

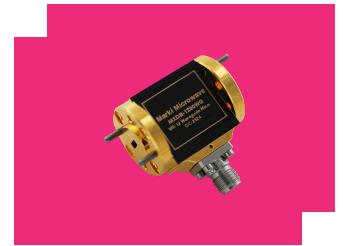
MXDB-1200WG

WR-12 Waveguide double balanced mixer

DEVICE OVERVIEW

General Description

MXDB-1200WG is a double balanced mixer that features excellent conversion loss, great isolations, and spurious performance across the bandwidth. The MXDB-1200WG works well as both an up and down converter. The MXDB-1200WG is recommended for WR-12 frequency band conversion applications that require high linearity.



Features

- Full band, high linearity mmWave frequency conversion
- Up or down conversion
- UG-387/U flanges, RF and LO ports
- 1.85mm Female IF port connector

Applications

N/A

Functional Block Diagram



Part Ordering Options

| Part Number | Description | Package | Green Status | Product Lifecycle | Export Classification |
|-------------|---------------------------------------|---------|--------------|-------------------|-----------------------|
| MXDB-1200WG | WR-12 Waveguide double balanced mixer | WR-12 | | Released | EAR99 |

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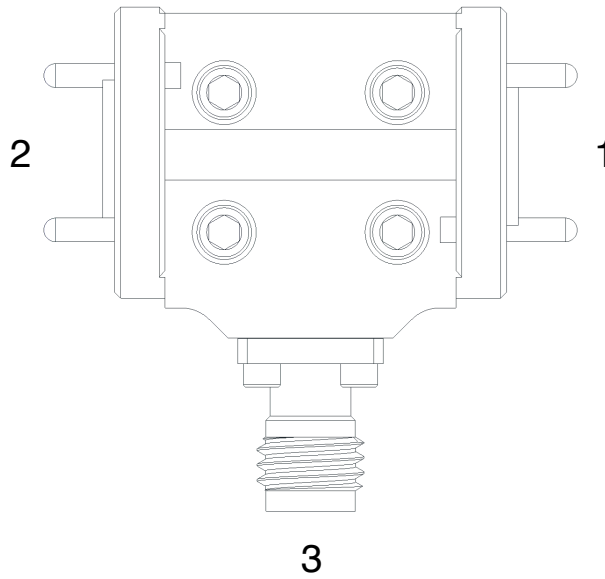
Revision History

| Revision Code | Revision Date | Comment |
|---------------|---------------|-----------------|
| - | 2024-10-17 | Initial Release |

Port Configuration and Functions

Port Diagram

The port diagram below is shown as a top-down view.



Port Functions

Configuration A

| Port | Function | Connector Type | Description | Equivalent Circuit for Package |
|--------|-------------------|----------------|------------------------------|--------------------------------|
| Port 1 | RF Input / Output | WR-12-UG-387/U | WR-12 RF Input/Output Port | - |
| Port 2 | LO Input | WR-12-UG-387/U | WR-12 LO Input Port | - |
| Port 3 | IF Input / Output | 1.85F | 1.85mmF IF Input/Output Port | - |

Configuration B

| Port | Function | Connector Type | Description | Equivalent Circuit for Package |
|--------|-------------------|----------------|-------------------------------|--------------------------------|
| Port 1 | LO Input | WR-12-UG-387/U | WR-12 LO Input Port | - |
| Port 2 | RF Input / Output | WR-12-UG-387/U | WR-12 RF Input / Output Port | - |
| Port 3 | IF Input / Output | 1.85F | 1.85mm IF Input / Output Port | - |

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 | 30 | dBm |

Package Information

| Parameter | Details | Rating |
|-----------|---------------------|--------------|
| ESD | 250 to < 500 Volts | HBM Class 1A |
| Weight | Package name: WR-12 | 17.6g |

