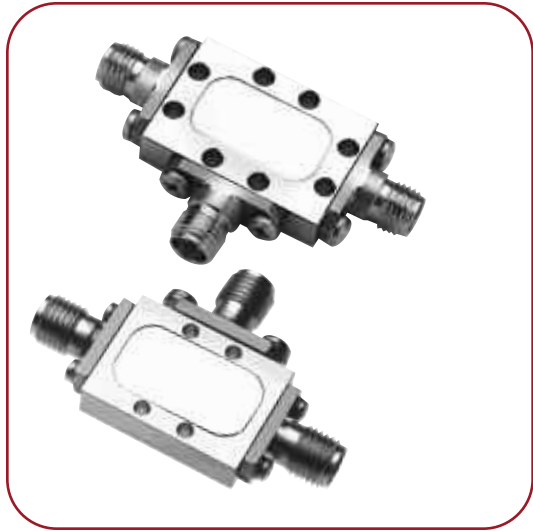


## 4 TO 18 GHz DOUBLE-BALANCED MIXER

**MODELS: DMX0418L, DMY0418L, DMX0716L AND DMY0716L**

### FEATURES

- RF/LO coverage ..... 4 to 18 GHz
- IF operation ..... DC to 4 GHz
- LO power range ..... +7 to +13 dBm
- Conversion loss..... 5 dB typical
- LO-to-RF isolation ..... 35 dB typical
- Packaging..... Hermetically sealed



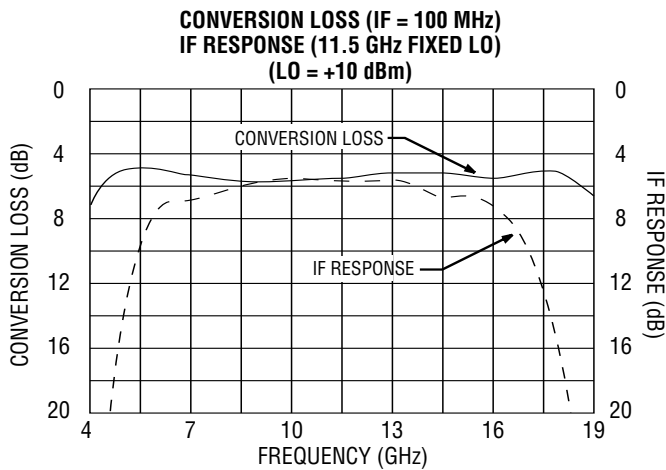
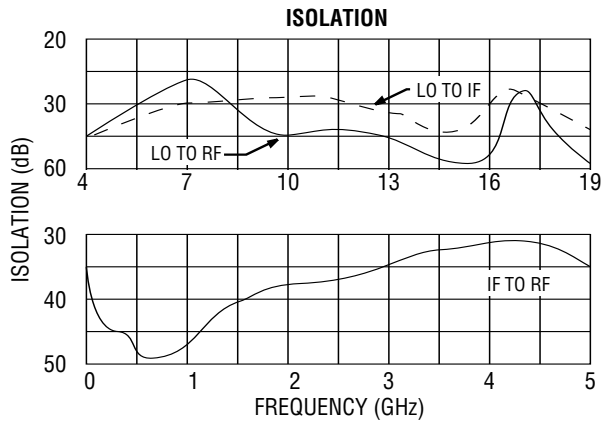
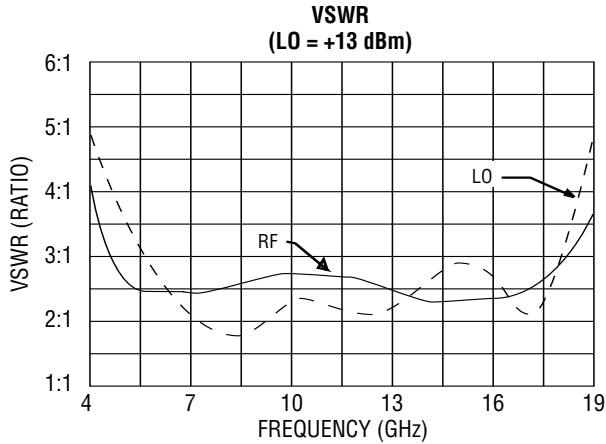
MITEQ's DMX and DMY Series of mixers are constructed using double-tuned microstrip RF and LO baluns with a DC-coupled IF structure. The construction, coupled with the hermetic packaging, provides for high inherent reliability and isolation over an extremely broad frequency range. This device performs as an up- or downconverter covering most EW 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            | 4    |              | 18     |
| RF VSWR (RF = -10 dBm, LO = +10 dBm)         | 7 to 16 GHz<br>4 to 18 GHz | Ratio<br>Ratio |      | 2:1<br>3:1   |        |
| LO frequency range                           |                            | GHz            | 4    |              | 18     |
| LO power range                               |                            | dBm            | +7   |              | +13    |
| LO VSWR (LO = +10 dBm)                       | 7 to 16 GHz<br>4 to 18 GHz | Ratio<br>Ratio |      | 2:1<br>2.5:1 |        |
| TRANSFER CHARACTERISTICS                     | CONDITION                  | UNITS          | MIN. | TYP.         | MAX.   |
| Conversion loss (IF = 100 MHz, LO = +10 dBm) | 7 to 16 GHz<br>4 to 18 GHz | dB<br>dB       |      | 5<br>6       | 8<br>9 |
| Single-sideband noise figure                 | 4 to 18 GHz                | dB             |      |              | 9.5    |
| LO-to-RF isolation                           | 4 to 18 GHz                | dB             | 20   | 35           |        |
| LO-to-IF isolation                           | 4 to 18 GHz                | dB             | 20   | 35           |        |
| IF-to-RF isolation                           | DC to 4 GHz                | dB             | 20   | 35           |        |
| Input power at 1 dB compression              | LO = +10 dBm               | dBm            | 0    | +3           |        |
| Input two-tone third-order intercept point   | LO = +13 dBm               | dBm            | +10  | +13          |        |
| OUTPUT PARAMETERS                            | CONDITION                  | UNITS          | MIN. | TYP.         | MAX.   |
| IF frequency range                           | 2 dB bandwidth             | GHz            | DC   |              | 4      |
| IF VSWR (IF = -10 dBm, LO = +10 dBm)         |                            | Ratio          |      | 2:1          |        |



