

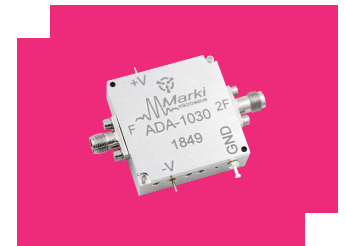
# ADA-1030

## MMIC Amplifier/Doubler/Amplifier

### DEVICE OVERVIEW

#### General Description

The ADA-1030 can be used as a frequency extender to enhance the frequency range of a <15 GHz synthesizer up to 30 GHz. Useful for lab testing, test and measurement, and prototype systems. It consists of an input buffer amplifier, doubler, and output buffer amplifier to provide a +16 dBm output (suitable for driving most mixers) from a 0-6 dBm input. In addition to operation as a module, it is suitable as a reference design for prototyping using only commercially available surface mount products.



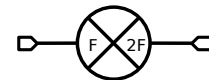
#### Features

N/A

#### Applications

N/A

#### Functional Block Diagram



### Part Ordering Options

Part Number	Description	Connectors	Green Status	Product Lifecycle	Export Classification
ADA-1030	MMIC Amplifier/Doubler/Amplifier	<u>Standard</u>	REACH RoHS	Released	EAR99

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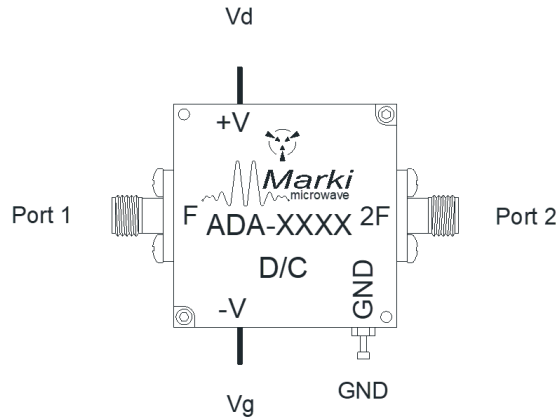
## Revision History

Revision Code	Revision Date	Comment
-	2018-12-01	Datasheet Initial Release

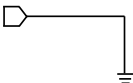
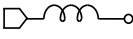
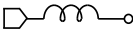
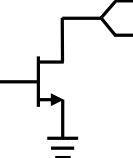
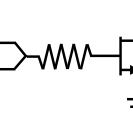
## Port Configuration and Functions

### Port Diagram

A top-down view of the ADA-1030 outline drawing is shown below.



### Port Functions

Port	Function	Connector Type	Description	DC Equivalent Circuit
GND	Ground	-	Ground path is provided through the metal housing and outer ground lug.	
Port 1	Input	SMAF	Input 1x Frequency Port. This pin is DC open and matched to 50 Ω.	
Port 2	Output	2.92F	2x Input Frequency output port. This pin is DC open and matched to 50 Ω.	
Vd	Positive bias	-	Drain bias port.	
Vg	Negative bias	-	Gate control for the amplifier.	

## 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.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	85	°C
Maximum Storage Temperature	150	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Negative Bias Current	4	mA
Negative Bias Voltage	-2	V
Positive Bias Current	550	mA
Positive Bias Voltage	9	V
Power Dissipation	4	W
RF Input Power	20	dBm

### Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	34.39x34.39 mm

**Electrical Specifications**

The electrical specifications apply at TA=+25°C in a 50Ω system. Suppression is relative to doubled output power. Isolation is defined as relative to the fundamental input power.

