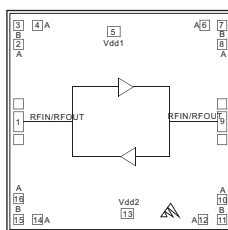


## 性能特点

- 工作频段：8.0~12.0GHz
- 噪声系数：5/4dB
- 增益：27dB /26dB
- 增益平坦度： $\pm 1.5\text{dB}/\pm 1\text{dB}$
- P1dB输出功率：19.5dBm@10GHz/10dBm@10GHz
- 饱和输出功率：21dBm@10GHz/12dBm@10GHz
- 输出IP3：26dBm@10GHz/16dBm@10GHz
- 单电源工作：+5V@175mA/+5V@55mA
- 输入/输出阻抗：50 Ohm
- 芯片尺寸：2.5x2.2x0.07mm

## 功能框图



## 概述

BW560是一款工作于8.0-12.0GHz的GaAs单片集成双向放大器芯片，发射路在+5V、175mA工作电流下，可提供27dB的增益和19.5dBm的P1dB输出功率；接收路在+5V、55mA工作电流下，可提供26dB增益和8dBm以上的P1dB输出功率。

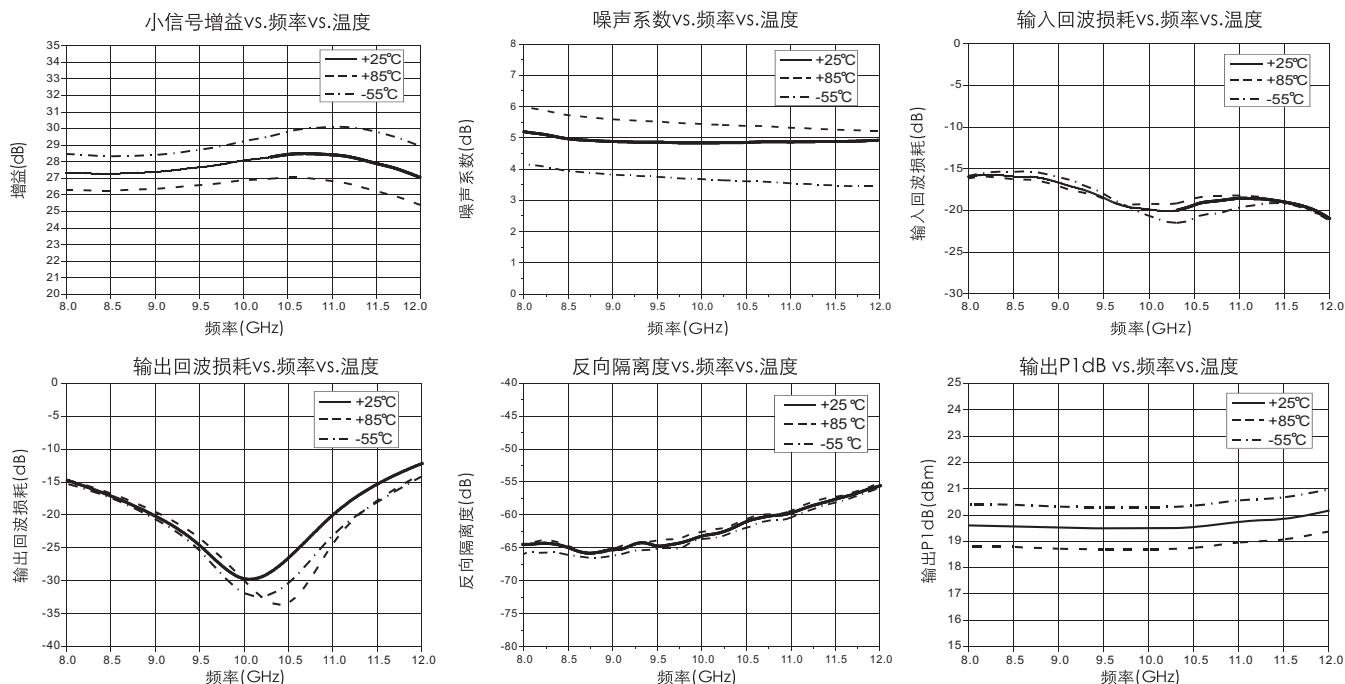
该双向放大器芯片采用了片上通孔金属化工艺保证良好接地，不需要额外的接地措施，使用简单方便。芯片背面进行了金属化处理，适用于共晶烧结或导电胶粘接工艺。

