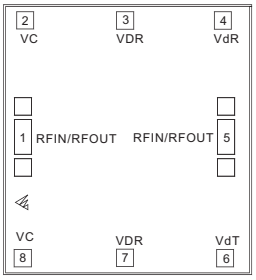
性能特点

- ●工作频段：8.0~14.0GHz
- ●噪声系数：5.0/5.0dB
- ●增益：6dB /6dB
- ●增益平坦度：±0.5dB/±0.5dB
- ●P1dB输出功率：13dBm/11dBm
- ●饱和输出功率：14dBm/13dBm
- ●输出IP3：18dBm/18dBm
- ●单电源工作：+5V@40mA/+5V@40mA
- ●输入/输出阻抗：50 Ohm
- ●芯片尺寸：1.7x2.3x0.07mm

功能框图



概述

BW587是一款工作于8.0-14.0GHz的GaAs单片集成双向放大器芯片，发射路在 + 5V 、40mA工作电流下 ，可提供6 dB的增益和 13 dBm的 P1dB 输出功率；接收路在+5V、40mA工作电流下，可提供6dB增益和11dBm以上的P1dB输出功率。

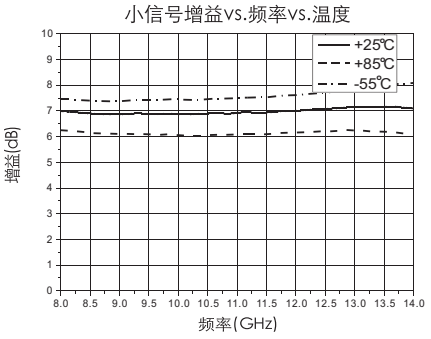
该双向放大器芯片采用了片上通孔金属化工艺保证良好接地，不需要额外的接地措施，使用简单方便。芯片背面进行了金属化处理，适用于共晶烧结或导电胶粘接工艺。

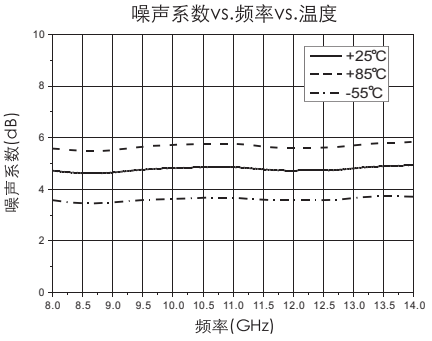
电性能表 (T_A =+25℃, 50Ωsystem, Vdd=+5V, Idd=40mA)

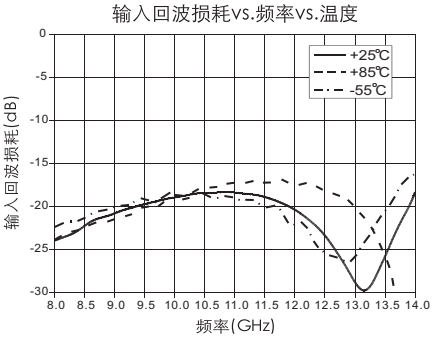
符号	参数	最小值	典型值	最大值	单位
Frequency	工作频率	8.0	-	14.0	GHz
Gain	增益	-	6dB /6dB	-	dB
△G	增益平坦度	±0.5dB/±0.5dB			dB
NF	噪声系数	-	5/5	-	dB
IRL	输入回波损耗	-	15/15	-	dB
ORL	输出回波损耗	-	15/15	-	dB
P1dB	1dB压缩点输出功率	-	13/11	-	dBm
Psat	饱和输出功率	-	14/13	-	dBm
OIP3	三阶交调点输出功率	-	18/18	-	dBm
Idd	工作电流	-	40/40	-	mA