Recommended Operating Conditions

| Parameter | Min | Nominal | Max | Unit |
|---------------------|-----|---------|-----|------|
| Ambient Temperature | -55 | 25 | 100 | °C |
| LO Input Power | 12 | 14 | - | - |

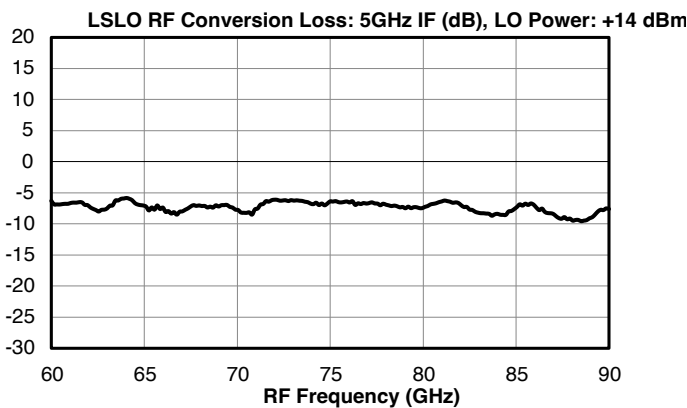
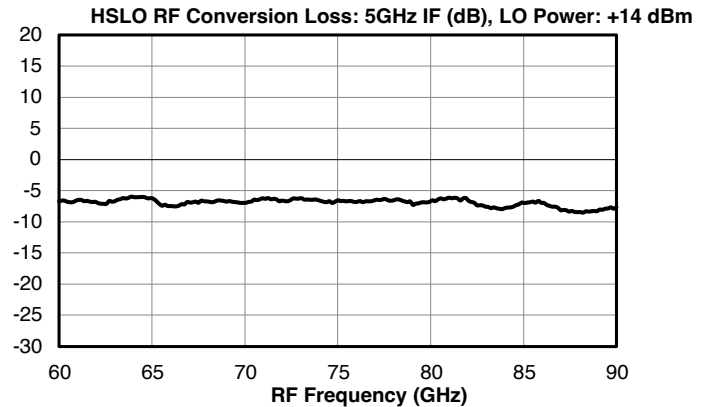
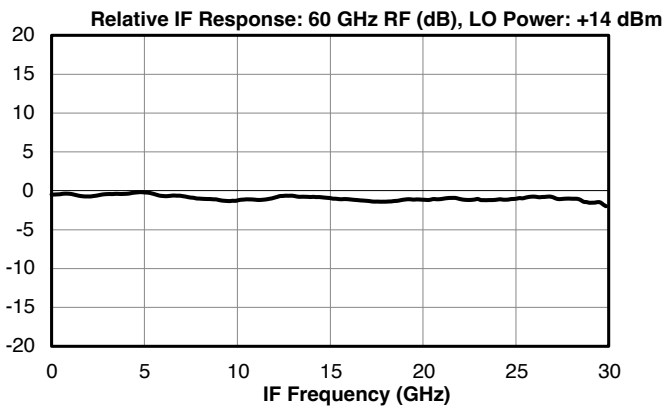
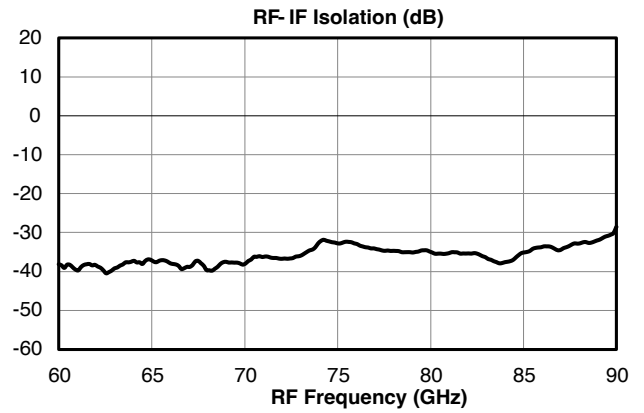
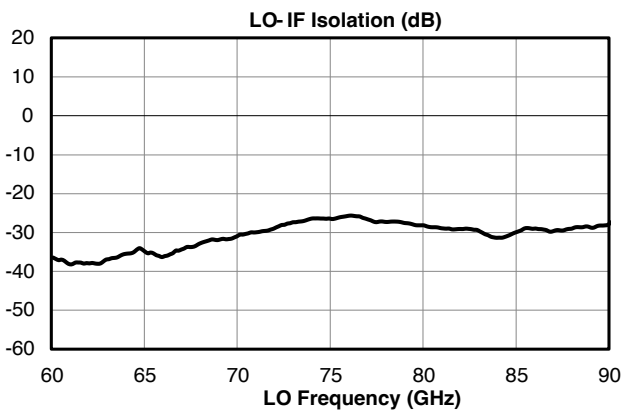
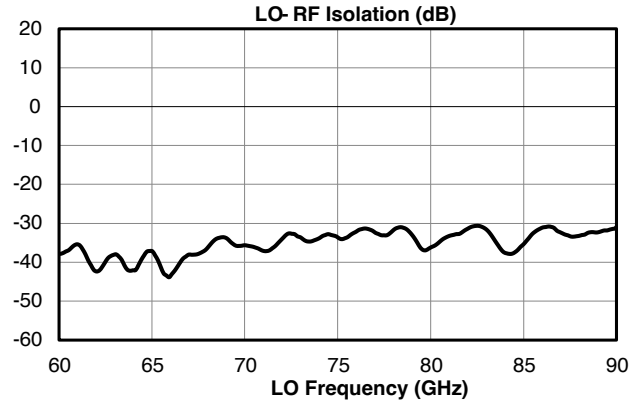
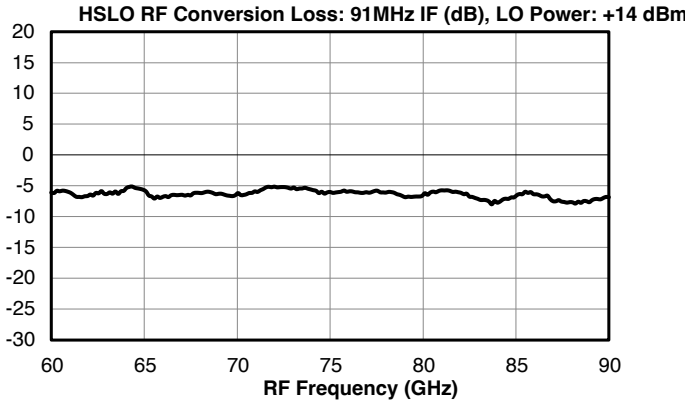
Electrical Specifications

