Sales: 408-778-9952 | General: 408-778-4200 | Fax: 408-778-4300
Sales & Customer Support: sales@markimicrowave.com
Tech Support: support@markimicrowave.com

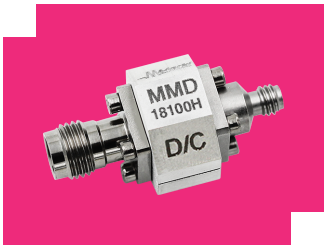
MMD-18100HM

GaAs MMIC Millimeter Wave Doubler

DEVICE OVERVIEW

General Description

MMD-18100H is a MMIC millimeter wave 2x multiplier fabricated with GaAs Schottky diodes. MMD-18100H operates over a 9 to 50 GHz input frequency range or a doubled output frequency range of 18 to 100 GHz. The MMD-18100H delivers low 12 dB 2F Conversion Loss and high suppression of the 1F and 3F harmonics. MMD-18100H is available as a connectorized coaxial module using 1.0 mm connectors on the output. Wire bondable die are also available.



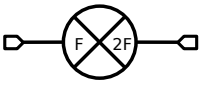
Features

- Low 2F Conversion Loss, 12 dB Typical
- High Fundamental Rejection
- High Frequency Wideband Performance
- Low Input Power Requirement, +10 dBm
- Bare Die Available

Applications

- mmWave frequency synthesis
- LO signal chain for mmWave mixers

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Connectors	Green Status	Product Lifecycle	Export Classification
MMD-18100HM	GaAs MMIC Millimeter Wave Doubler	M	-	REACH RoHS	Released	EAR99

Table Of Contents

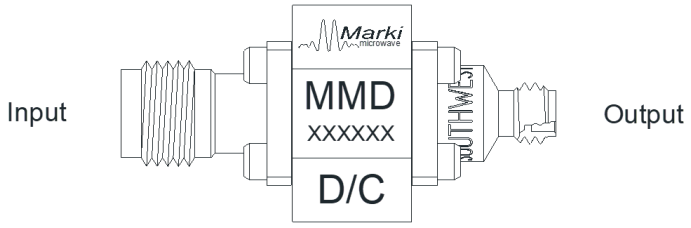
Revision History

Revision Code	Revision Date	Comment
-	2026-04-21	Initial Release

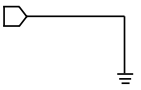
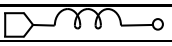
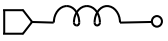
Port Configuration and Functions

Port Diagram

The MMD-18100H 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	-	M package ground provided through metal housing and outer coax conductor.	
Port 1	Input	1.85F	Input 1x Frequency Port. Port 1 is DC blocked for the M package.	
Port 2	Output	1.0F	2x Input Frequency output port. Port 2 is DC blocked for the M package.	

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	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
Power Handling, at any Port	27	dBm

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	28.81 x 14.30 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
Ambient Temperature	-55	25	100	°C
Input Power	10	14	20	dBm

