



DESCRIPTION

AM003040SF-2H is an ultra-broadband High Power Amplifier designed for instrumentation, communication and Jamming applications. It operates from 10MHz to 3000MHz and typically delivers more than 10 watts (40dBm) 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 24V to 28V single supply. The amplifier module has 8 screw holes for mounting to a heat sink.

FEATURES

- Broadband design from 10 to 3000MHz
- High Gain and High Power, $P_{sat} = 41\text{dBm}$, Gain = 22dB
- +24 to + 28V DC Single Bias.

APPLICATIONS

- Instrumentation
- Broadband communication
- Broadband Jammer

PERFORMANCE ($V_{dd} = +24\text{V}$, $I_{dq} = 3.3\text{A}$, $T_a = 25^\circ\text{C}$)

Parameters	Minimum	Typical	Maximum
Frequency	20 – 3000MHz	10 – 3500MHz	
Gain (Small signal)	18dB	22dB	
Gain Ripple		$\pm 2\text{dB}$	$\pm 4\text{dB}$
P1dB @ 1GHz	38dBm	42dBm (15.8W)	
Psat @ 1 GHz	39dBm	43dBm (20W)	
1GHz Efficiency @ P3dB	18%	22%	
IP3 at 1 GHz		55dBm	
Input VSWR		1.5:1	2:1
Output VSWR		3:1	4:1

ABSOLUTE MAXIMUM RATING

Parameters	Symbol	Rating
Supply voltage	V_{dd}	30V
Continuous dissipation at room temperature	P_t	100W
Operating ambient temp	T_a	85°C
Storage temperature	T_{sto}	-60°C to +150°C

Figure 1 shows the small signal gain as a function of frequency. The small signal gain is 22dB from 10MHz to 2000MHz, and above 20dB from 2000MHz to 3000MHz.

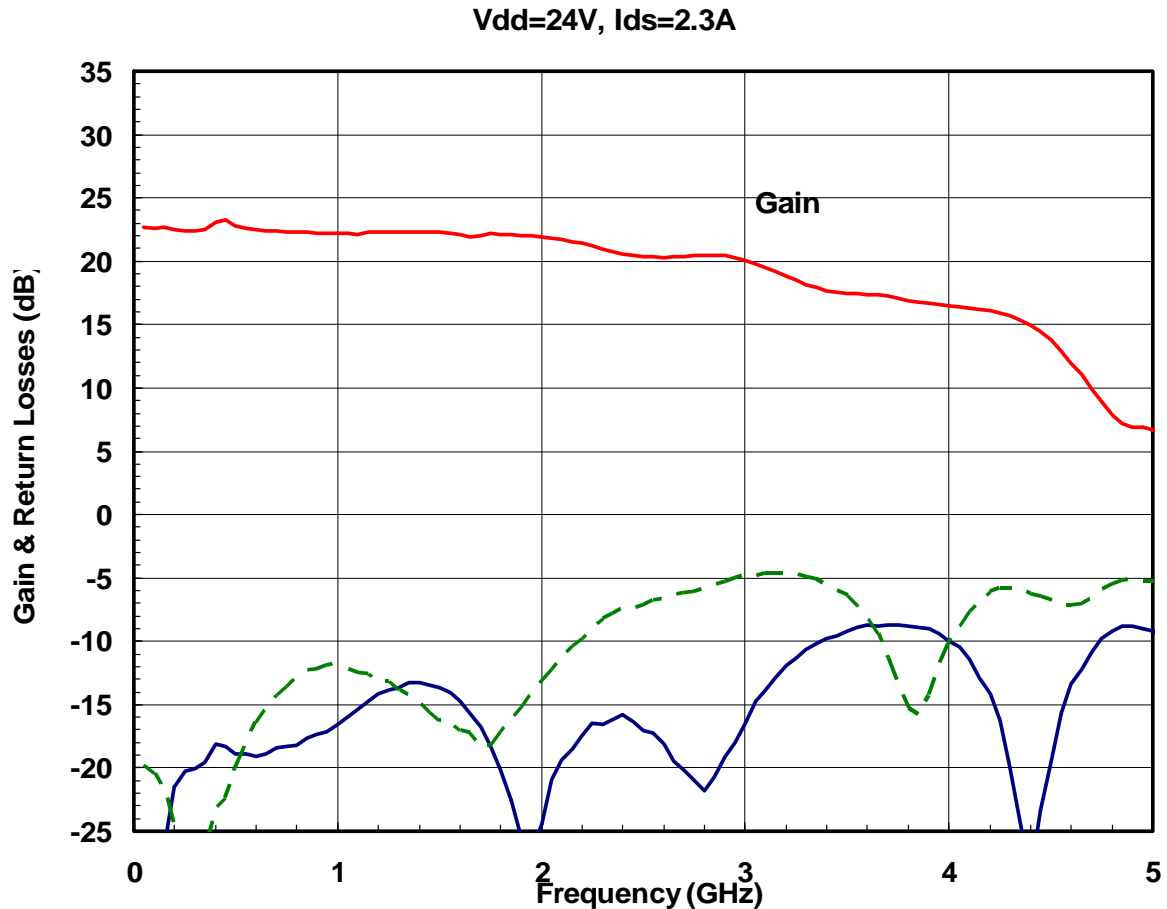


Figure 1: Gain and return loss as a function of frequency. (V_{dd}= +24V, I_{dq}=2.3A, T_a=25°C)

