

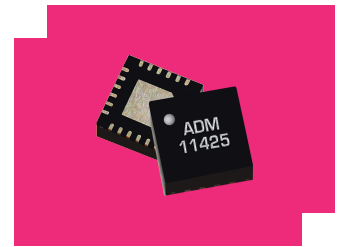
# ADM-11425PSM

## 4 - 40GHz Broadband, Gain Block Amplifier

### DEVICE OVERVIEW

#### General Description

The ADM-11425PSM is a broadband gain block amplifier delivering 23 dB of gain across a wide bandwidth. Fabricated on a GaAs pHEMT process, it operates from a single +5V supply with no negative bias or bias sequencing required, and features a minimal application circuit that simplifies board-level integration. The device is housed in a compact 4mm plastic QFN package for surface mount assembly.



[Download s-parameters here](#)

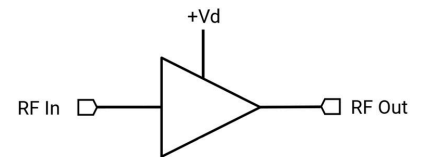
#### Features

- High Small Signal Gain, 23 dB Typical
- Single +5V Supply Voltage
- Minimal Application Circuit

#### Applications

- Satellite Communications
- Electronic Warfare
- Test and Measurement Equipment
- Radar

#### Functional Block Diagram



#### Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
ADM-11425PSM	4 - 40GHz Broadband, Gain Block Amplifier	Plastic QFN	REACH RoHS	Released	3A001.b.2.d
EVB-ADM-11425P	Evaluation Board, 4 - 40GHz Broadband, Gain Block Amplifier	EVB	REACH RoHS	Released	EAR99

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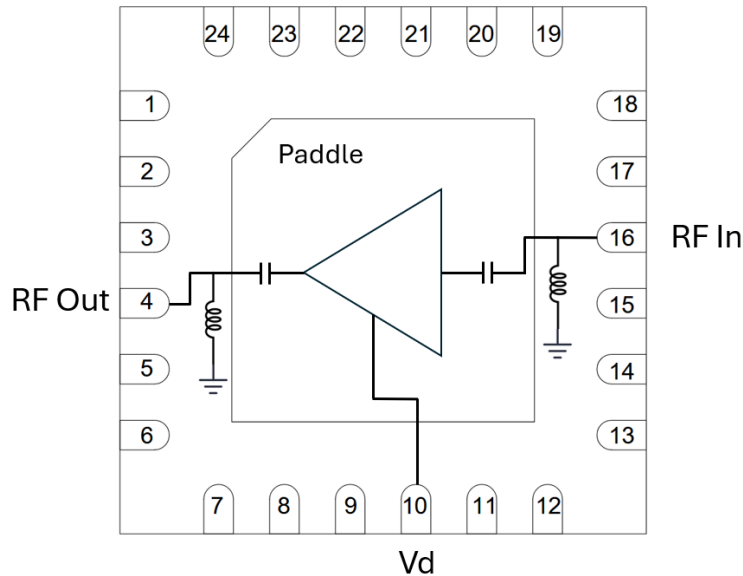
### Revision History

Revision Code	Revision Date	Comment
-	2026-06-19	Initial Release


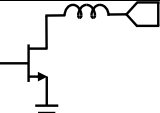
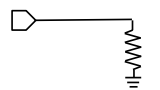
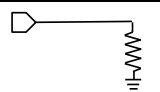
## Port Configuration and Functions

### Port Diagram

A port diagram of the ADM-11425PSM QFN is shown below (X-ray view from the bottom).



### Port Functions

Port	Function	Description	DC Equivalent Circuit
GND	Ground	IC backside must be connected to a DC/RF ground with high thermal and electrical conductivity.	
Pin 10	Vd	Pin 10 is the DC bias supply for the amplifier. The voltage at this pin should be set to 5V for normal operation. This part requires an off-chip bypass capacitor of 0.1uF installed at this pin as close to the IC as possible. See applications circuit.	
Pin 16	RF Input	Pin 16 is the amplifier's RF input pin. This port is internally matched to 50 Ohms and is internally DC shorted to GND. No DC block is required for operation if no DC is present on the line but should be DC blocked otherwise.	
Pin 4	RF Output	Pin 4 is the amplifier's RF output pin. This port is internally matched to 50 Ohms and is internally DC shorted to GND. No DC block is required for operation if no DC is present on the line but should be DC blocked otherwise.	