Electrical Specifications

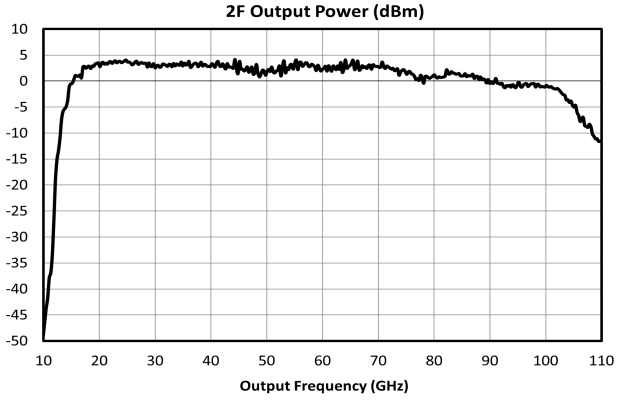
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the connectorized M package doubler used in the forward direction with a nominal +14 dBm sine wave input. Min and Max limits apply only to our connectorized units and are guaranteed at TA=+25°C.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Input Frequency Range	-	-	-	9	-	50	GHz
Output Frequency Range	-	-	-	18	-	100	GHz
Input Power	-	-	-	10	14	20	dBm
Conversion Loss	Second Harmonic Output	18	100	-	12	-	dB
Isolation, 1F [1]	Input = 9 – 50 GHz Output = 9 – 50 GHz	9	50	-	37	-	dB
Isolation, 3F [2]	Input = 9 – 33.3 GHz Output = 27 – 100 GHz	27	100	-	50	-	dB
Isolation, 4F [3]	Input = 9 – 25 GHz Output = 36 – 100 GHz	36	100	-	27	-	dB
Suppression, 1F [4]	Input = 9 – 50 GHz Output = 9 – 50 GHz	9	50	-	25	-	dBc
Suppression, 3F [5]	Input = 9 – 33.3 GHz Output = 27 – 100 GHz	27	100	-	35	-	dBc
Suppression, 4F [6]	Input = 9 – 25 GHz Output = 36 – 100 GHz	36	100	-	14.5	-	dBc

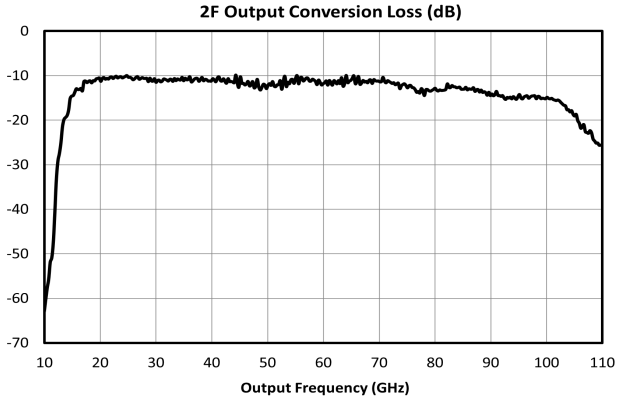
[1][2][3] Isolation is defined as the harmonic power relative to the 1F fundamental input power.
[4][5][6] Suppressions and isolations measured with an input source with >60dBc (relative to fundamental input) harmonic suppression. Suppression is defined as the harmonic power relative to the 2F doubled output power.

Typical Performance Plots

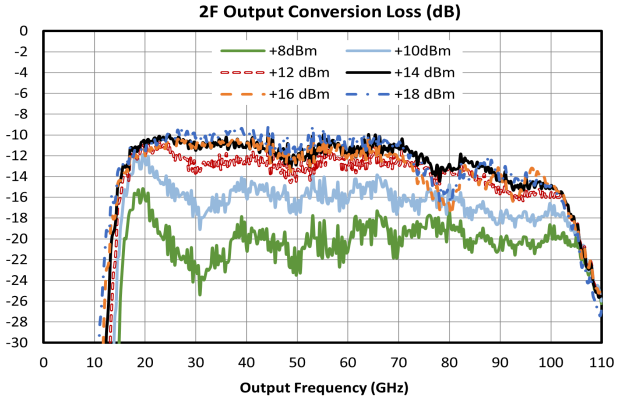
2F Output Power (dBm)



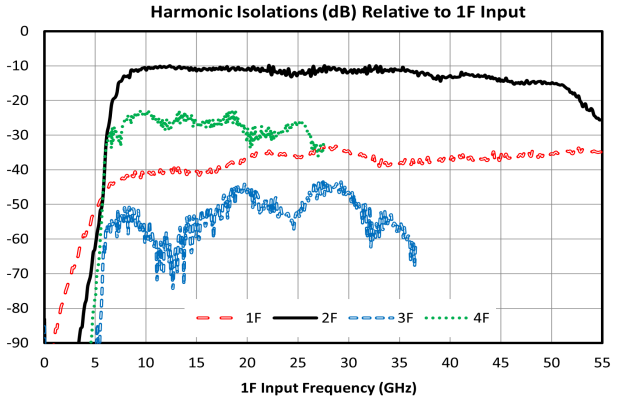
2F Output Conversion Loss (dB)



