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AMM2-0020UH

10MHz - 20GHz, Broadband High Gain Distributed Amplifier

DEVICE OVERVIEW

General Description

The AMM2-0020UH is a broadband amplifier enabling operation over a 10 MHz to 20 GHz frequency range. The amplifier features a 29 dB flat gain response, +23 dBm saturated output power, excellent return losses, and a low 2.5 dB noise figure. This amplifier is housed in a 1" x 1.7" connectorized module and operates with a single positive bias supply without the need for sequencing.

Download s-parameters here

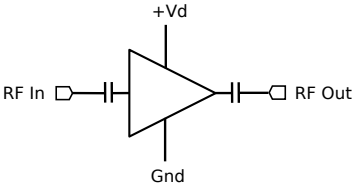
Features

- Broadband 10 MHz - 20 GHz Operation
- High Gain, 29 dB typ
- Flat Gain Response
- Noise Figure, 2.5 dB typ
- Internal Voltage Sequencer
- Single-Supply, Positive-Only Bias, 5.5 to 20 V

Applications

- Test and Measurement Equipment
- SATCOM
- LO signal chain for mmWave mixers
- Radar
- Electronic warfare equipment
- Aerospace and Defense

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification
AMM2-0020UH	10MHz - 20GHz, Broadband High Gain Distributed Amplifier	UH	-	REACH RoHS	Released	EAR99

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Table Of Contents

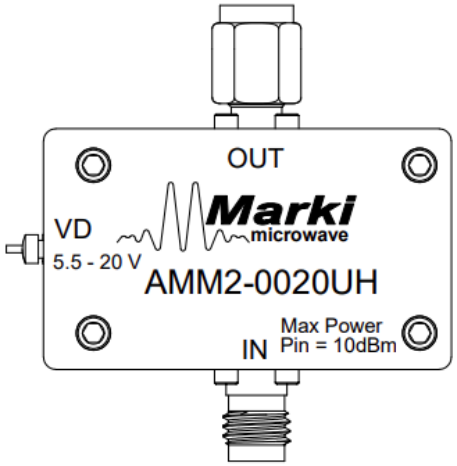
Revision History

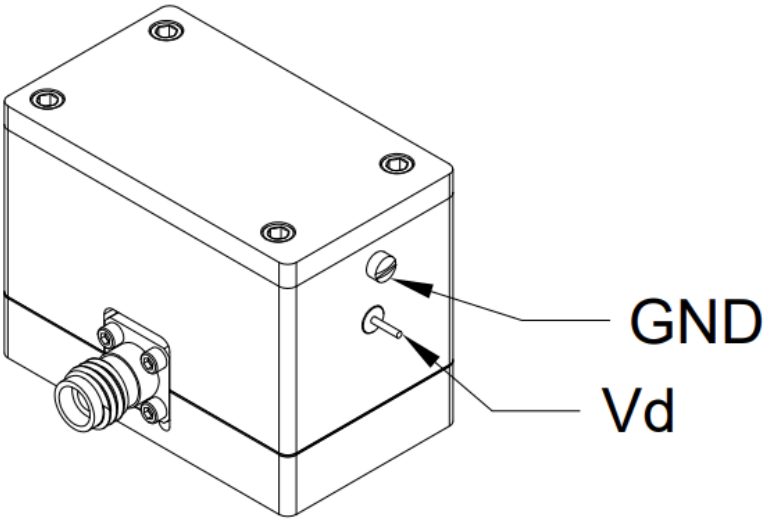
Revision Code	Revision Date	Comment
-	2025-10-06	Initial Release
A	2026-02-13	MTTF Table Added.

Port Configuration and Functions

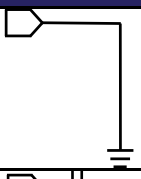
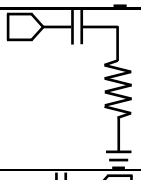
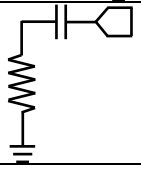
Port Diagram

The port diagram of the AMM2-0020UH is shown below.





