

## 4W amplifier in frequency range 1.6-1.7GHz

Current document represents measured data for two test boards of WJ AP561 amplifier. Both test boards are tuned for frequency range 1.6-1.7GHz. Tested output power is approximately 4W.

**NB!** Please before using read original datasheet for AP561. Follow all instructions by switching the device on or off.



### Test board №1

Frequency (MHz)	1600MHz	1625MHz	1650MHz	1675MHz	1700MHz	Unit
Output power (note 1)	35.8	36.3	36.6	36.6	36.4	dBm
Gain (note 2)	13.3	13.5	14.0	13.8	13.7	dB
Input return loss (note 2)	10.6	13.6	18.1	23.5	18.2	dB
Output return loss (note 2)	6.8	7.3	8.1	9.6	12.1	dB
Isolation (note 2)	27.8	27.4	27.2	26.9	29.8	dB
IP3 (note 3)	51.0	51.0	52.0	50.8	50.0	dBm
Operating current (note 4)	1.07	1.15	1.12	1.05	1.02	A
Power efficiency (note 4)	29.6	30.8	34.0	36.2	35.7	%
1dB compression	39.3	39.5	39.0	38.5	38.0	dBm
Quiescent Current, Icq	420					mA
Vpd	+5V					V
Vcc	+12V					V

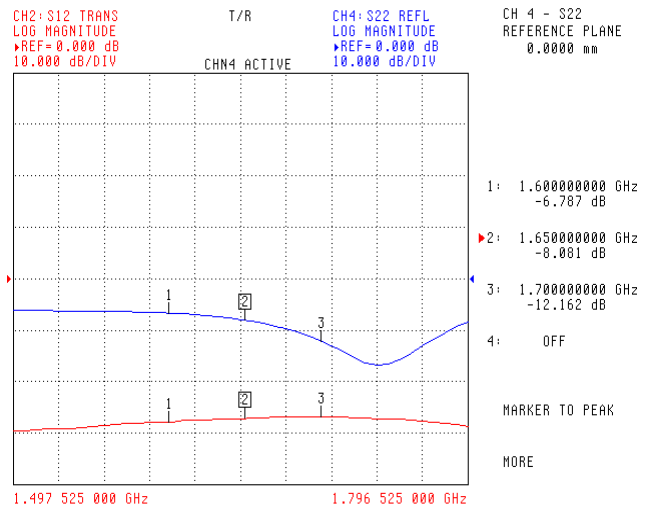
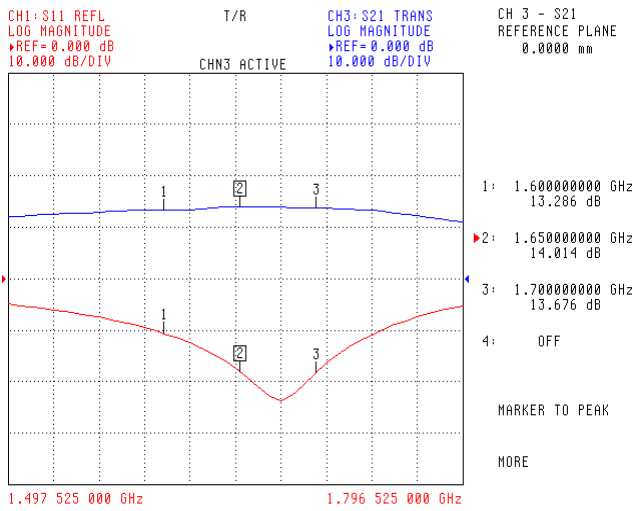
### Test board №2

Frequency (MHz)	1600MHz	1625MHz	1650MHz	1675MHz	1700MHz	Unit
Output power (note 1)	35.9	36.3	36.5	36.7	36.5	dBm
Gain (note 2)	13.3	13.5	14.0	13.8	13.7	dB
Input return loss (note 2)	11.9	15.6	22.7	27.7	17.2	dB
Output return loss (note 2)	5.7	6.0	6.5	7.5	9.1	dB
Isolation (note 2)	28.1	27.7	27.5	27.2	27.1	dB
IP3 (note 3)	50.5	50.9	51.5	52.0	52.5	dBm
Operating current (note 4)	1.17	1.25	1.24	1.18	1.15	A
Power efficiency (note 4)	27.7	28.5	30.0	33.1	32.4	%
1dB compression	39.4	39.5	39.3	39.1	38.6	dBm
Quiescent Current, Icq	440					mA
Vpd	+5V					V
Vcc	+12V					V

