



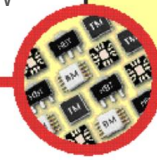
Broadband High-Power Amplifier Module

1.5 – 3.0 GHz | 38 dB Gain | 10 W (40 dBm) CW

AM153040SF-4H

MAY 2026

Rev2



DESCRIPTION

The AM153040SF-4H is a broadband, high-power amplifier (HPA) module engineered for demanding instrumentation and wideband communications applications. Operating continuously across the 1.5 GHz to 3.0 GHz band, the module delivers more than 10 watts (40 dBm) of CW output power together with a nominal 38 dB of small-signal gain, providing a single-stage solution where both high gain and high linear power are required.

The module integrates a complete bias-management subsystem, including an on-board DC voltage regulator and an internal negative-voltage generator, allowing the amplifier to be operated from a single positive supply of +15 V to +20 V. This eliminates the need for an external negative gate supply and simplifies system-level power-supply design and sequencing. An integrated output power detector provides a convenient means of monitoring output level for closed-loop power control, fault detection, or system telemetry.

Mechanically, the amplifier is supplied as a self-contained module with six mounting holes for direct attachment to a system heat sink or cold plate, ensuring efficient thermal transfer under continuous high-power operation. The combination of broadband coverage, high linearity, integrated bias circuitry, and rugged packaging makes the AM153040SF-4H well suited for both laboratory test equipment and deployed communications hardware.



APPLICATIONS

- Test and measurement instrumentation
- Broadband wireless communications
- Satellite and radar subsystems
- Electronic warfare and signal intelligence
- General-purpose RF gain block

FEATURES

- Wide instantaneous bandwidth
- High gain and high output power
- Single positive-supply operation
- Integrated output power detector
- Good linearity
- Rugged, heat-sinkable module
- Wide operating temperature range

Electrical Specifications

Test conditions: $V_{DD} = +15\text{ V}$, $I_{dq} = 3.9\text{ A}$, $T_a = 25\text{ }^{\circ}\text{C}$ (unless otherwise noted).

Parameter	Min	Typ	Max	Unit
Operating Frequency Range	1500	–	3000	MHz
Usable Frequency Range	1300	–	3400	MHz
Small-Signal Gain	30	38	48	dB
Gain Flatness (Variation)	–	± 8	± 10	dB
Output Power @ P1dB	37	40	–	dBm
Saturated Output Power (Psat)	38	41	–	dBm
Power-Added Efficiency @ P3dB	–	15	–	%
Output Third-Order Intercept (OIP3)	–	46	–	dBm
Noise Figure	–	8	9	dB
Input VSWR	–	1.5 : 1	2 : 1	–
Output VSWR	–	2 : 1	3 : 1	–

