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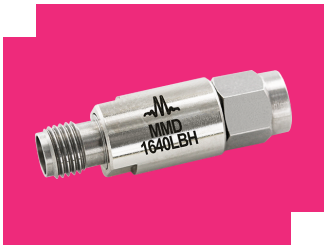
MMD-1640LBH

GaAs MMIC Doubler, 16 - 40 GHz Output Frequency

DEVICE OVERVIEW

General Description

The MMD-1640LBH is a MMIC doubler fabricated with GaAs Schottky diodes. This part operates over an 8 to 20 GHz input frequency range or a doubled output frequency range of 16 to 40 GHz. It features excellent 14 dB 2F conversion loss, superior isolations, and harmonic suppressions across a broad bandwidth. Both the wire bondable die and connectorized units are available.



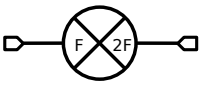
Features

- High Fundamental Rejection
- Low 14 dB 2F Conversion Loss
- Excellent 55 dB 1F and 66 dB 3F Isolations respectively
- Low +6 dBm 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-1640LBH	GaAs MMIC Doubler, 16 - 40 GHz Output Frequency	BH	-	REACH RoHS	Released	EAR99

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Table Of Contents

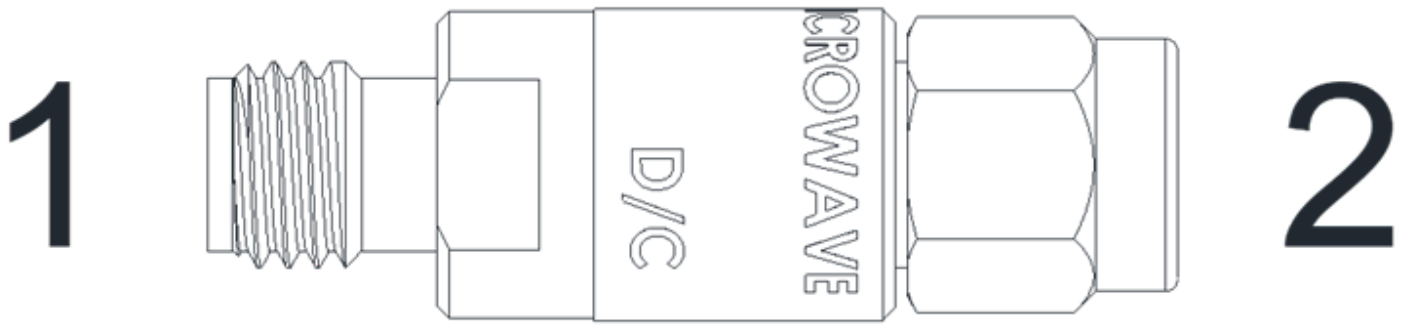
Revision History

Revision Code	Revision Date	Comment
-	2025-06-06	Initial Release

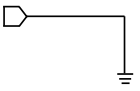
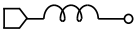
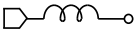
Port Configuration and Functions

Port Diagram

The MMD-1640LBH 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	-	BH package ground provided through metal housing and outer coax conductor.	
Port 1	1F Input	2.92F	Input 1x Frequency Port. Port 1 is DC open and AC matched to 50 Ohms from 8 to 20 GHz for the CH & BH packages.	
Port 2	2F Output	2.92M	2x Input Frequency output port. Port 2 is DC open and AC matched to 50 Ohms from 16 to 40 GHz for the CH & BH 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: BH	9.2g
Dimensions	-	30.1 x 9.5 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	6	10	15	dBm

Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the connectorized BH package doubler used in the forward direction with a +10 dBm sine wave input.

Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Input Frequency Range	-	-	-	8	-	20	GHz
Output Frequency Range	-	-	-	16	-	40	GHz
Conversion Loss	Second Harmonic Output	16	40	-	14	-	dB
Isolation, 1F [1]	Input = 8 - 20 GHz Output = 8 - 20 GHz	8	20	-	55	-	dB
Isolation, 3F [2]	Input = 8 - 13.33 GHz Output = 24 - 40 GHz	24	40	-	66	-	dB
Isolation, 4F [3]	Input = 8 - 10 GHz Output = 32 - 40 GHz	32	40	-	32	-	dB
Suppression, 1F [4]	Input = 8 - 20 GHz Output = 8 - 20 GHz	8	20	-	42	-	dBc
Suppression, 3F [5]	Input = 8 - 13.33 GHz Output = 24 - 40 GHz	24	40	-	52	-	dBc
Suppression, 4F [6]	Input = 8 - 10 GHz Output = 32 - 40 GHz	32	40	-	17	-	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.

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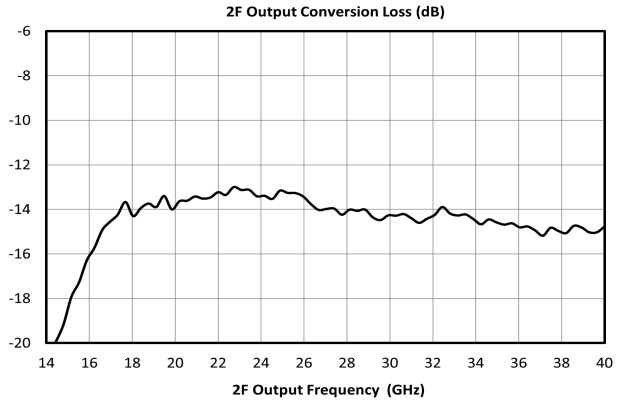
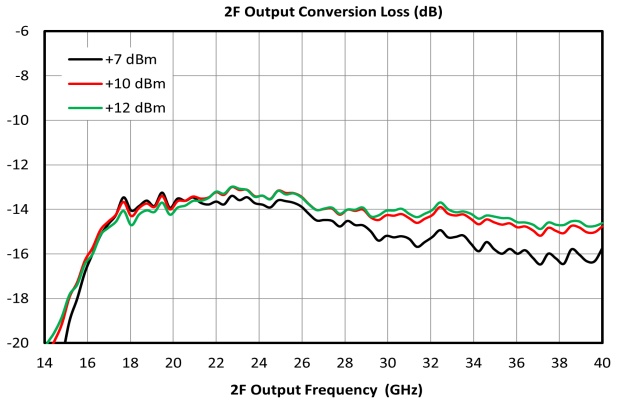
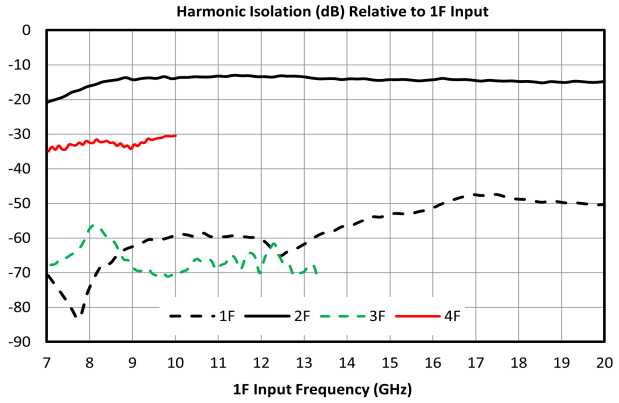
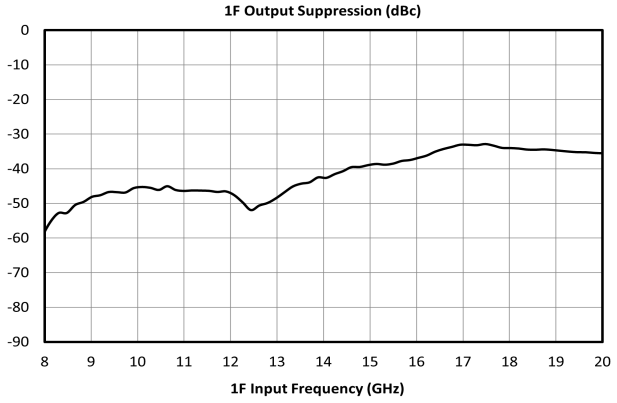
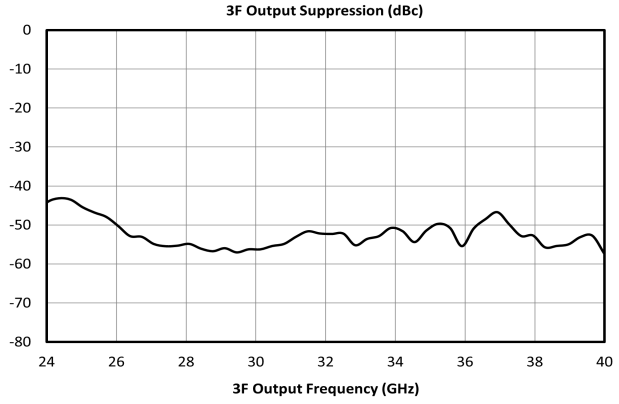
Typical Performance Plots