电性能表 (T<sub>A</sub> =+25℃, 50Ωsystem, V<sub>dd</sub>=+5V, I<sub>dd</sub>=175mA/55mA)

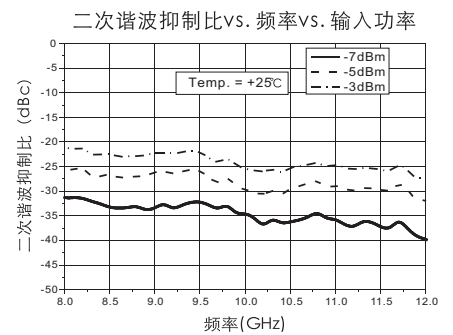
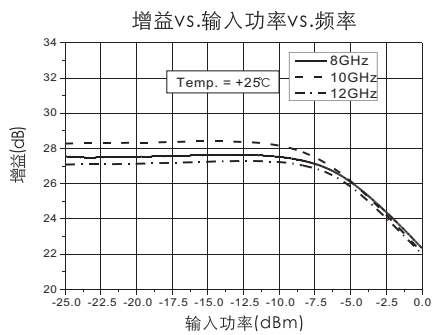
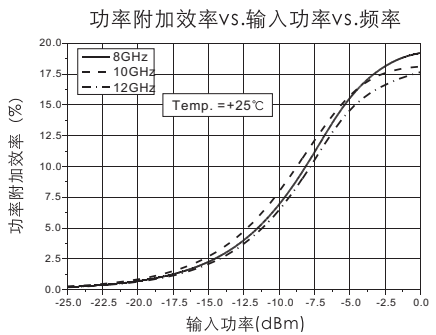
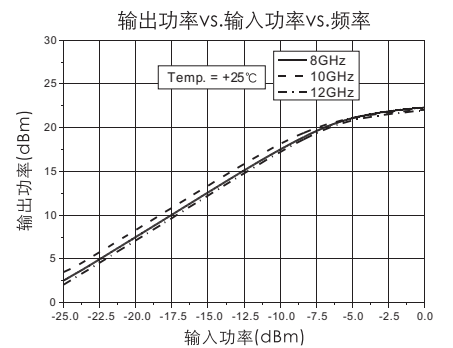
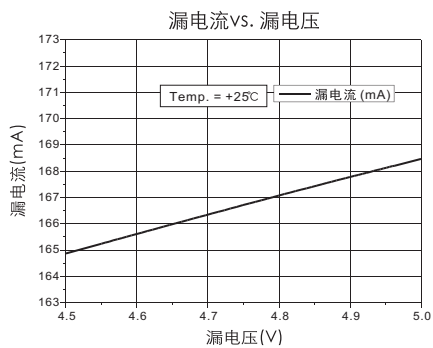
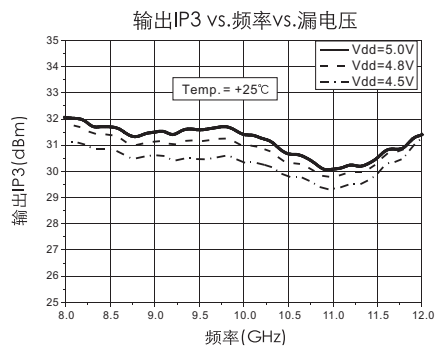
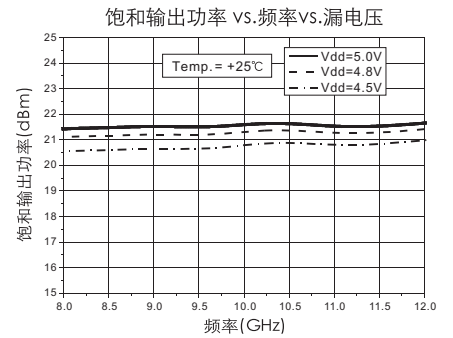
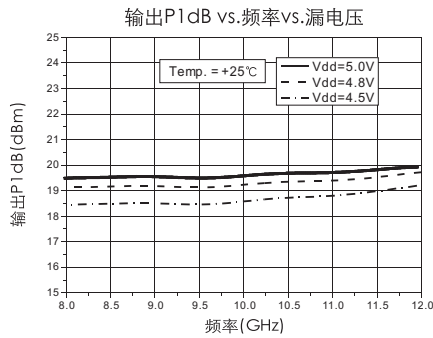
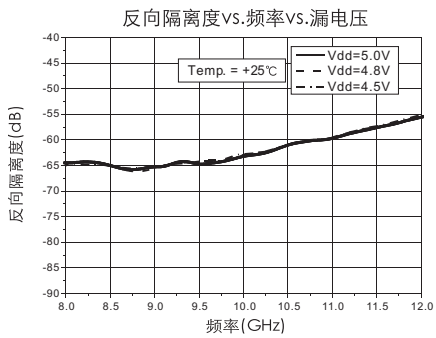
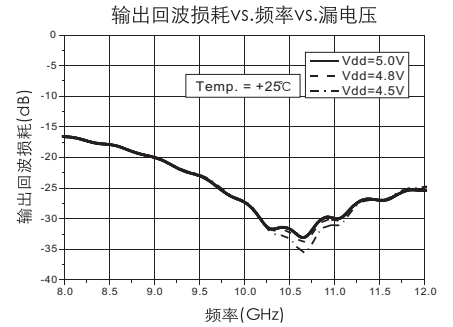
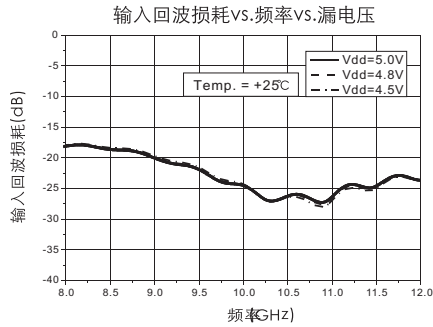
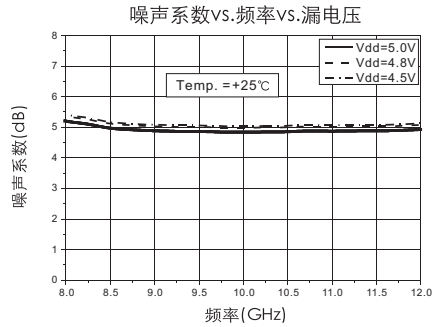
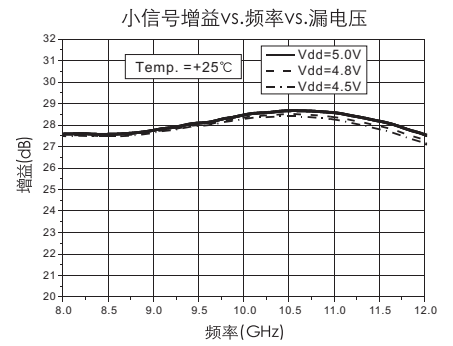
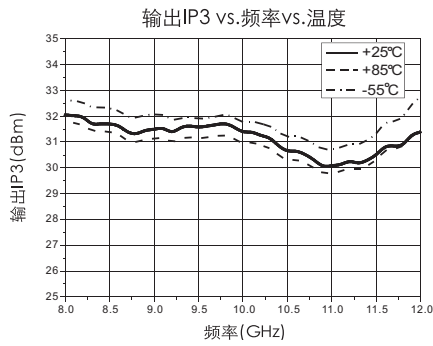
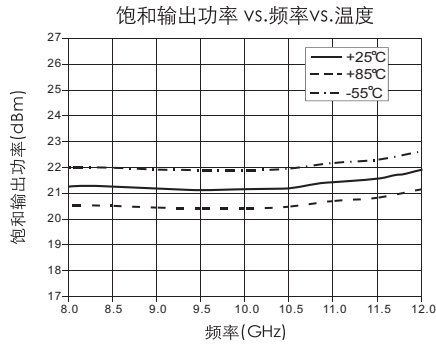
| 符号               | 参数         | 最小值                               | 典型值        | 最大值  | 单位  |
|------------------|------------|-----------------------------------|------------|------|-----|
| Frequency        | 工作频率       | 8.0                               | -          | 12.0 | GHz |
| Gain             | 增益         | -                                 | 27dB /26dB | -    | dB  |
| $\Delta G$       | 增益平坦度      | $\pm 1.5\text{dB}/\pm 1\text{dB}$ |            |      | dB  |
| NF               | 噪声系数       | -                                 | 5/4        | -    | dB  |
| IRL              | 输入回波损耗     | -                                 | 16/17      | -    | dB  |
| ORL              | 输出回波损耗     | -                                 | 15/11      | -    | dB  |
| P1dB             | 1dB压缩点输出功率 | -                                 | 19.5/8     | -    | dBm |
| P <sub>sat</sub> | 饱和输出功率     | -                                 | 21/10      | -    | dBm |
| OIP3             | 三阶交调点输出功率  | -                                 | 26/16      | -    | dBm |
| I <sub>dd</sub>  | 工作电流       | -                                 | 175/55     | -    | mA  |

