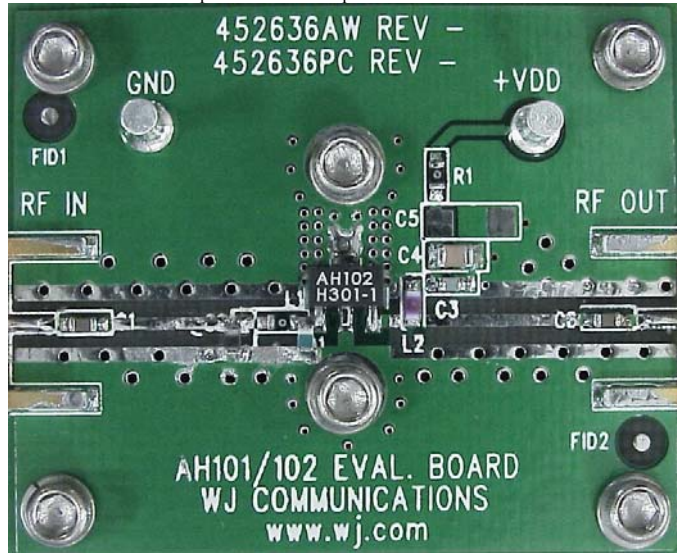




### Summary

The AH102 is a high linearity 1/2-Watt MMIC amplifier targeted for 2<sup>nd</sup> and 3<sup>rd</sup> generation wireless mobile infrastructure as well as other applications requiring high output power. At 0.8 GHz, the class A amplifier typically has 14 dB gain, +27 dBm P1dB, and +46 dBm OIP3 when biased off its recommended standard +9V supply. While typical applications for most amplifiers are usually fairly narrowband and only consist of 20% or less bandwidth, **this application note examines the performance of the AH102 tuned over a broad 800 – 2200 MHz frequency bandwidth.** This allows the user to use a same matching circuitry with the AH102 for all three targeted mobile infrastructure center frequencies: 900, 1900, and 2140 MHz.

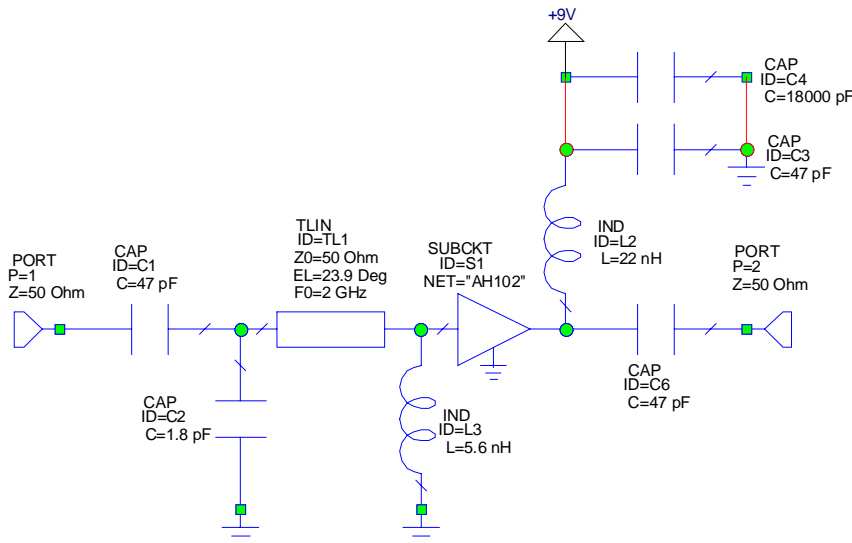
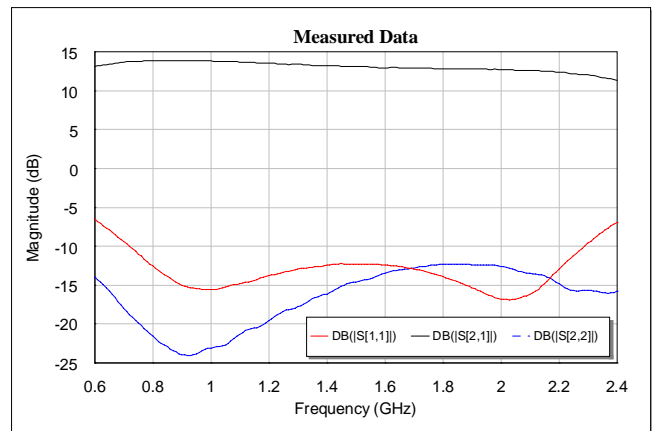
Circuit Board Material: .014" Getek ML200DSS ( $\epsilon_r = 4.2$ ), 1 oz copper  
The main microstrip line has a line impedance of 50  $\Omega$ .



A 0  $\Omega$  0603 resistor was used on the L1 silk screen location. This can be removed from the circuit, but the placement of the C2 input shunt capacitor would have to be placed slightly further away from the device. The required electrical length of the placement is shown in the circuit configuration below.

### Measured RF Performance

Frequency	GHz	0.9	1.8	1.9	2.14
S21 – Gain	dB	13.9	12.8	12.8	12.6
S11 – Input Return Loss	dB	-15	-14	-15	-15
S22 – Output Return Loss	dB	-24	-12.2	-12.3	-13.7
Output P1dB	dBm	+26.1	+26.1	+25.8	+25.6
Output IP3 (+10 dBm / tone, 1 MHz spacing)	dBm	+45.5	+45	+43.9	+43.5
Noise Figure	dB	3.2	3.8	3.8	4.0
Device / Supply Voltage	V	+9			
Supply Current	mA	200			



Specifications and information are subject to change without notice.