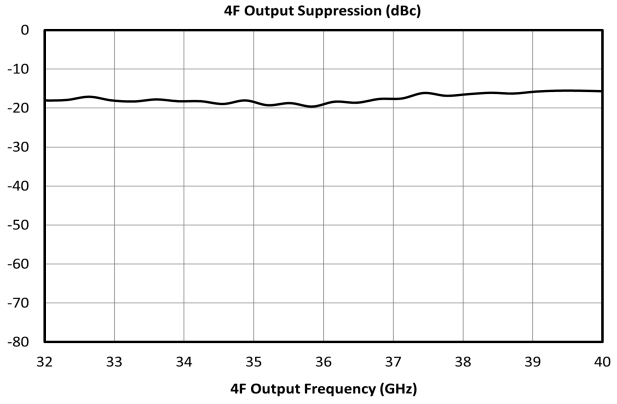


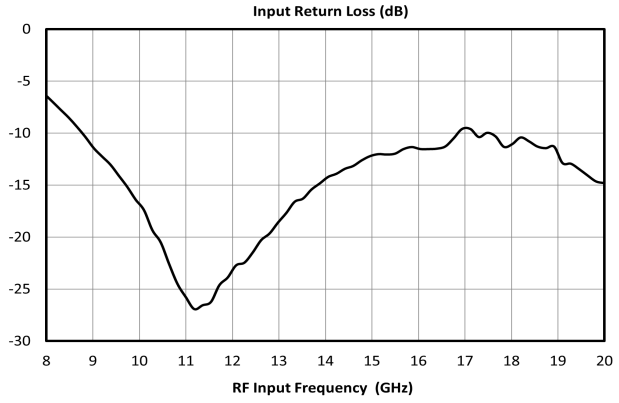


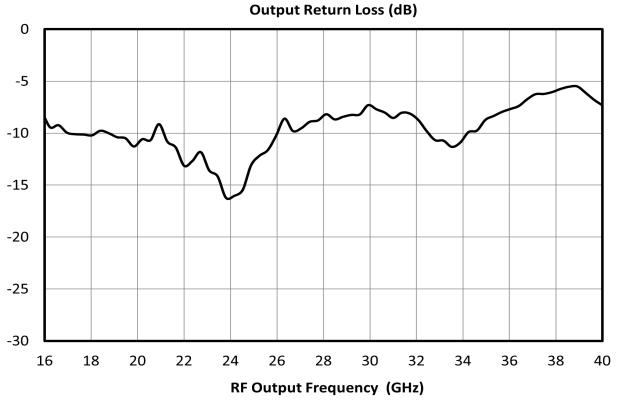












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