

ADIC921

V0

性能特点

- 工作频率: 5 - 7 GHz
- 发射路增益: 7 dB
- 接收路增益: 19 dB
- RX噪声特性: 2.8 dB @ 6.5 GHz
- TX 1dB压缩点输出功率: 21 dBm
- RX 1dB压缩点输出功率: 6 dBm
- 静电防护等级: HBM Class 1B
- 12-pin 3.0 mm x 3.0 mm x 0.75 mm
QFN leadless package

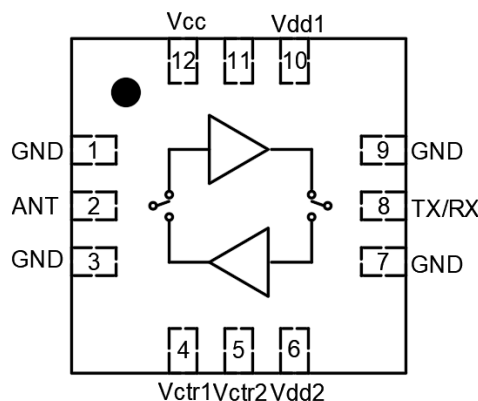
产品简介

ADIC921是一款高集成度的前端模块(FEM), 内部集成有两个分别控制发射和接收路通断的单刀双掷开关, 一个低噪声放大器和一个功率放大器, 可广泛应用于UWB定位和通信系统。

发射和接收的模式转换通过两个控制电压实现。该芯片可适用于TDD系统。为确保芯片有更低的功耗, 发射模式下低噪声放大器处于关闭状态, 而在接收模式下功率放大器处于关闭状态。

芯片封装采用 12-pin 3.0 mm x 3.0 mm x 0.75 mm Quad-Flat-Non-Lead (QFN)。

引脚定义



俯视透视图

引脚编号	功能符号	引脚描述
2	ANT	连接去天线
4	Vctr1	控制电压 (3.3 V/0 V)
5	Vctr2	控制电压(3.3 V/0 V)
6	Vdd2	PA供电电压(3.3 V)
8	TX/RX	PA的输入/LNA的输出
10	Vdd1	LNA供电电压(3.3 V)
11	VCC	开关参考电压(3.3 V)
other	GND	GND

推荐工作条件

工作电压 Vdd1和Vdd2	+3.3 V
控制电压 Vctr1和Vctr2	+3.3 V



关注公众号



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

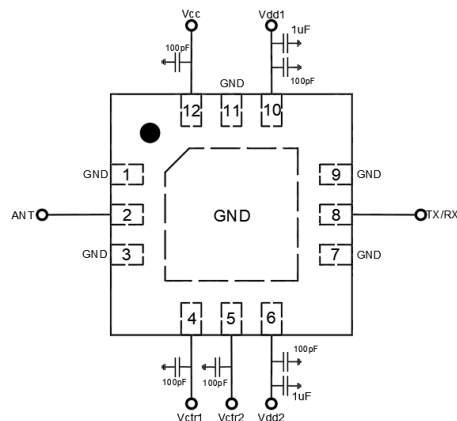
ADIC921

V0

极限参数

名称	值
工作电压 Vdd1 和 Vdd2	+7 V
控制电压 Vctr1 和 Vctr2	+7 V
TX 路输入功率 (50 Ω 负载)	25 dBm
RX 路输入功率 (50 Ω 负载)	0 dBm
回流焊温度	265 °C
工作环境温度	-45 °C~+125 °C
储存温度	-45 °C~+150 °C
静电防护等级 (ESD)	Class 1B (HBM)

应用电路



真值表

Vctr1	Vctr2	TX	RX
高	低	关	开
低	高	开	关

High = 3.3 V; Low = 0 V

电性能表 (Vcc = 3.3 V, Vdd1 = 3.3 V, Vdd2 = 3.3 V, Vctr1 = 3.3 V / 0 V, Vctr2 = 3.3 V / 0 V)

