Power Amplifier Module
12.5 – 16.5 GHz, 51 dB, 12 W

AM12516541MD-5H
March 2019
Rev 0

DESCRIPTION

AMCOM's AM12516541MD-5H is a broadband GaN Power Amplifier module designed for general purpose applications. It operates from 12.5GHz to 16.5GHz and typically delivers 12 watts (41 dBm) of CW output power and 51 dB small signal gain. The amplifier module has 4 screw slots for mounting to a heat sink. This amplifier module is compact and light weight at 2.2" (L) x 2.2" (W) x 0.65" (H).

FEATURES

- Wide bandwidth from 12.5 to 16.5 GHz
- Psat 41 dBm, Gain 51 dB
- Input / Output matched to 50 Ohms
- TTL control
- Temperature monitor
- Thermal Shutdown for Temp > 95°C

APPLICATIONS

- Radar
- Fixed microwave backhaul
- Instrumentation and measurements
- Military and Aerospace

TYPICAL PERFORMANCE * (Quiescent bias is +32V, I_{ddq}= 0.5 A)

Parameters	Minimum	Typical **	Maximum
Frequency	13 – 16 GHz	12.5 – 16.5 GHz	
Small Signal Gain	46 dB	51 dB	
Gain Ripple		± 1.5 dB	± 3.5 dB
P_{sat}	39 dBm	41 dBm	
PAE @ Psat		25%	
Current @ P_{sat}		1.75 A	
Noise Figure		7 dB	
Input Return Loss		10 dB	
Output Return Loss		5 dB	
Temperature Sensor Output (V)	V_{out}=0.45V+(10$_{mV}$ x Temp in Celsius) e.g for (50°C) : V_{out}=0.45+.01x50=0.95V		
TTL RF ON/OFF	<1V for OFF , >2.5 V for ON		

* Notes:
1- Specifications are subject to change without notice.
2- Proper heat sink should be used to remove heat from bottom of package.

