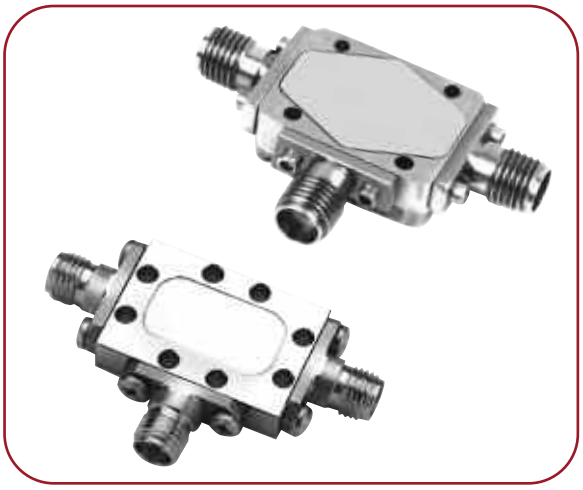
4 TO 8 GHz DOUBLE-BALANCED MIXER

MODELS: DM0408LW2, DM0408HW2, DM0408LA1 AND DM0408HA1

FEATURES

- **RF/LO coverage ..... 4 to 8 GHz**
- **IF operation ..... DC to 2 GHz**
- **LO power range**
  - **L ..... +7 to +13 dBm**
  - **H ..... +15 to +20 dBm**
- **Conversion loss (midband RF) ..... 5 dB typical**
- **LO-to-RF isolation ..... 40 dB typical**



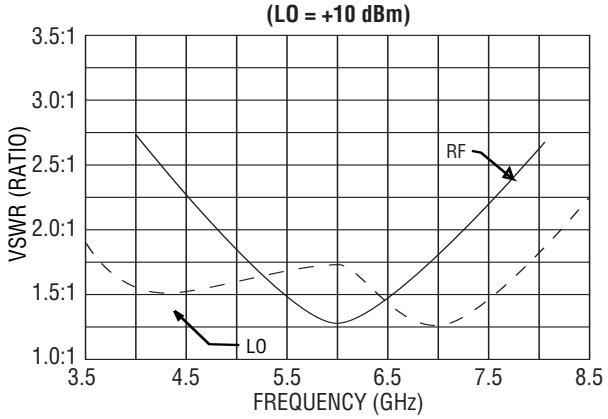
MITEQ's DM0408 Series of mixers are constructed using new highly efficient double-tuned microstrip RF and LO baluns with a DC-coupled IF structure. The construction, coupled with the hermetic packaging, provides for high inherent reliability and isolation over an octave frequency range. This device performs as an up- or downconverter covering satellite and communication applications. This mixer is also available with medium voltage diodes (M) yielding proportional changes in LO power and spurious performance.

ELECTRICAL SPECIFICATIONS

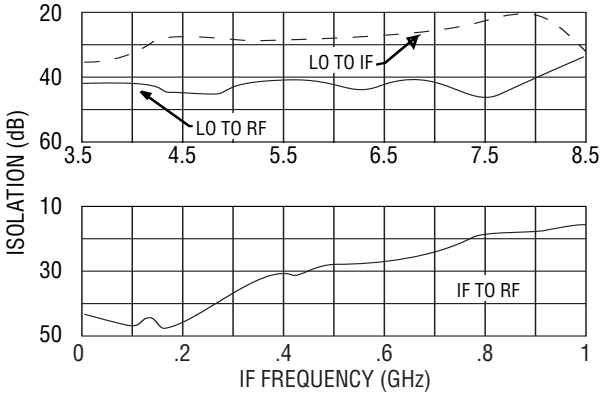
INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
RF frequency range		GHz	4		8
RF VSWR (RF = -10 dBm, LO = +10 dBm) -L/-H (RF = -10 dBm, LO = +17 dBm)		Ratio Ratio		2:1 2.2:1	
LO frequency range		GHz	4		8
LO power range L H		dBm dBm	+7 +17	+10	+13 +23
LO VSWR		Ratio		1.75:1	
TRANSFER CHARACTERISTICS	**CONDITION**	**UNITS**	**MIN.**	**TYP.**	**MAX.**
Conversion loss (IF = 100 MHz) L H	LO = +10 dBm LO = +17 dBm	dB dB		5 6	6 7
Single-sideband noise figure L/H		dB		5.5/6.5	
LO-to-RF isolation		dB	30	40	
LO-to-IF isolation		dB	20	30	
IF-to-RF isolation	DC to 2 GHz	dB		30	
Input power at 1 dB compression L/H	LO = +10/+17 dBm	dBm		+3/+12	
Input two-tone third-order intercept point L/H	LO = +10/+17 dBm	dBm	+10/+20	+13/+22	
OUTPUT PARAMETERS	**CONDITION**	**UNITS**	**MIN.**	**TYP.**	**MAX.**
IF frequency range	3 dB bandwidth	GHz	DC		2
IF VSWR (IF = -10 dBm, LO = +10 dBm)		Ratio		2.5:1	