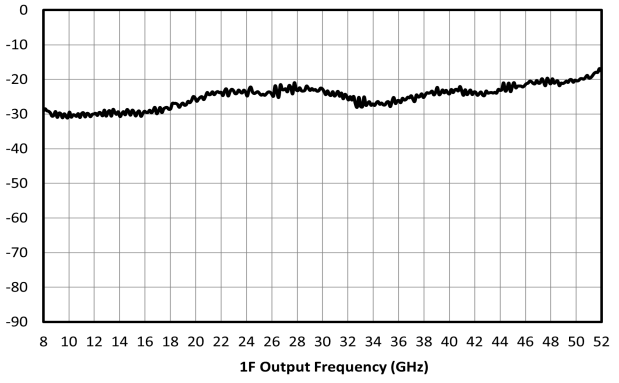
2F Output Conversion Loss (dB)



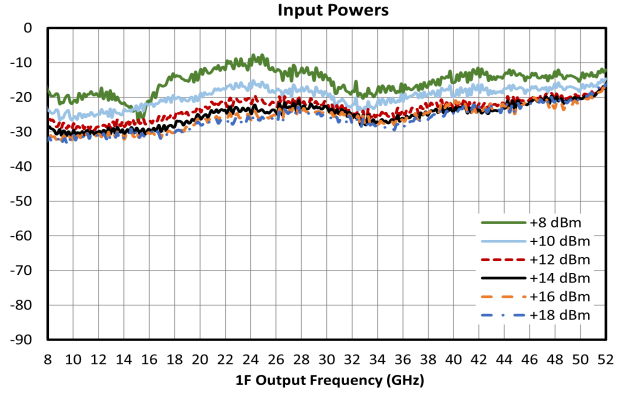
Harmonic Isolations (dB) Relative to 1F Input



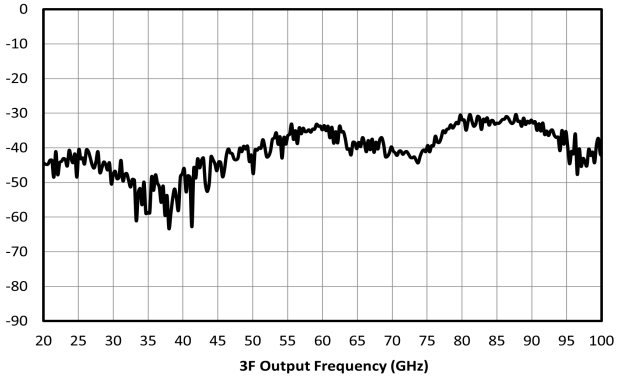
1F Output Suppression (dBc) Relative to 2F Output



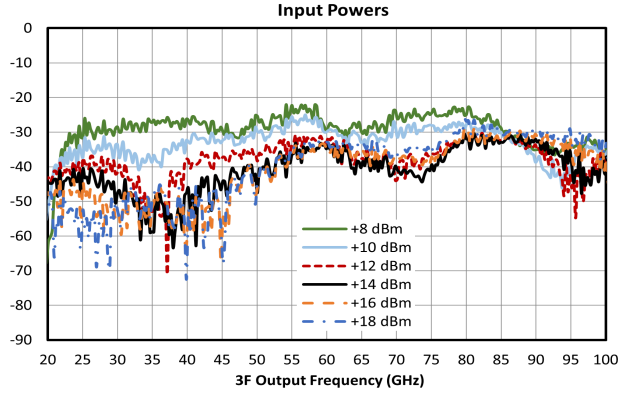
1F Output Suppression (dBc) Relative to 2F Output vs. Different Input Powers

