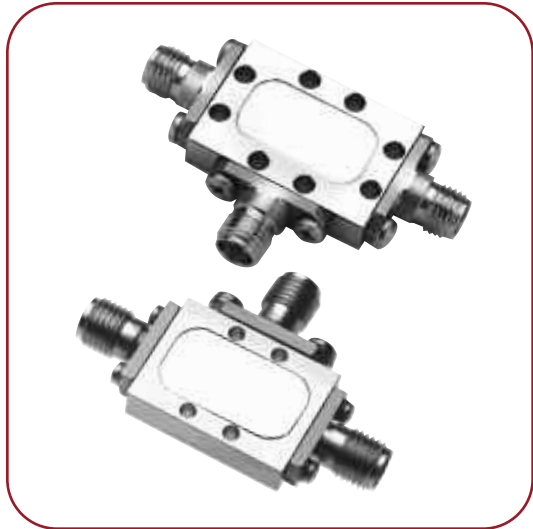


# 1 TO 4 GHz DOUBLE-BALANCED MIXER

## 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



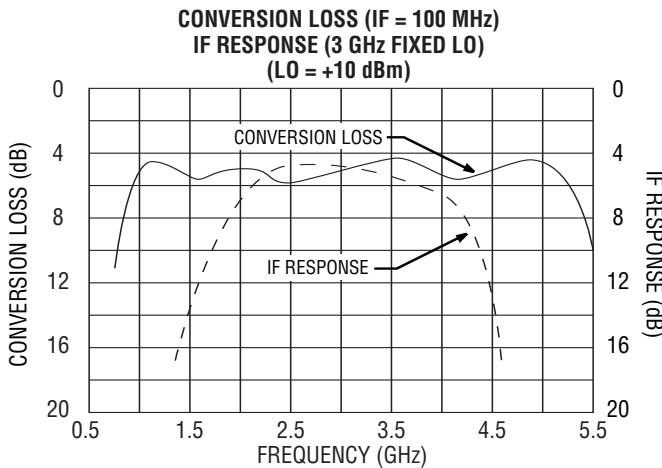
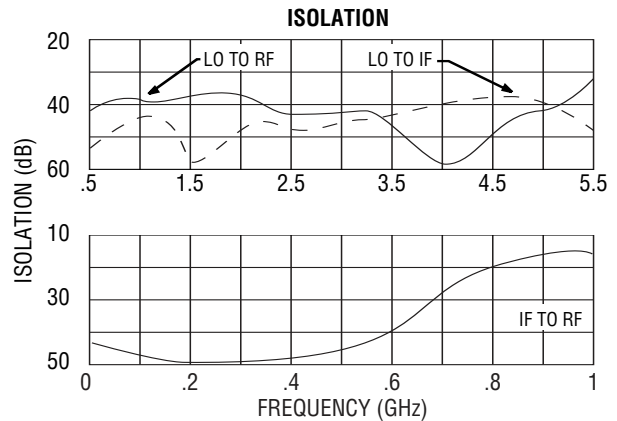
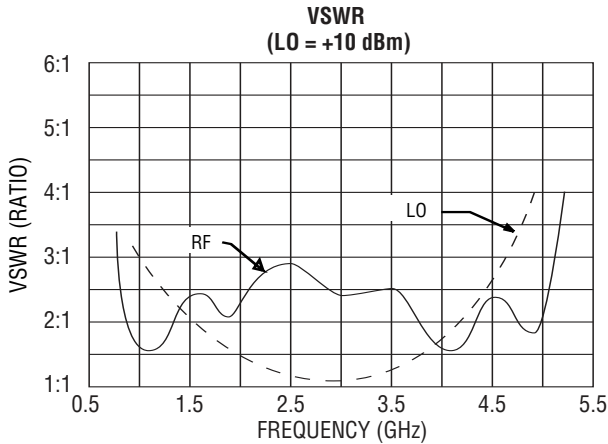
MITEQ's DM0104L Series of mixers are constructed using double-tuned microstrip RF and LO baluns with a DC-coupled IF structure. The construction, coupled with the hermetic packaging, provides for high inherent reliability and isolation over an extremely broad frequency range. This device performs as 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 (m) RF x (n) LO	RF TEST FREQ. (GHz)	LO TEST FREQ. (GHz)	SPUR 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

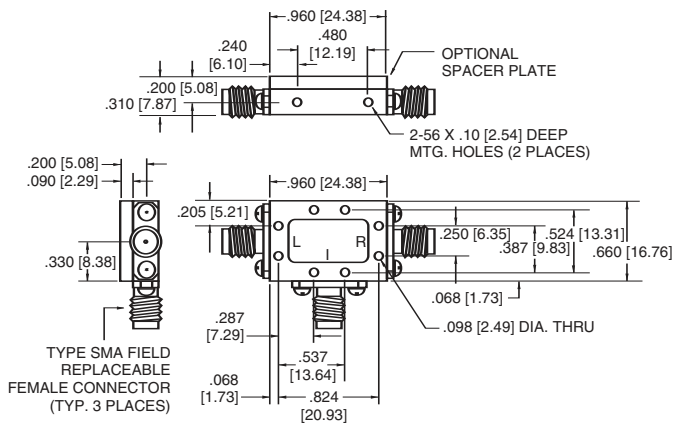
## AVAILABLE OPTION

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.)

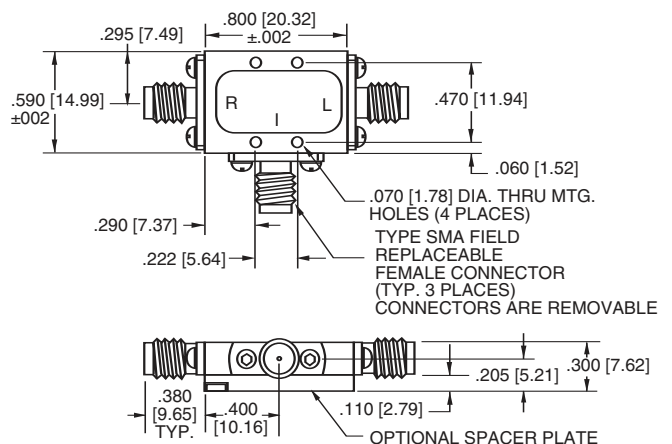
NOTE: Test data supplied at 25°C; conversion loss and LO-to-RF isolation.

## OUTLINE DRAWINGS

### A1 HOUSING



### A3 HOUSING



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