# DMX0418L/DMY0418L 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                   | 10                     | 12                     | 0                   |
| 1 x 2                   | 14                     | 8                      | 32                  |
| 1 x 3                   | 16                     | 6                      | 12                  |
| 2 x 1                   | 6                      | 14                     | 38                  |
| 2 x 2                   | 10.5                   | 11.5                   | 55                  |
| 2 x 3                   | 12.8                   | 9.2                    | 38                  |
| 3 x 1                   | 5                      | 17                     | 42                  |
| 3 x 2                   | 8.4                    | 13.6                   | 60                  |
| 3 x 3                   | 10.7                   | 11.3                   | 58                  |

**MAXIMUM RATINGS**

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

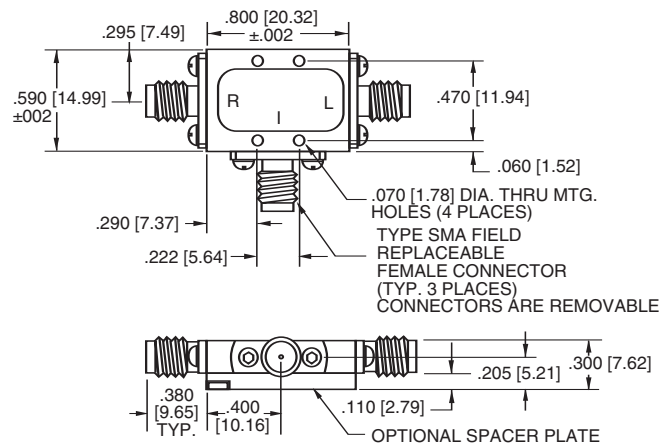
**AVAILABLE OPTIONS**

Medium/high dynamic range options  
 M (LO = +13 to +17 dBm), (IP<sup>3</sup> = +18 dBm typ.)  
 H (LO = +17 to +20 dBm), (IP<sup>3</sup> = +22 dBm typ.)  
 DMX0418, M, H (Conversion loss = 10 dB max.)  
 DMX0716, M, H (Conversion loss = 9 dB max.)

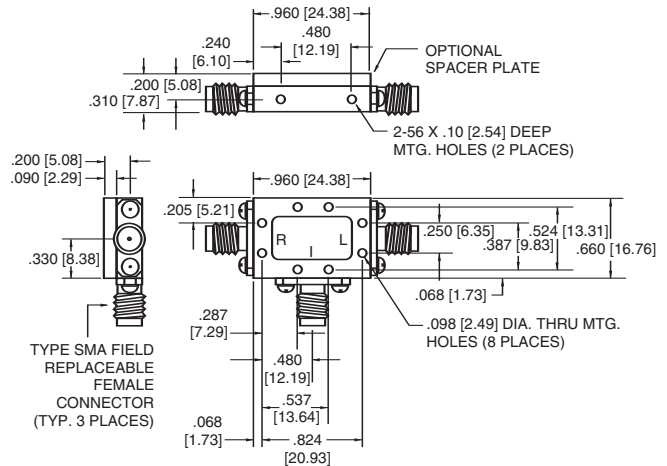
NOTE: Test data supplied at 25°C; conversion loss and LO-to-RF isolation.

## OUTLINE DRAWINGS

**DMY HOUSING**



**DMX HOUSING**



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