Port Functions

Port	Function	Connector Type	Description	DC Equivalent Circuit
GND	Ground	-	Ground Connection for UH Module	
RF In	RF Input	SMAF	RF input port to the module. This port is internally DC blocked and matched to 50 Ohms.	
RF Out	RF Output	SMAM	RF output port to module. This port is internally DC blocked and matched to 50 Ohms.	
Vd	Positive DC Supply Voltage	-	This pin provides DC power to the amplifier. DC voltage at this pin should be set to 5.5V to 20V for normal operation.	-

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may become inoperable or have a reduced lifetime. Reliability limits are individual, instantaneous catastrophic limits only. Functional operation limits are indicated below. Operation of the device at multiple absolute maximum limits or for extended periods at a single limit can cause degradation and damage to the device.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature for MTTF > 1E6 hours	85	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature for MTTF > 1E6 hours	-40	°C
Minimum Storage Temperature	-65	°C
Power Supply DC Voltage (Vd)	20	V
RF Input Power	10	dBm

FIT and MTTF Table

T (°C)	λ (TIF)	MTTF (hr)	MTTF (yr)
105	2,441.45	4.10E+05	47
85	310.48	3.22E+06	368
55	8.79	1.14E+08	12,992
25	0.12	8.24E+09	941,063

Package Information

Parameter	Details	Rating
Dimensions	-	25.2 x 42.6 mm

Recommended Operating Conditions

The Recommended Operating Conditions indicate the limits, inside which the device should be operated, to guarantee the performance given in Electrical Specifications. Operating outside these limits may not necessarily cause damage to the device, but the performance may degrade outside the limits of the Electrical Specifications. For limits, above which damage may occur, see Absolute Maximum Ratings.

Parameter	Min	Nominal	Max	Unit
Input Power for Saturation	-	0	-	dBm
Power Supply DC Current (Ib) [1]	-	240	-	mA
Positive DC Bias Voltage (Vb) [2]	5.5	8	20	V

[1] Recommended operating current condition without RF input applied.

[2] Device can be biased anywhere from 5.5V to 20V and retain all electrical performance. Power consumption increases with higher bias voltage.

Electrical Specifications

Performance shown measured with 8V bias. Due to in module linear regulator, performance is independent to bias voltage within recommended operating conditions.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Input Return Loss	5.5V < Vd < 20V, Pin=-20dBm	0.01	20	-	10	-	dB
Noise Figure	5.5V < Vd < 20V	10	20	-	3	-	dB
Noise Figure	5.5V < Vd < 20V	1	10	-	2.5	-	dB
Output IP2	5.5V < Vd < 20V, Pin=-20dBm	0.001	10	-	37	-	dBm
Output IP3	5.5V < Vd < 20V, Pin=-30dBm	0.001	20	-	33	-	dBm
Output P1dB	5.5V < Vd < 20V	10	20	-	19	-	dBm
Output P1dB	5.5V < Vd < 20V	0.01	10	-	21	-	dBm
Output Return Loss	5.5V < Vd < 20V, Pin=-20dBm	0.01	20	-	15	-	dB
Reverse Isolation	5.5V < Vd < 20V, Pin=-20dBm	0.01	20	-	60	-	dB
Saturated Output Power	5.5V < Vd < 20V	0.01	20	-	23	-	dBm
Small Signal Gain	5.5V < Vd < 20V, Pin=-20dBm	0.01	20	-	29	-	dB

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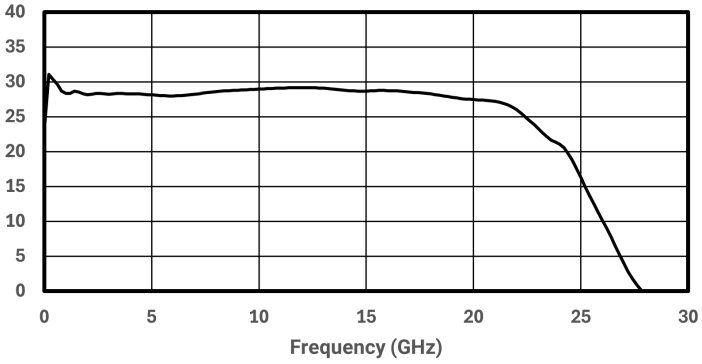
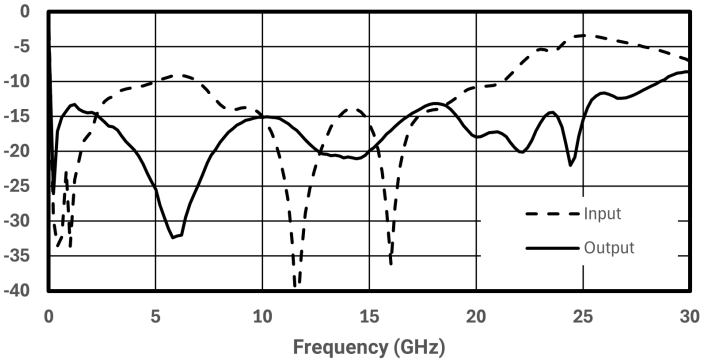
Typical Performance Plots