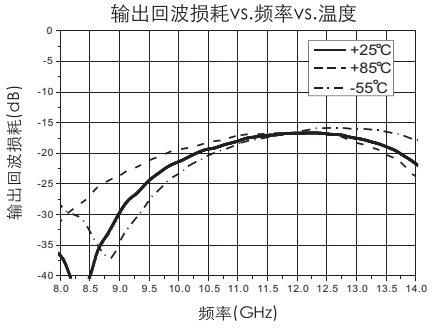
芯片均经过在片100%直流与RF测试

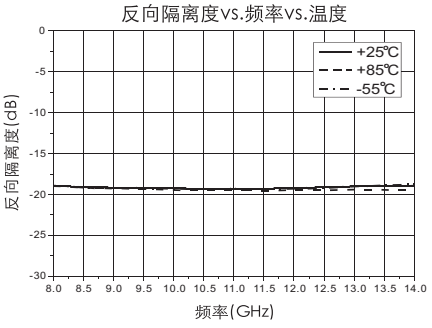
测试曲线(发射路)

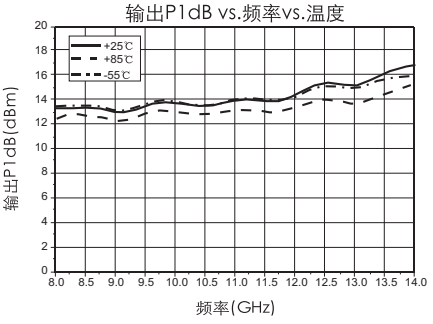












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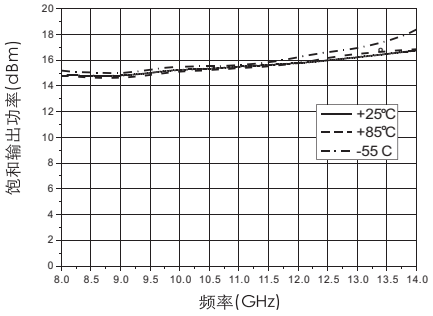
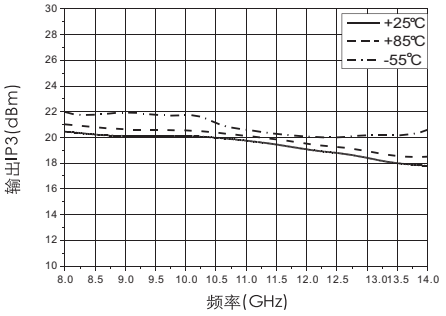
BW587型GaAs单片集成双向放大器

