

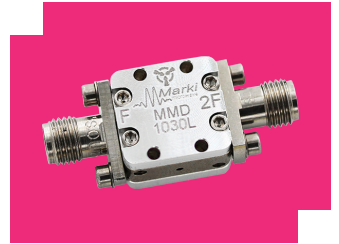
# MMD-1030LS

## GaAs MMIC Doubler

### DEVICE OVERVIEW

#### General Description

The MMD-1030L is a MMIC doubler fabricated with GaAs Schottky diodes. This part operates over a 5 to 15 GHz input frequency range or a doubled output frequency range of 10 to 30 GHz. It features excellent conversion loss, superior isolations, and harmonic suppressions across a broad bandwidth. Both the wire bondable die and connectorized units are available.



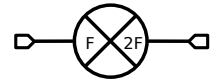
#### Features

- High Fundamental Rejection
- Low 2F Conversion Loss
- Low Input Drive

#### Applications

- High frequency synthesis
- LO signal chain

#### Functional Block Diagram



#### Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification
MMD-1030LS	GaAs MMIC Doubler	S	<u>Standard</u>	REACH RoHS	Released	EAR99

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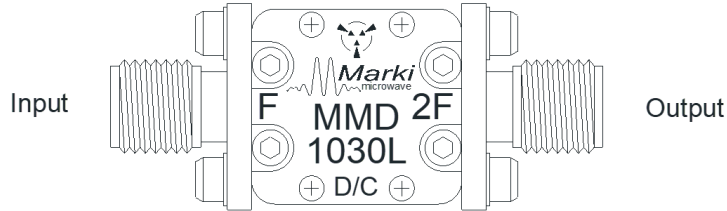
## Revision History

Revision Code	Revision Date	Comment
-	2022-12-01	Datasheet Initial Release

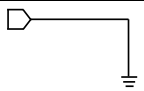
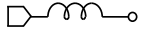
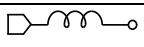
## Port Configuration and Functions

### Port Diagram

The MMD-1030L should only be used in the forward direction, with the input and output ports given in Port Functions.



### Port Functions

Port	Function	Connector Type	Description	DC Equivalent Circuit
GND	Ground	-	S package ground provided through metal housing and outer coax conductor	
Port 1	1F Input	SMAF	Input 1x Frequency Port. Port 1 is DC open and AC matched to 50 Ohms from 5 to 15 GHz for the CH & S packages.	
Port 2	2F Output	2.92F	2x Input Frequency output port. Port 2 is DC open and AC matched to 50 Ohms from 10 to 30 GHz for the CH & S packages.	

## Specifications

### Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. All Absolute Maximum Ratings are individual and should not be met in parallel. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Power Handling, at any Port	25	dBm

### Package Information

Parameter	Details	Rating
Weight	Package name: S	10.4g
Dimensions	-	14.22 x 13.21 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
Operating Temperature	-55	25	100	°C
Input Power	5	7	15	dBm