## 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 be inoperable or have a reduced lifetime. This amplifier is designed and characterized in a 50Ω system, and operation in a reflective environment can cause performance degradation.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	85	°C
Maximum Storage Temperature	125	°C
Max Junction Temperature for MTTF > 1E6 hours	175	°C
Minimum Operating Temperature	-54	°C
Minimum Storage Temperature	-65	°C
Positive Drain Supply Voltage (Vd)	6	V
RF Input Power	18	dBm
Thermal Resistance, θJC	19.5	°C/W
Total Positive Drain Supply Current (Id)	150	mA

### Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Weight	Package name: Plastic QFN	0.041g
Dimensions	-	4 x 4 mm
Moisture Sensitivity Level	-	MSL 1

### 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
Power Supply DC Voltage	4	5	6	V
Positive DC Current (Id) (No RF Input)	-	85	-	mA
Ambient Temperature	-55	25	85	°C

### Sequencing Requirements

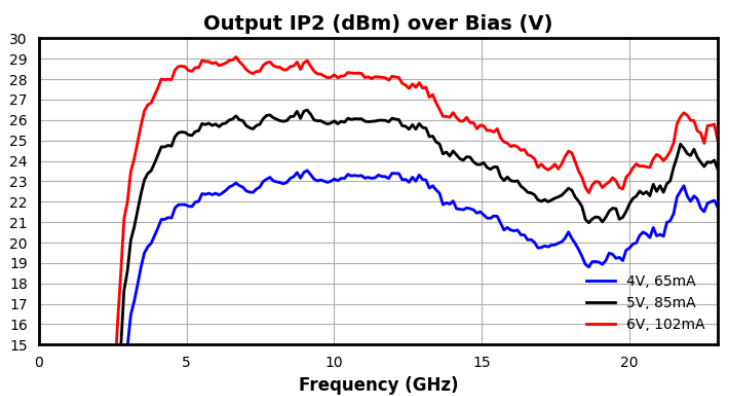
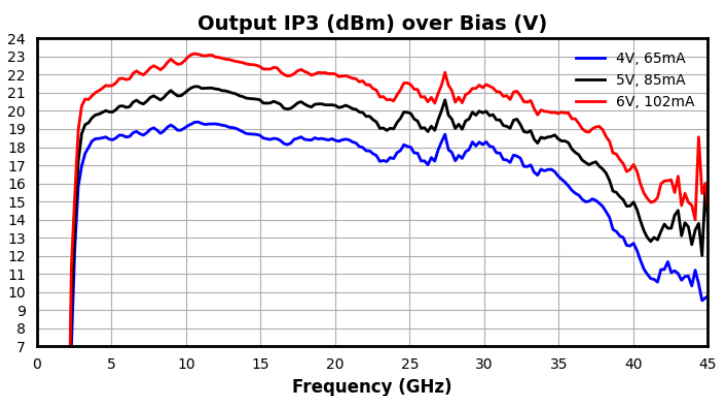
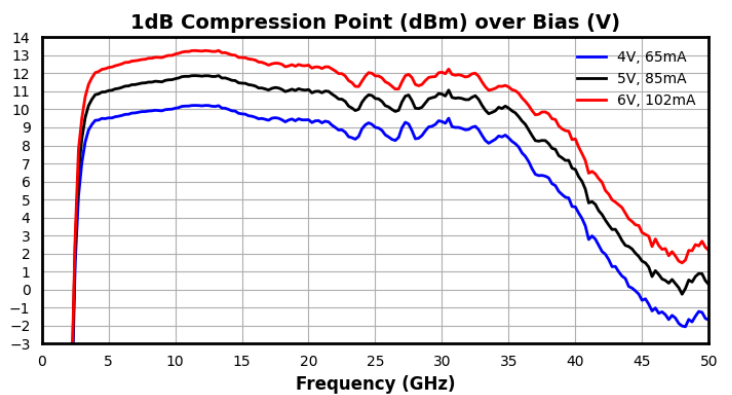
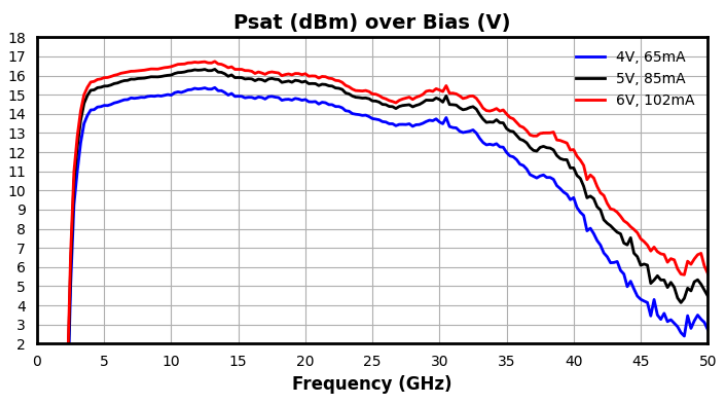
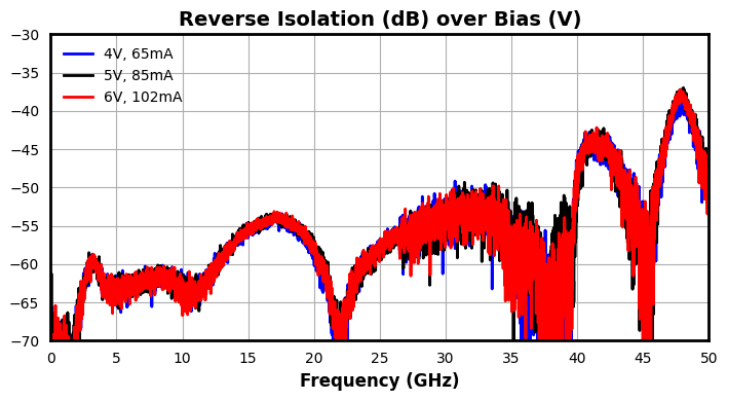
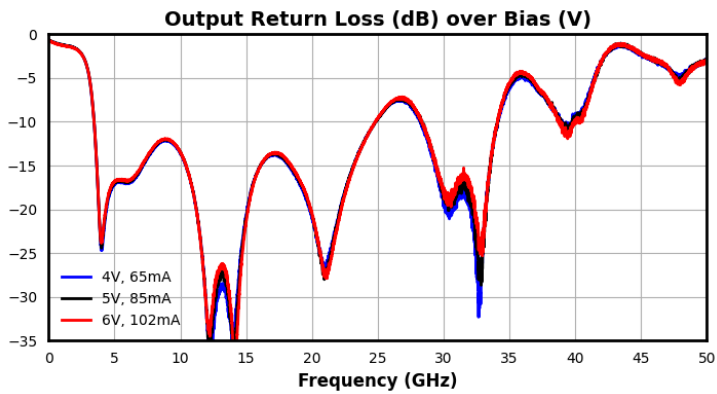
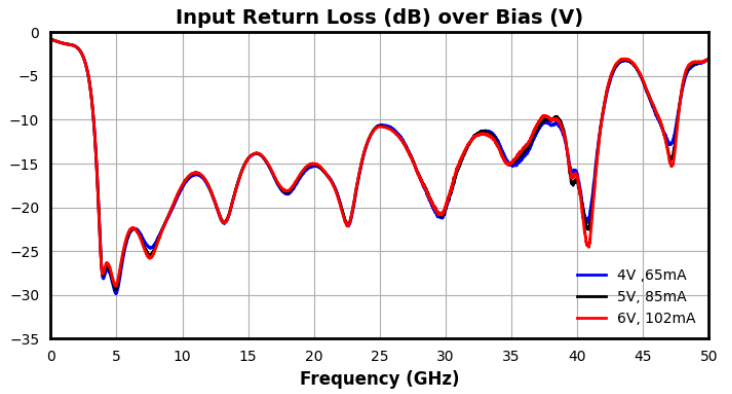
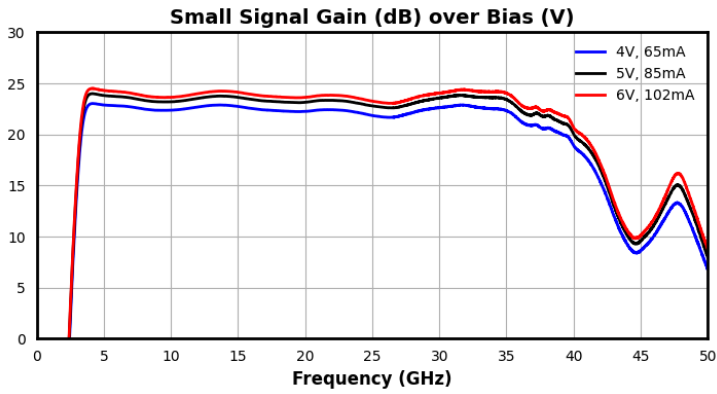
There are no sequencing requirements to power up or power down the amplifier.