Absolute Maximum Ratings

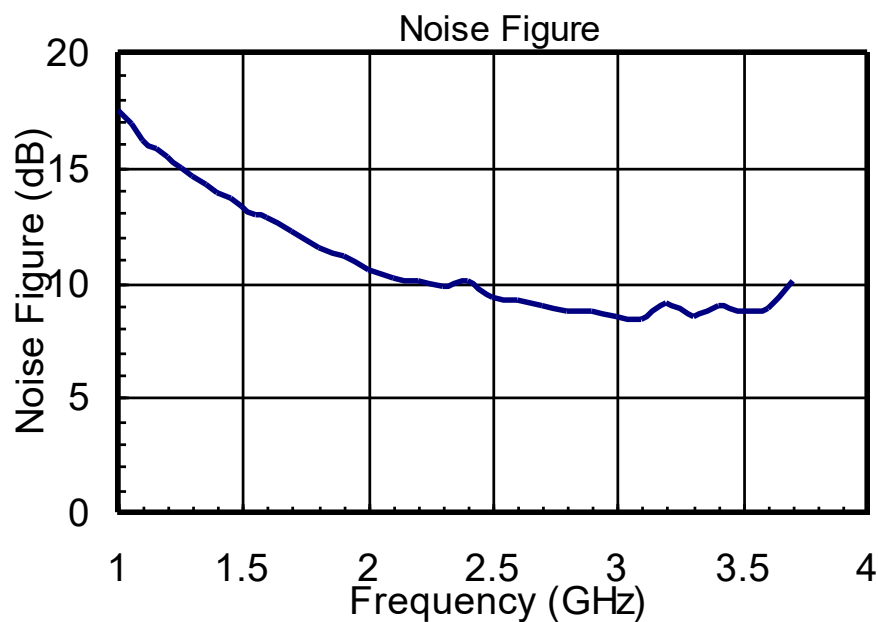
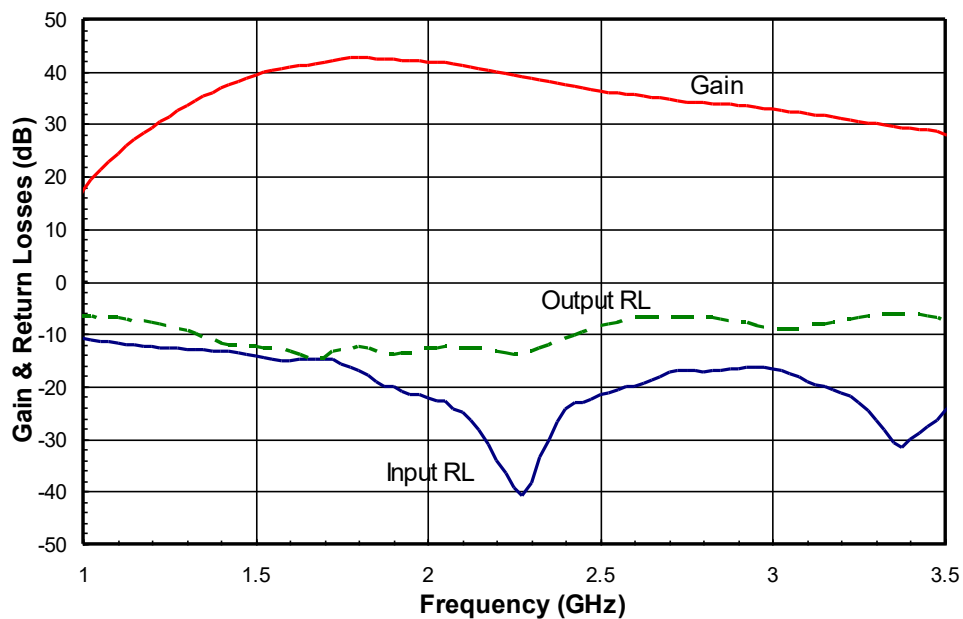
Stresses beyond those listed below may cause permanent damage. These are stress ratings only; functional operation is not implied.

Parameter	Symbol	Rating
Supply Voltage	V_{DD}	20 V
Continuous Power Dissipation (room temp.)	P_T	100 W
Operating Ambient Temperature	T_A	–40 °C to +85 °C
Storage Temperature	T_{STO}	–60 °C to +150 °C