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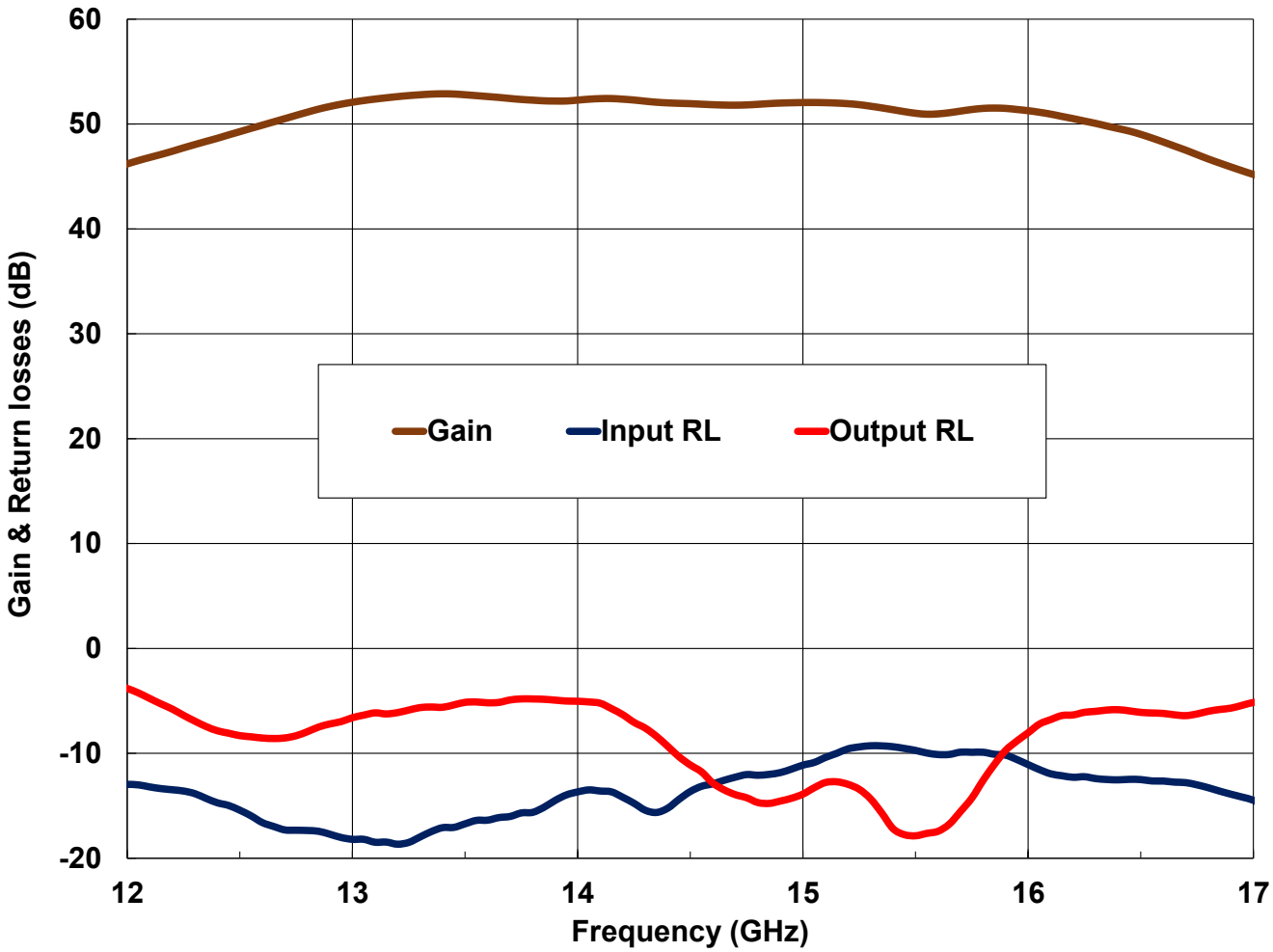
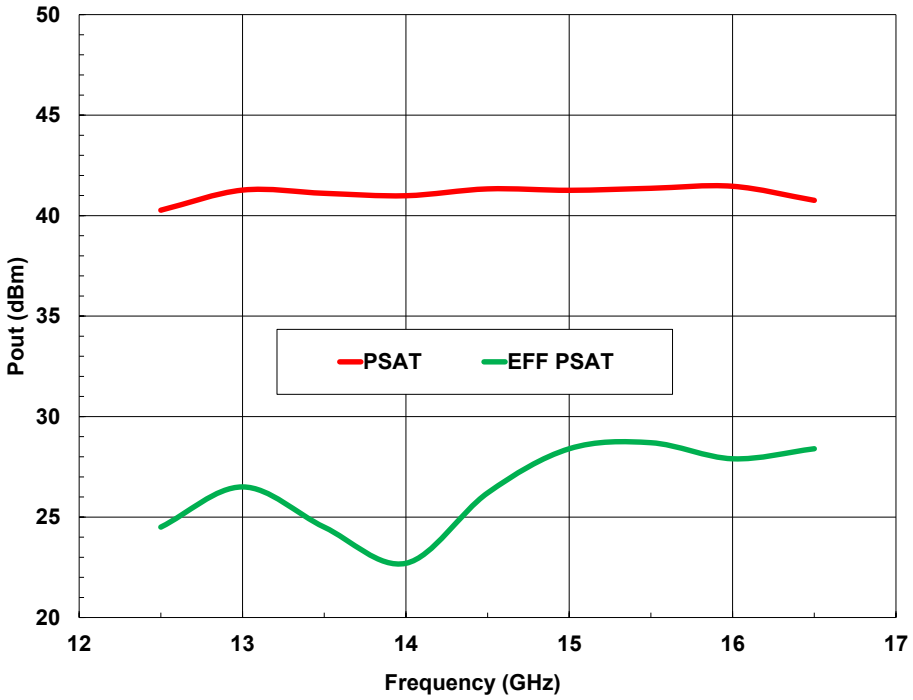
ABSOLUTE MAXIMUM RATING

