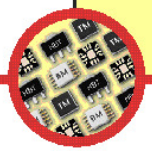
High Power Amplifier Module
5 – 3500MHz, 22dB, 4 Watts

AM003536SF-2H-S
June 2012
Rev 0



DESCRIPTION

AM003536SF-2H-S is an ultra-broadband power amplifier designed for instrumentation, very wideband communications, jamming, and general purpose amplifier applications. It operates from 5MHz to 3500MHz and typically delivers more than 4 watts (36dBm) CW output power and 22dB small signal gain. The module has a built-in DC voltage regulator and a negative voltage generator. It can be biased from a +22V to +28V single voltage supply. The amplifier module has 6 screw slots for mounting to a heat sink.

FEATURES

- Broadband design from 5 to 3500 MHz
- High gain and high power, P_{sat} = 37dBm, Gain = 22dB
- +22 to + 28V DC single bias.

APPLICATIONS

- Instrumentation
- Broadband communications
- Broadband jammer

PERFORMANCE (V_{dd} = +22V, I_{dq} = 0.8A, T_a = 25°C)

Parameters	Minimum	Typical	Maximum
Frequency	10 – 3000MHz	5 – 3500MHz	
Gain (Small signal)	20dB	22dB	
Gain Ripple		± 1.5dB	± 3dB
P_{sat}	35dBm	37dBm (5W)	
IP3 at 1GHz		46dBm	
Input VSWR		1.5:1	2:1
Output VSWR		3:1	

ABSOLUTE MAXIMUM RATING

Parameters	Symbol	Rating
Supply voltage	V_{dd}	+28V
Continuous dissipation at room temperature	P_t	30W
Operating ambient temp	T_a	-45°C to +85°C
Storage temperature	T_{sto}	-60°C to +150°C

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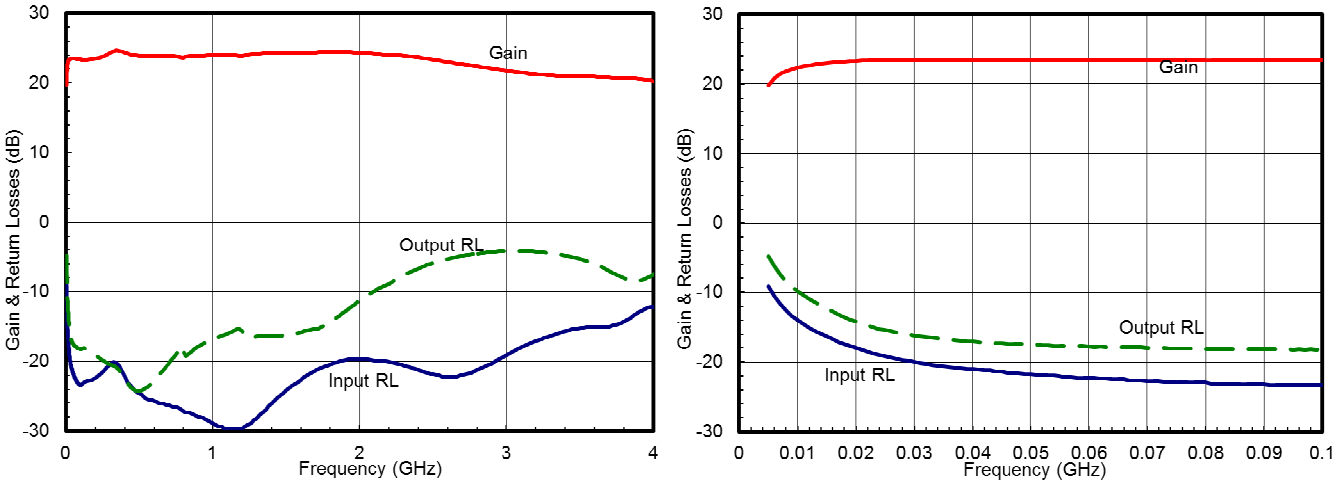
SMALL SIGNAL DATA

Figures 1a & 1b show the small signal gain as a function of frequency. The small signal gain is more than 20dB from 5MHz to 4000MHz.



a) Broadband response

b) Low frequency response

Figure 1: Gain and return loss as a function of frequency. (V_{dd}= +22V, I_{dq}=0.75A, T_a=25°C)

POWER DATA

Figure 2 shows the output power at 1dB compression P_{1dB} and efficiency as a function of frequency. P_{1dB} is 36dBm (4W) up to 3.0GHz.

