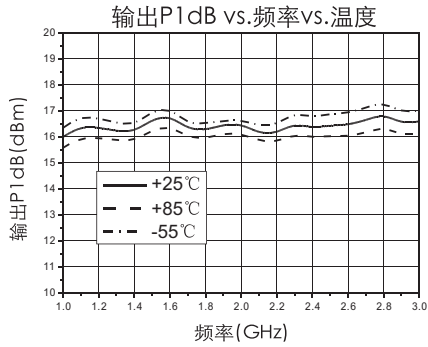
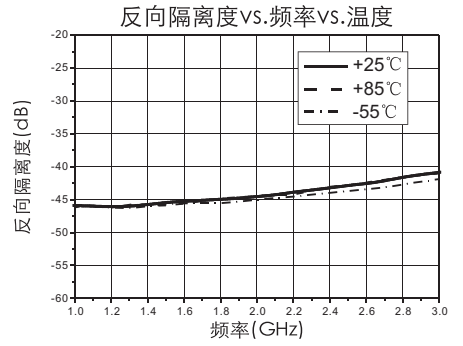
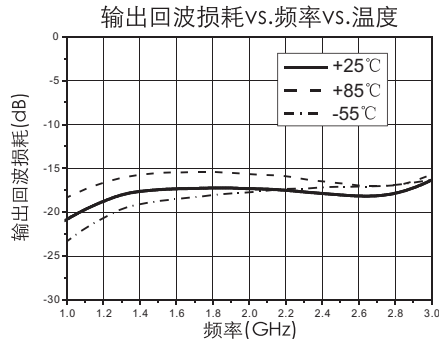
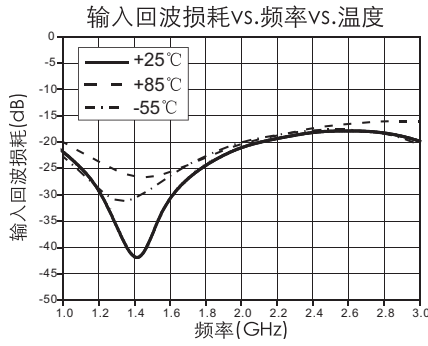
符号	参数	最小值	典型值	最大值	单位
Frequency	工作频率	1.0	-	3.0	GHz
Gain	增益	-	19dB/21dB	-	dB
ΔG	增益平坦度	±1.0dB/±1.0dB			dB
NF	噪声系数	-	7/5	-	dB
IRL	输入回波损耗	-	15/12	-	dB
ORL	输出回波损耗	-	15/15	-	dB
P1dB	1dB压缩点输出功率	-	16/16	-	dBm
Psat	饱和输出功率	-	17/17	-	dBm
OIP3	三阶交调点输出功率	-	26/26	-	dBm
Idd	工作电流	-	60/60	-	mA