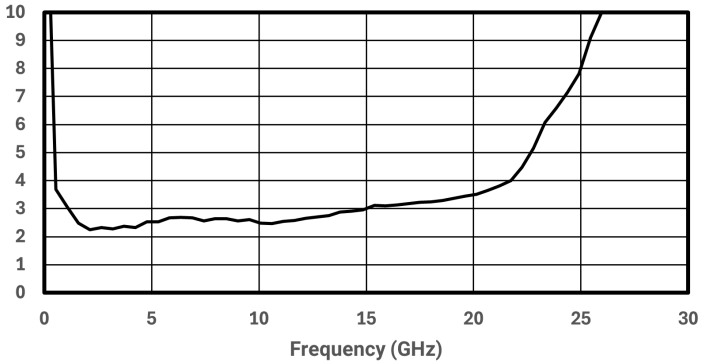
Gain (dB)



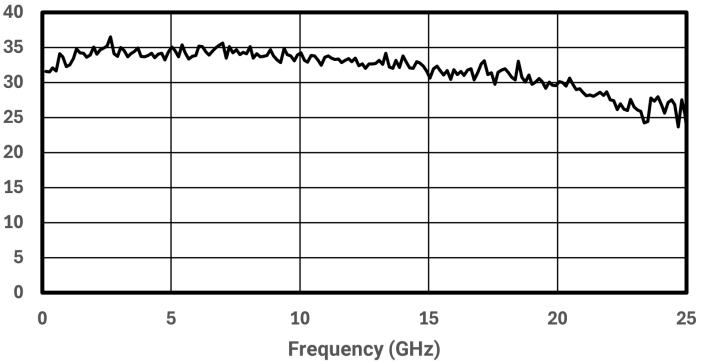
Return Loss (dB)



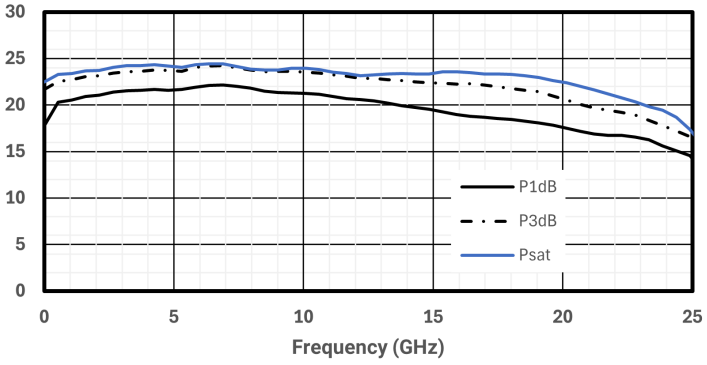
Noise Figure (dB)



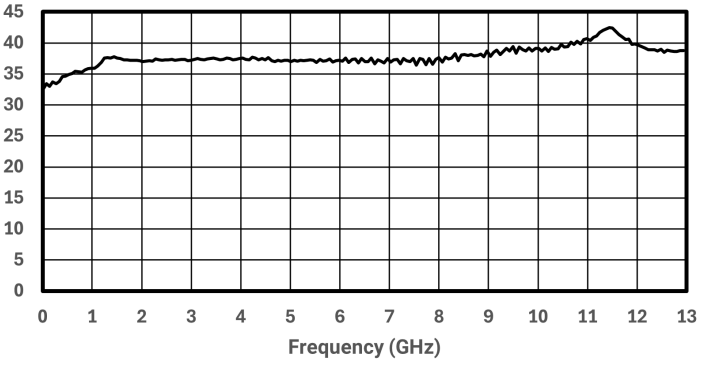
Output IP3 (dBm)



