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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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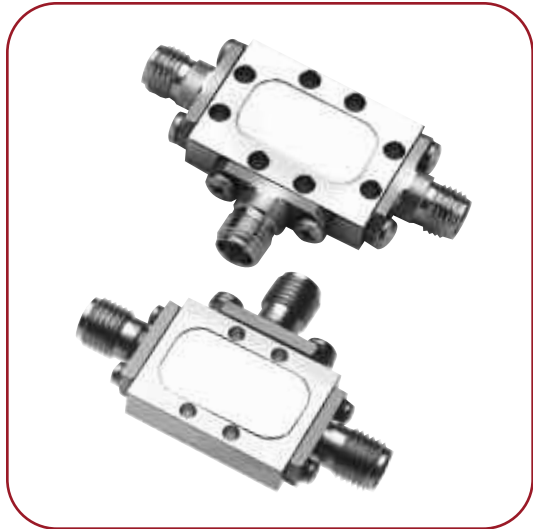


# 1 TO 4 GHz DOUBLE-BALANCED MIXER

## MODELS: DM0104LA1 AND DM0104LA3

### FEATURES

- RF/LO coverage..... 1 to 4 GHz
- IF operation..... DC to 1 GHz
- LO power range..... +7 to +13 dBm
- Conversion loss ..... 5.5 dB typical
- LO-to-RF isolation..... 40 dB typical



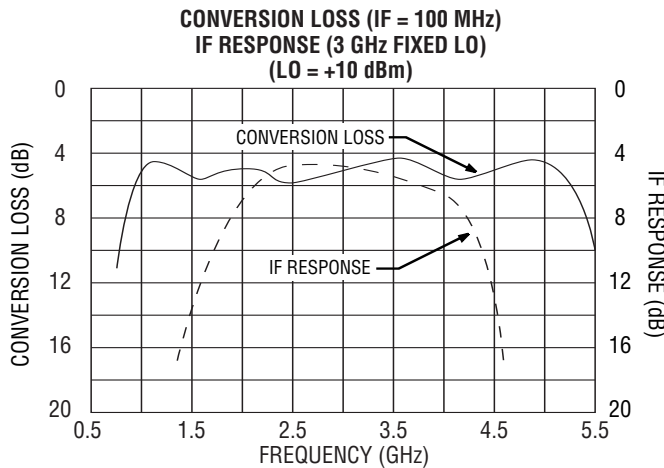
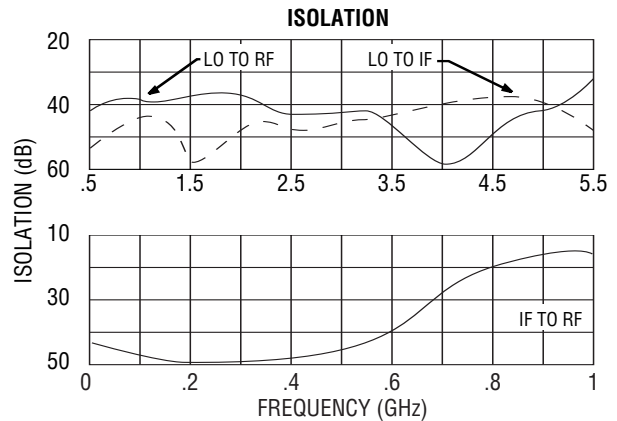
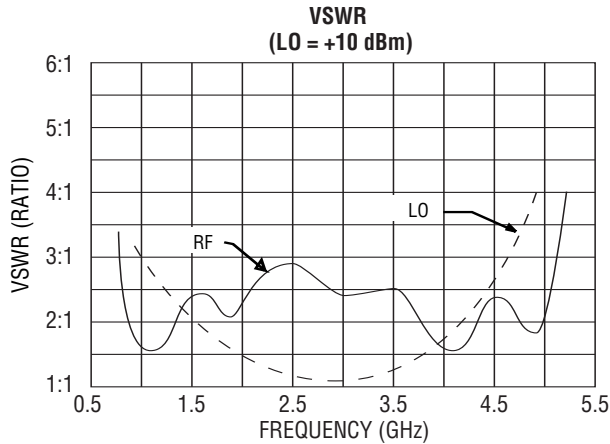
MITEQ's DM0104L Series of mixers are constructed using double-tuned microstrip RF and LO baluns with a DC-coupled IF structure. The construction, coupled with the hermetic packaging, provides for high inherent reliability and isolation over an extremely broad frequency range. This device performs as an up- or downconverter covering most PCN bands and communication applications. This mixer is also available with medium or high forward voltage diodes (M, H) yielding proportional changes in LO power and spurious performance.