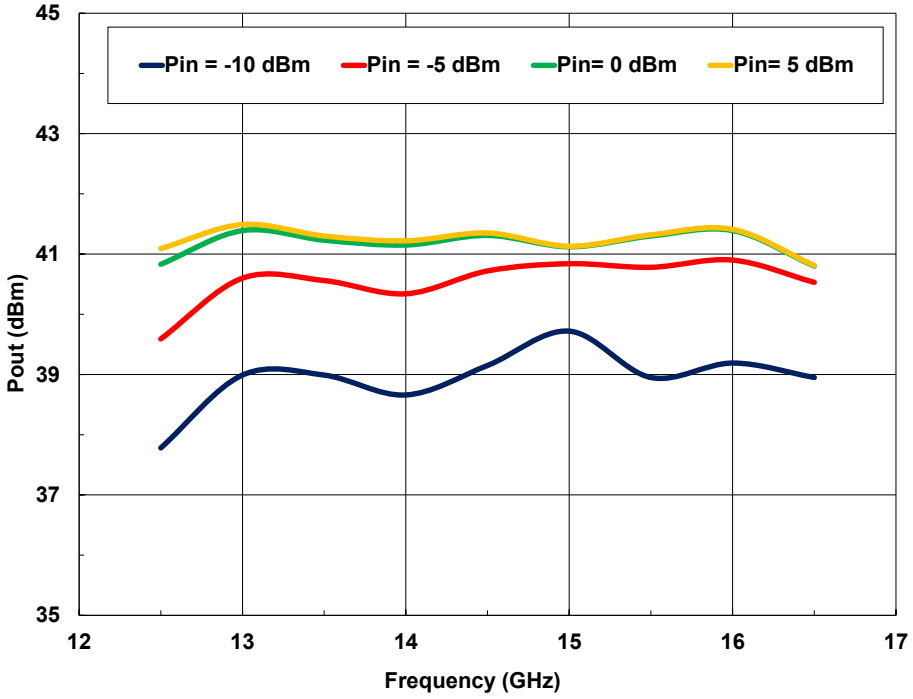
Parameters	Symbol	Rating
Drain source voltage	V_{dd}	36 V
Maximum RF input power	Pin	+7 dBm
Continuous dissipation at 25ºC	P_t	70 W
Operating temperature	T_{op}	-40°C to +85°C
Storage temperature	T_{sto}	-55°C to +135°C

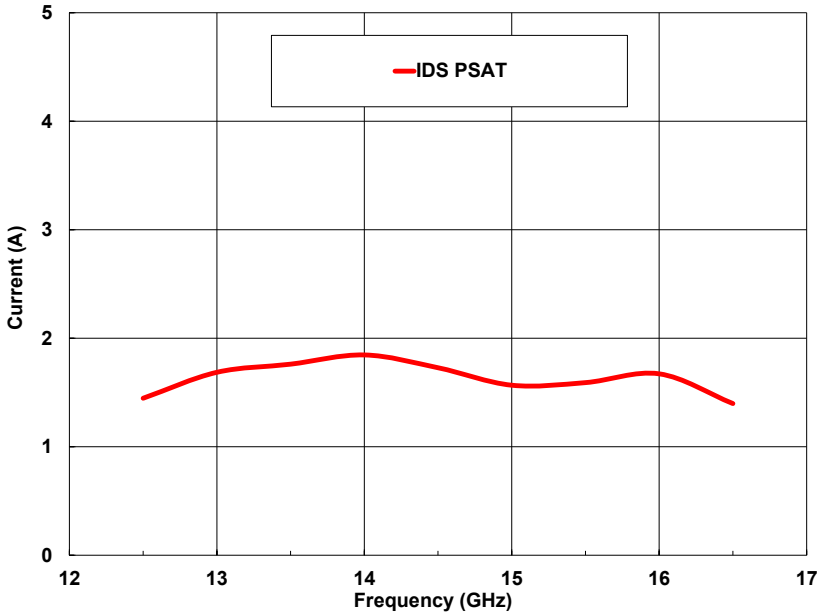
SMALL SIGNAL DATA



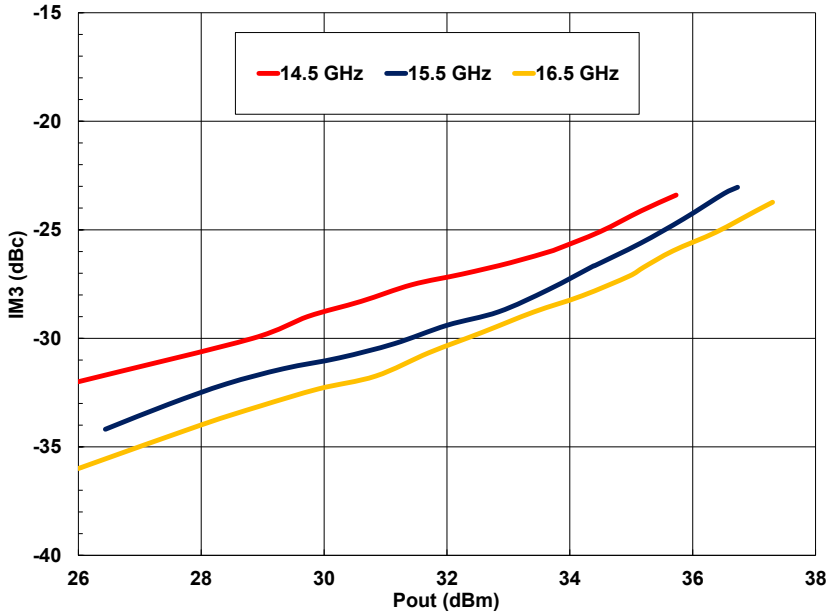
POWER DATA


50
45
40
35
30
25
20
Pout (dBm)
PSAT
EFF PSAT
12
13
14
15
16
17
Frequency (GHz)