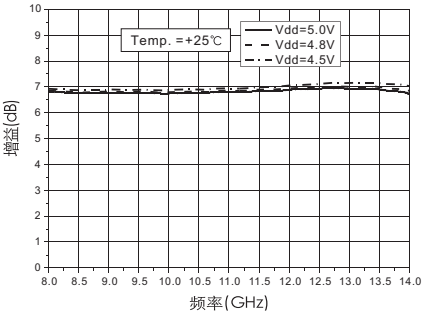
饱和输出功率 vs.频率vs.温度



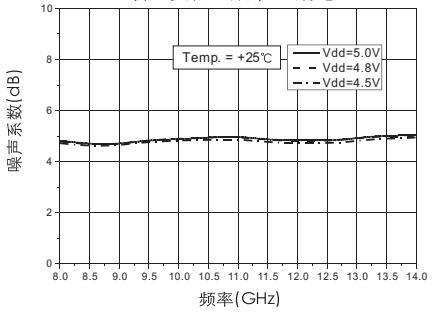
输出IP3 vs.频率vs.温度



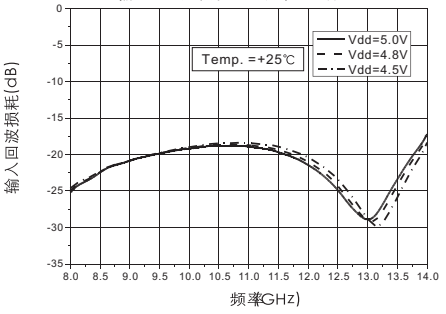
小信号增益vs.频率vs.漏电压



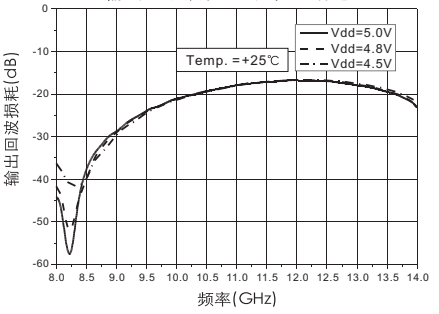
噪声系数vs.频率vs.漏电压



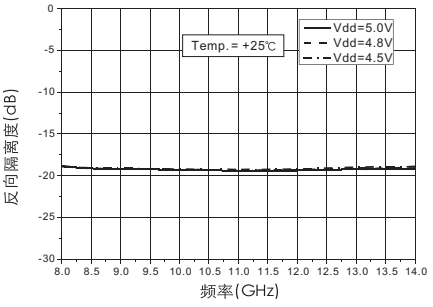
输入回波损耗vs.频率vs.漏电压



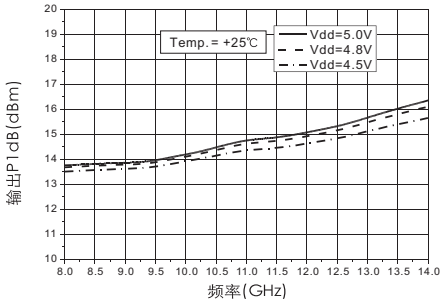
输出回波损耗vs.频率vs.漏电压



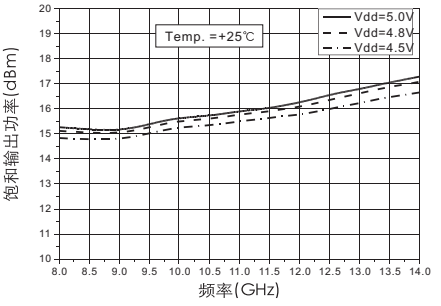
反向隔离度vs.频率vs.漏电压



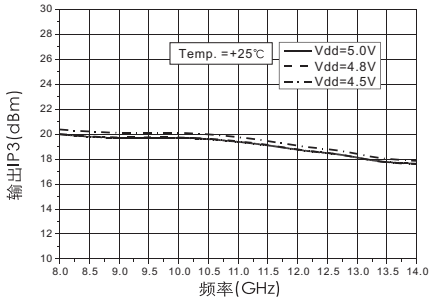
输出P1dB vs.频率vs.漏电压



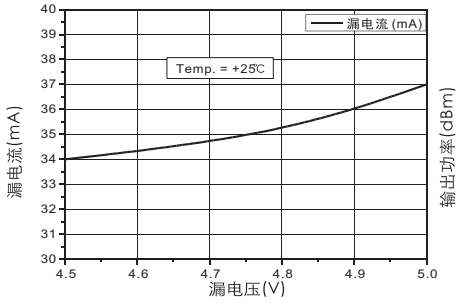
饱和输出功率 vs.频率vs.漏电压



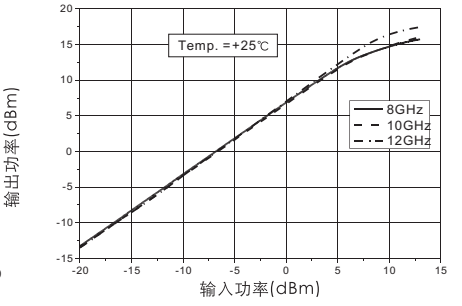