### ELECTRICAL SPECIFICATIONS

| INPUT PARAMETERS                             | CONDITION      | UNITS | MIN. | TYP.  | MAX. |
|--|----------------|-------|------|-------|------|
| RF frequency range                           |                | GHz   | 1    |       | 4    |
| RF VSWR (RF = -10 dBm, LO = +10 dBm)         | 1 to 4 GHz     | Ratio |      | 2.5:1 |      |
| LO frequency range                           |                | GHz   | 1    |       | 4    |
| LO power range                               |                | dBm   | +7   |       | +13  |
| LO VSWR (LO = +10 dBm)                       | 1 to 4 GHz     | Ratio |      | 3:1   |      |
| TRANSFER CHARACTERISTICS                     | CONDITION      | UNITS | MIN. | TYP.  | MAX. |
| Conversion loss (IF = 100 MHz, LO = +10 dBm) | 1 to 4 GHz     | dB    |      | 5.5   | 7    |
| Single-sideband noise figure                 | 1 to 4 GHz     | dB    |      | 7.5   |      |
| LO-to-RF isolation                           | 1 to 4 GHz     | dB    | 30   | 40    |      |
| LO-to-IF isolation                           | 1 to 4 GHz     | dB    | 30   | 40    |      |
| IF-to-RF isolation                           | DC to 1 GHz    | dB    |      | 30    |      |
| Input power at 1 dB compression              | LO = +10 dBm   | dBm   | 0    | +3    |      |
| Input two-tone third-order intercept point   | LO = +10 dBm   | dBm   | +10  | +13   |      |
| OUTPUT PARAMETERS                            | CONDITION      | UNITS | MIN. | TYP.  | MAX. |
| IF frequency range                           | 2 dB bandwidth | GHz   | DC   |       | 1    |
| IF VSWR (IF = -10 dBm, LO = +10 dBm)         |                | Ratio |      | 2.5:1 |      |



# DM0104LA1/A3 TYPICAL TEST DATA



**SINGLE-TONE (m) RF x (n) LO RELATIVE SPUR LEVEL (dBc)**  
(AVERAGE MIDBAND RF, LO, IF FREQUENCIES,  
RF = -10 dBm, LO = +10 dBm)

| SPUR<br>(m) RF x (n) LO | RF TEST<br>FREQ. (GHz) | LO TEST<br>FREQ. (GHz) | SPUR<br>LEVEL (dBc) |
|-------------------------|------------------------|------------------------|---------------------|
| 1 x 1                   | 2.25                   | 2.75                   | 0                   |
| 1 x 2                   | 3.16                   | 1.83                   | 22                  |
| 1 x 3                   | 3.62                   | 1.37                   | 9                   |
| 2 x 1                   | 1.5                    | 3.5                    | 65                  |
| 2 x 2                   | 2.38                   | 2.62                   | 68                  |
| 2 x 3                   | 2.9                    | 2.1                    | 65                  |
| 3 x 1                   | 1.12                   | 3.86                   | 60                  |
| 3 x 2                   | 1.9                    | 3.1                    | > 70                |
| 3 x 3                   | 2.41                   | 2.58                   | > 70                |

## MAXIMUM RATINGS

Specification temperature ..... +25°C  
 Operating temperature ..... -54 to +85°C  
 Storage temperature ..... -65 to +125°C

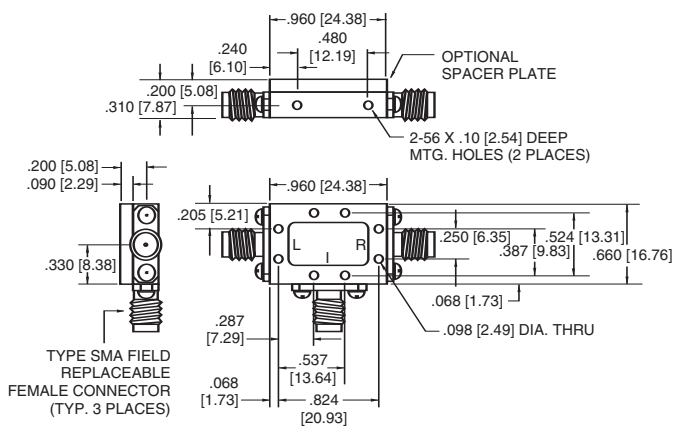
## AVAILABLE OPTION

Medium/high dynamic range options  
 M (LO = +16 dBm), (IP<sup>3</sup> = +16 dBm typ.)  
 H (LO = +20 dBm), (IP<sup>3</sup> = +20 dBm typ.)  
 M, H (Conversion loss = 8 dB max.)

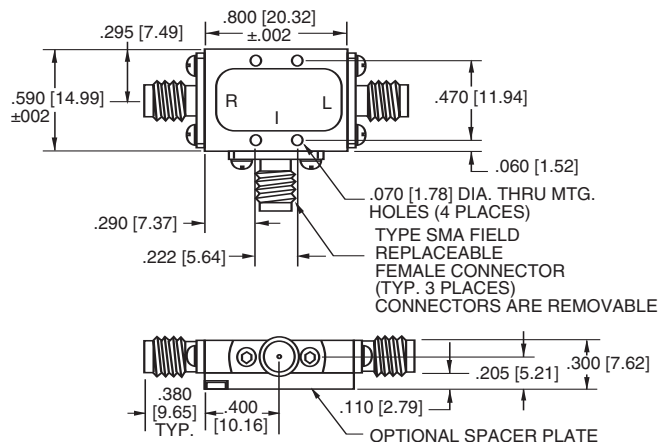
NOTE: Test data supplied at 25°C; conversion loss and LO-to-RF isolation.

## OUTLINE DRAWINGS

### A1 HOUSING



### A3 HOUSING



NOTE: All dimensions shown in brackets [ ] are in millimeters.