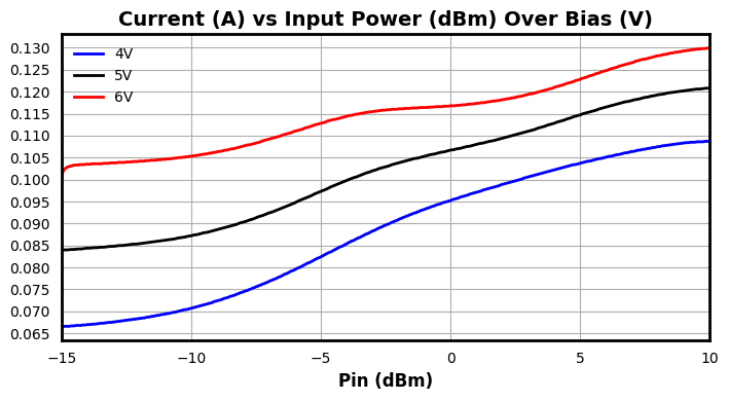
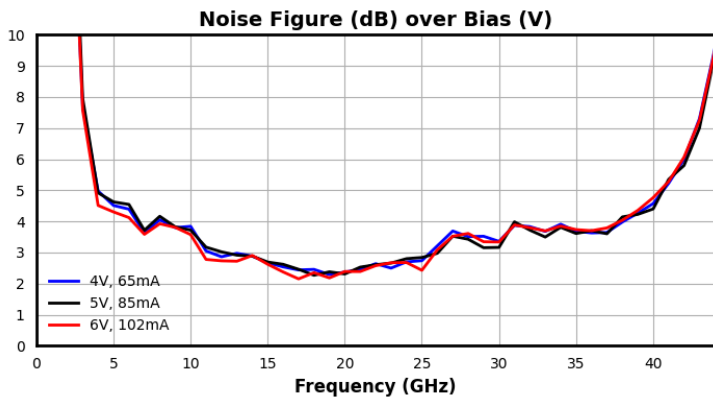
## Electrical Specifications

Unless otherwise specified, electrical specifications apply at TA=+25°C, Vd = 5 V, and Id = 85mA in a 50Ω system. QFNs are 100% RF tested.