[1] 芯片均经过在片100%直流与RF测试。

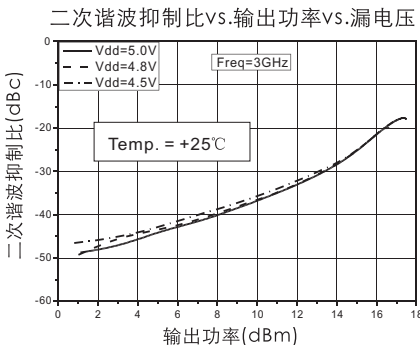
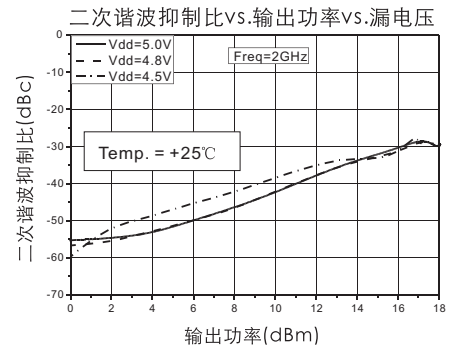
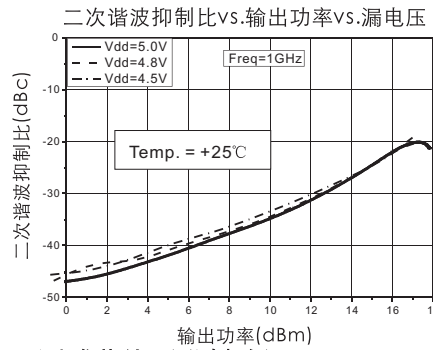
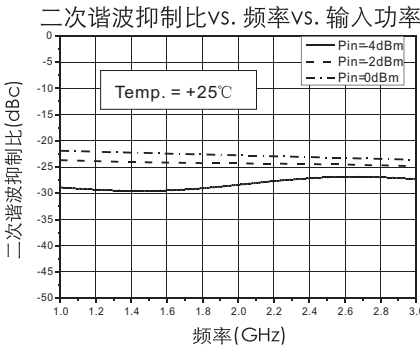
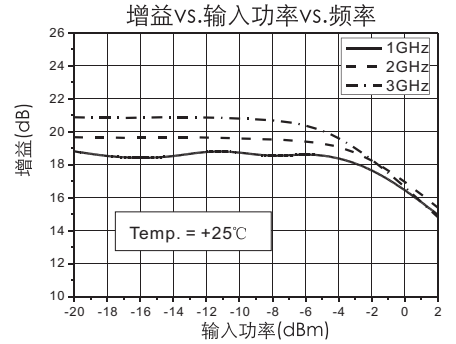
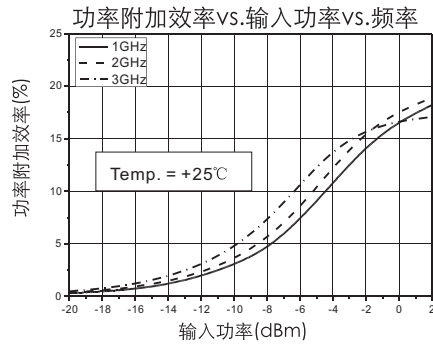
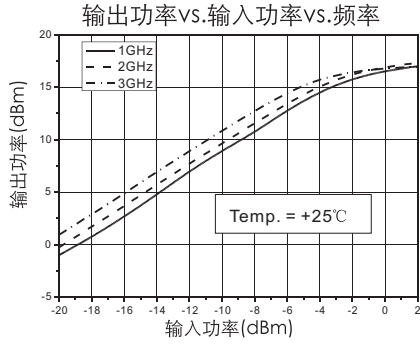
测试曲线（接受路衰减态）