输出IP3 vs.频率vs.漏电压



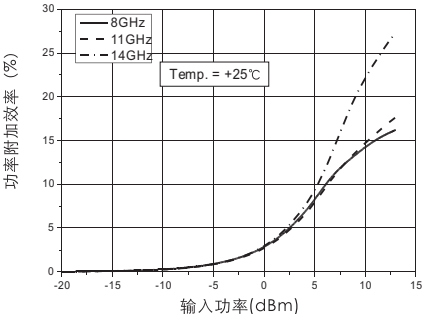
漏电流vs. 漏电压



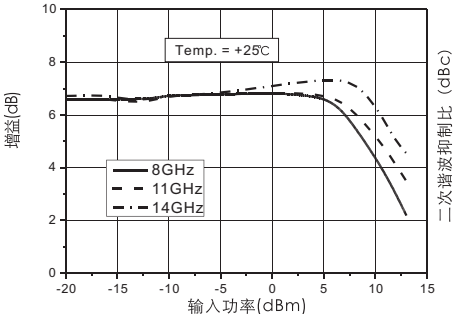
输出功率vs.输入功率vs.频率



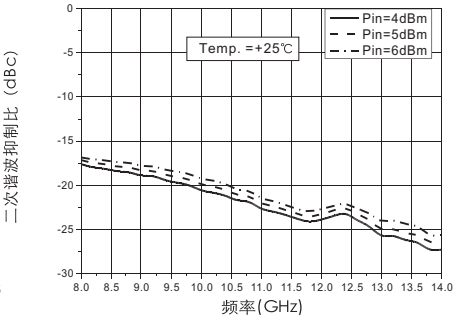
功率附加效率vs.输入功率vs.频率



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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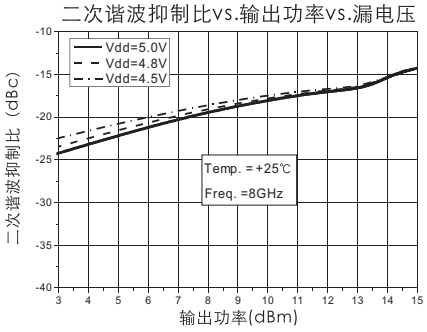
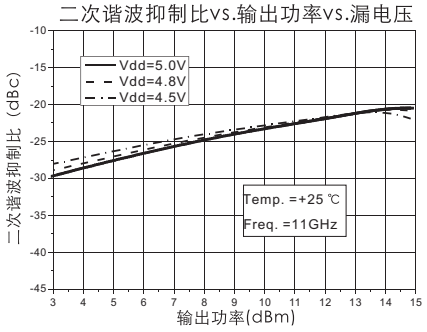
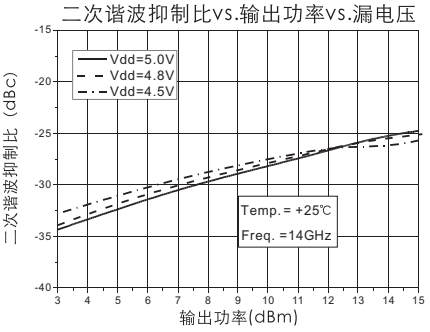
二次谐波抑制比vs.输出功率vs.漏电压



二次谐波抑制比vs.输出功率vs.漏电压

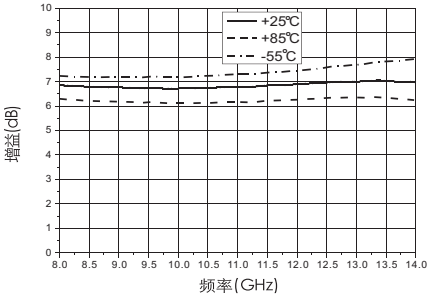


二次谐波抑制比vs.输出功率vs.漏电压

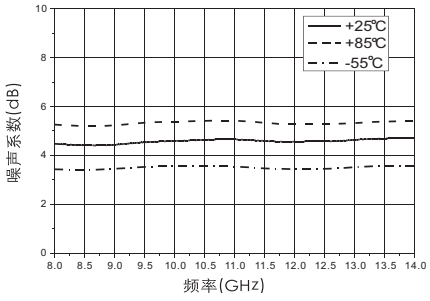


测试曲线(接收路)