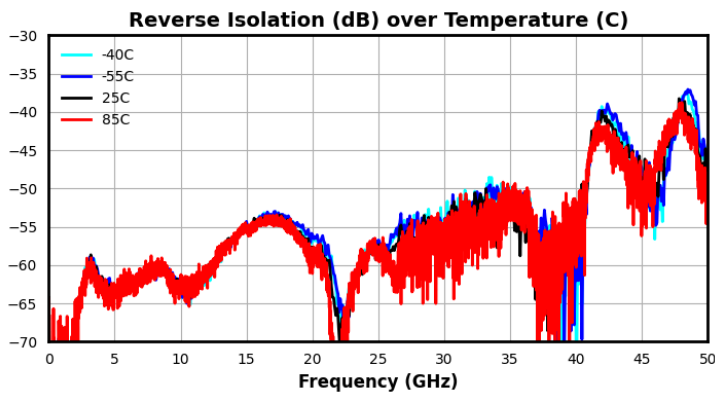
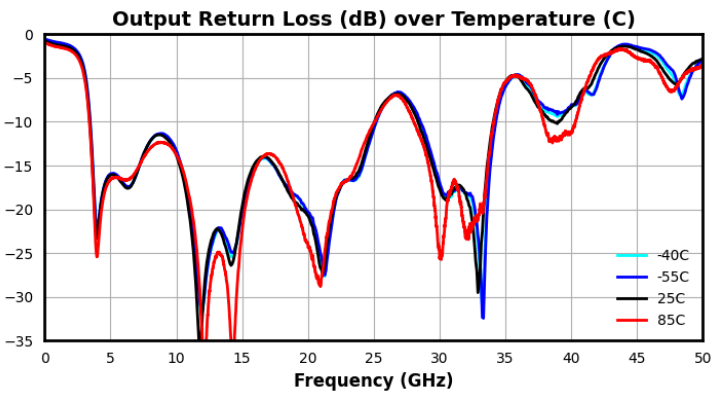
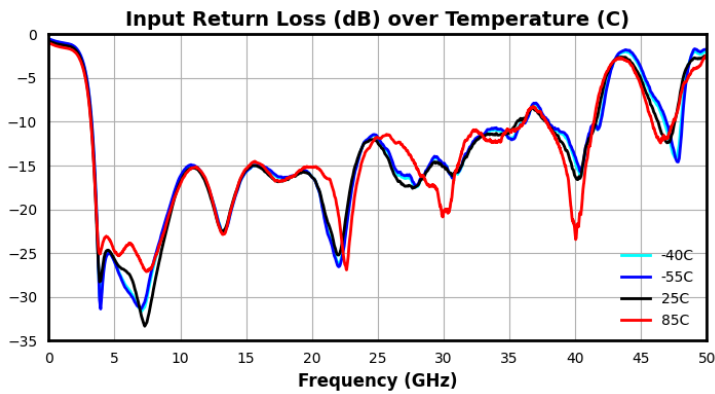
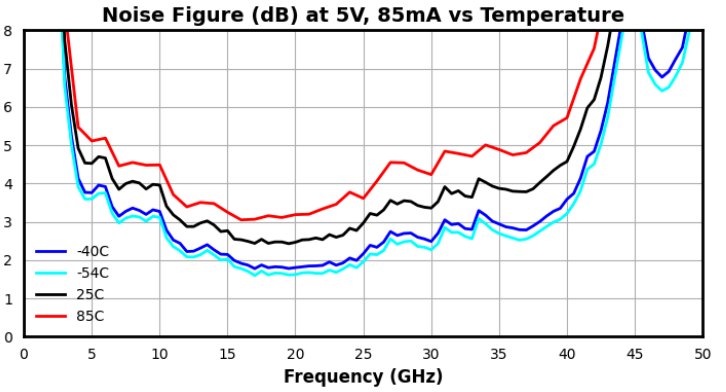
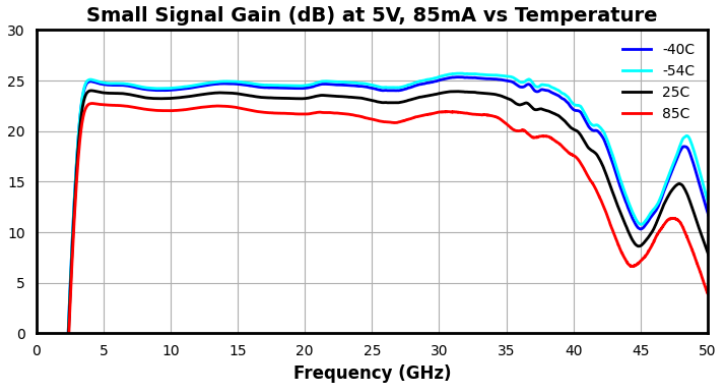
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Small Signal Gain	Pin = -15 dBm, Vd = 5V, Id = 85 mA	4	40	-	23.0	-	dB
Input Return Loss	Pin = -15 dBm, Vd = 5V, Id = 85 mA	4	40	-	16	-	dB
Output Return Loss	Pin = -15 dBm, Vd = 5V, Id = 85 mA	4	40	-	15	-	dB
Reverse Isolation	Pin = -15 dBm, Vd = 5V, Id = 85 mA	4	40	-	58	-	dB
Psat	Vd = 5V, Id = 85 mA	4	40	-	15.1	-	dBm
Input P1dB	Vd = 5V, Id = 85 mA	4	40	-	-11.5	-	dBm
Output P1dB	Vd = 5V, Id = 85 mA	4	40	-	10.5	-	dBm
Input IP3	Pin = -18 dBm, Vd = 5V, Id = 85 mA, 1 MHz Tone Spacing	4	40	-	3	-	dBm
Output IP3	Pin = -18 dBm, Vd = 5V, Id = 85 mA, 1 MHz Tone Spacing	4	40	-	19.5	-	dBm
Input IP2	Pin = -22 dBm, Vd = 5V, Id = 85 mA, 1 MHz Tone Spacing	4	40	-	0.5	-	dBm
Output IP2	Pin = -22 dBm, Vd = 5V, Id = 85 mA, 1 MHz Tone Spacing	4	40	-	23	-	dBm
Noise Figure	Vd = 5V, Id = 85 mA	4	40	-	3.3	-	dB