## Electrical Specifications

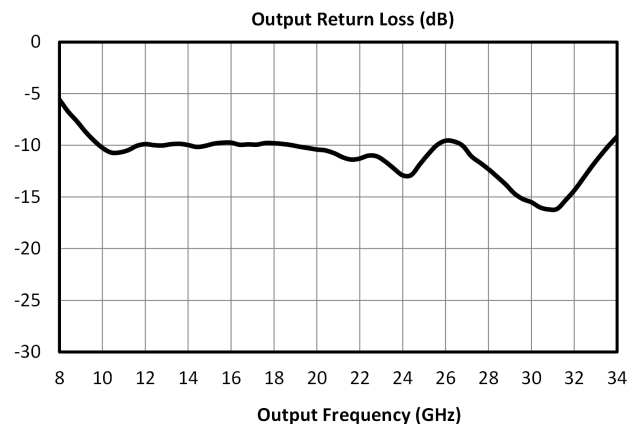
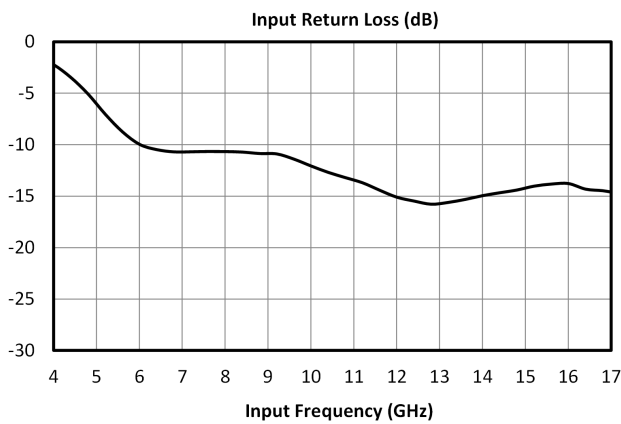
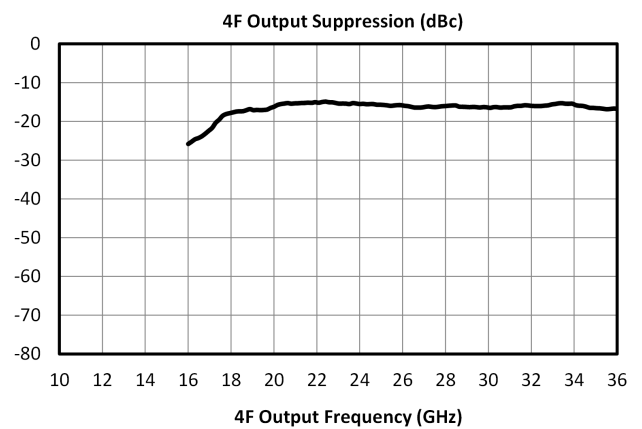
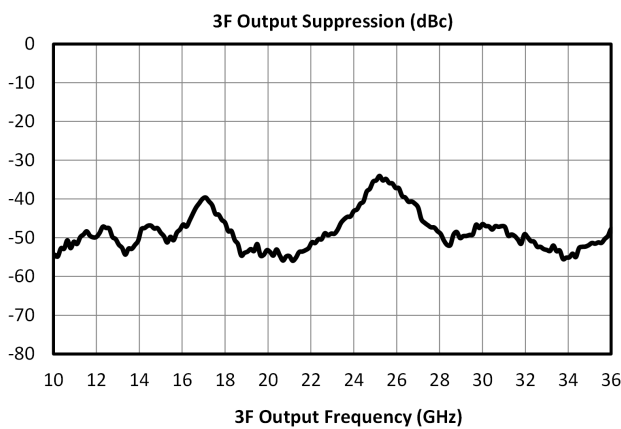
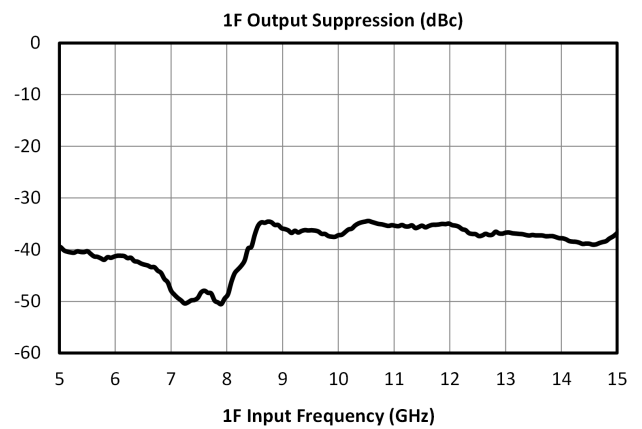
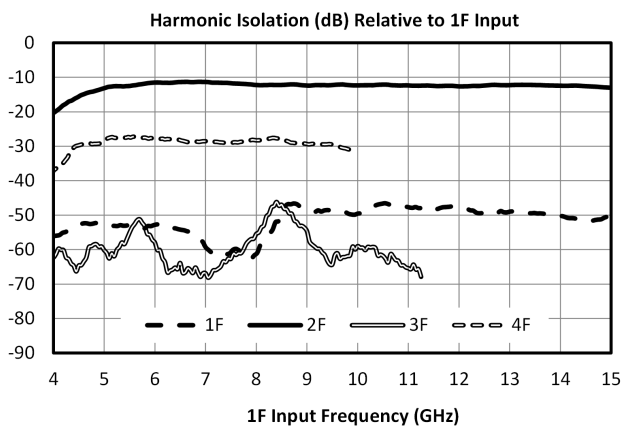
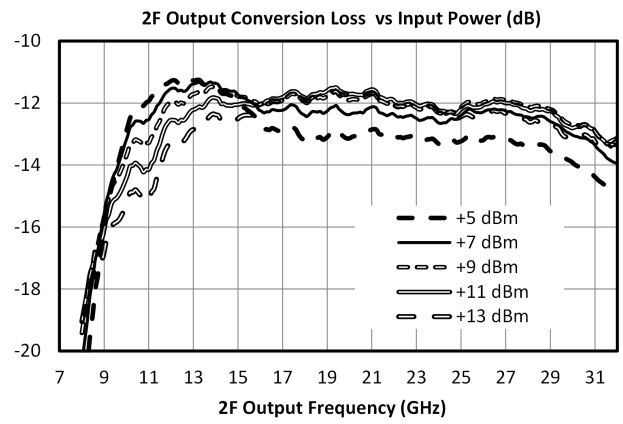
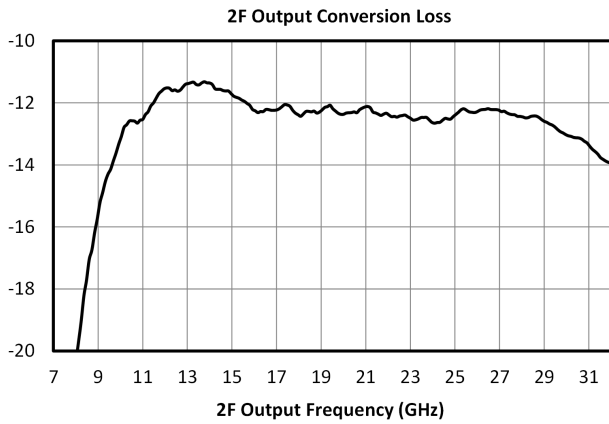
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the connectorized S package doubler used in the forward direction with a +7 dBm sine wave input.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Conversion Loss	Second Harmonic Output	10	30	-	12.5	14	dB
Input Frequency Range	-	-	-	5	-	15	GHz
Input Power	-	-	-	5	7	15	dBm
Isolation, 1F <sup>1</sup>	Input=5-15 GHz Output=10-30 GHz	5	15	-	50	-	dB
Isolation, 3F <sup>2</sup>	Input=5-10 GHz Output=15-30 GHz	15	30	-	58	-	dB
Isolation, 4F <sup>3</sup>	Input=5-7.5 GHz Output=20-30 GHz	20	30	-	27	-	dB
Output Frequency Range	-	-	-	10	-	30	GHz
Suppression, 1F <sup>4</sup>	Input=5-15 GHz Output=10-30 GHz	5	15	-	38	-	dBc
Suppression, 3F <sup>5</sup>	Input=5-10 GHz Output=15-30 GHz	15	30	-	46	-	dBc
Suppression, 4F <sup>6</sup>	Input=5-7.5 GHz Output=20-30 GHz	20	30	-	15	-	dBc