| Parameter | Port Configuration | Test Conditions | Min | Typ | Max | Unit |
|-----------------------------------|--------------------|---------------------------------|-----|-----|-----|------|
| Conversion Loss (CL) ¹ | - | RF/LO = 60-90GHz, IF = DC-30GHz | - | 7.5 | - | dB |
| IF Frequency Range | - | - | 0 | - | 30 | GHz |
| Isolation, LO to IF | - | LO/IF = 60-90GHz | - | 30 | - | dB |
| Isolation, LO to RF | - | LO/RF = 60-90GHz | - | 34 | - | dB |
| Isolation, RF to IF | - | RF/IF = 60-90GHz | - | 35 | - | dB |
| LO Frequency Range | - | - | 60 | - | 90 | GHz |
| Noise Figure ² | - | RF/LO = 60-90GHz, IF = DC-30GHz | - | 7.5 | - | dB |
| RF Frequency Range | - | - | 60 | - | 90 | GHz |

^[1] Measured as a down converter with fixed 91MHz IF.

^[2] Mixer Noise Figure typically measures within 0.5dB of conversion loss for IF frequencies greater than 5MHz.

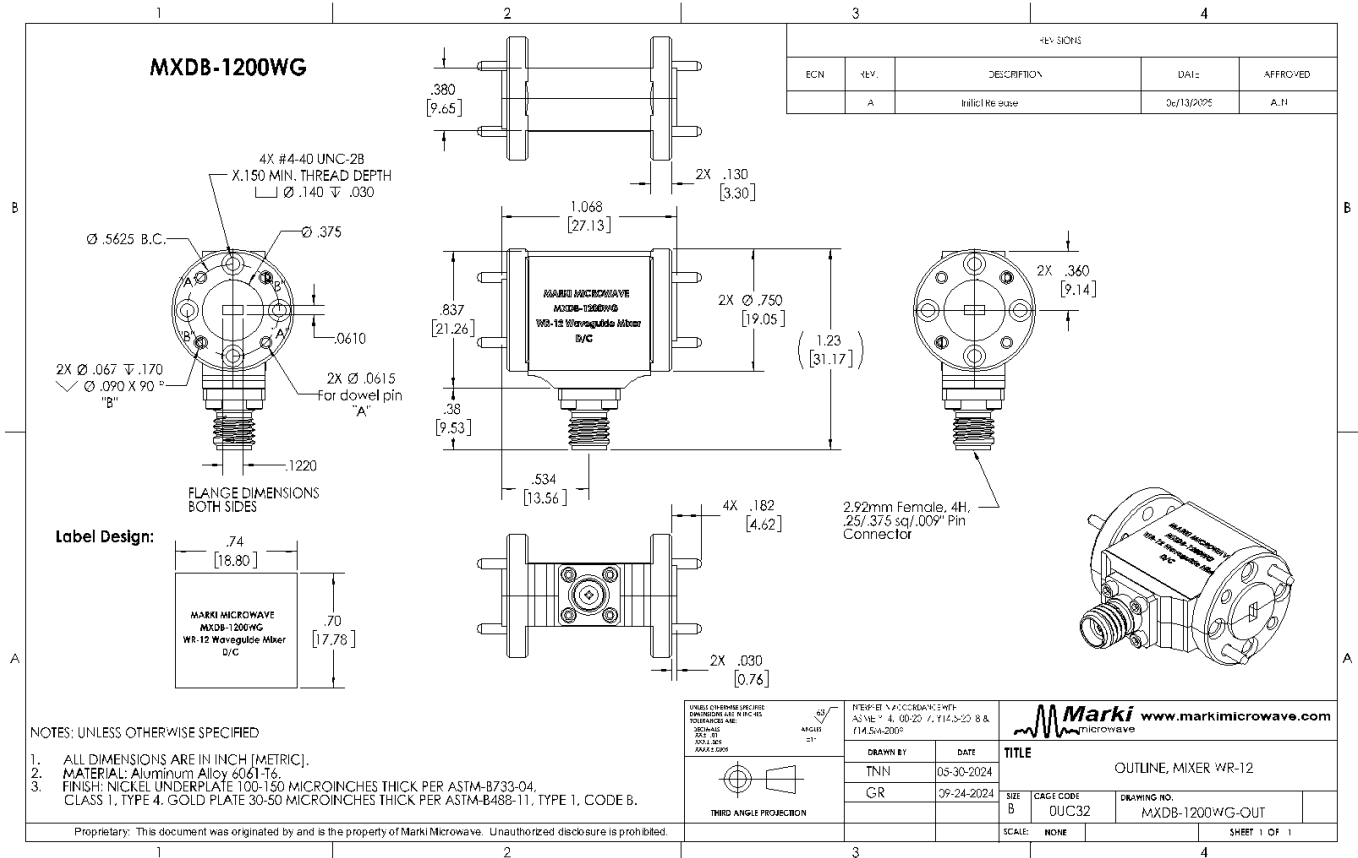
Typical Performance Plots



Mechanical Data

Outline Drawing

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



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