### Typical Performance Plot (vs Bias)





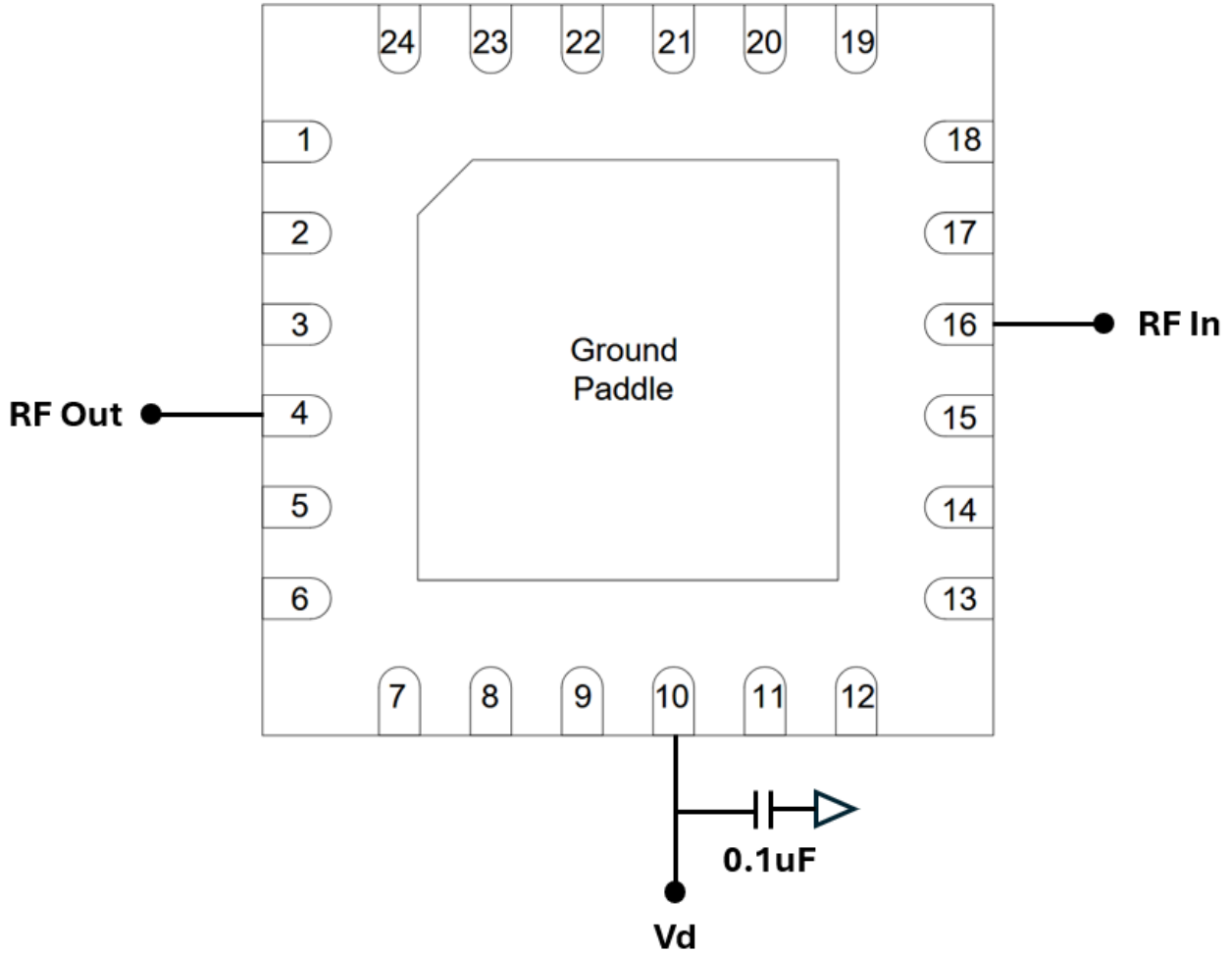
**Typical Performance Plots (vs Temperature)**