Package & Mounting

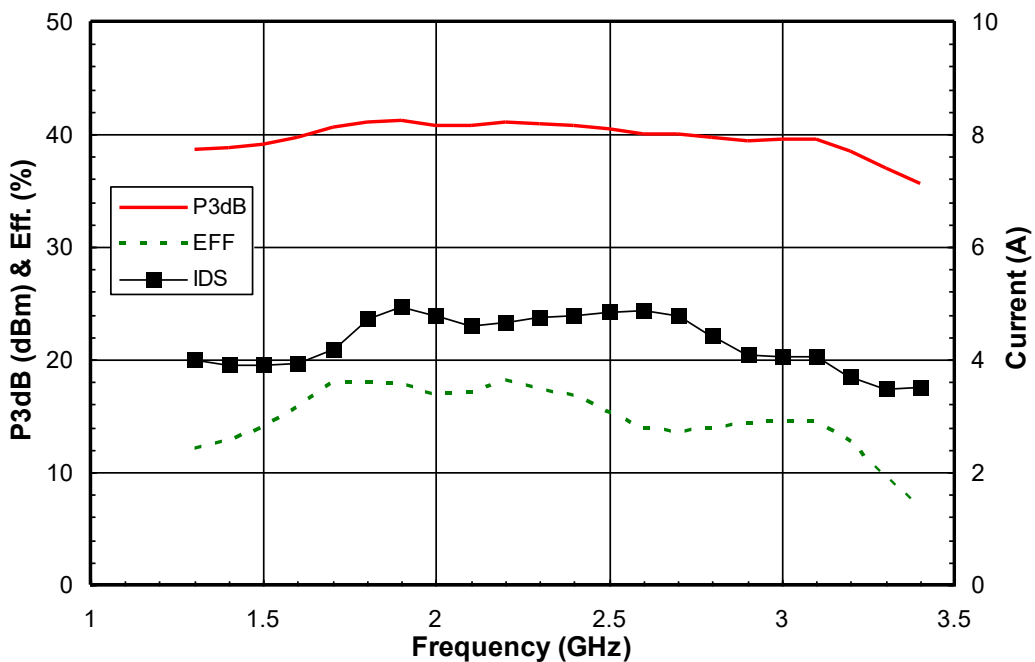
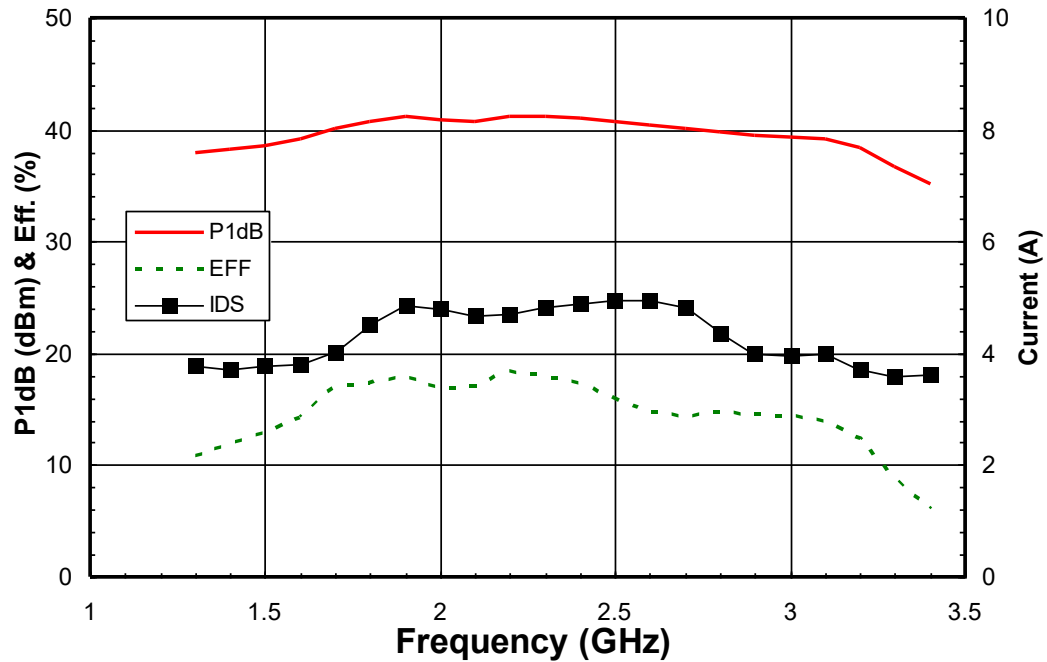
The AM153040SF-4H is supplied as a complete amplifier module with eight (8) screw holes for mounting to an external heat sink or cold plate. To ensure reliable continuous operation at full output power, the module must be mounted to a thermal mass capable of dissipating the rated power. Use a thermally conductive interface material between the module base and the heat sink, and torque all mounting screws evenly to maintain uniform contact pressure. Refer to the package outline drawing for mechanical dimensions and mounting-hole locations.