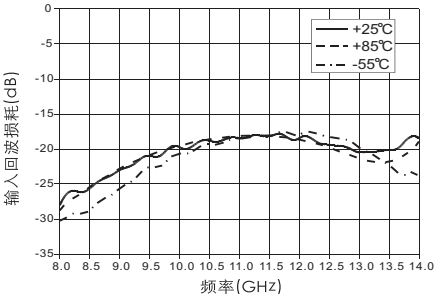
小信号增益vs.频率vs.温度



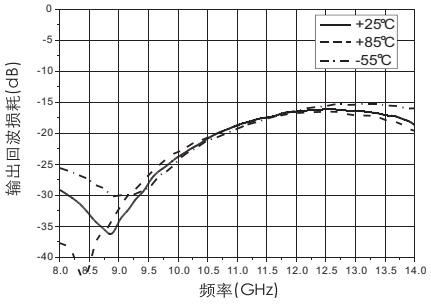
噪声系数vs.频率vs.温度



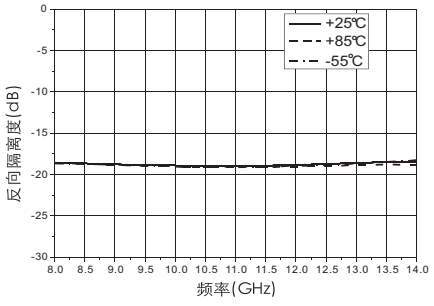
输入回波损耗vs.频率vs.温度



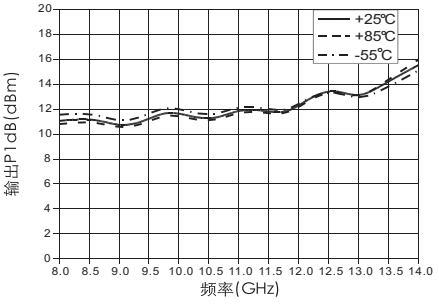
输出回波损耗vs.频率vs.温度



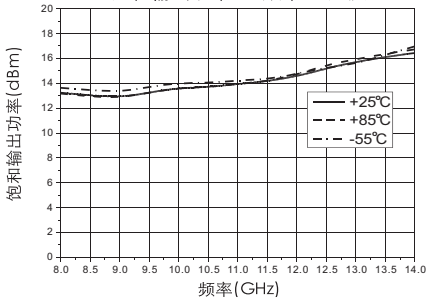
反向隔离度vs.频率vs.温度



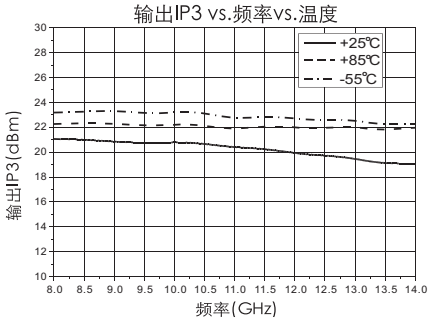
输出P1dB vs.频率vs.温度



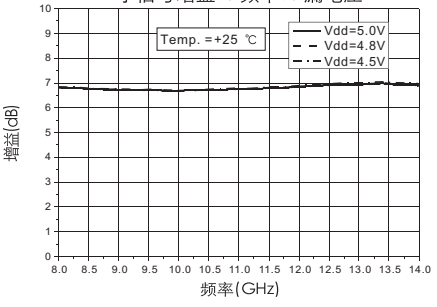