[1][2][3] Isolation is defined as the harmonic power relative to the 1F fundamental input power.

[4][5][6] Suppressions and isolations measured with an input source with >60dBc (relative to fundamental input) harmonic suppression. Suppression is defined as the harmonic power relative to the 2F doubled output power.

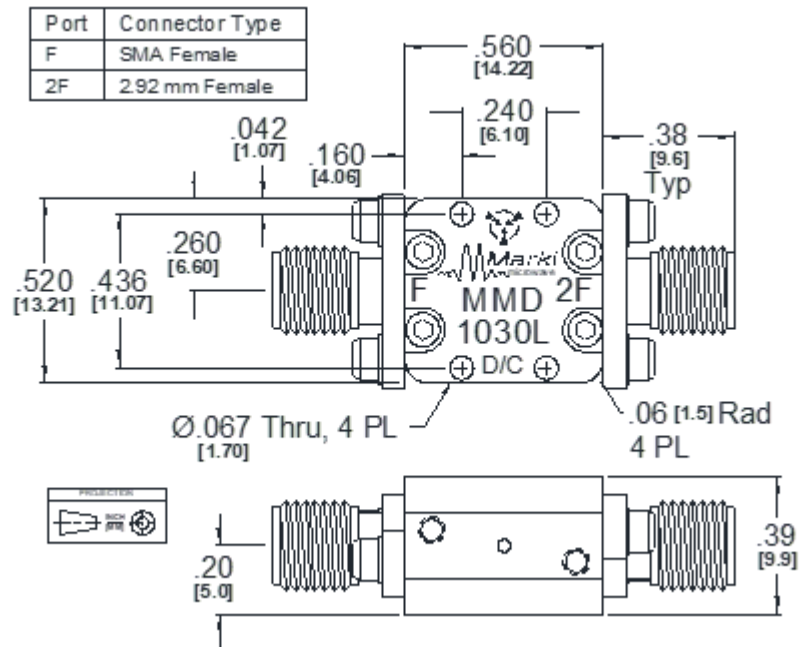
**Typical Performance Plots**



**Mechanical Data**

**Outline Drawing**

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



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