LINEAR DATA ($V_{dd} = +15V$, $I_{dq} = 3.9A$, $T_a = 25^\circ C$)

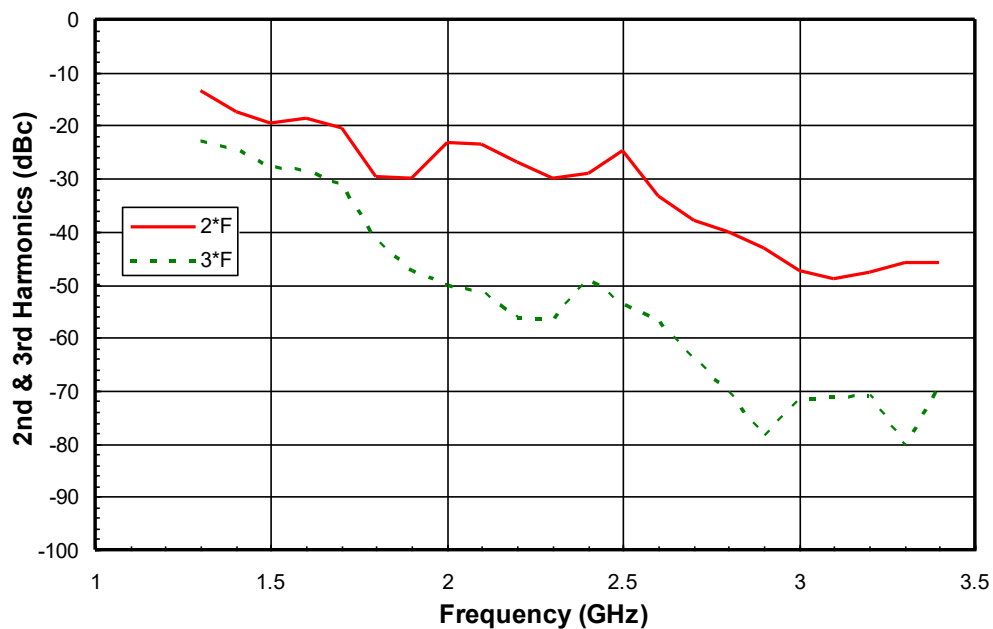


POWER DATA ($V_{dd} = +15V$, $I_{dq} = 3.9A$, $T_a = 25^\circ C$)