芯片均经过在片100%直流与RF测试

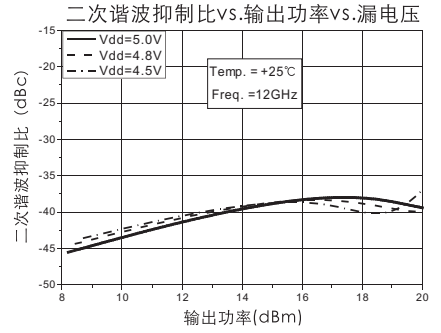
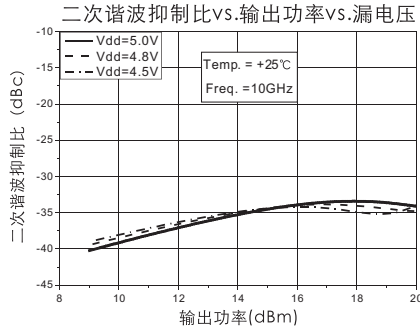
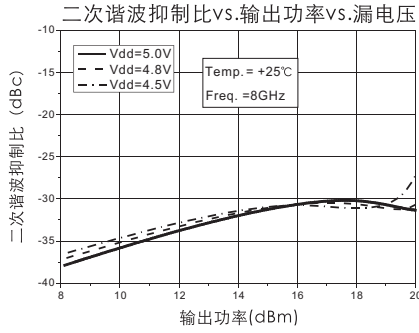
## 测试曲线(发射路)