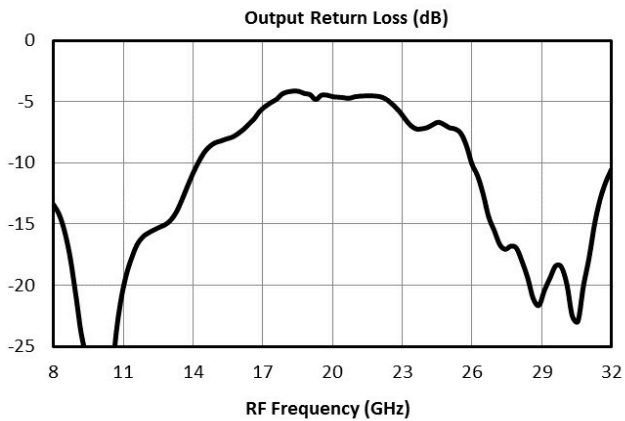
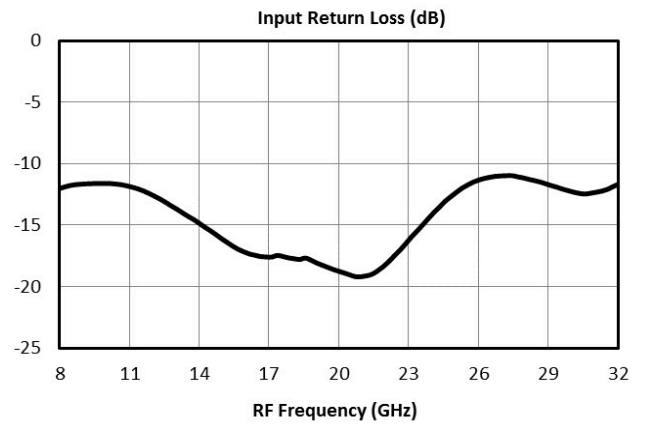
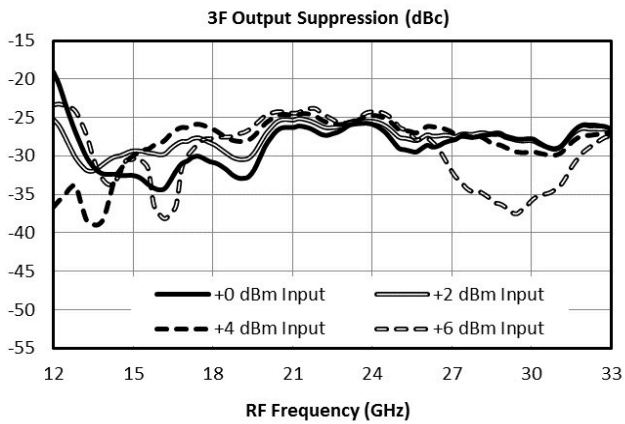
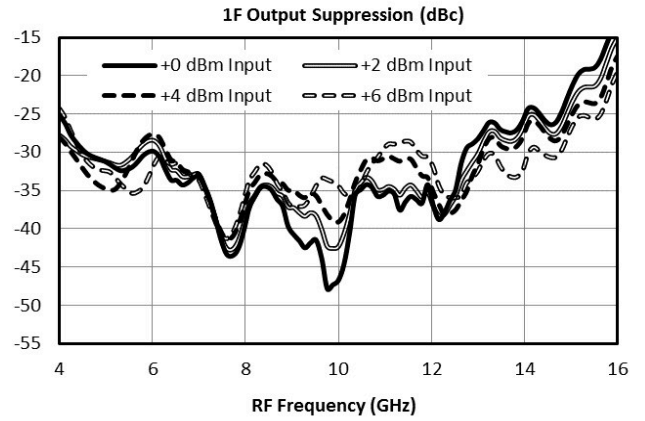
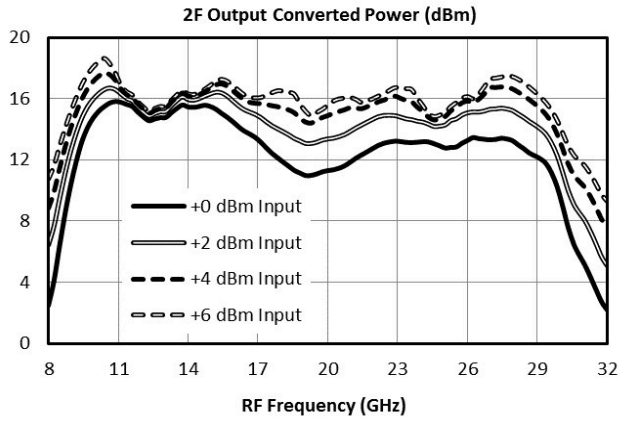
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Current Consumption <sup>1</sup>	VD = +7V	-	-	-	300	-	mA
Current Consumption <sup>2</sup>	VG: -0.15V	-	-	-	0	-	mA
Input Power <sup>3</sup>	-	5	15	-	6	-	dBm
Output Converted Power, 2F (out)	RF In = 0 dBm	10	30	12	13	-	dBm
Output Converted Power, 2F (out)	RF In = +2 dBm	10	30	12	14	-	dBm
Output Converted Power, 2F (out)	RF In = +4 dBm	10	30	12	15	-	dBm
Output Converted Power, 2F (out)	RF In = +6 dBm	10	30	12	16	-	dBm
Suppression, 1F	-	5	15	-	32	-	dBc
Suppression, 3F	-	15	30	-	27	-	dBc
Input Frequency Range	-	-	-	5	-	15	GHz
Output Frequency Range	-	-	-	10	-	30	GHz

[1] The positive bias is from +3 to +7 Volts and the negative bias is from -0.25 to ground. The higher positive bias voltage, the better 2F output converted power will be, and the lower positive bias voltage, the better 1F, 3F harmonic suppression will be.