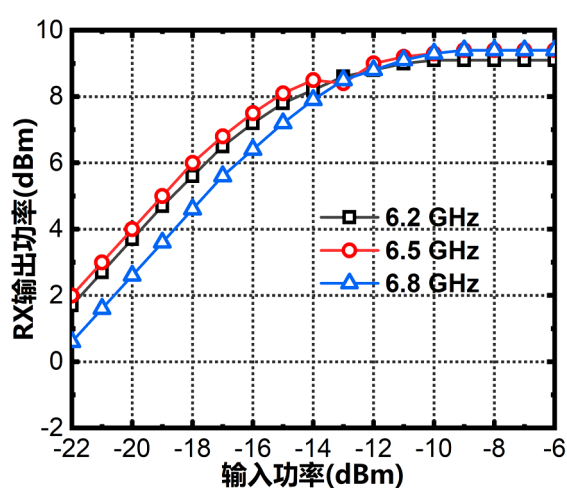
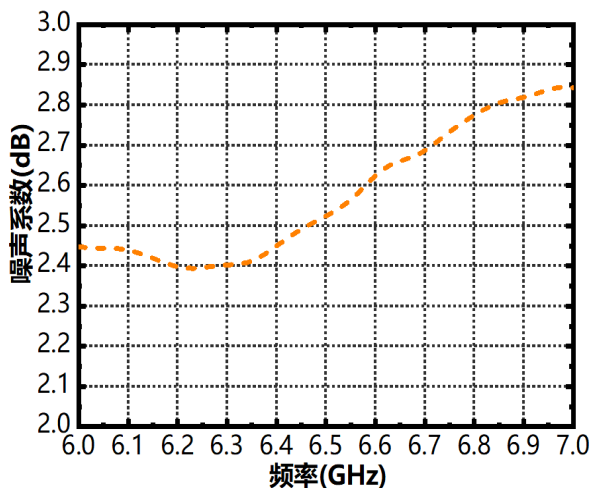
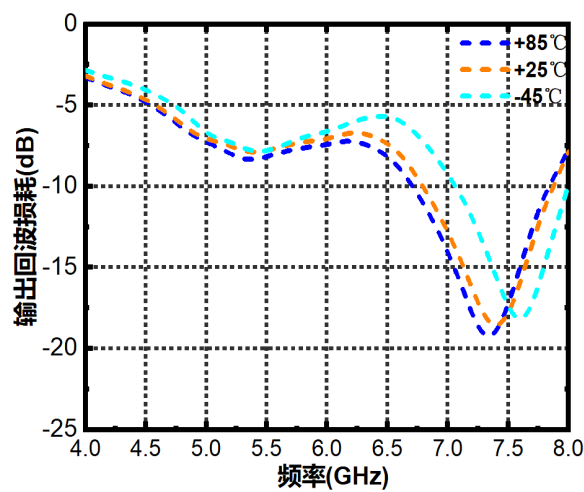
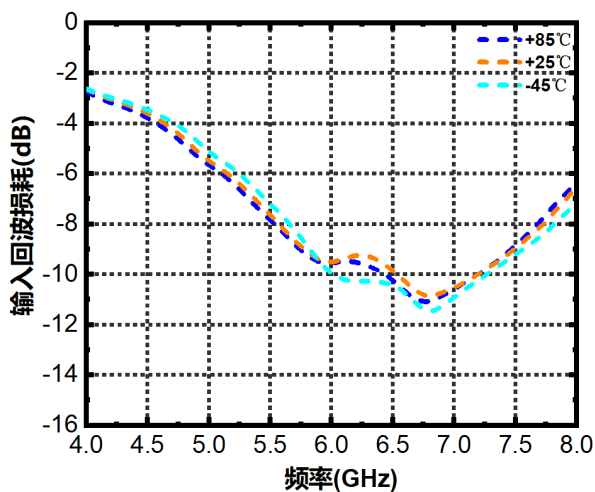
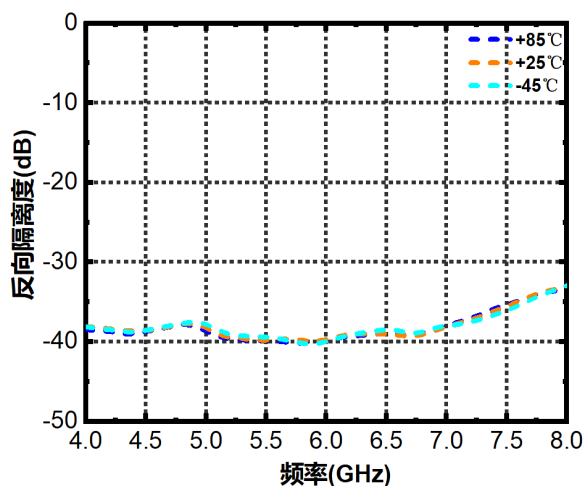
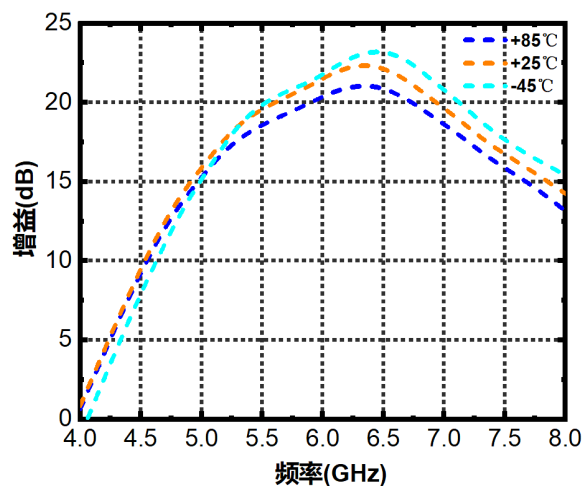
指标	最小值	典型值	最大值
发射模式电性能 (Vdd1 = 0 V, Vdd2 = 3.3 V, Vctr1 = 0 V, Vctr2 = 3.3 V, VCC = 3.3 V)			
频率 (GHz)	5	-	7
Tx 增益 (dB)	6	7	8
Tx 1dB压缩点输出功率 (dBm)	18	20	22
TX 工作电流 Id2(mA)	150	200	250
RX 工作电流 Id1(mA)	-	0	-
接收模式电性能 (Vdd1 = 3.3 V, Vdd2 = 0 V, Vctr1 = 3.3 V, Vctr2 = 0 V, VCC = 3.3 V)			
频率 (GHz)	5	-	7
Rx 增益 (dB)	16	19	23
Rx 噪声特性 (dB)	2.5	3	3.5
Rx 1dB压缩点输出功率 (dBm)	0	4	8
RX 工作电流 Id1 (mA)	13	20	27
TX 工作电流 Id2 (mA)	-	0	-
开关性能			
RX to TX(ns)	-	500	-
TX to RX(ns)	-	500	-