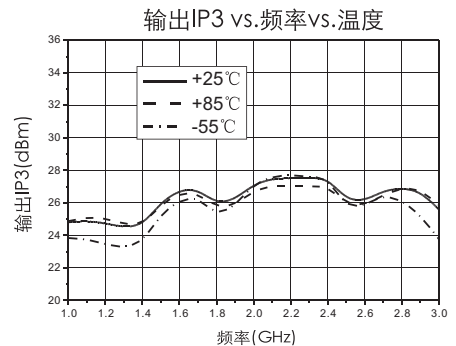
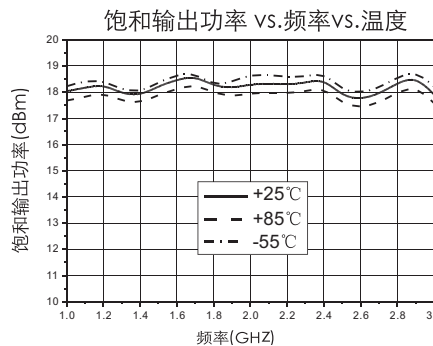
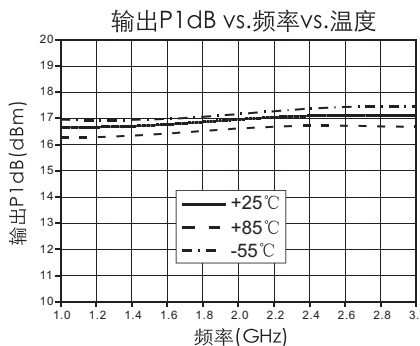
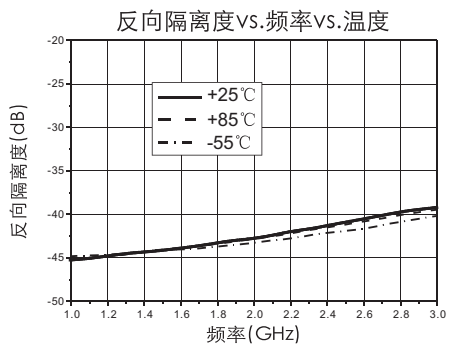
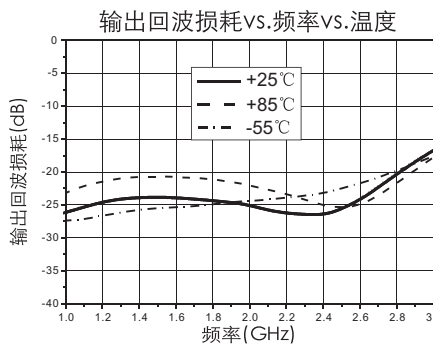
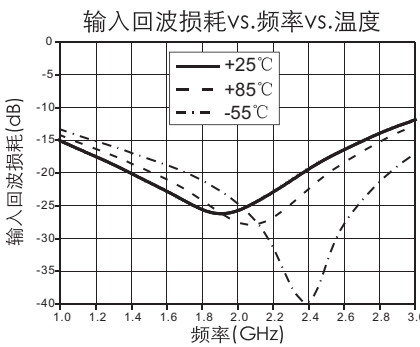
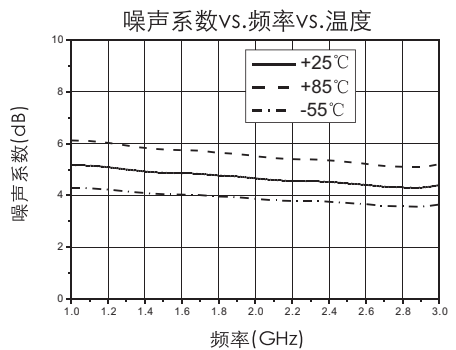
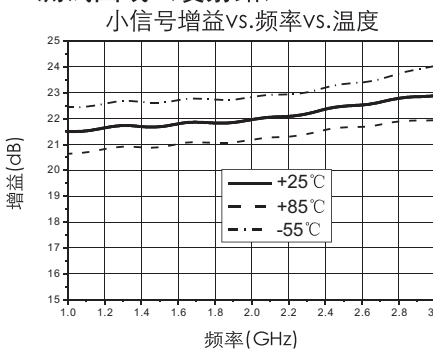
BW1792型GaAs单片数控增益双向放大器