Output Compression (dBm)



Output IP2 (dBm)



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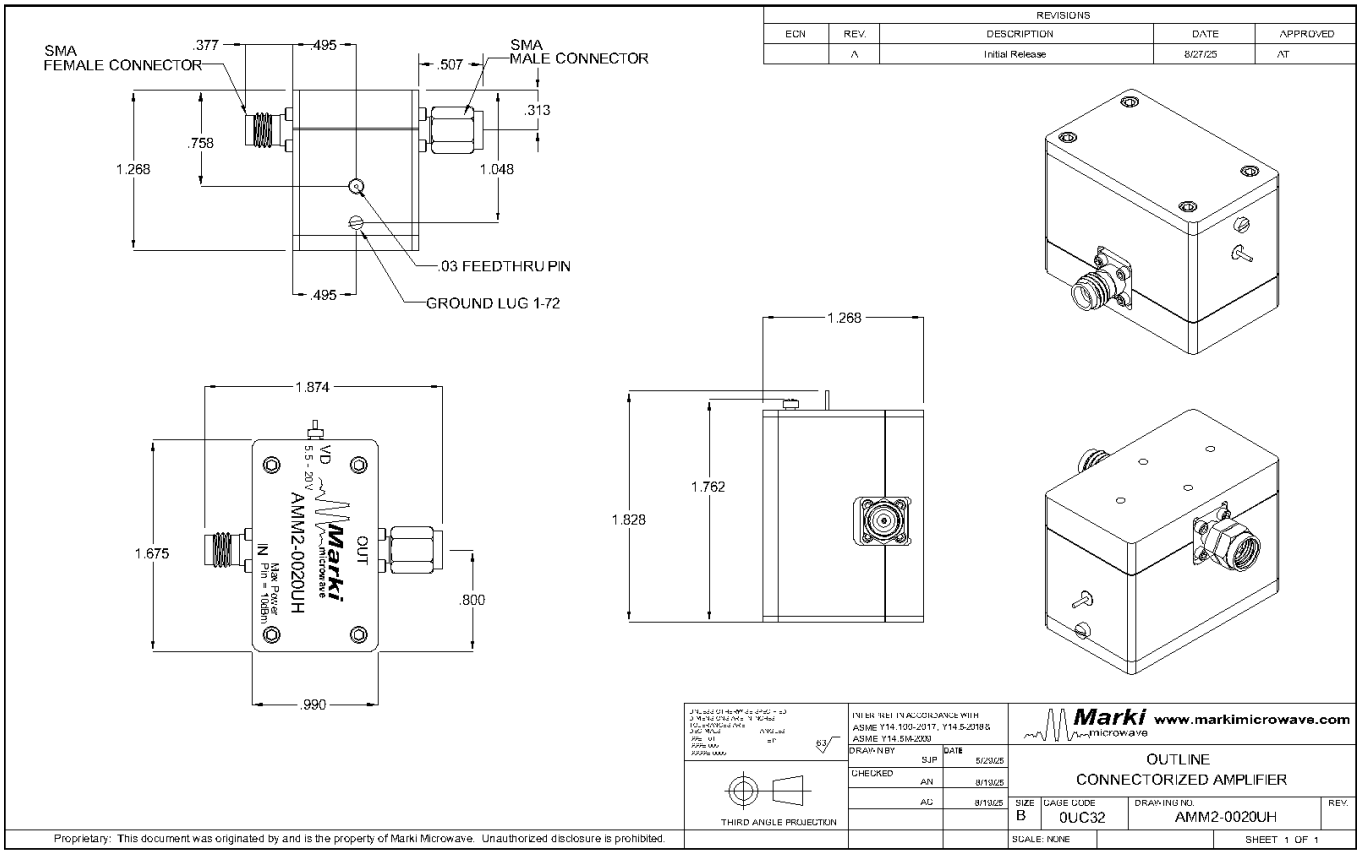
Mechanical Data

Outline Drawing

Download : Outline 2D Drawing | Outline 3D Drawing | Outline 3D STP



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