ADIC921

V0

典型性能曲线

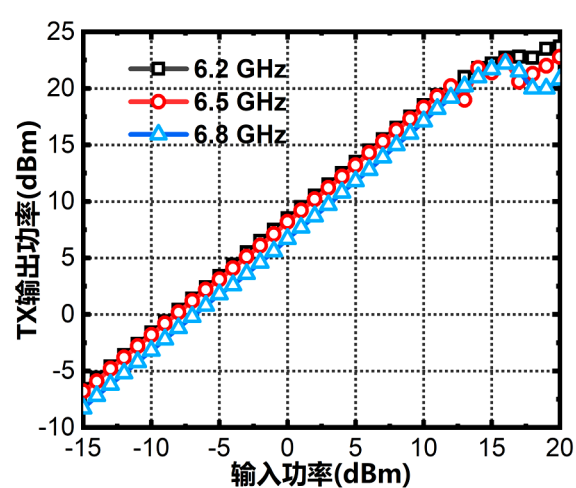
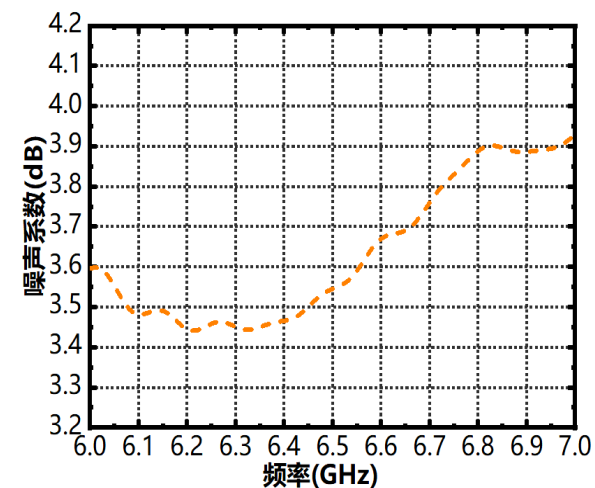
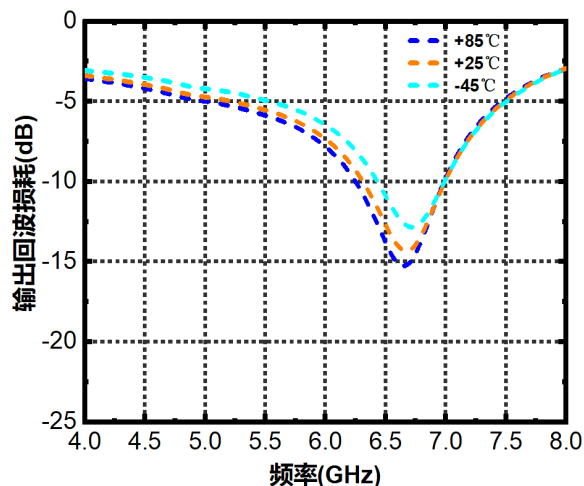
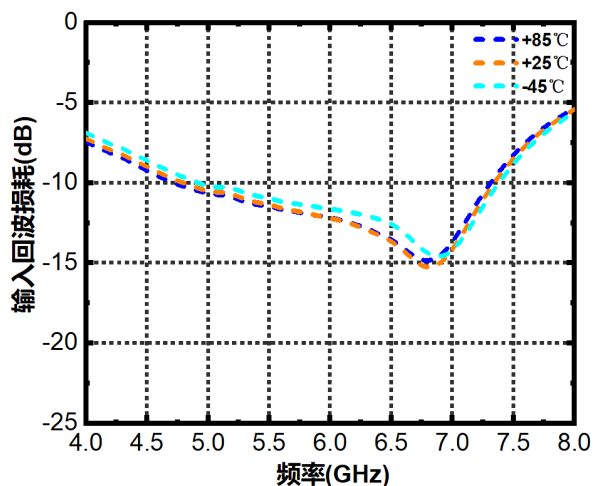
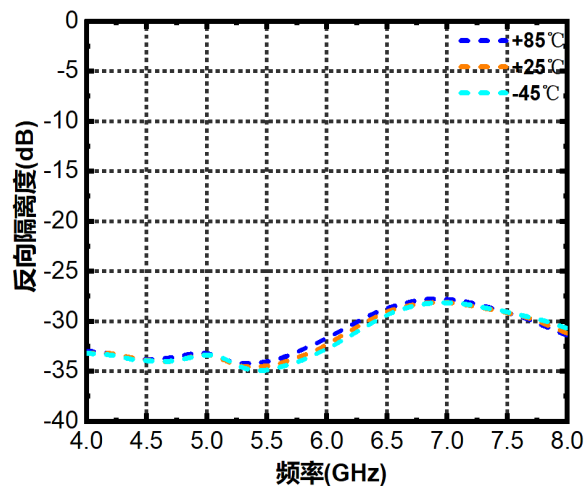
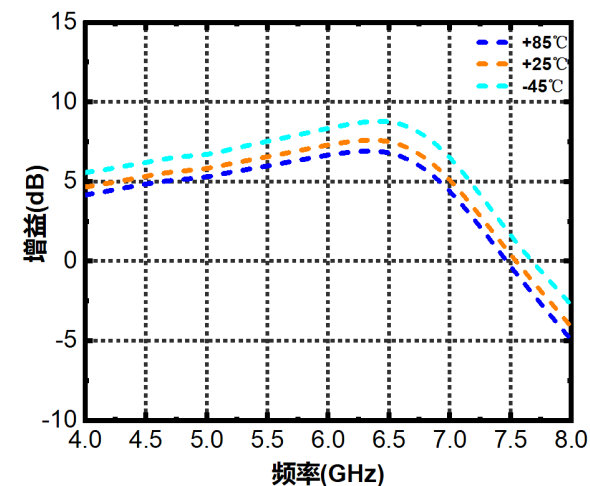
a) RX ($V_{dd1} = 3.3\text{ V}$, $V_{dd2} = 0\text{ V}$, $V_{ctr1} = 3.3\text{ V}$, $V_{ctr2} = 0\text{ V}$, $V_{CC} = 3.3\text{ V}$)



