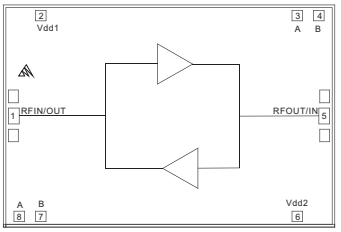
性能特点

- ●工作频率：2~20GHz
- ●噪声系数：4dB
- ●增益：14dB
- ●增益平坦度：±1.5dB
- ●P1dB输出功率：13dBm@10GHz
- ●饱和输出功率：16dBm@10GHz
- ●输出IP3：22dBm@10GHz
- ●工作电压：+5V @ 65mA
- ●输入/输出阻抗：50Ω
- ●芯片尺寸：3.1mmx2.1mmx0.07mm

功能框图



概述

BW592是一款工作于2~20GHz的GaAs 单片集成双向放大器芯片，在+5V、65mA工作电流下，可提供14dB增益和13dBm的P1dB输出功率。

该放大器芯片采用了片上通孔金属化工艺保证良好接地，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。

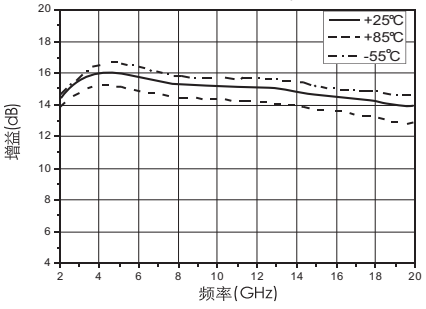
电性能表 (T_A =+25℃, 50Ωsystem, Vdd=+5V, Idd=65mA)

符号	参数	最小值	典型值	最大值	单位
Frequency	工作频率	2	-	20	GHz
Gain	增益	-	14	-	dB
△G	增益平坦度		±1.5		dB
NF	噪声系数	-	4	-	dB
IRL	输入回波损耗	-	15	-	dB
ORL	输出回波损耗	-	15	-	dB
P1dB	1dB压缩点输出功率	-	13	-	dBm
Psat	饱和输出功率	-	16	-	dBm
OIP3	三阶交调点输出功率	-	22	-	dBm
Idd	工作电流	-	65	-	mA