#### NOTES:

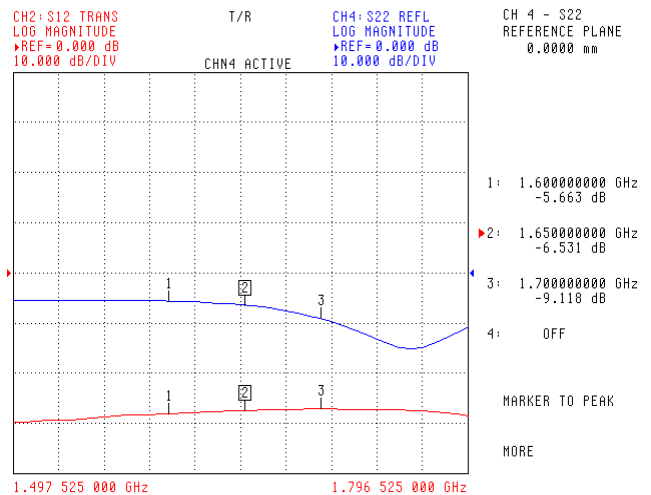
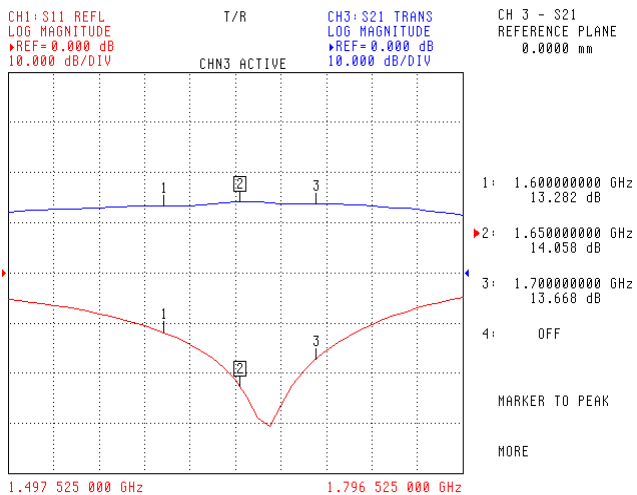
- 1) Input power approximately 23dBm.
- 2) Measured at small input signal.
- 3) Measured using two tones (each 33dBm at output) and 1MHz frequency difference.
- 4) Measured at 36dBm output power.

**RF parameters at small input signal:**



Test board №1, input return loss (-S11) and gain (S21)

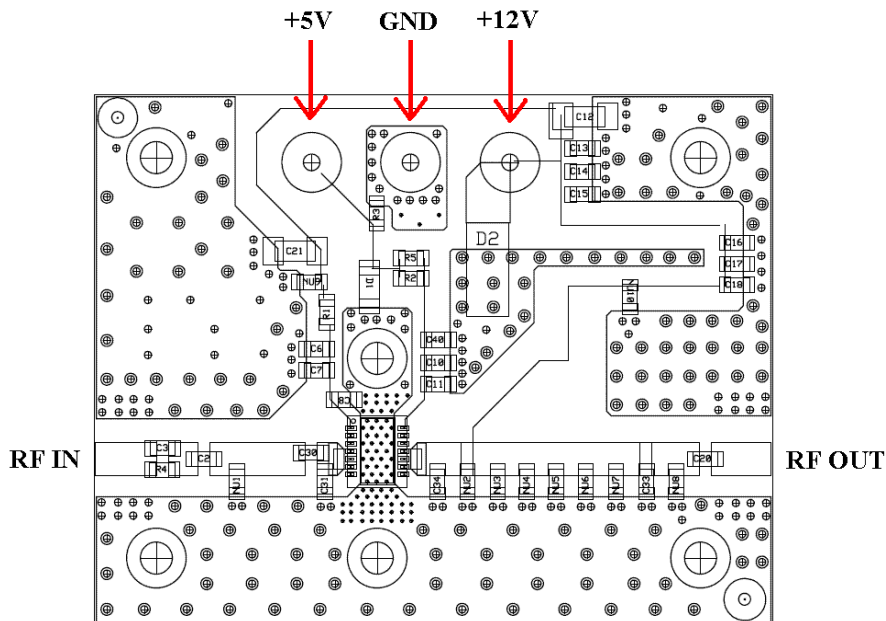
Test board №1, output return loss (-S22) and isolation (-S21)



Test board №2, input return loss (-S11) and gain (S21)

Test board №2, output return loss (-S22) and isolation (-S21)

**PCB parameters:**



Component	Value
PCB	FR4, 1.6mm thickness, copper 0.035mm, plated holes 0.3mm and 0.6mm
C2	0805, 10 pF
C3	0805, 22 pF
C6	0805, 100 nF
C7	0805, 820 pF
C8	0805, 82 pF
C10	0805, 820 pF
C11	0805, 82 pF
C12	1206, 16V, 10 $\mu$ F
C13	0805, 100 nF
C14	0805, 820 pF
C15	0805, 82 pF
C16	0805, 100 nF
C17	0805, 820 pF
C18	0805, 82 pF
C20	0805, 22 pF
C21	1206, 16V, 10 $\mu$ F
C30	0805, 2.7 pF
C31	0805, 3.3 pF very closely to RF input of AP561
C33	0805, 1.0 pF
C34	0805, 3.9 pF very closely to RF output of AP561
C40	0805, 10 nF
R1	0805, 200 Ohm
R2	0805, 470 Ohm
R3	0805, 10 kOhm
R4	0805, 51 Ohm
R5	0805, 560 Ohm
D1	Voltage regulator diode BZV55-B5V1
D2	Transil P6KE13A
T1	AP561