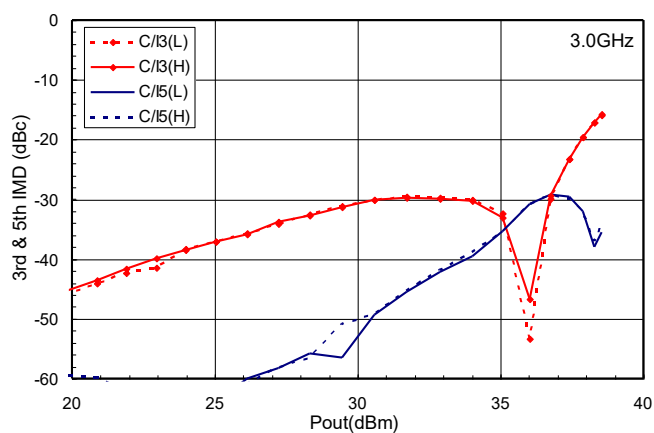
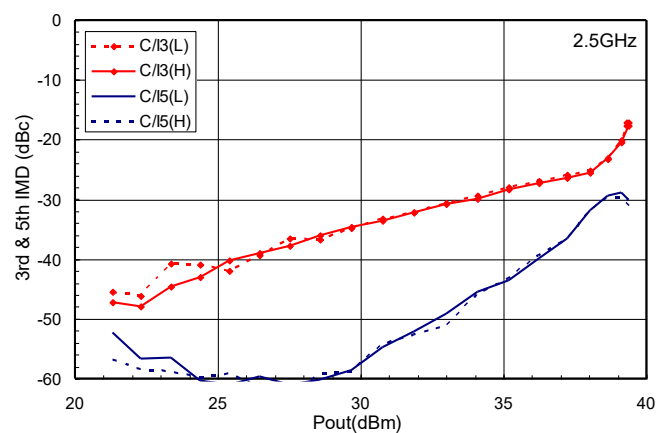
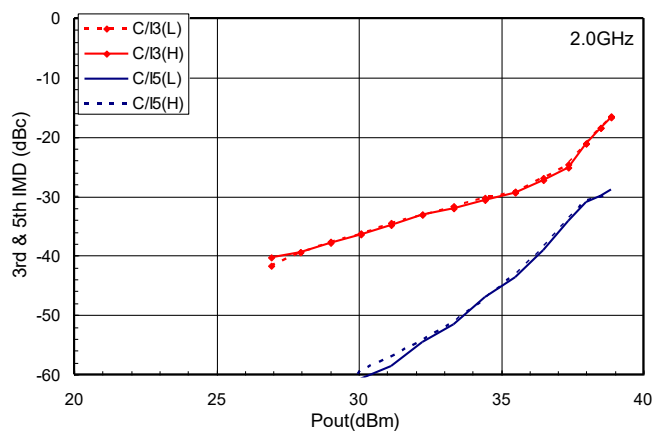
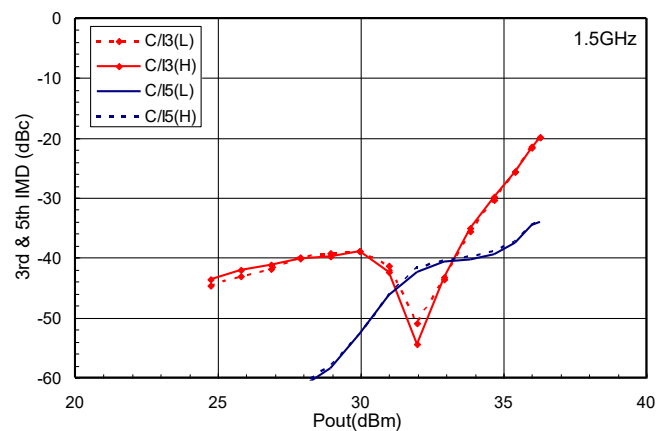
A) Output Power, Efficiency & Current at 1dB and 3dB Gain Compression