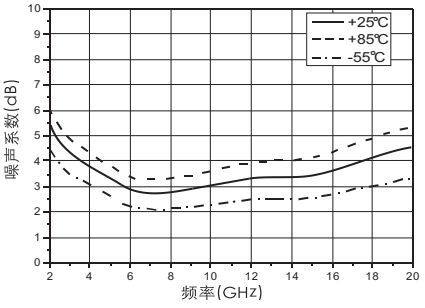
芯片均经过在片100%直流与RF测试

测试曲线

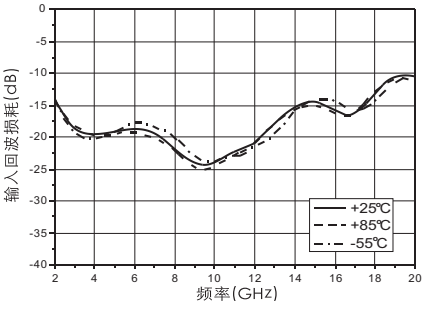
小信号增益vs.频率vs.温度



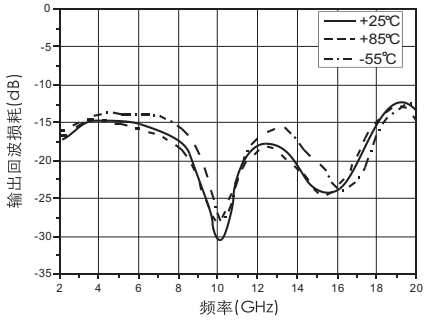
噪声系数vs.频率vs.温度



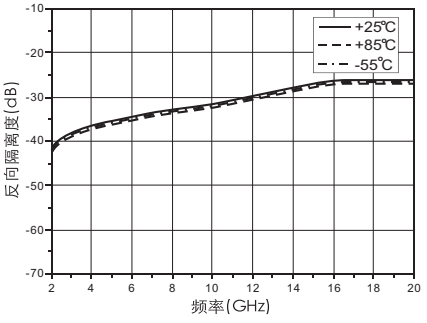
输入回波损耗vs.频率vs.温度



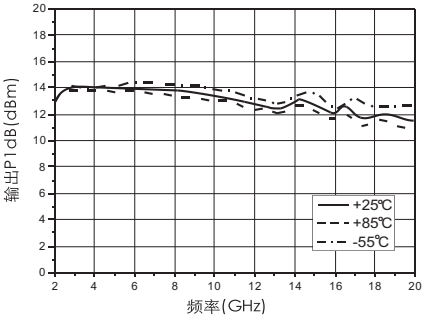
输出回波损耗vs.频率vs.温度



反向隔离度vs.频率vs.温度



输出P1dB vs.频率vs.温度



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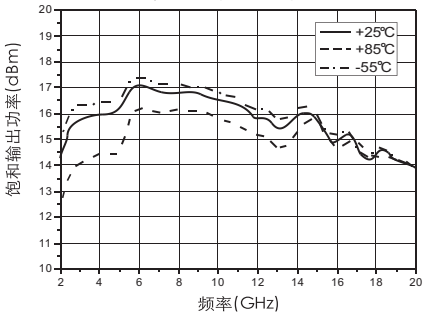
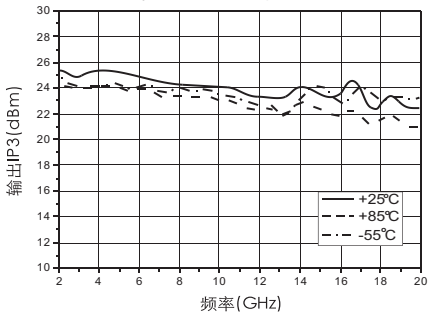
BW592型GaAs单片集成双向放大器