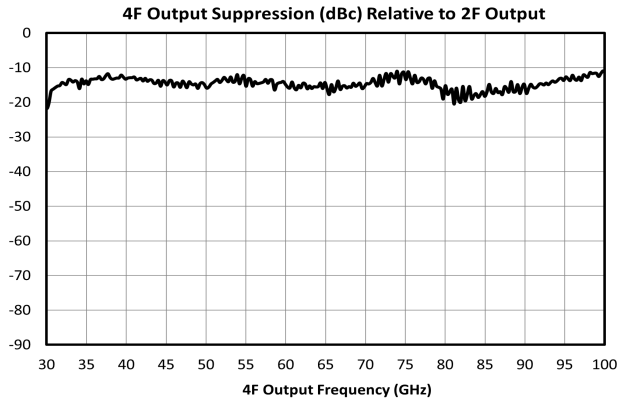


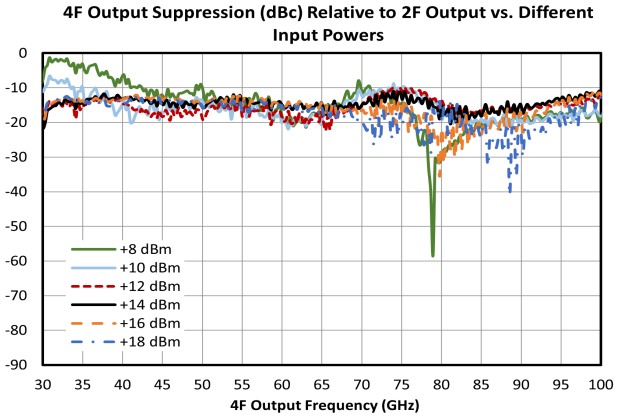
3F Output Suppression (dBc) Relative to 2F Output

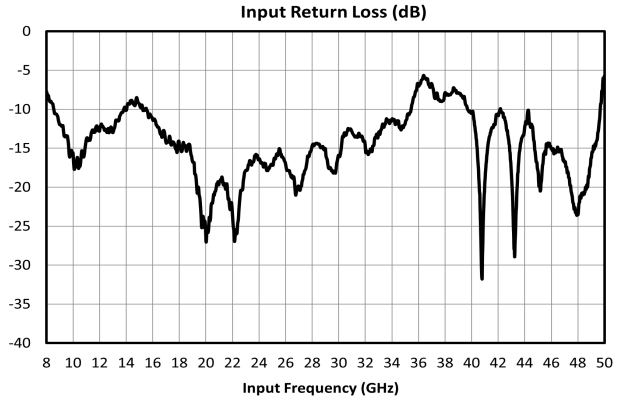


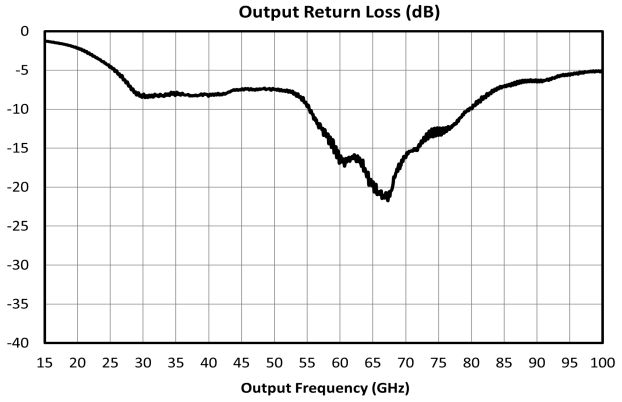
3F Output Suppression (dBc) Relative to 2F Output vs. Different Input Powers