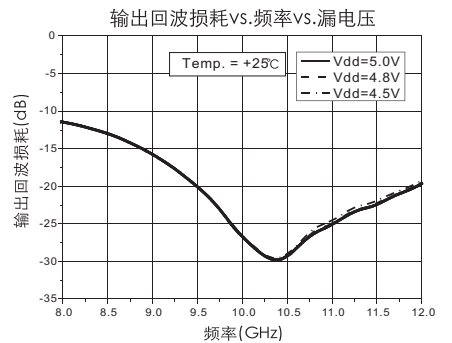
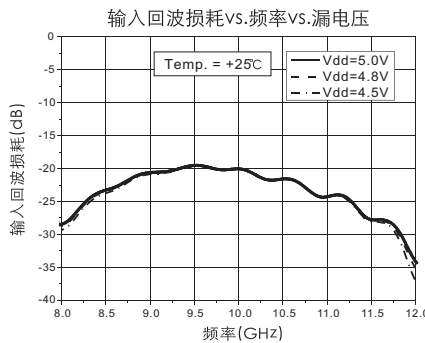
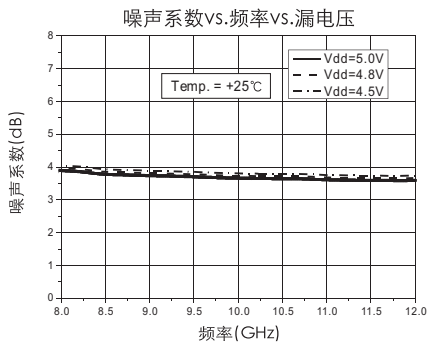
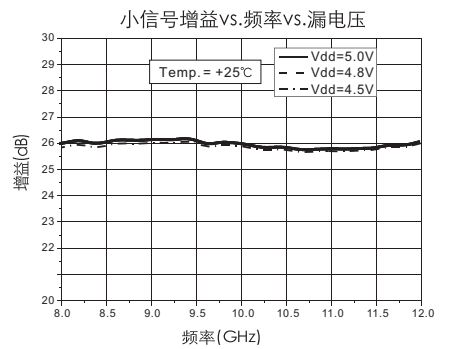
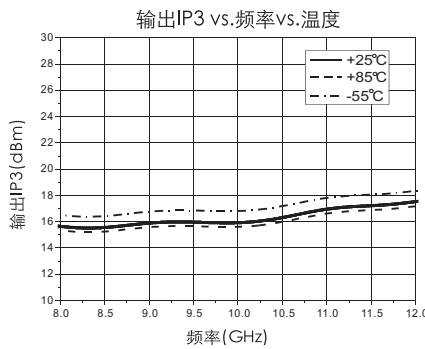
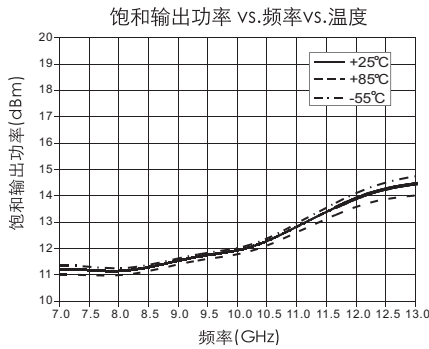
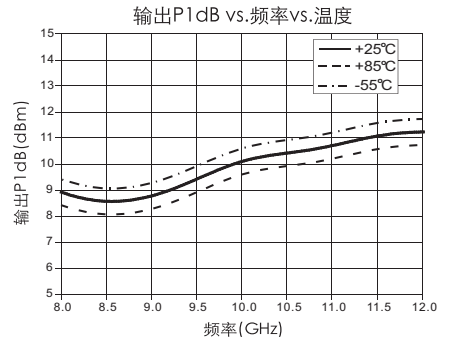
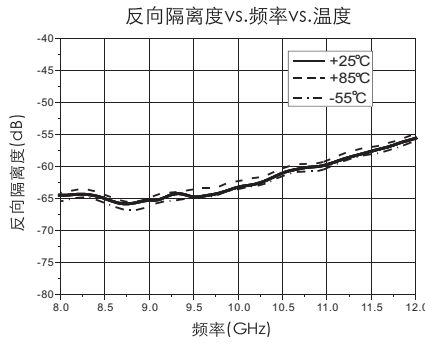
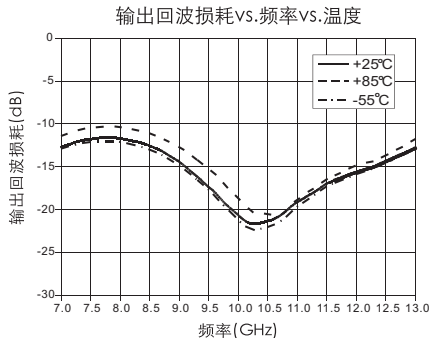
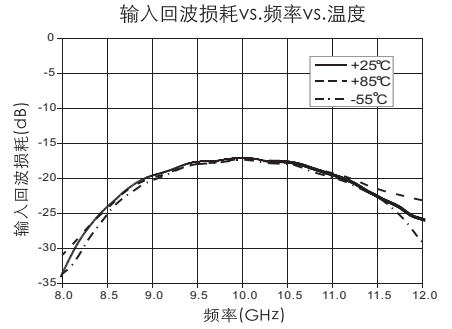
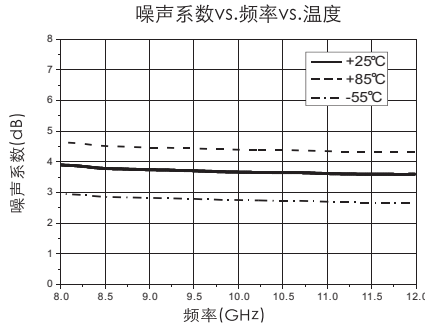
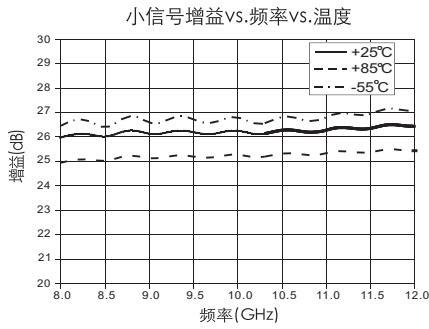
# BW560型GaAs单片集成双向放大器