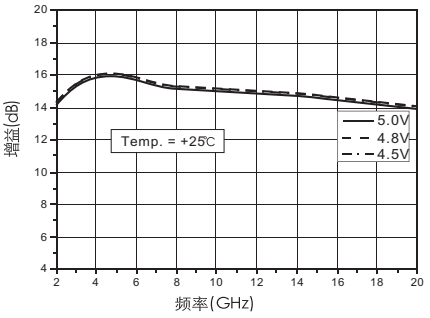
饱和输出功率 vs.频率vs.温度



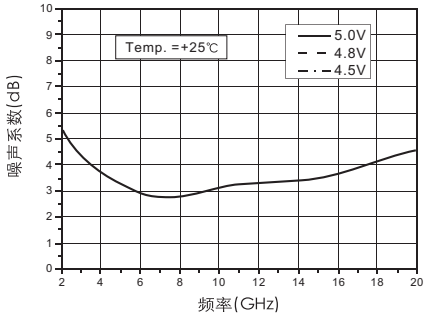
输出IP3 vs.频率vs.温度



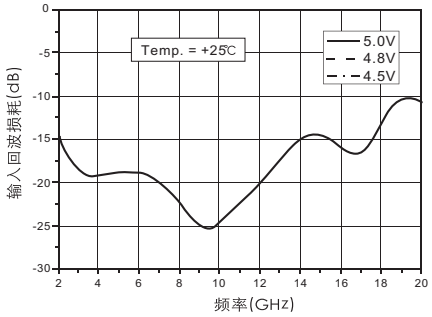
小信号增益vs.频率vs.漏电压



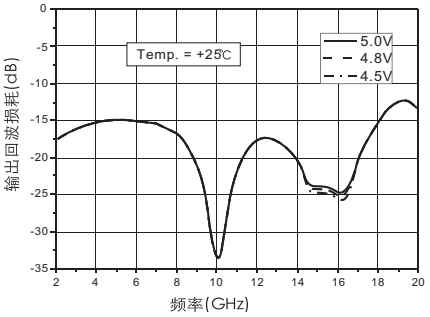
噪声系数vs.频率vs.漏电压



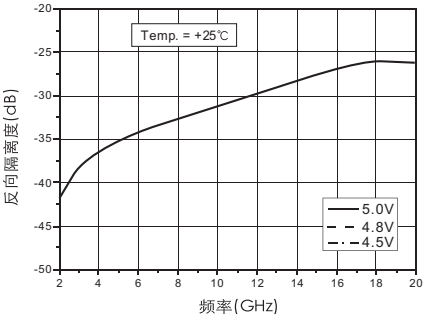
输入回波损耗vs.频率vs.漏电压



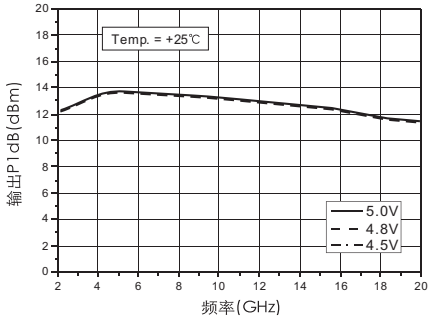
输出回波损耗vs.频率vs.漏电压



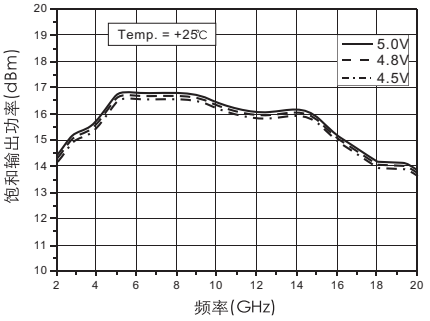
反向隔离度vs.频率vs.漏电压



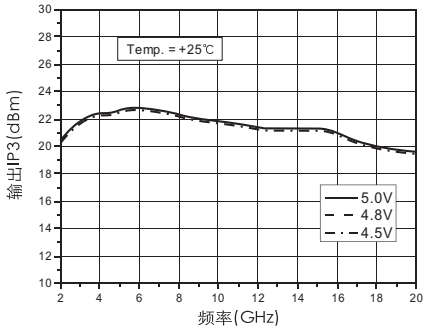
输出P1dB vs.频率vs.漏电压



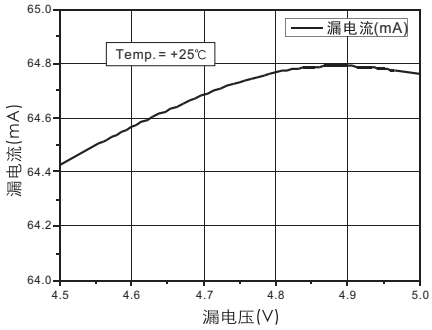
饱和输出功率 vs.频率vs.漏电压



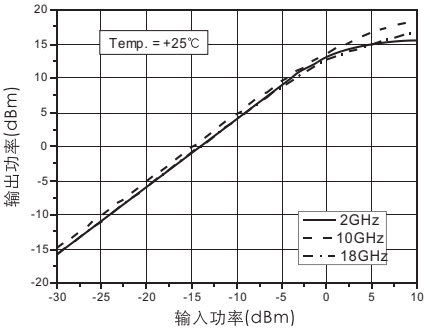
输出IP3 vs.频率vs.漏电压



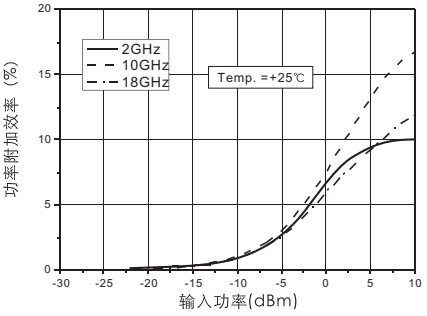
漏电流vs. 漏电压



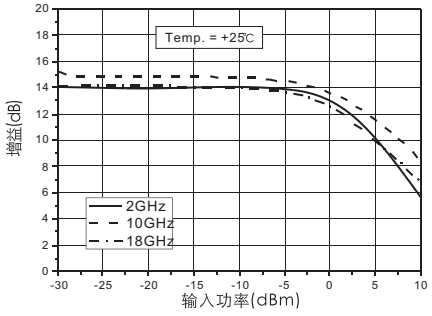
输出功率vs.输入功率vs.频率



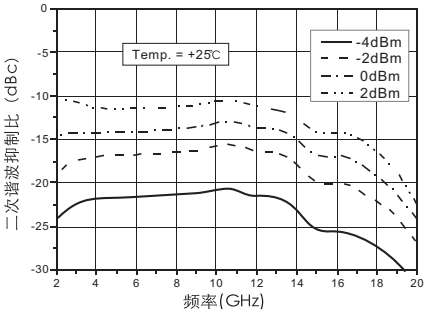
功率附加效率vs.输入功率vs.频率



增益vs.输入功率vs.频率



二次谐波抑制比vs. 频率vs. 输入功率



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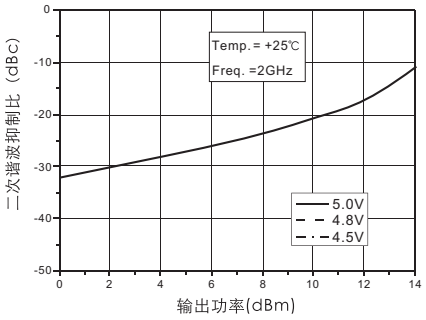
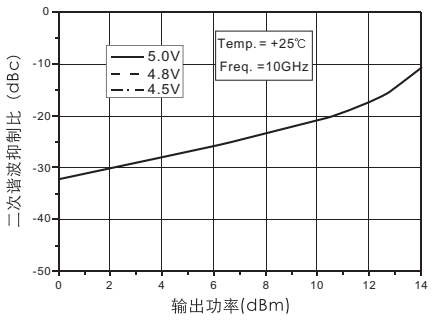
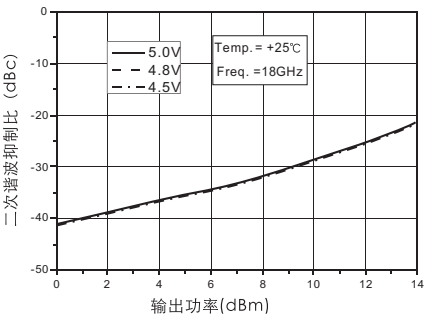
二次谐波抑制比vs.输出功率vs.漏电压