[2] The positive bias is from +3 to +7 Volts and the negative bias is from -0.25 to ground. The higher positive bias voltage, the better 2F output converted power will be, and the lower positive bias voltage, the better 1F, 3F harmonic suppression will be. Suppression and current consumption will vary with negative bias voltage. Optimal performance is at approximately -0.15 V.

[3] The higher input power the better 2F output power and the worse 1F/3F suppression will be.

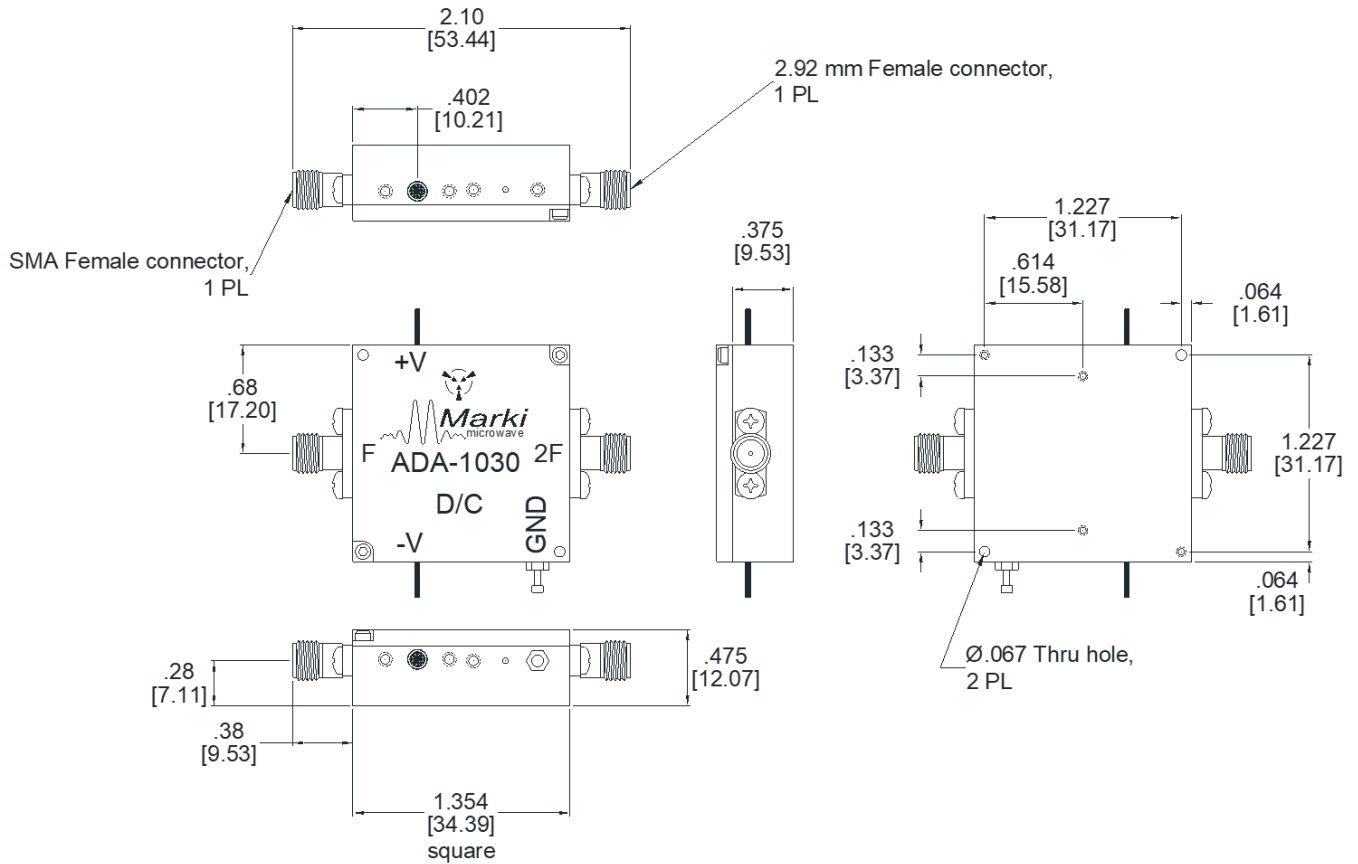
**Typical Performance Plots**



Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)



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