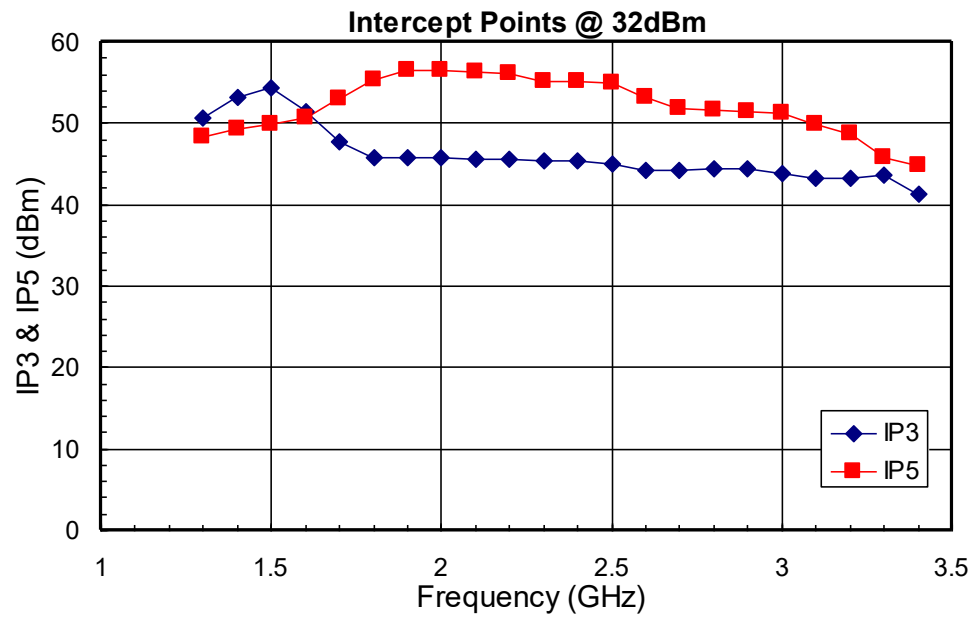


B) 2nd and 3rd Harmonics at 1dB Gain Compression

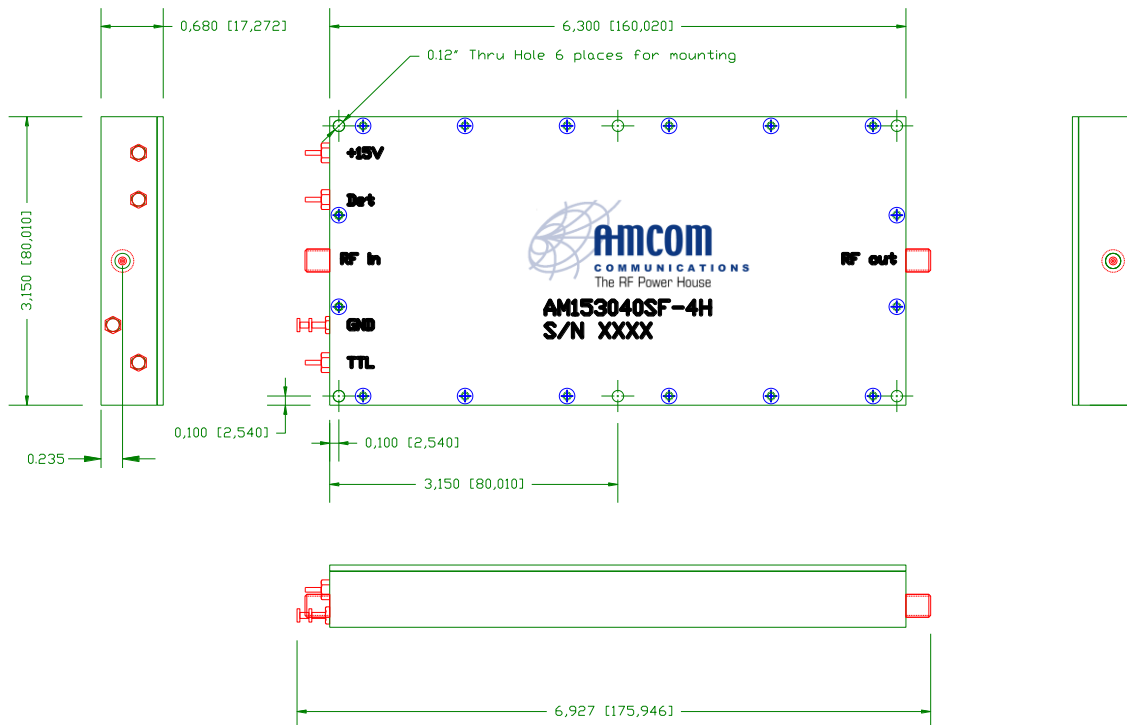


C) 3rd and 5th Order Intermodulation Distortions





PACKAGE OUTLINE



Ordering Information & Contact

Part Number: AM153040SF-4H

Description: Broadband High-Power Amplifier Module, 1.5 - 3.0 GHz, 38 dB, 10 W

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