

## DOUBLE-BALANCED MIXERS INTEGRATED LO-DOUBLER

**M1D-0420**

### Features

- RF 4.0 to 20.0 GHz
- LO 2.0 to 10.0 GHz
- IF DC to 4.0 GHz
- Integrated LO Doubler
- 6.0 dB Typical Conversion Loss
- 45 dB Typical 2LO to RF Isolation
- Very-Broadband RF and LO



**Electrical Specifications** - Specifications guaranteed from -55 to +100°C, measured in a 50-Ohm system.

| Parameter                                        | LO<br>(GHz)          | RF<br>(GHz)          | IF<br>(GHz)       | Min | Typ        | Max        | Diode Option<br>LO drive level (dBm) |
|--------------------------------------------------|----------------------|----------------------|-------------------|-----|------------|------------|--------------------------------------|
| Conversion Loss (dB)                             | 2.0-10.0<br>2.0-10.0 | 4.0-20.0<br>4.0-20.0 | DC-2.0<br>2.0-4.0 |     | 6.0<br>7.5 | 8.0<br>9.0 |                                      |
| Isolation (dB)                                   |                      |                      |                   |     |            |            |                                      |
| LO-RF                                            | 2.0-10.0             | 2.0-10.0             |                   | 20  | 30         |            |                                      |
| 2LO-RF                                           | 4.0-20.0             | 4.0-20.0             |                   | 35  | 45         |            |                                      |
| LO-IF                                            | 2.0-10.0             | 2.0-10.0             |                   |     | 25         |            |                                      |
| 2LO-IF                                           | 4.0-20.0             | 4.0-20.0             |                   |     | 40         |            |                                      |
| RF-IF                                            | 4.0-20.0             | 4.0-20.0             |                   |     | 25         |            |                                      |
| Input 1 dB Compression (dBm)                     | 2.0-10.0             | 4.0-20.0             |                   |     | +2         |            | L (+18 to +21)                       |
| Input Two-Tone Third Order Intercept Point (dBm) | 2.0-10.0             | 4.0-20.0             |                   |     | +12        |            | L (+18 to +21)                       |

### Part Number Options

| Please specify diode level and package style by adding to model number. |                    |                          |                |           |                        |  |
|-------------------------------------------------------------------------|--------------------|--------------------------|----------------|-----------|------------------------|--|
| Package Styles                                                          |                    | Examples                 |                |           |                        |  |
| Connectorized                                                           | <a href="#">A</a>  | M1D-0420LA, M1D-0420LE-2 |                |           |                        |  |
| Microstrip <sup>1,2</sup>                                               | <a href="#">E</a>  | <u>M1D-0420</u>          | <u>L</u>       | <u>E</u>  | <u>-2</u>              |  |
| Surface Mount <sup>1,2</sup>                                            | <a href="#">EZ</a> | (Model)                  | (Diode Option) | (Package) | (I-Port Configuration) |  |

<sup>1</sup>Connectorized test fixtures available for most microstrip and surface mount packages. Consult factory.

<sup>2</sup>For non-connectorized packages, specify I-port configuration by adding -1 or -2 suffix to model number. Default is -2 configuration when not specified.

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215 Vineyard Court, Morgan Hill, CA 95037 | Ph: 408.778.4200 | Fax 408.778.4300 | [info@markimicrowave.com](mailto:info@markimicrowave.com)



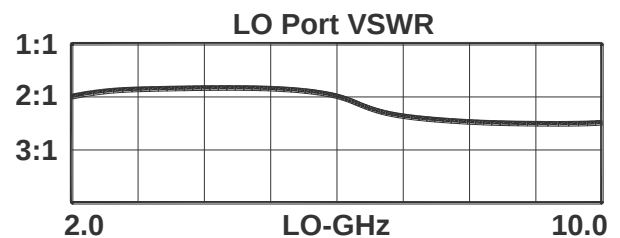
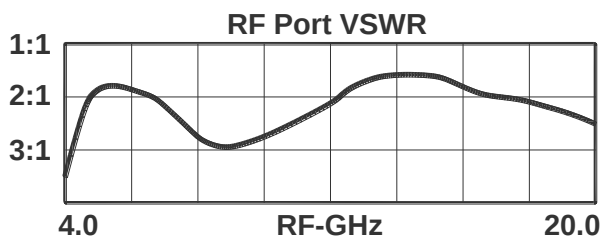
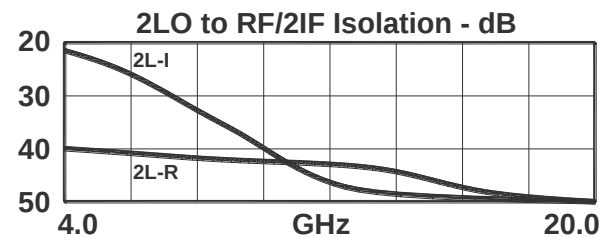
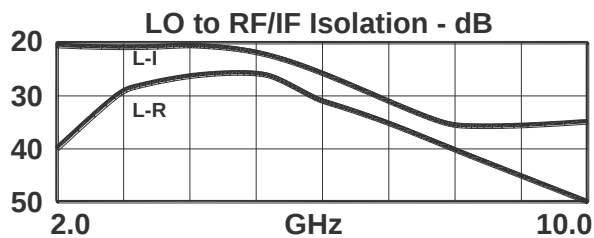
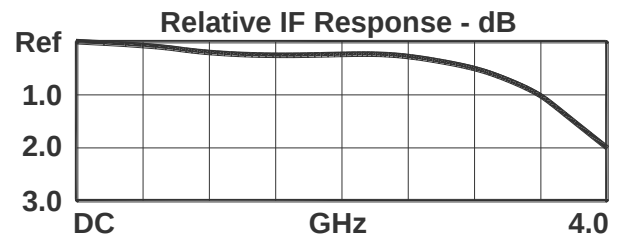
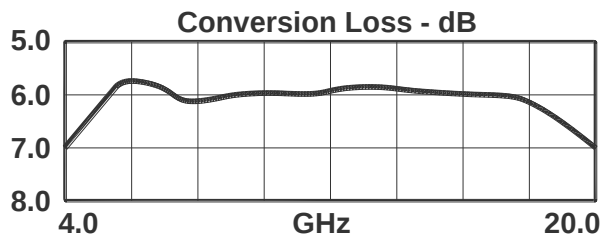
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**M1D-0420**

RF 4.0 to 20.0 GHz  
LO 2.0 to 10.0 GHz  
IF DC to 4.0 GHz

Typical Performance



### DATA SHEET NOTES:

1. Mixer Conversion Loss Plot IF frequency is 100 MHz.
2. Mixer Noise Figure typically measures within +0.5 dB of conversion loss for IF frequencies greater than 5 MHz.
3. Conversion Loss typically degrades less than 0.5 dB for LO drives 2 dB below the lowest and 3 dB above highest nominal LO drive levels.
4. Conversion Loss typically degrades less than 0.5 dB at +100°C and improves less than 0.5 dB at -55°C.
5. Maximum input power is +23 dBm at +25°C, derated linearly to +20 dBm at +100°C.
6. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.
7. Standard configuration for A, B, and C outlines are with connectors and bottom spacer.
8. Catalog mixer circuits are continually improved. Configuration control requires custom mixer model numbers and specifications.

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215 Vineyard Court, Morgan Hill, CA 95037 | Ph: 408.778.4200 | Fax 408.778.4300 | [info@markimicrowave.com](mailto:info@markimicrowave.com)

[www.markimicrowave.com](http://www.markimicrowave.com)