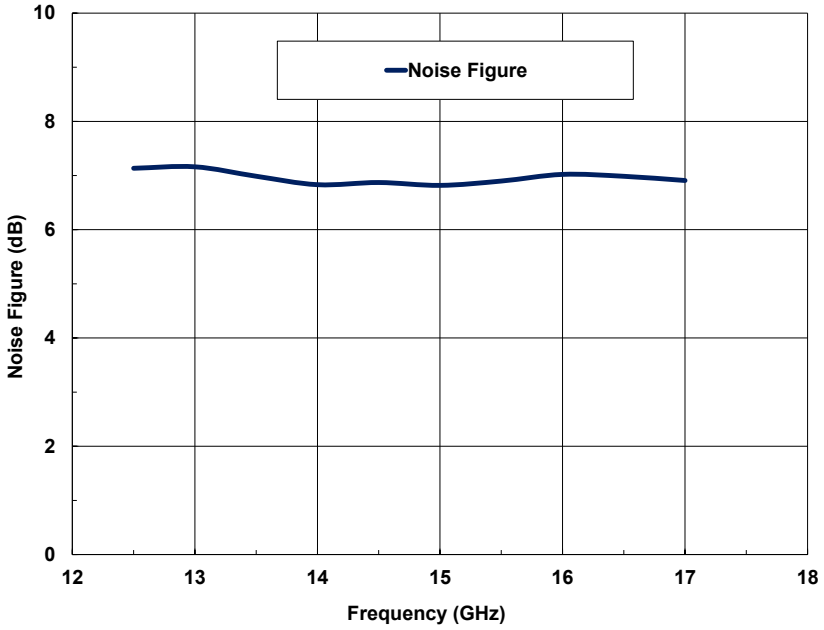

45
43
41
39
37
35
Pout (dBm)
Pin = -10 dBm
Pin = -5 dBm
Pin= 0 dBm
Pin= 5 dBm
12
13
14
15
16
17
Frequency (GHz)