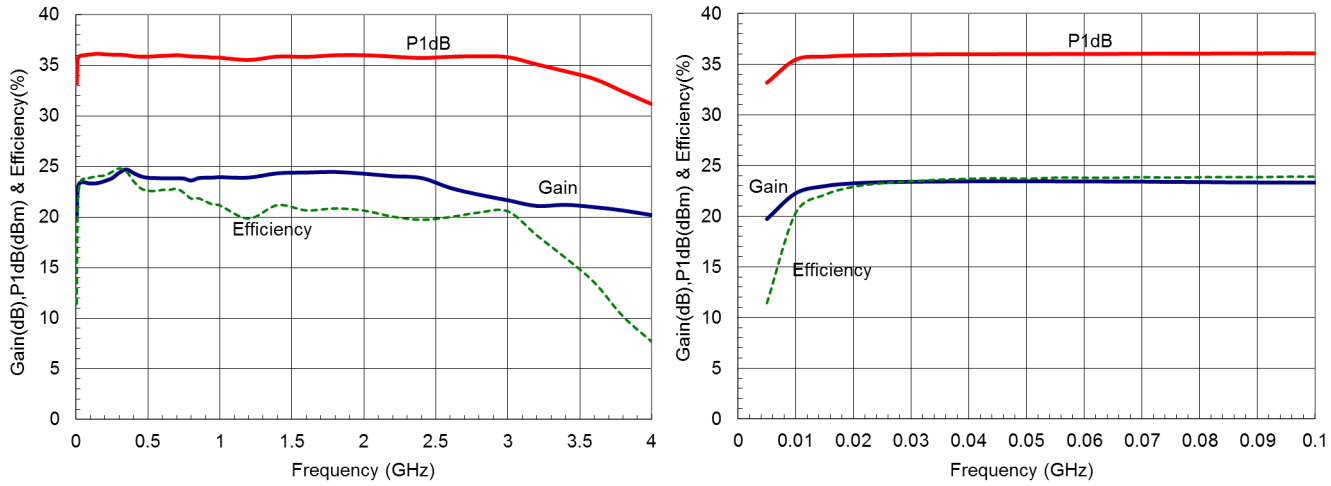


Figure 2: P_{1dB} and Efficiency versus Frequency (Bias +22V & 0.75A)

Figure 3 shows the output power at 3dB compression P_{3dB} and efficiency as a function of frequency. P_{3dB} is 37dBm (5W) up to 3GHz.

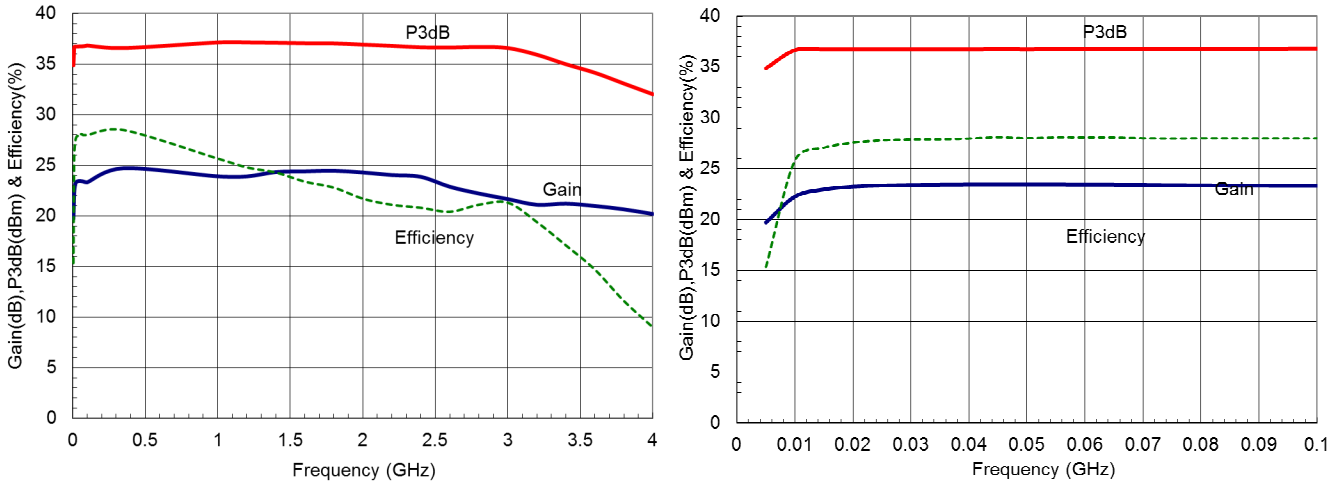


Figure 3: P_{3dB} and Efficiency versus Frequency (Bias +22V & 0.75A)

Figure 4 shows the 3rd order inter-modulation intercept which is better than 46dBm up to 1GHz and better than 40dBm up to 3GHz.