饱和输出功率 vs.频率vs.温度



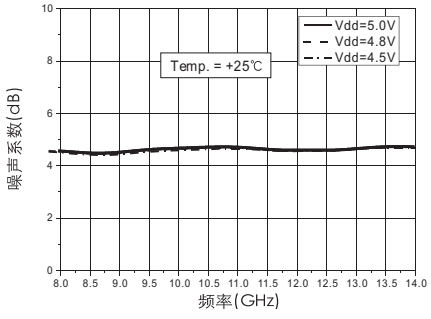
输出IP3 vs.频率vs.温度



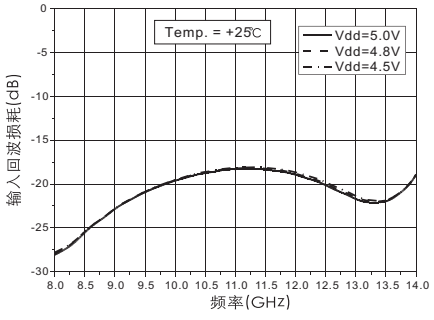
小信号增益vs.频率vs.漏电压



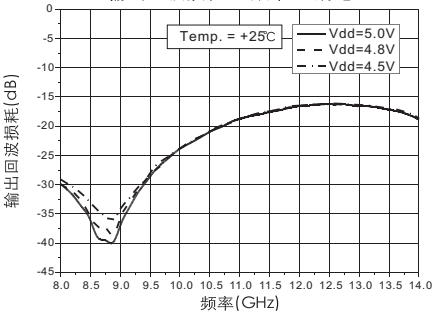
噪声系数vs.频率vs.漏电压



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



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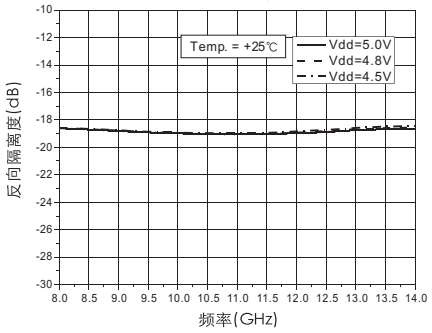
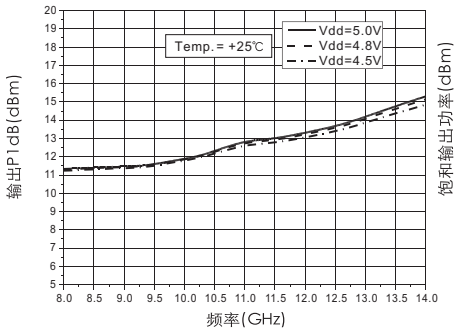
BW587型GaAs单片集成双向放大器