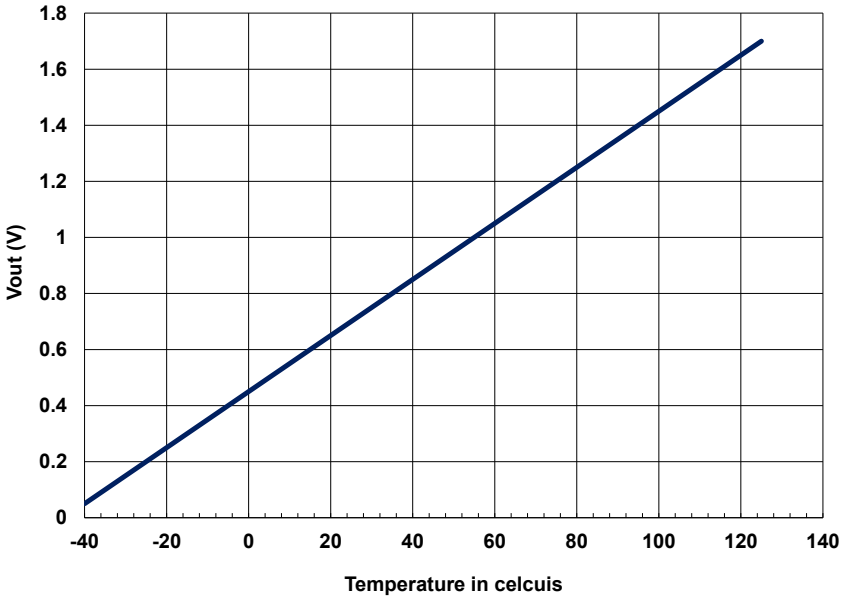
INTERMODULATION DISTORTION



NOISE FIGURE



TEMPERATURE SENSOR

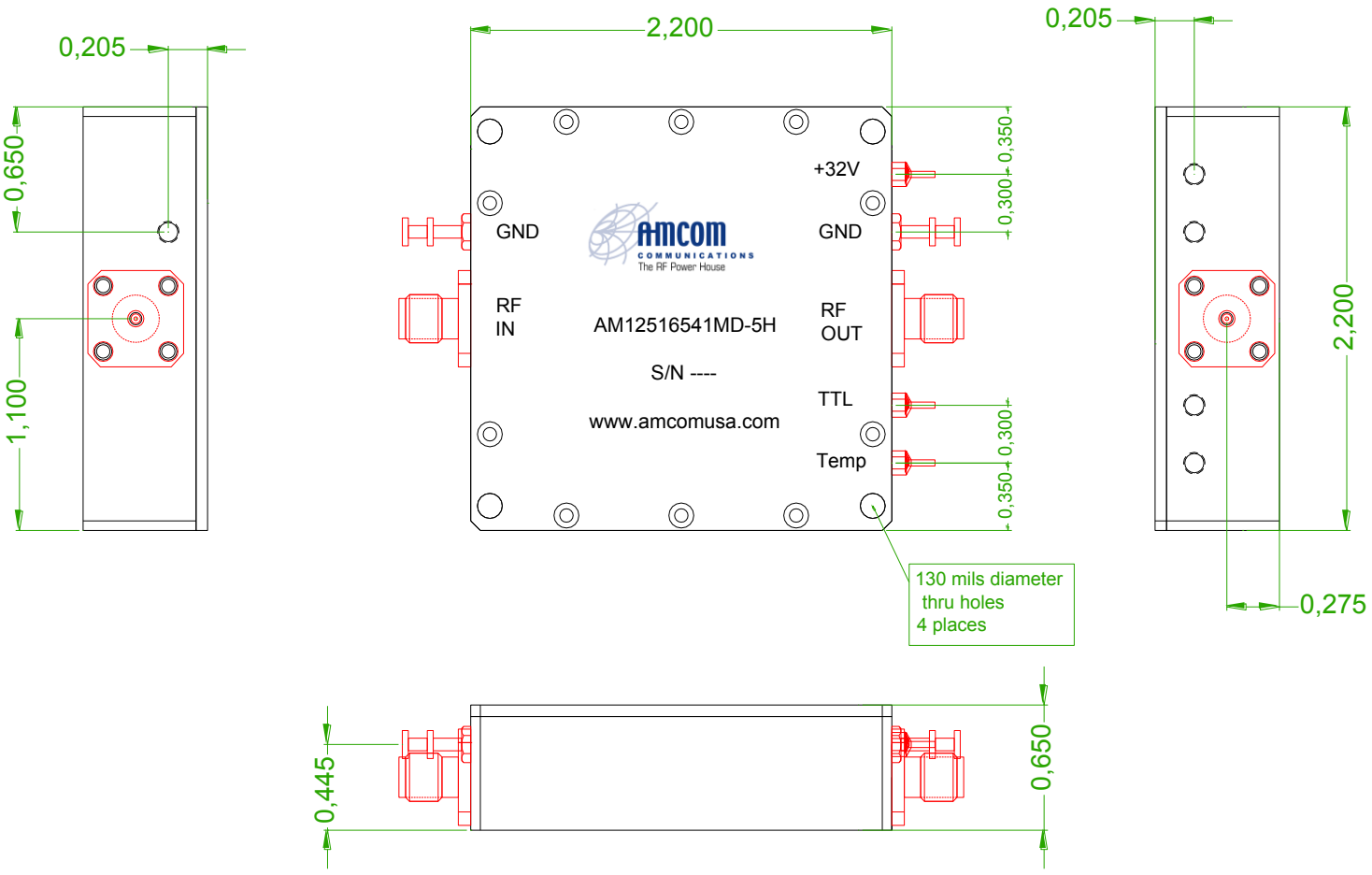


* V_{out}= 0.45V + ($T_{°C}$ x 10mV) , e.g for (50°C) : V_{out}=0.45+.01x50=0.95V.

* Thermal shutdown protection for high temperatures > 95°C.

AMCOM Communications, Inc.

PACKAGE OUTLINE



NOTES:

1- Dimensions are in inches.
2- Aluminum housing with silver nickel plating.
3- Female SMA for RF input and output.
4- Use a heat sink to remove heat from the module.