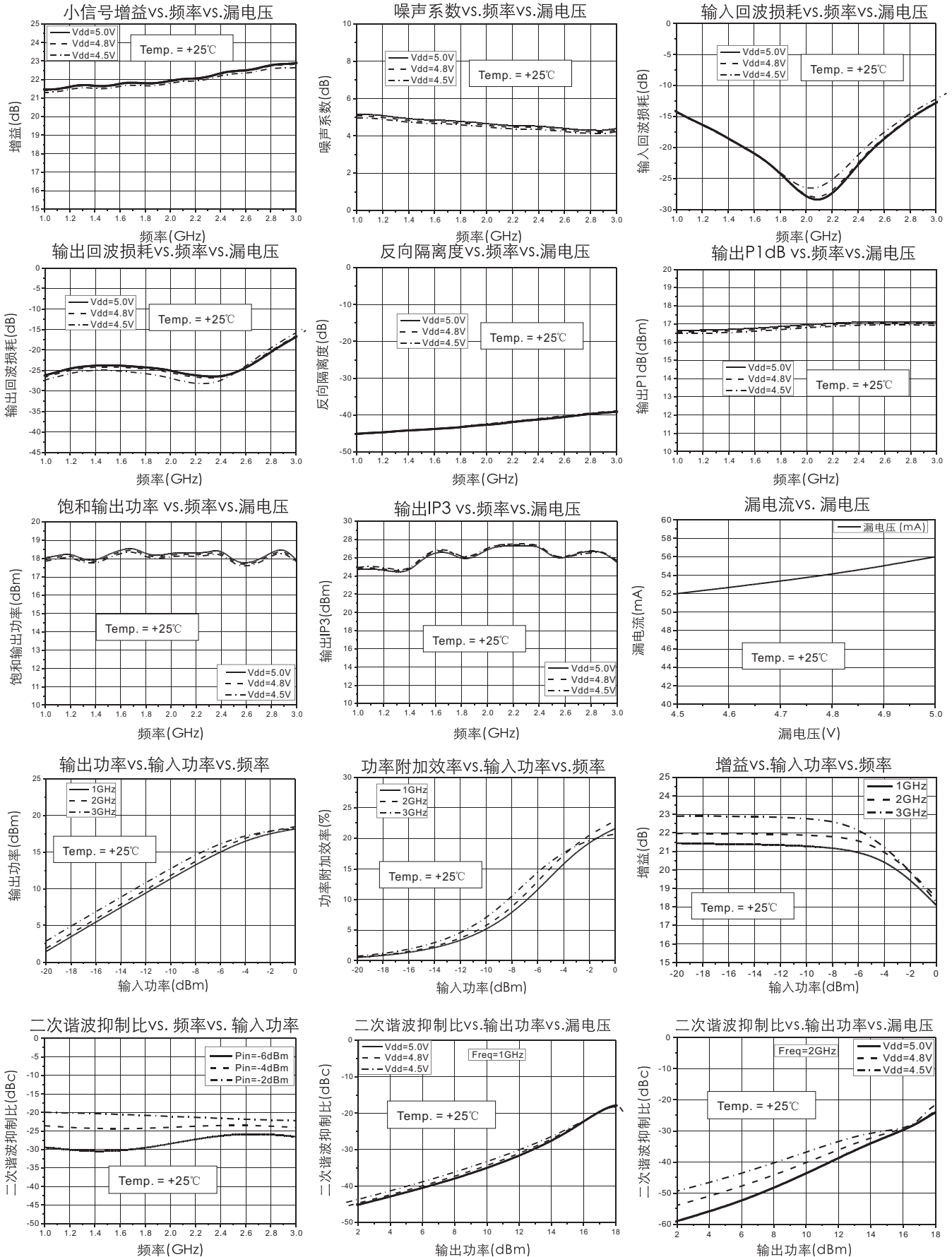
BW1792型GaAs单片数控增益双向放大器



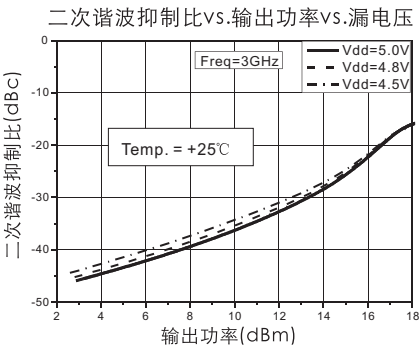
测试曲线（发射路）



BW1792型GaAs单片数控增益双向放大器



BW1792型GaAs单片数控增益双向放大器

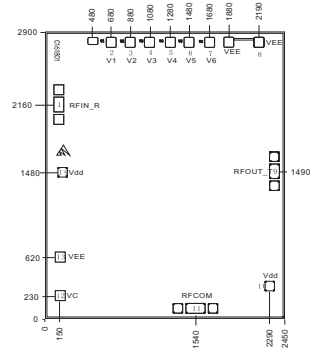


极限参数

参数	数值
输入功率PIN, 50Ω	+10dBm
漏电压Vdd	+6V
热阻(Rth)	80°C/W
沟道温度TCH	175°C
烧结温度(20秒, N2保护)	320°C
储存温度	-55 ~ +150°C
工作温度	-55 ~ +125°C

超过以上条件可能引起芯片永久性损坏。

外形尺寸



说明:
1.单位: 微米 2.芯片背面镀金
3.芯片背面接地
4.键合压点镀金, 压点尺寸:
1、9、11: 150μm×100μm,
2~18、10、12~14:100μm×100μm
5.不能在通孔上进行键合
6.外形尺寸公差: ±50μm

控制电压

状态	偏置条件
低 (0)	0~0.2V
高 (1)	3~5V

真值表

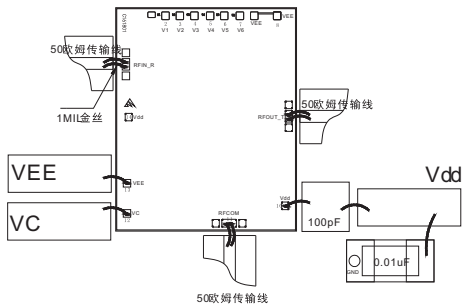
Vdd	VEE	VC	V1~V6	放大状态
+5V	-5V	+5V	0V	接收放大(1→11)
+5V	-5V	0V	0V	发射放大(11→9)

真值表

0.5dB	1dB	2dB	4dB	8dB	16dB	衰减状态
V1	V2	V3	V4	V5	V6	
0	0	0	0	0	0	参考态
1	0	0	0	0	0	0.5dB
0	1	0	0	0	0	1dB
0	0	1	0	0	0	2dB
0	0	0	1	0	0	4dB
0	0	0	0	1	0	8dB
0	0	0	0	0	1	16dB
1	1	1	1	1	1	31.5dB

装配示意图

(滤波电容要离芯片压点尽量近, 尽量减小键合线长度影响)



键合压点定义

压点编号	功能符号	功能描述	等效电路
1	RFIN_R	接收路射频输入压点, 射频通路不是0V, 需外接隔直电容	
2~7	V1~V6	数控衰减器控制压点	-
12	VC	控制压点, 发射路、接收路切换	-
8, 13	VEE	驱动器所需电压, 接-5V电源, 压点内部相连, 使用时选择任一压点即可	-
10, 14	Vdd	放大器漏偏压, 压点内部相连, 使用时选择任一压点即可, 需外置100pF旁路电容	
11	RFCOM	接收路射频输出/发射路射频输入压点, 可以通过控制压点的逻辑电平控制输出/输入端口切换, 射频通路不是0V, 需外接隔直电容	-
9	RFOUT_T	发射路输出压点, 射频通路不是0V, 需外接隔直电容	
芯片背面	GND	芯片底部与射频及直流地需要良好接触	

应用电路

