

## 2 TO 4 GHz DOUBLE-BALANCED MIXER

### MODELS: DM0204LW2 AND DM0204LA1

#### FEATURES

- RF/LO coverage ..... 2 to 4 GHz
- IF operation ..... DC to 1 GHz
- LO power range ..... +7 to +13 dBm
- Conversion loss ..... 4.5 dB typical
- LO-to-RF isolation ..... 40 dB typical
- Input 1 dB comp. .... +3 dBm typical
- Input IP<sup>3</sup> ..... +13 dBm typical



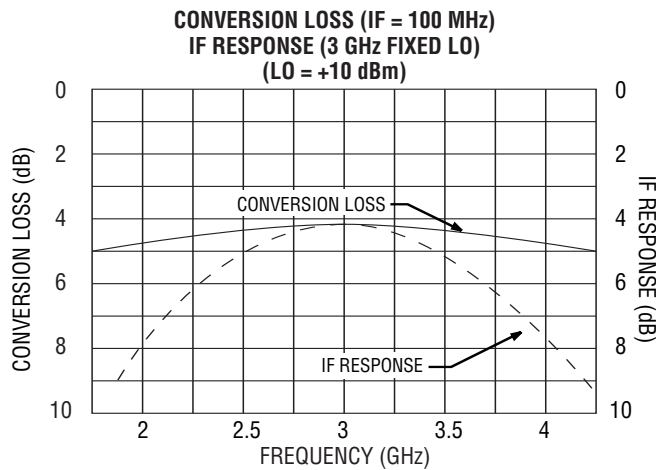
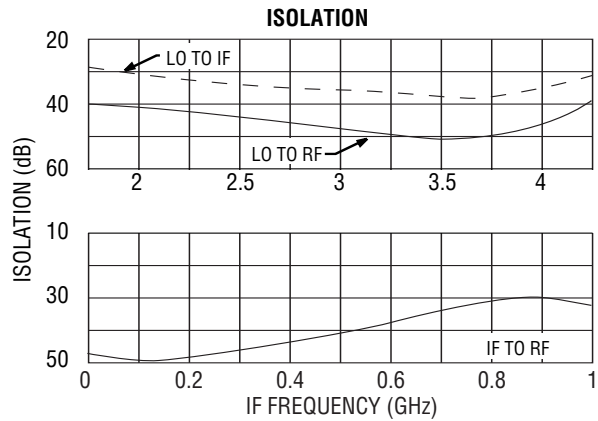
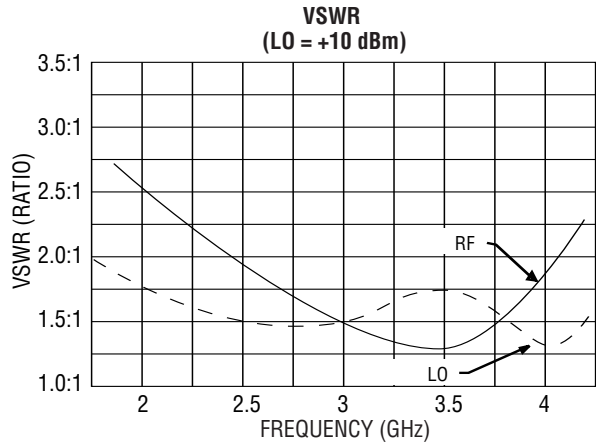
MITEQ's DM0204LW2 and A1 Series of mixers are constructed using new highly efficient, double-tuned microstrip RF and LO baluns (patent pending) with a DC-coupled IF structure. The construction, coupled with the hermetic packaging, provides for high inherent reliability and isolation over an octave frequency range. This device performs as an up- or downconverter covering many PCN 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	2		4
RF VSWR (RF = -10 dBm, LO = +10 dBm)		Ratio		1.75:1	
LO frequency range		GHz	2		4
LO power range		dBm	+7		+13
LO VSWR (LO = +10 dBm)		Ratio		1.5:1	
TRANSFER CHARACTERISTICS	CONDITION	UNITS	MIN.	TYP.	MAX.
Conversion loss (IF = 100 MHz, LO = +10 dBm)		dB		4.5	7
Single-sideband noise figure		dB		5	
LO-to-RF isolation		dB	35	40	
LO-to-IF isolation		dB	25	35	
IF-to-RF isolation	DC to 1 GHz	dB		40	
Input power at 1 dB compression	LO = +10 dBm	dBm		+3	
Input two-tone third-order intercept point	LO = +10 dBm	dBm	+10	+13	
OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
IF frequency range	3 dB bandwidth	GHz	DC		1
IF VSWR (IF = -10 dBm, LO = +10 dBm)		Ratio		2.5:1	



# DM0204LA1 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 (m) RF x (n) LO	RF TEST FREQ. (GHz)	LO TEST FREQ. (GHz)	SPUR LEVEL (dBc)
1 x 1	2.7	3.2	0
1 x 2	3.5	2.0	25
1 x 3	4.6	1.7	11
2 x 1	1.8	4.1	55
2 x 2	2.9	3.1	59
2 x 3	2.9	2.1	60
3 x 1	1.4	4.5	65
3 x 2	2.1	3.4	75
3 x 3	2.95	3.12	75

**MAXIMUM RATINGS**

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

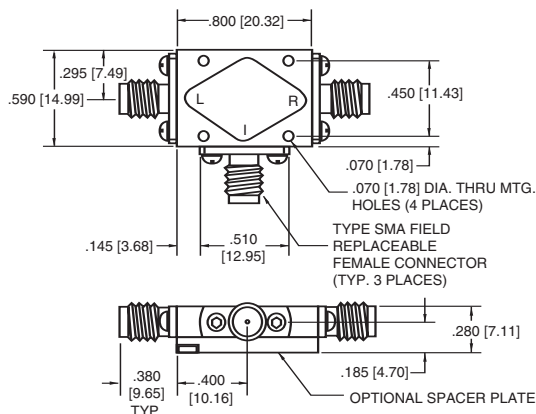
**AVAILABLE OPTION**

Medium/high dynamic range options  
 M (LO = +13 dBm), (IP<sup>3</sup> = +15 dBm typ.)  
 H (LO = +20 dBm), (IP<sup>3</sup> = +22 dBm typ.)  
 M, H (Conversion loss = 8 dB max.)

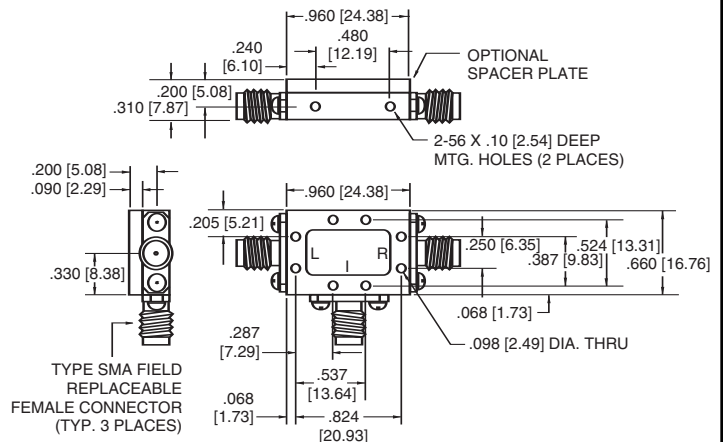
NOTE: Test data supplied at 25°C; conversion loss and LO-to-RF isolation.

## OUTLINE DRAWINGS

**W2 HOUSING**



**A1 HOUSING**



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