### **Application Information**

Below is the recommended application circuit for the ADM-11425PSM. This is the configuration that is used to characterize this device. However, each PCB layout and environment are different which may require minor modifications of the biasing network. Please contact [support@markimicrowave.com](mailto:support@markimicrowave.com) for more information.

**Application Circuit**



### **Application Circuit Description**

Above is the recommended application circuit for the ADM-11425PSM. DC drain voltage is supplied to the amplifier across a 0.1uF bypass capacitor to the Vd pin. The RF input and output ports are internally DC shorted to GND. These pins may be left floating if no DC is present on the line but should be DC blocked otherwise.



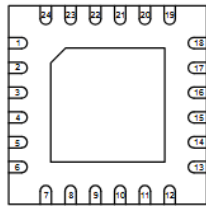
### Footprint Image

Download : [Footprint Drawing](#)

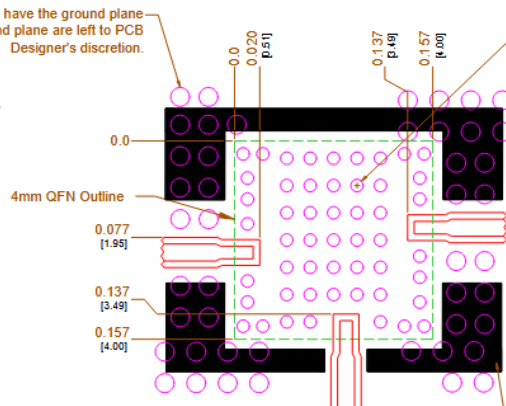
Primary dimensions are in inches

Pin #	Config A
1	GND
2	GND
3	GND
4	Output
5	GND
6	GND
7	GND
8	GND
9	GND
10	VD
11	GND
12	GND
13	GND
14	GND
15	GND
16	Input
17	GND
18	GND
19	GND
20	GND
21	GND
22	GND
23	GND
24	GND

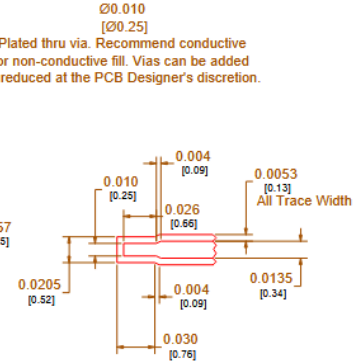
QFN 4mm Sample Drawing X-Ray View



Recommend to have the ground plane flooded. Ground plane are left to PCB Designer's discretion.