二次谐波抑制比vs.输出功率vs.漏电压



二次谐波抑制比vs.输出功率vs.漏电压



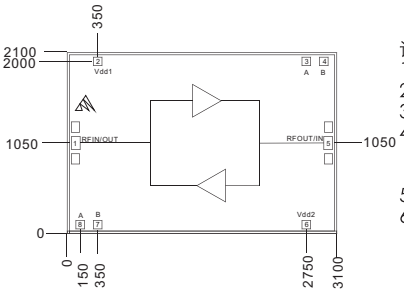
极限参数

参数	数值
输入功率PIN，50Ω	+18dBm
漏电压Vdd	+6V
热阻Rth	45° C/W
沟道温度TCH	175℃
烧结温度(20秒，N2保护)	320℃
储存温度	-55 ~ +150℃
工作温度	-55 ~ +125℃

超过以上条件可能引起芯片永久性损坏。

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

外形尺寸



说明：
1.单位：微米（um）
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、5：160x100um
2~4、6~8：100x100um
5.不能在通孔上进行键合
6.外形尺寸公差：±50um

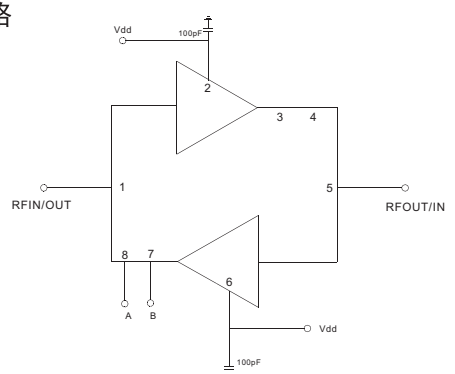
真值表

Vdd1	Vdd2	A	B	放大状态
5V	悬空	-5V	0V	正向放大(1→5)
悬空	5V	0V	-5V	反向放大(5→1)

键合压点定义

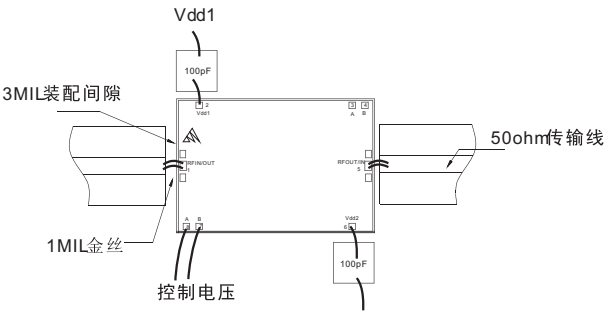
压点编号	功能符号	功能描述	等效电路
1	RFIN/RFOUT	射频输入/输出压点，可以通过控制压点的逻辑电平控制输入/输出端口切换，射频通路不是0V，需外接隔直电容	-
2	Vdd1	放大器漏偏压，需外置100pF旁路电容	Vdd1
3,8	A	控制压点，两个压点内部相连，控制时选择任一压点即可	-
4,7	B	控制压点，两个压点内部相连，控制时选择任一压点即可	-
5	RFOUT/RFIN	射频输入/输出压点，可以通过控制压点的逻辑电平控制输入/输出端口切换，射频通路不是0V，需外接隔直电容	-
6	Vdd2	放大器漏偏压，需外置100pF旁路电容	Vdd2
芯片背面	GND	芯片底部与射频及直流地需要良好接触	GND

应用电路



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)



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