ADIC921

V0

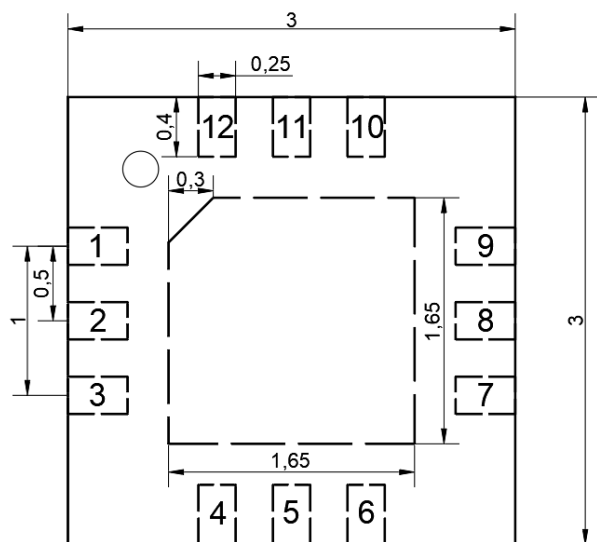
b) TX (Vdd1 = 3.3 V, Vdd2 = 3.3 V, Vctr1 = 0 V, Vctr2 = 3.3 V, VCC = 3.3 V)



ADIC921

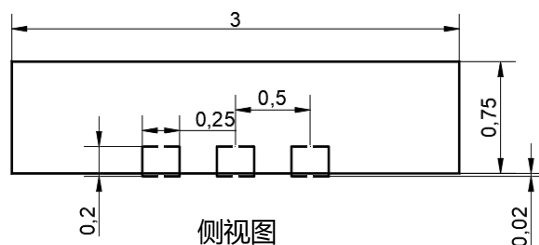
V0

外观尺寸



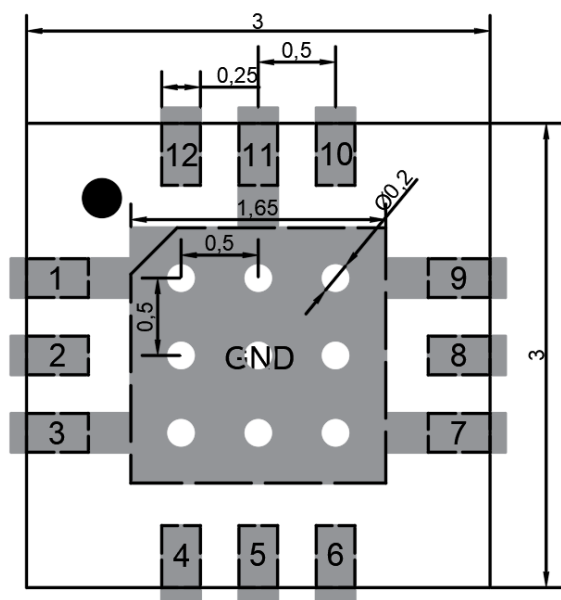
俯视透视图

单位: mm



侧视图

推荐引脚PCB



Environmental Specification

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-45° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-45° to 85° C Ambient Environment	Individual Model Data Sheet
Temperature Cycling	-45° to 85°C, 5 cycles (Hold at each temperature for 30 minutes)	GBT 2423.22-2012 GJB 548B-2005
Temperature Humidity	(40±2°)C/ 85% RH, 48 hours(power supplied)	GBT 2423.3-2006
Solder Reflow Heat	Sn-Pb Eutetic Process: 240°C peak Pb-Free Process: 260°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Moisture Sensitivity: Level 2	Bake at 125°C for 24 hours Soak at 85°C/85% RH for 168 hours Reflow 3 cycles at 240°C peak (Non-RoHS) or 260°C (RoHS)	J-STD-020
Solderability	10X magnification 95% coverage	JESD22-B102
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	GBT 2423.5-2019
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	GJB 548B-2005