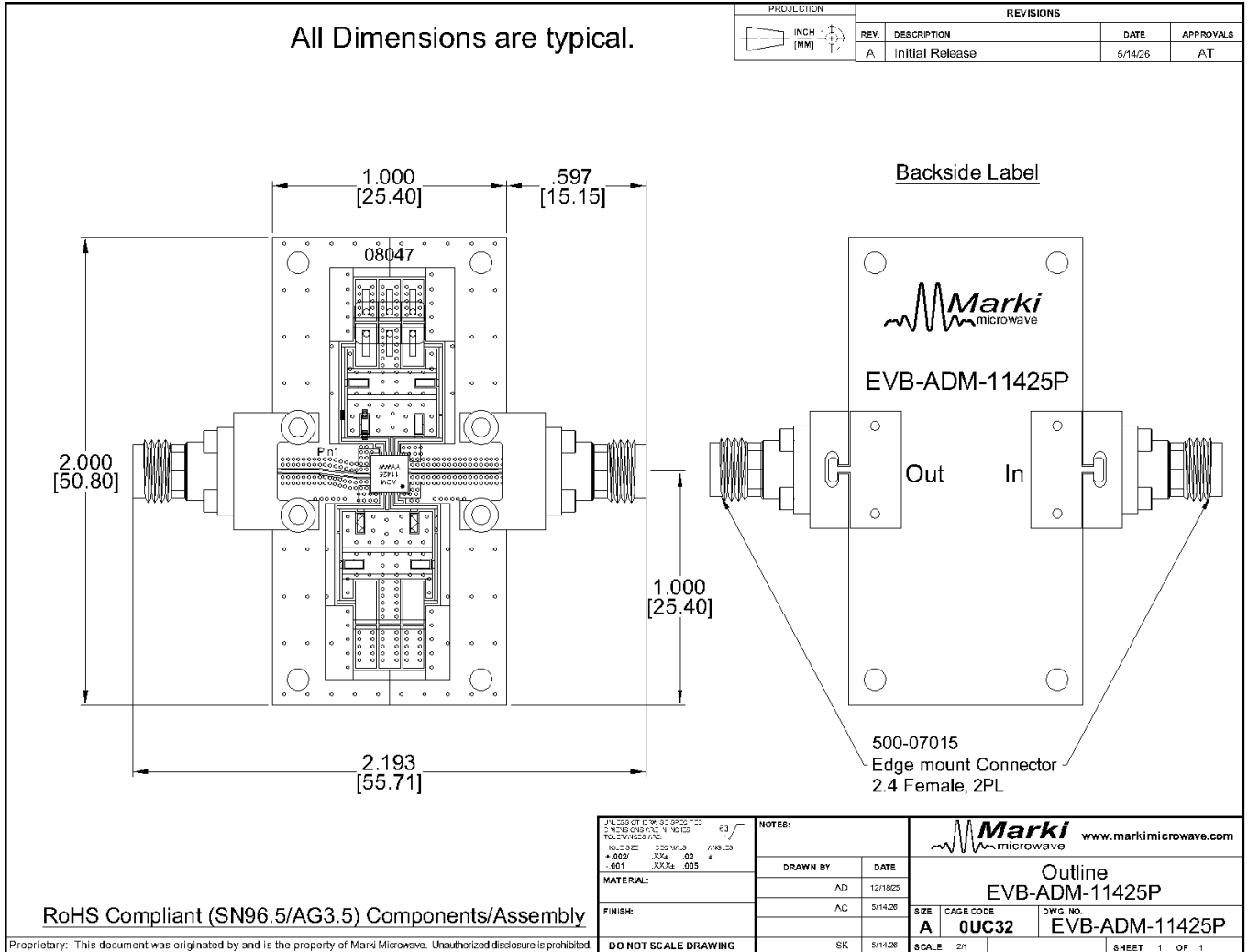
Plated thru via. Recommend conductive or non-conductive fill. Vias can be added or reduced at the PCB Designer's discretion.



Landing pattern to be used on Rogers 4003, .008" thick, ½ Oz copper both sides

Recommend solder mask around the perimeter of 4mm QFN package. Solder mask thickness left to PCB Designer's discretion.

**Evaluation Board - Outline Drawing**



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