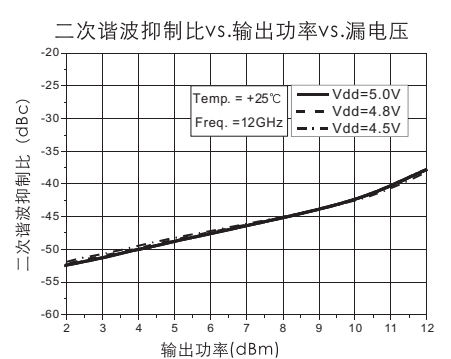
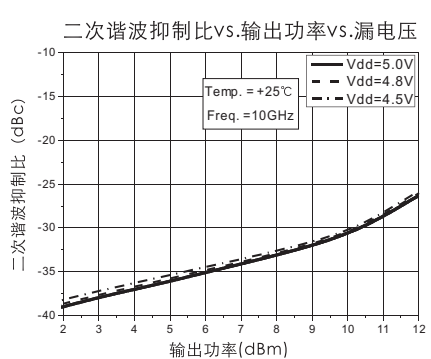
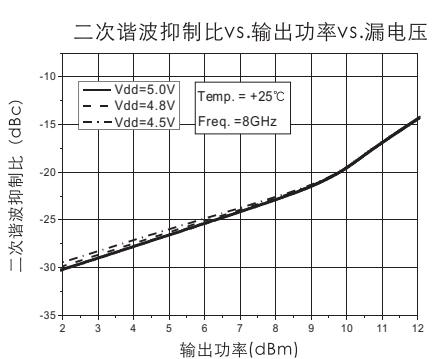
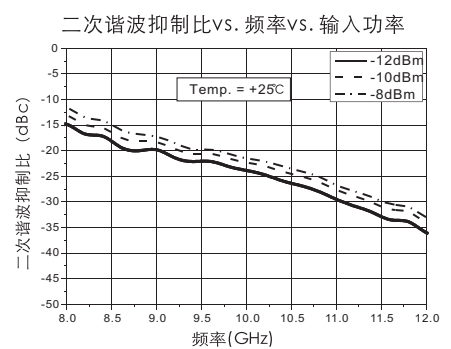
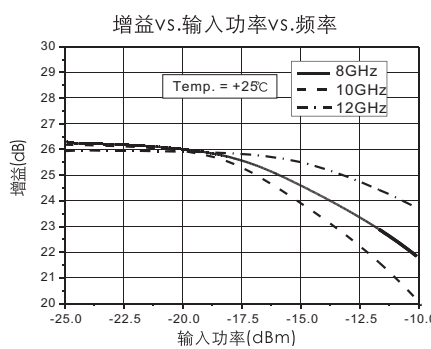
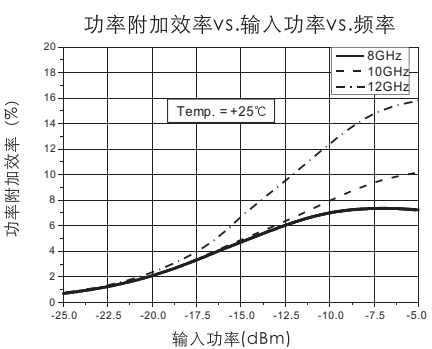
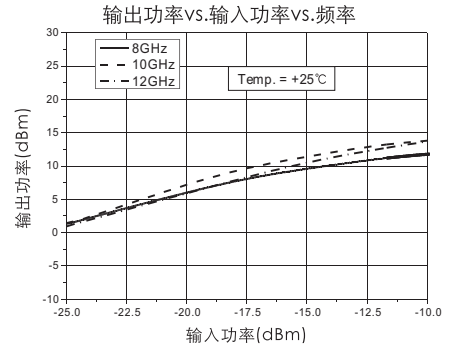
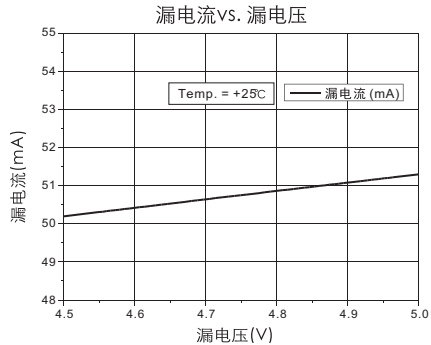
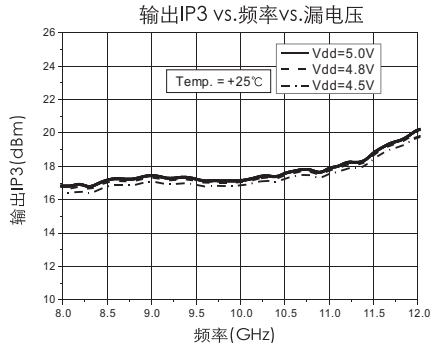
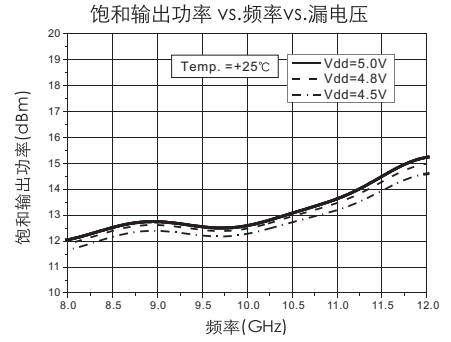
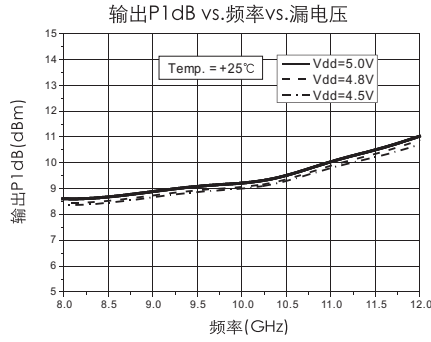
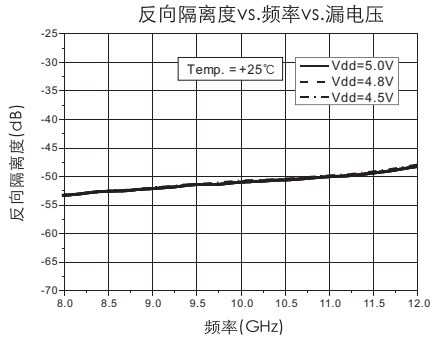
# BW560型GaAs单片集成双向放大器