DM0408LA1 TYPICAL TEST DATA

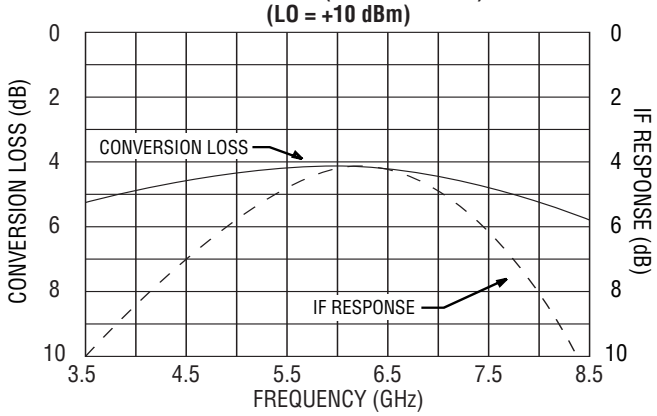
VSWR
(LO = +10 dBm)



ISOLATION



CONVERSION LOSS (IF = 100 MHz)
IF RESPONSE (6 GHz FIXED LO)
(LO = +10 dBm)



SINGLE-TONE (m) RF x (n) LO RELATIVE SPUR LEVEL (dBc)
(AVERAGE MIDBAND RF, LO, IF FREQUENCIES,
RF = -10 dBm, LO = +10 dBm (L), +20 dBm (H))

SPUR (m) RF x (n) LO	RF TEST FREQ. (GHz)	LO TEST FREQ. (GHz)	SPUR LEVEL (dBc) L	H
1 x 1	5.5	6.5	0	0
1 x 2	7.2	4.1	28	32
1 x 3	8.3	3.2	12	10
2 x 1	4	7	53	60
2 x 2	5.75	6.25	55	58
2 x 3	7	5	50	55
3 x 1	3.17	8.5	47	-75
3 x 2	4	6.5	64	-75
3 x 3	6	6.33	53	-75

MAXIMUM RATINGS

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

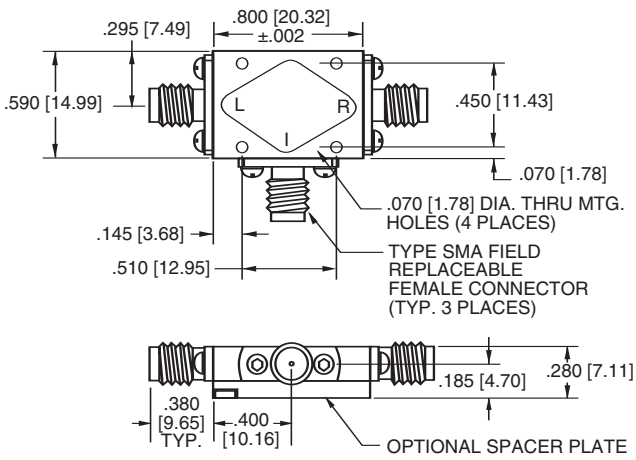
AVAILABLE OPTION

Medium range option
M (LO = +13 to +16 dBm), (IP^3 = +18 dBm typ.)
Conversion loss = 7 dB max.

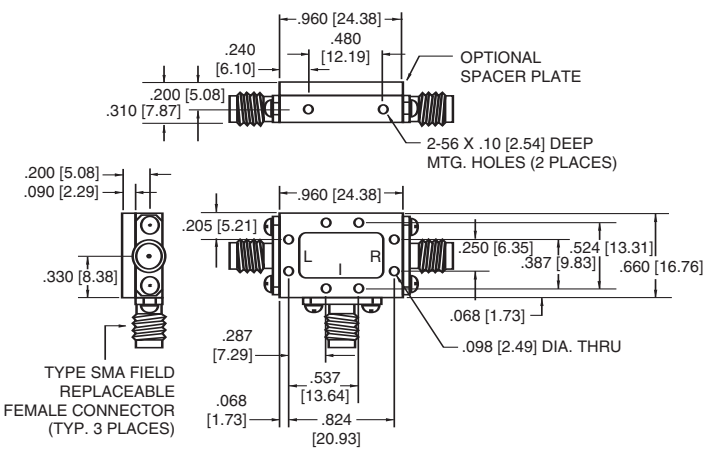
NOTE: Test data supplied at 25°C; conversion loss and LO-to-RF isolation.

OUTLINE DRAWINGS

W2 HOUSING



A1 HOUSING



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