Figure 2 shows the output power P1dB, P3dB, and gain as a function of frequency. P1dB is 42dBm (15.8W) up to 1GHz, 40dBm (10W) from 1000MHz to 3000MHz, and 39.5dBm (9W) from 3000MHz to 3500MHz. P3dB (At 3dB gain compression) is 43dBm (20W) up to 1GHz, 41dBm (12W) from 1000MHz to 3000MHz, and 40dBm (10W) from 3000MHz to 3500MHz.

Figure 3 shows the efficiency corresponds to P1dB and P3dB as a function of frequency. P3dB Efficiency is 22% efficiency up to 1GHz, 15% from 1000MHz to 3000MHz, and 12% efficiency from 3000MHz to 3500MHz. Figure 4 shows IP3 & IP5 versus frequency. IP3 is better than 55dBm up to 1GHz, and better than 48dBm from 1GHz to 3GHz.

Figure 5 shows the housing dimension, which is 6”(L) x 4”(W) x 0.66”(H), and weight approximately 1 Lb and 4 Oz (580 Grams). SMA connectors are for RF input and output. DC pins are for +24V and ground.

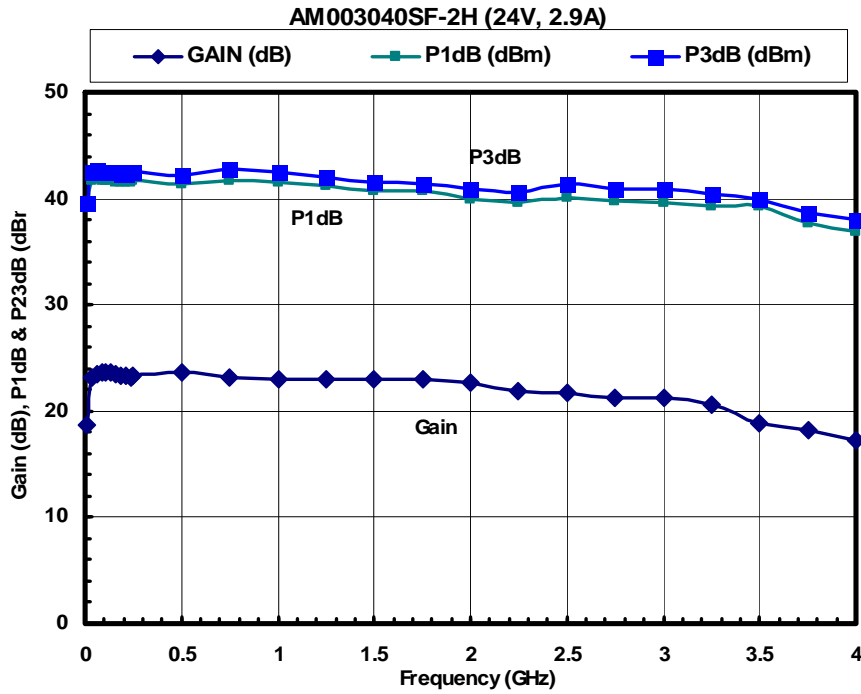


Figure 2: P1dB, P3dB, and Gain versus frequency

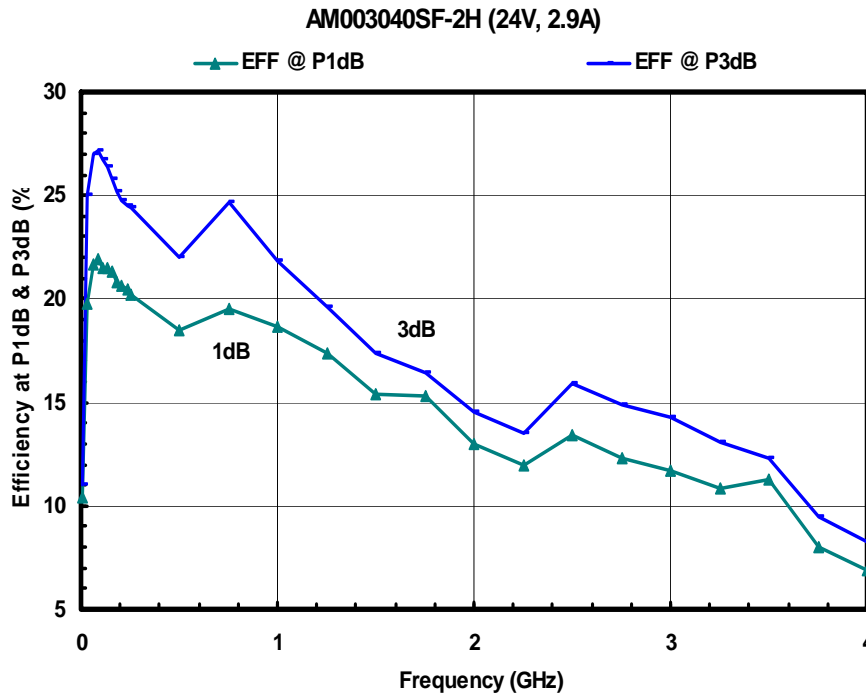


Figure 3: Efficiency versus frequency

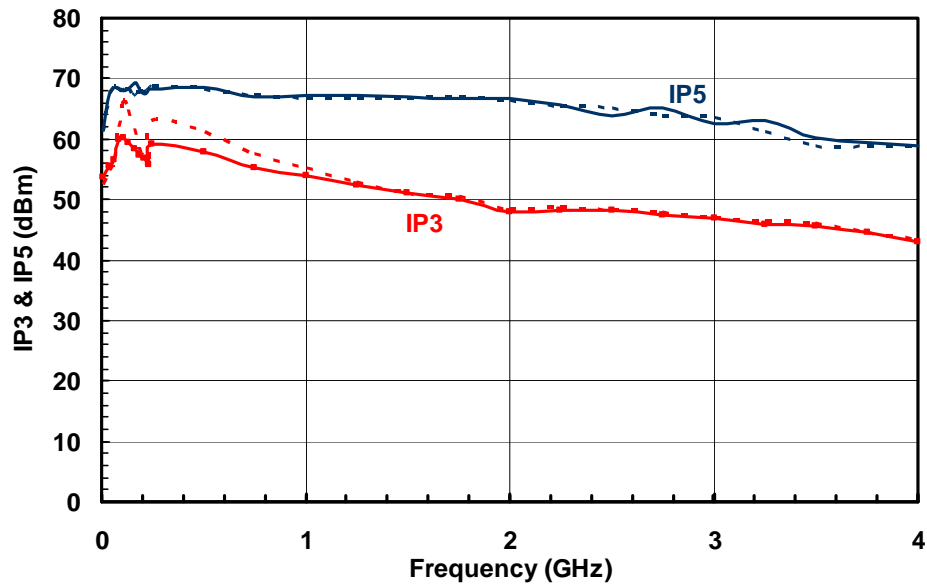


Figure 4: IP3 versus Frequency

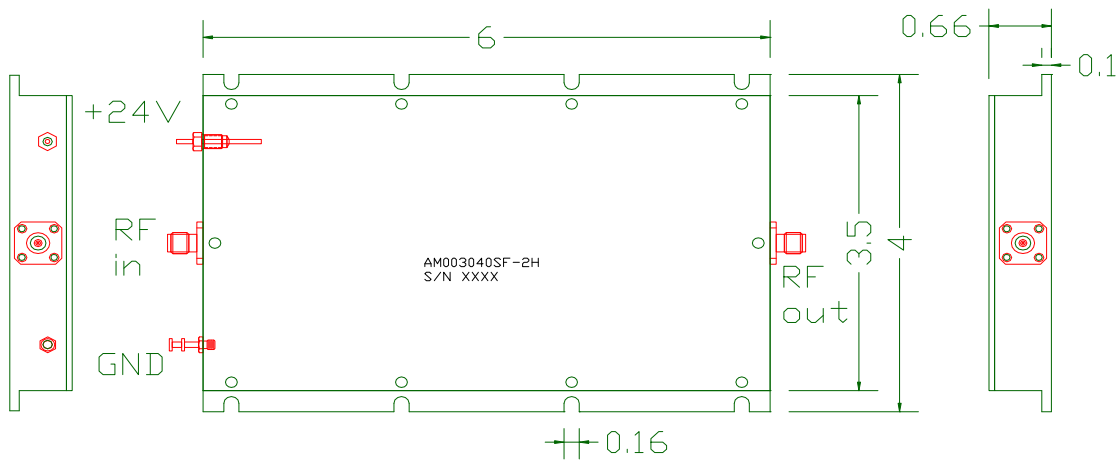


Figure 5: 10W amplifier drawing