Single Stage Low Noise Amplifier

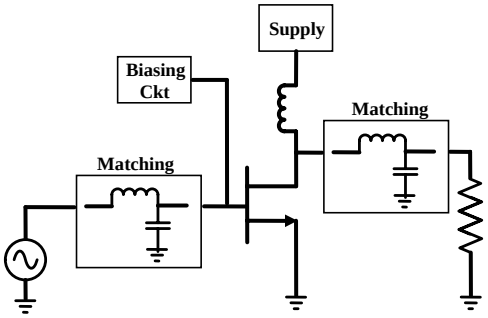
RS03

Description

The **RS03** is 2 to 6 GHz; high efficiency Broadband Single Stage Low noise amplifier, designed on 0.35-µm SiGe BiCMOS technology. The device is designed for use in the 802.11a/b/g and WLAN MIMO system.

The noise figure is 1.5 dB and it has an extremely small die area of 0.6mm x 0.57mm. The device works with single 3.3 V supply voltage and draws 11.8 mA of current.

Functional Diagram



Applications

- IEEE 802.11 a/b/g WLAN
- Cellular System
- WiFi Systems
- ISM Band Systems

Key Features

- Wide Band Operation
- Low noise as low as 1.5 dB
- Small Size

Electrical Specification

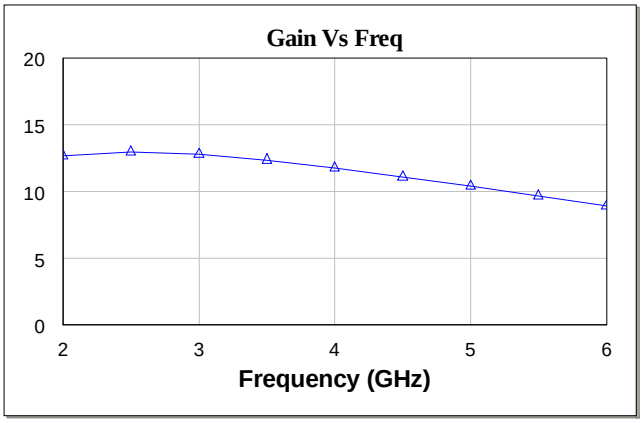
Conditions: Vcc = 3.3 V & T_A=25 ^{0}C

Parameter	Min	Typical	Max	Units
Frequency Range	2		6	GHz
Gain	9.2		12.6	dB
Pout @ 2 GHz		9.5		dBm
Input Return Loss		9		dB
Output Return Loss		7		dB
Noise Figure		1.5		dB
Supply voltage		3.3		V
Current		11.8		mA

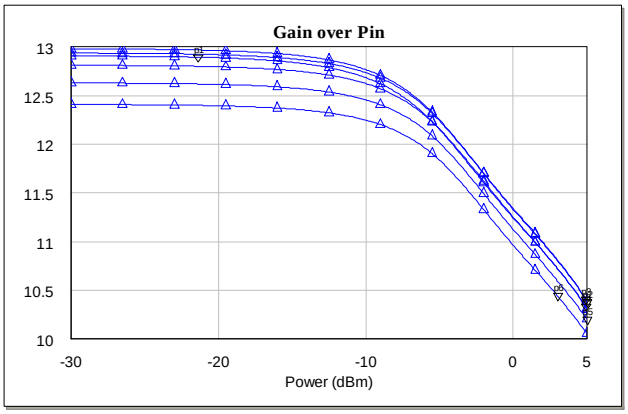
Single Stage Low Noise Amplifier RS03

Simulated Results

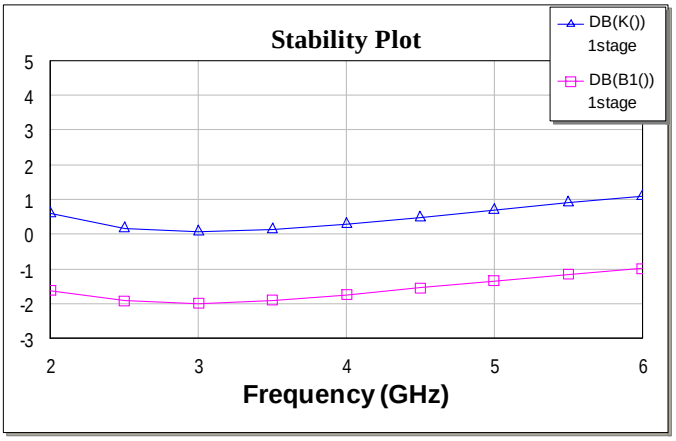
Gain Vs Freq



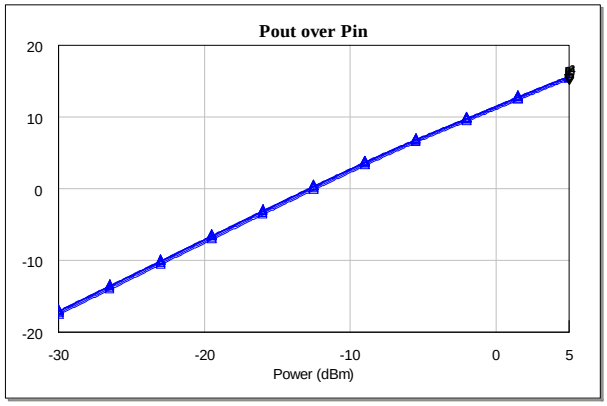
Gain Vs Pin



Stability Vs Freq

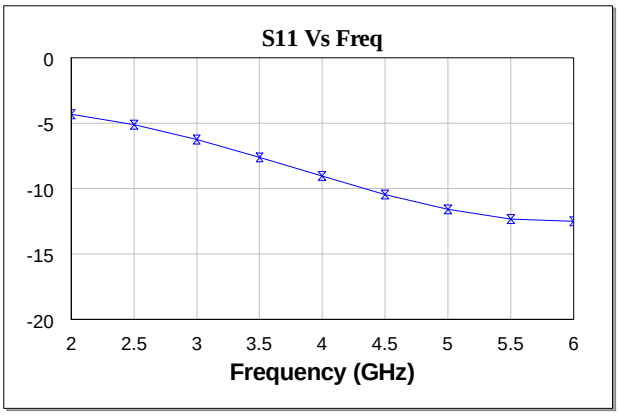


Pout Vs Pin

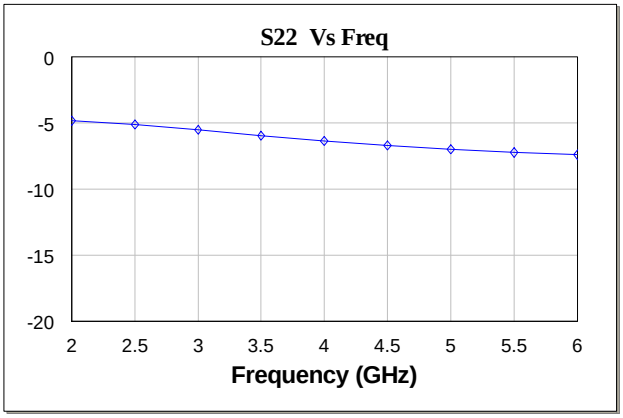


Single Stage Low Noise Amplifier RS03

Input Return Loss Vs Freq



Output Return Loss Vs Freq



Layout