Application Note

AG602 Push-Pull CATV Reference Design

Summary

The WJ AG602 can be used in a push-pull configuration to produce 13 dB of gain and excellent performance for CATV applications while only drawing a total of 150 mA of current on a +6 V supply. The high CSO and CTB measurements of -65 dBc at +34 dBmV / channel output power (77 channels) makes this module ideal for CATV line-amplifier solutions.

Product Features

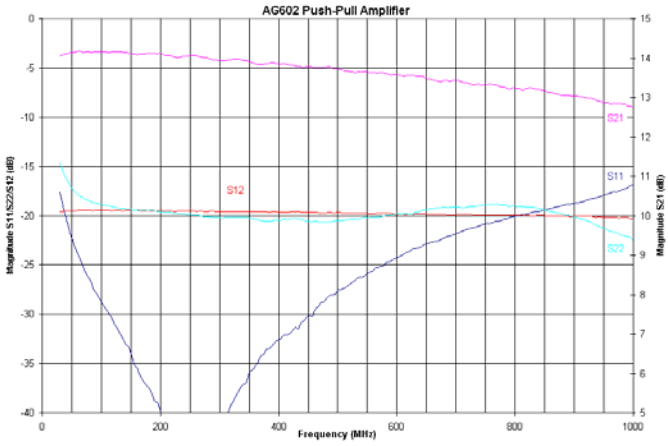
- 50-860MHz
- ±0.5dB Flatness
- +21dBm P1dB @439.25 MHz
- +59.5 dBm OIP2 @888.5 MHz
- +34.7 dBm OIP3 @459.25 MHz
- 13.1dB Gain @860 MHz
- -62 dBc CTB
- -71 dBc CSO
- Single Voltage Supply
- Dual Push-Pull Configuration

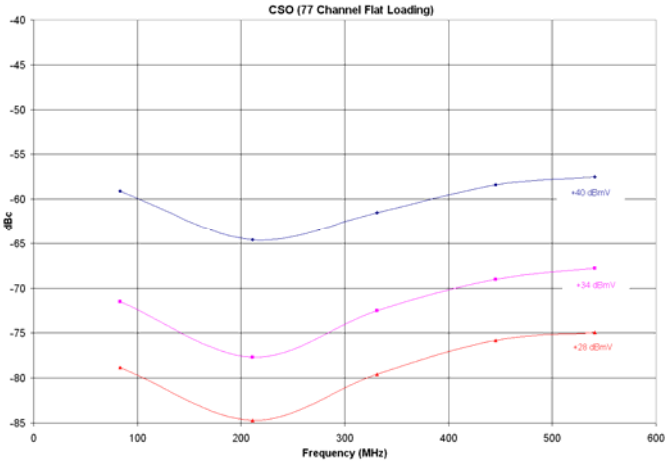
Typical Performance

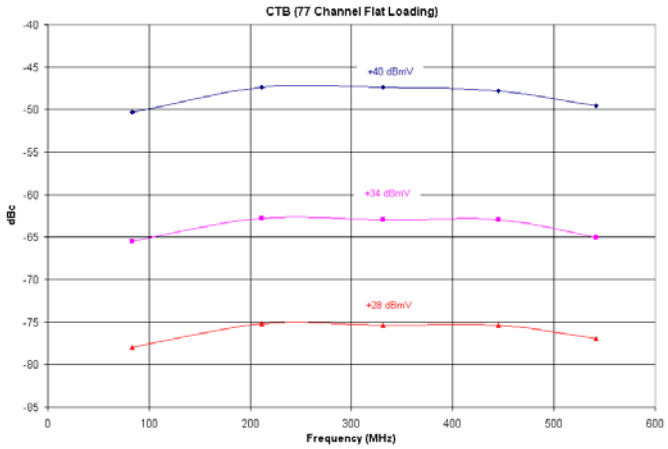
Frequency	MHz	50	320	590	860
Magnitude S21	dB	14.1	13.9	13.5	13.1
Magnitude S11	dB	-22.1	-39.1	-24.5	-19.3
Magnitude S22	dB	-17.2	-20.2	-19.9	-19.6
CTB	dBc	-66.5	-62.5	-65.2	
CSO	dBc	-69.1	-74.2	-67.0	
XMOD	dBc	-56.1	-57.5	-59.7	
Output IP3	dBm	+34.7			
Output IP2	dBm	+59.5			
Output P1dB	dBm	+21			
Noise Figure	dB	6.5			
Bias	Vcc=6V, Ic=150mA				

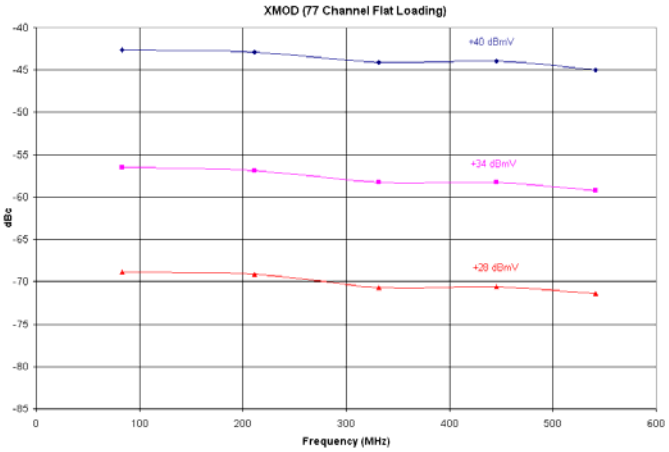
Test conditions unless otherwise noted:

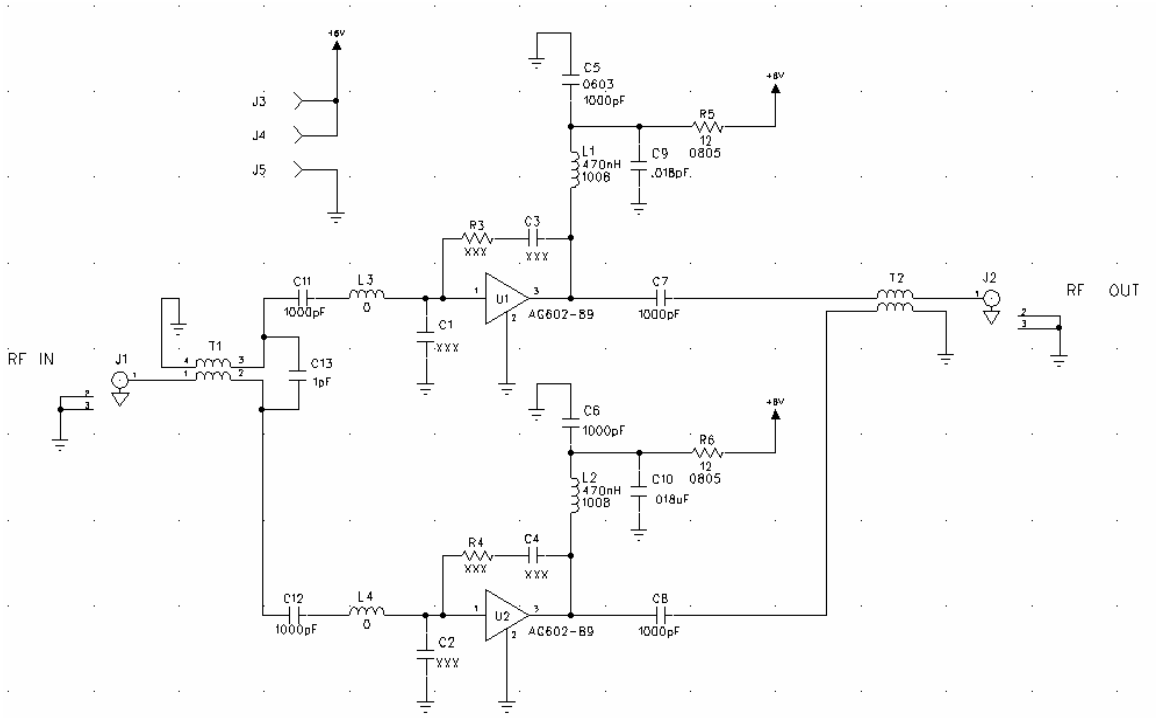
1. T=25°C, Vcc = 6.0V in a 75 Ω application circuit.
2. 77 Channels 50 – 550 MHz, +34 dBmV/Channel Output Power, flat loaded.
3. OIP3 measured with 2 tones at an output power of +3dBm/tone separated by 10 MHz. The suppression on the largest IM3 product is used to calculate the OPI3 using a 2:1 slope rule.
4. OIP2 measured with 2 tones at an output power of +3dBm/tone separated by 10 MHz. The suppression on the largest IM2 product is used to calculate the OPI2.
5. Balun and Board Losses have not been extracted but typically account for 0.4dB loss midband and 1.1 dB loss at 860 MHz.
6. 77 Channel, +34 dBmV/ Channel Output power, flat loaded.

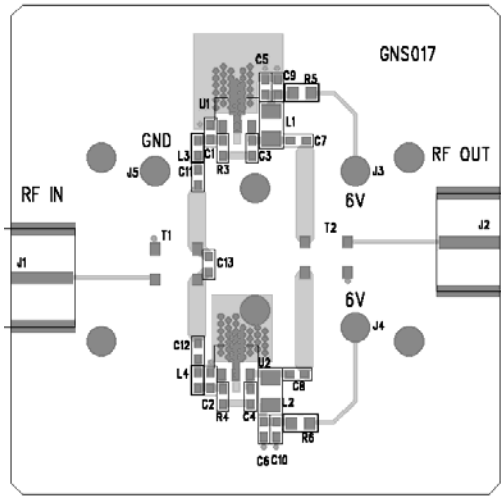












Recommended Bias Resistor Values

Supply Voltage	R5 & R6 Values	Size
6V	12 Ω	0805
7V	25 Ω	1210
8V	39 Ω	2010
9V	52 Ω	2010
10V	65 Ω	2010
11V	79 Ω	2512