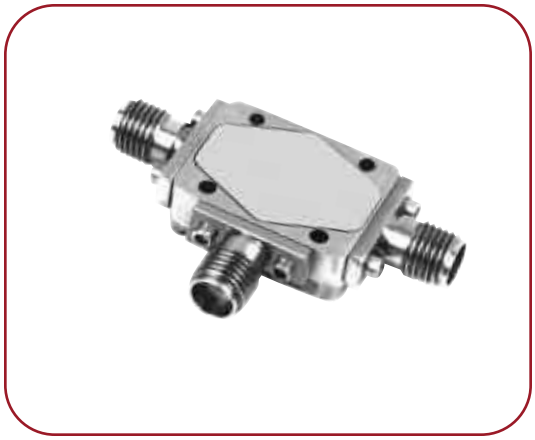
8 TO 12 GHz DOUBLE-BALANCED MIXER

MODEL: DM0812LW2

FEATURES

- **RF/LO coverage..... 8 to 12 GHz**
- **IF operation..... DC to 4 GHz**
- **LO power range..... +7 to +13 dBm**
- **Conversion loss (midband RF)..... 4.5 dB typical**
- **LO-to-RF isolation..... 35 dB typical**



MITEQ's DM0812LW2 mixer is 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 most X-band 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.

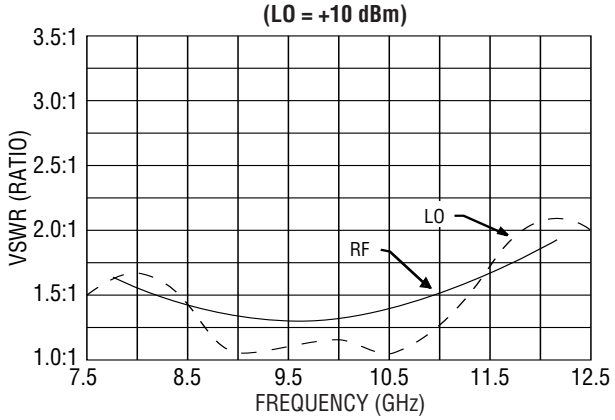
MIXER PRODUCTS

ELECTRICAL SPECIFICATIONS

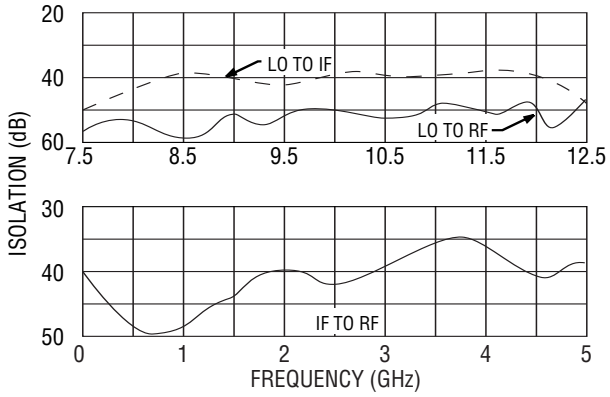
INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
RF frequency range		GHz	8		12
RF VSWR (RF = -10 dBm, LO = +10 dBm)		Ratio		1.5:1	
LO frequency range		GHz	8		12
LO power range		dBm	+7		+13
LO VSWR (LO = +10 dBm)		Ratio		1.5:1	
TRANSFER CHARACTERISTICS	**CONDITION**	**UNITS**	**MIN.**	**TYP.**	**MAX.**
Conversion loss (IF = 100 MHz, LO = +10 dBm)		dB		4.5	6
Single-sideband noise figure		dB		5	
LO-to-RF isolation		dB	30	35	
LO-to-IF isolation		dB		30	
IF-to-RF isolation		dB	30	35	
Input power at 1 dB compression		dBm	0	+3	
Input two-tone third-order intercept point		dBm	+10	+13	
OUTPUT PARAMETERS	**CONDITION**	**UNITS**	**MIN.**	**TYP.**	**MAX.**
IF frequency range	3 dB bandwidth	GHz	DC		4
IF VSWR (IF = -10 dBm, LO = +10 dBm)		Ratio		2:1	

DM0812LW2 TYPICAL TEST DATA

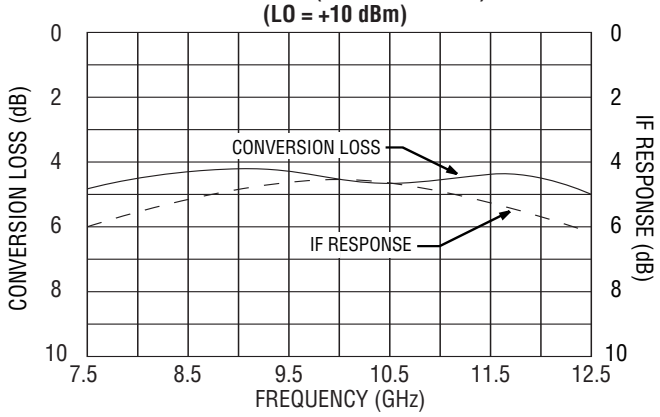
VSWR
(LO = +10 dBm)



ISOLATION



CONVERSION LOSS (IF = 100 MHz)
IF RESPONSE (10 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)

SPUR (m) RF x (n) LO	RF TEST FREQ. (GHz)	LO TEST FREQ. (GHz)	SPUR LEVEL (dBc)
1 x 1	9	11	0
1 x 2	12.6	7.3	27
1 x 3	14	5.5	15
2 x 1	6	14	50
2 x 2	9.5	10.5	65
2 x 3	8.4	11.6	60
3 x 1	4.5	15.5	53
3 x 2	7.6	12.4	> 65
3 x 3	9.6	10.3	60

MAXIMUM RATINGS

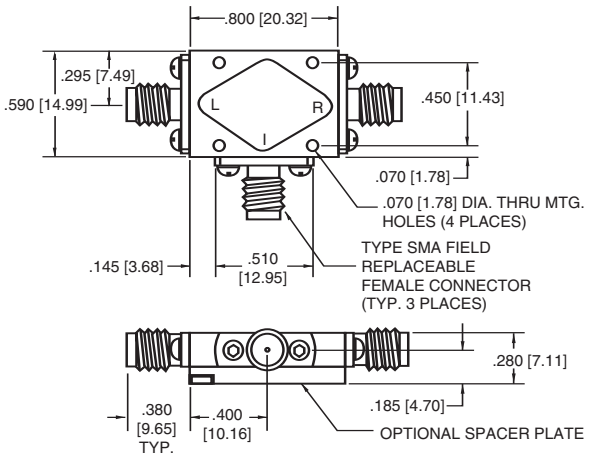
Specification temperature ..... +25°C
Operating temperature ..... -54 to +85°C
Storage temperature ..... -65 to +125°C

AVAILABLE OPTIONS

Medium/high dynamic range options
M (LO = +13 to +17 dBm), (IP^3 = +18 dBm typ.)
H (LO = +17 to +20 dBm), (IP^3 = +22 dBm typ.)
Conversion loss = 7 dB max.

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

OUTLINE DRAWING



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