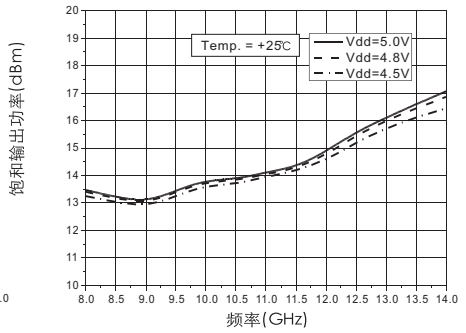
反向隔离度vs.频率vs.漏电压



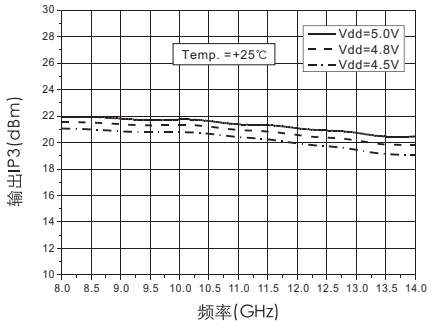
输出P1dB vs.频率vs.漏电压



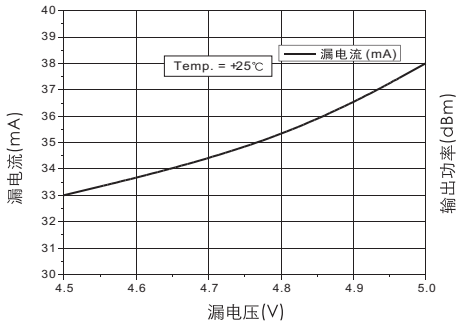
饱和输出功率 vs.频率vs.漏电压



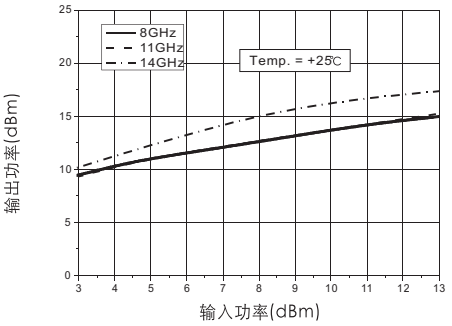
输出IP3 vs.频率vs.漏电压



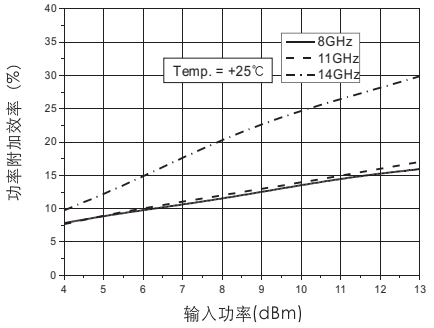
漏电流vs. 漏电压



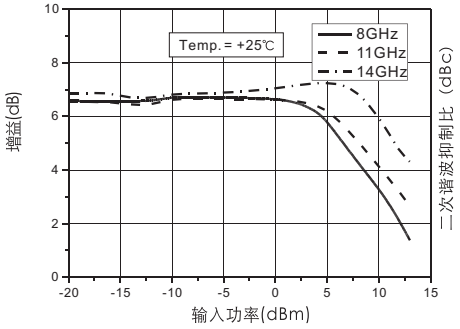
输出功率vs.输入功率vs.频率



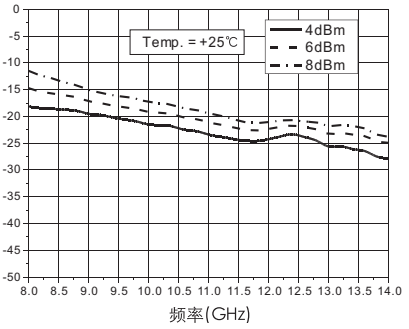
功率附加效率vs.输入功率vs.频率



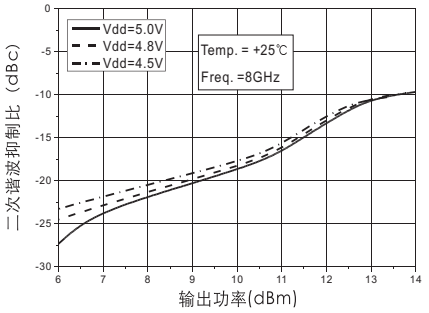
增益vs.输入功率vs.频率



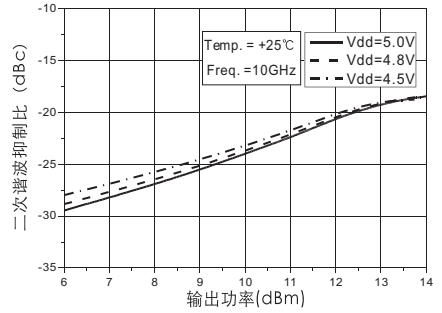
二次谐波抑制比vs. 频率vs. 输入功率



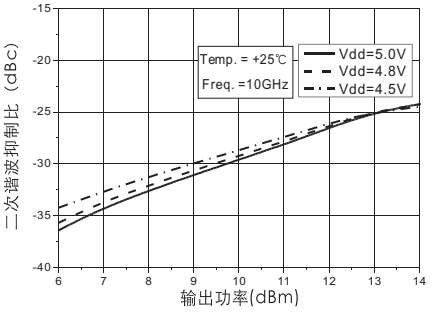
二次谐波抑制比vs.输出功率vs.漏电压



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



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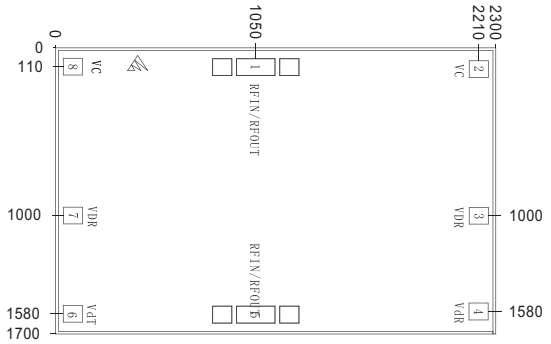
BW587型GaAs单片集成双向放大器

