



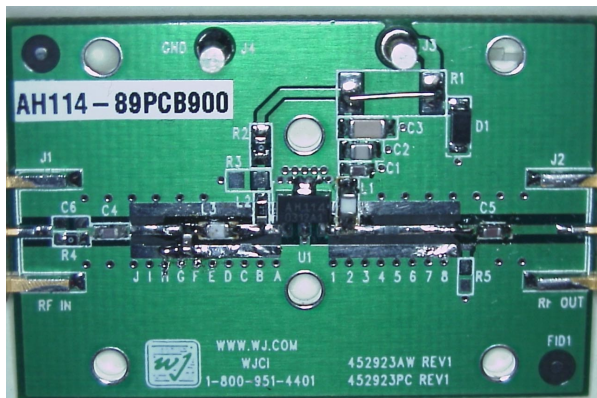
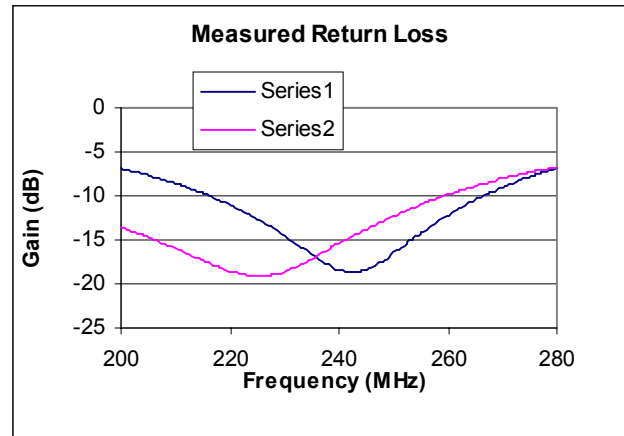
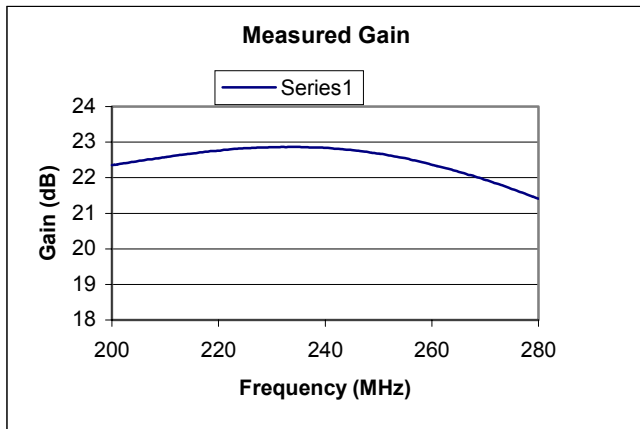
Summary

The AH114 is a high linearity, ¼-W amplifier targeted at mobile infrastructure. As specified on the datasheet, the InGaP HBT amplifier typically achieves 14.5 dB gain, 41 dBm OIP3, and 23 dBm P1dB with an input/output return loss of better than 10 dB at 1.9 GHz. **This application note details the operation and schematic of the AH114 targeted at the IF frequency of 240 MHz.** The tuned AH114 240 MHz application circuit produces 22.8 dB gain and +24 dBm P1dB, and +42 dBm OIP3 with an input/output return loss of better than 15 dB. The amplifier contains an internal active bias and requires only a single +5 V power supply that can be sourced directly from a voltage regulator. This circuit is ideal for use as a driver amplifier for IF applications requiring high linearity and/or output power.

Measured RF Performance

Frequency	240 MHz
S21-Gain	22.8 dB
S11 – Input Return Loss	-18 dB
S22 – Output Return Loss	- 16 dB
Output IP3 (+10 dBm/tone, 1 MHz spacing)	+42dBm
Output P1dB	+24 dBm
Noise Figure	5.5
Supply Voltage	5 V
Supply Current	150 mA

Measured parameters were taken at room temperature



Bill of Materials

Ref. Design	Size	Component
C1	0603	10 pF chip capacitor
C2	0805	1000 pF chip capacitor
C3	1206	10 µF chip capacitor
C4	0603	56 pF chip capacitor
C5	0603	150 pF chip capacitor
C7	0603	27 pF chip capacitor
L1	0805	47 nH chip inductor
L3	0805	12 nH chip inductor
R2, R4	0603	0 ohm chip resistor
L2	0603	2.7 k chip resistor
U1		WJ AH114 Amplifier



Application Note

AH114 240 MHz Reference Design