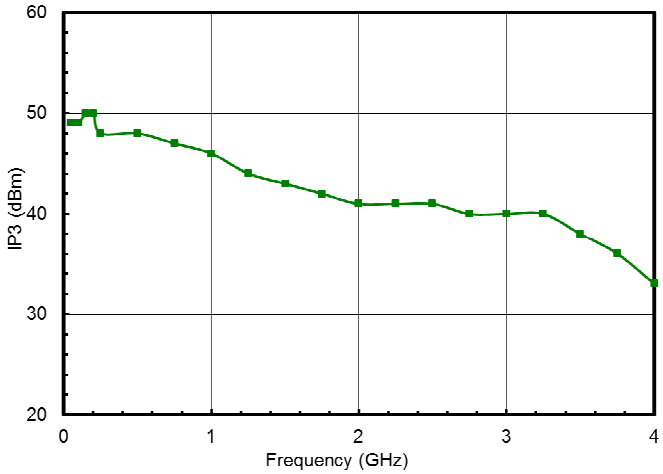


Figure 4: Third order inter-modulation intercept versus Frequency

Figure 5 shows the 2nd harmonic and 3rd harmonic intercept points

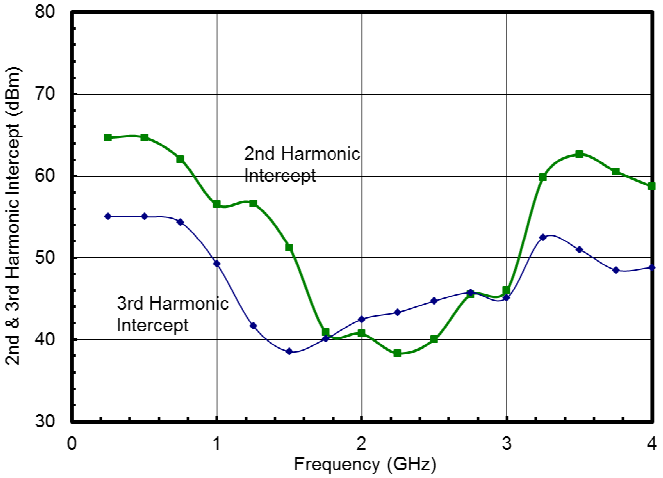


Figure 5: 2nd harmonic and 3rd harmonic intercept versus Frequency

PACKAGE OUTLINE

Figure 6 is the photograph of the housing. Figure 7 shows the package outline. The dimension is 2.8”(L) x 2”(W) x 0.56”(H). The module needs a single +22V x 0.8A DC supply. It has SMA connectors for RF input and output, and DC pins for +22V and ground.

Figure 6: Photograph of PA Module

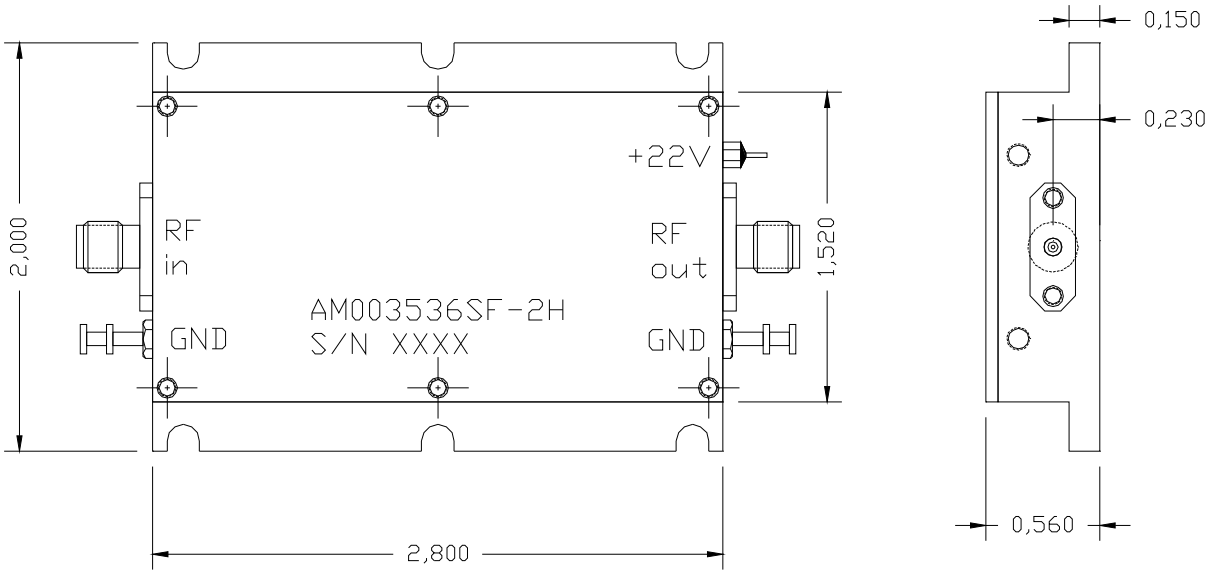


Figure 7: Outline of PA Module. 2.8”(L) x 2”(W) x 0.56”(H)