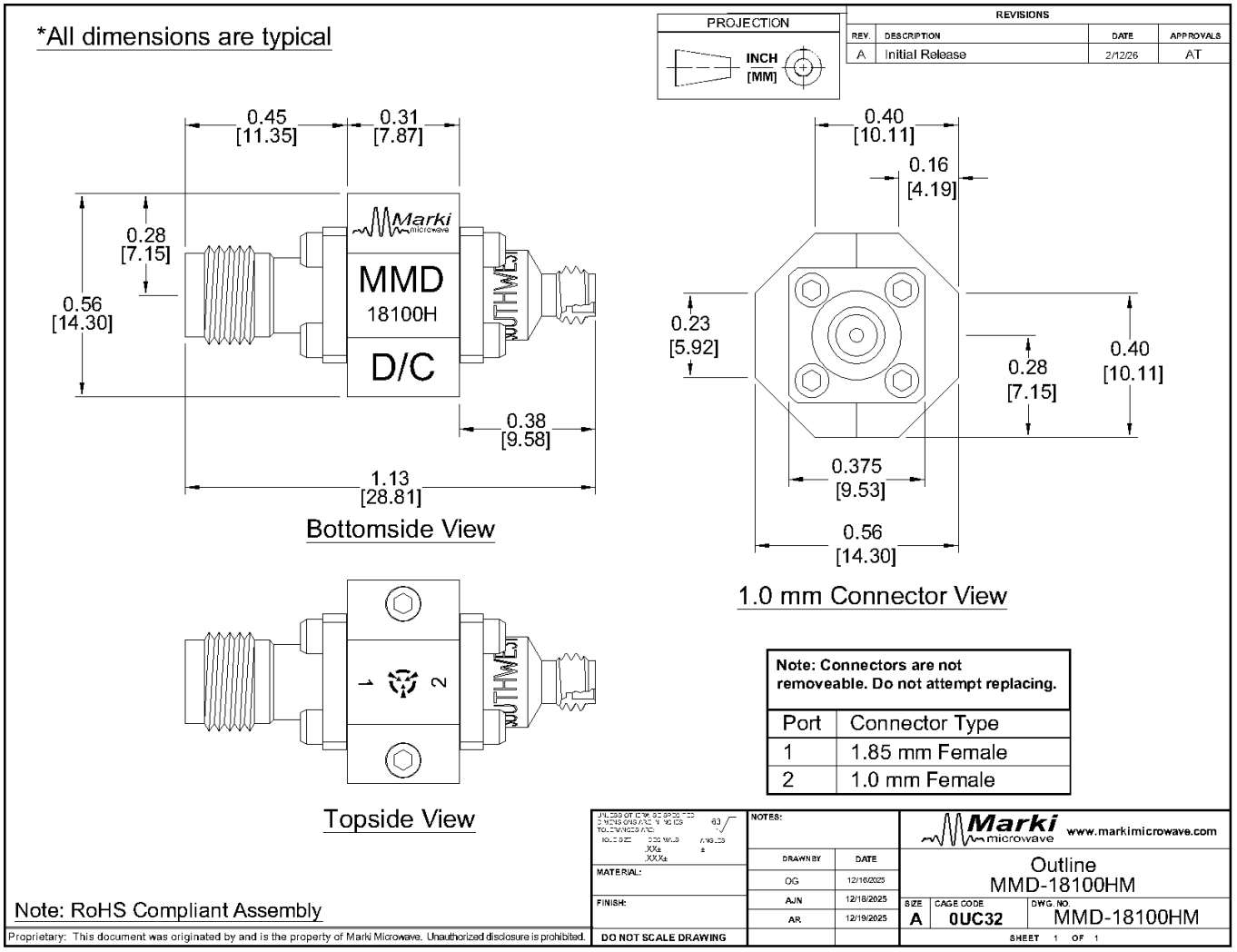




Mechanical Data

Outline Drawing

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



DISCLAIMER

MARKI MICROWAVE, LLC., (“MARKI”) PROVIDES TECHNICAL SPECIFICATIONS AND DATA (INCLUDING DATASHEETS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, AND OTHER INFORMATION AND RESOURCES “AS IS” AND WITH ALL FAULTS. MARKI DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

These resources are intended for developers skilled in the art designing with Marki products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards and other requirements. Marki makes no guarantee regarding the suitability of its products for any particular purpose, nor does Marki assume any liability whatsoever arising out of your use or application of any Marki product.

Marki grants you permission to use these resources only for development of an application that uses Marki products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Marki intellectual property or to any third-party intellectual property. Marki reserves the right to make changes to the product(s) or information contained herein without notice.