## 测试曲线(接收路)



# BW560型GaAs单片集成双向放大器



## 极限参数

| 参数              | 数值          |
|-----------------|-------------|
| 输入功率PIN, 50Ω    | +10dBm      |
| 漏电压Vdd          | +6V         |
| 热阻Rth           | 60° 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。



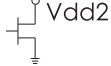
ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS

## 真值表

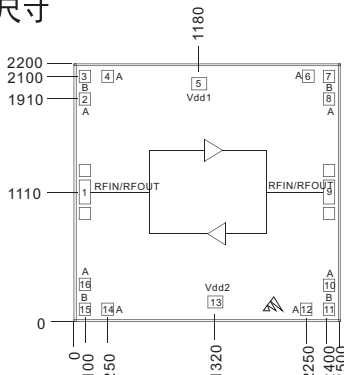
| A   | B   | 放大状态       |
|-----|-----|------------|
| 0V  | -5V | 正向放大 (1→9) |
| -5V | 0V  | 反向放大 (9→1) |

BW560型GaAs单片集成双向放大器

键合压点定义

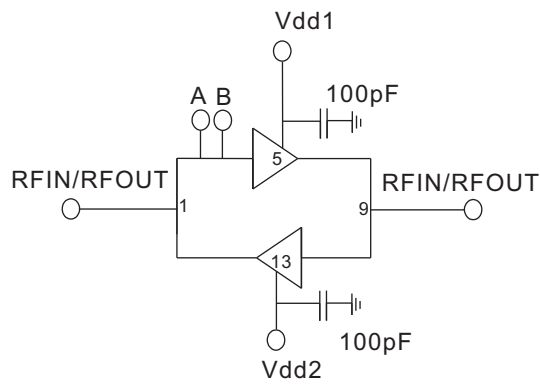
| 压点编号                       | 功能符号       | 功能描述                                                | 等效电路                                                                                |
|----------------------------|------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|
| 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, 4, 6, 8, 10, 12, 14, 16 | A          | 控制压点，4个压点内部相连，控制时选择任一压点即可                           | -                                                                                   |
| 3, 7, 11, 15               | B          | 控制压点，4个压点内部相连，控制时选择任一压点即可                           | -                                                                                   |
| 5                          | Vdd1       | 放大器漏偏压，需外置100pF旁路电容                                 |  |
| 13                         | Vdd2       | 放大器漏偏压，需外置100pF旁路电容                                 |  |
| 9                          | 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 | -                                                                                   |
| 芯片背面                       | GND        | 芯片底部与射频及直流地需要良好接触                                   |  |

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、9：200x100um  
2~8、10~16：100x100um  
5.不能在通孔上进行键合 6.外形尺寸公差：±50um

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)