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	-
2，8	VC	控制压点，2个压点内部相连，控制时选择任一压点即可	
3，7	VDR	驱动器所需电压，接-5V电源	-
4	VdR	接收路放大器漏偏压，需外置100pF旁路电容	-
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	VdT	发射路放大器漏偏压，需外置100pF旁路电容	
芯片背面	GND	芯片底部与射频及直流地需要良好接触	GND

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、5：200umx100um；
2~4、6~8：100umx100um
5.不能在通孔上进行键合　　6.外形尺寸公差：±50um

极限参数

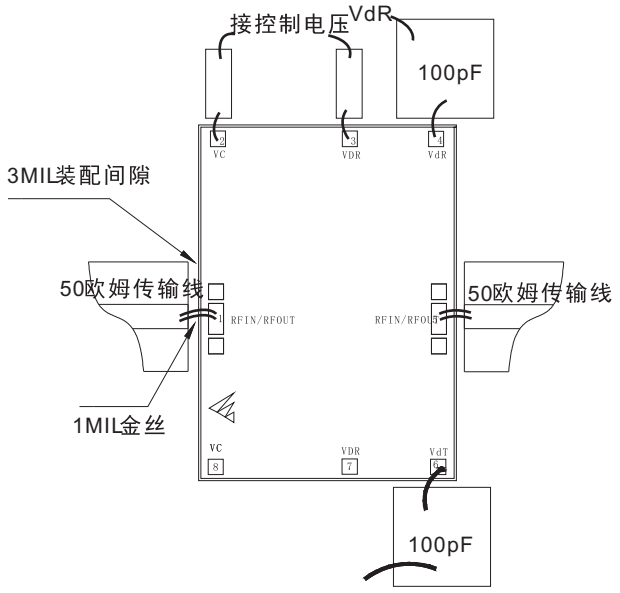
参数	数值
输入功率PIN，50Ω	+15dBm
漏电压Vdd	+6V
热阻Rth	80° C/W
沟道温度TCH	175℃
烧结温度(20秒，N2保护)	320℃
储存温度	-55 ~ +150℃
工作温度	-55 ~ +125℃

超过以上条件可能引起芯片永久性损坏。

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

装配示意图

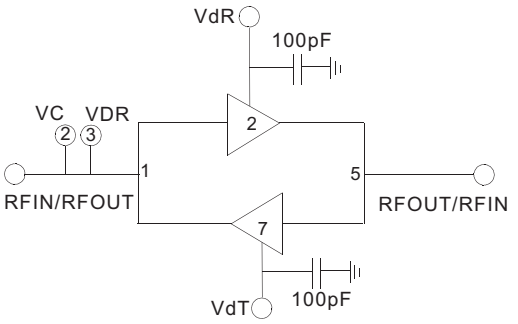
(滤波电容要离芯片压点尽量近，尽量减小键合线长度影响)



真值表

VDR	VdT	VC	VdR	放大状态
-5V	0V	0	+5V	正向放大（1→5）
-5V	+5V	+5	0V	反向放大（5→1）

应用电路



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