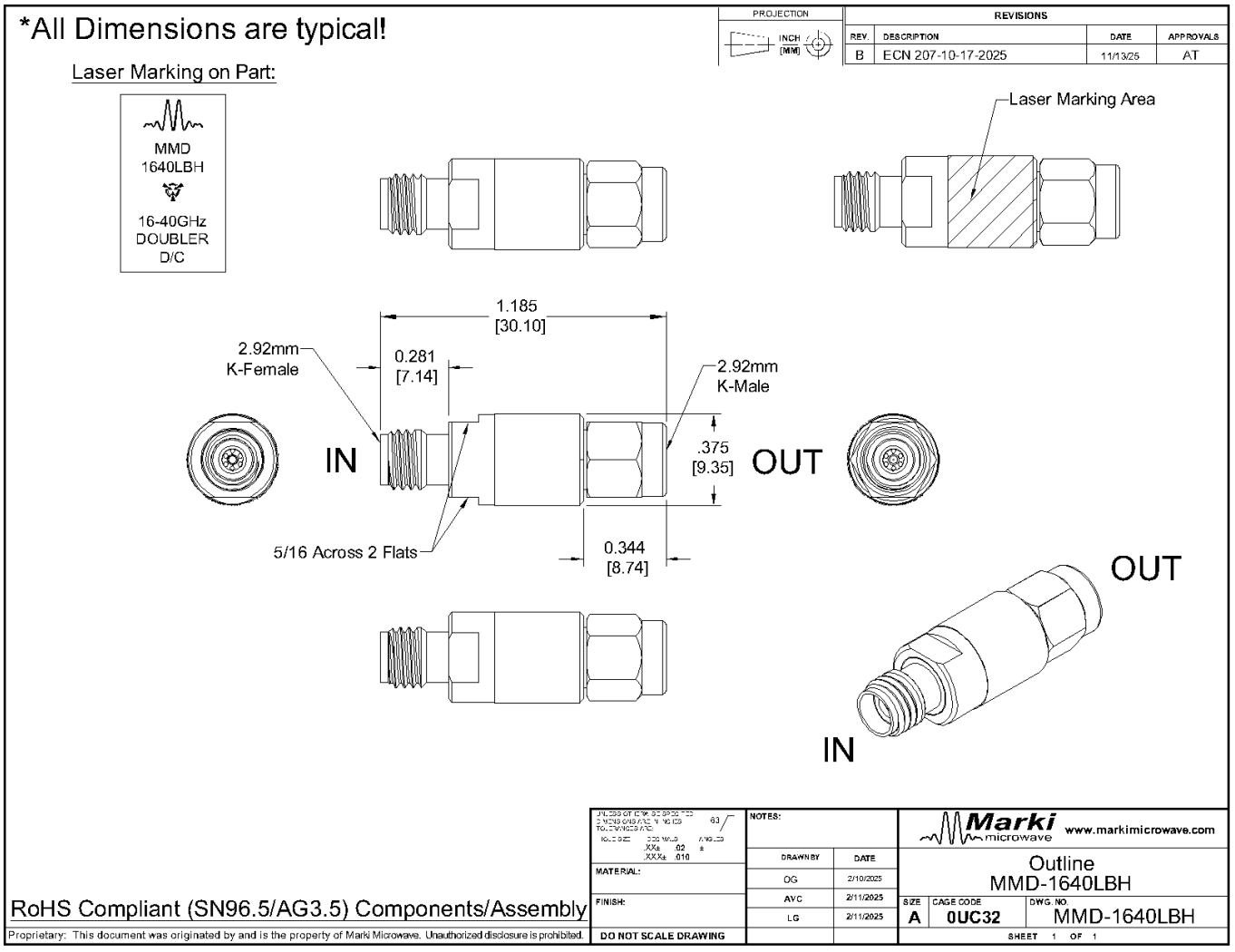
Mechanical Data

Outline Drawing

Download : Outline 2D Drawing



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