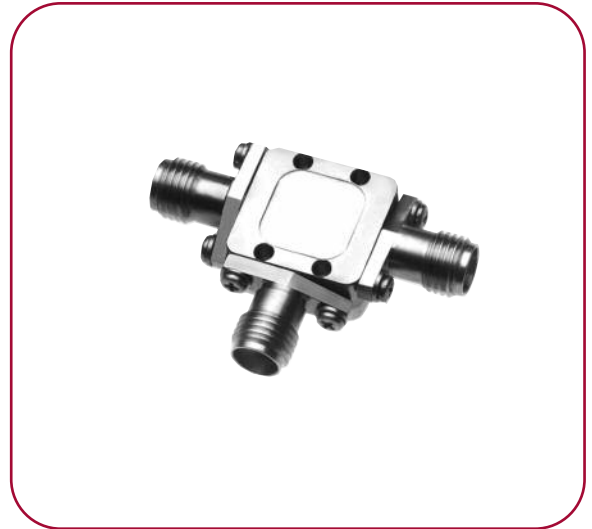


## 5 TO 20 GHz DOUBLE-BALANCED MIXER

### MODELS: DM0520LW1

#### FEATURES

- RF/LO coverage ..... 5 to 20 GHz
- IF operation ..... DC to 7 GHz
- LO power range ..... +7 to +13 dBm
- Conversion loss..... 6 dB typical
- LO-to-RF isolation ..... 30 dB typical

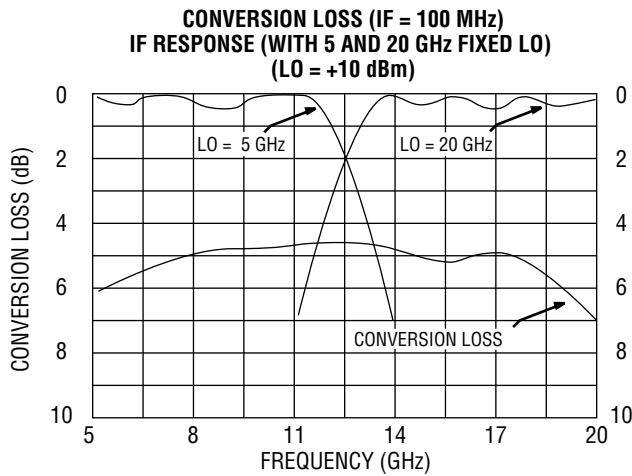
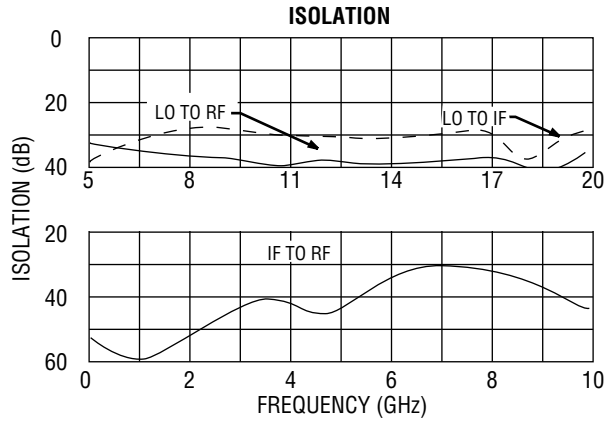
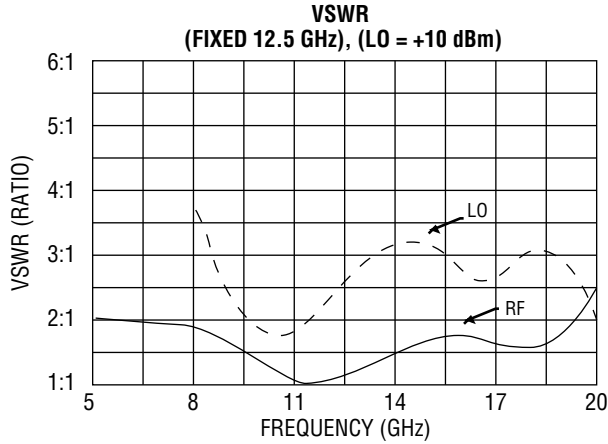


MITEQ's DM0520 Series of mixers is constructed using double-tuned microstrip RF and LO baluns with a DC-coupled IF structure. The construction, coupled with the hermetic packaging, provides for high inherent reliability and isolation over an extremely broad frequency range. This device performs as an up- or downconverter covering most EW bands and communication applications. This mixer is also available with high forward voltage diodes (H) yielding proportional changes in LO power and spurious performance.

#### ELECTRICAL SPECIFICATIONS

INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
RF frequency range		GHz	5		20
RF VSWR (RF = -10 dBm, LO = +10 dBm)	5 to 20 GHz	Ratio		2:1	
LO frequency range		GHz	5		20
LO power range		dBm	+7	+10	+13
LO VSWR (LO = +10 dBm)	5 to 20 GHz	Ratio		3.5:1	
TRANSFER CHARACTERISTICS	CONDITION	UNITS	MIN.	TYP.	MAX.
Conversion loss (IF = 100 MHz, LO = +10 dBm)	5 to 20 GHz	dB		6	9
Single-sideband noise figure		dB			9
LO-to-RF isolation		dB	25	30	
LO-to-IF isolation		dB	15	25	
IF-to-RF isolation	DC to 7 GHz	dB	20	40	
Input power at 1 dB compression	LO = +10 dBm	dBm		0	
Input two-tone third-order intercept point	LO = +10 dBm	dBm		+10	
OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
IF frequency range	3 dB bandwidth	GHz	DC		7
IF VSWR (IF = -10 dBm, LO = +10 dBm)		Ratio		2:1	

# DM0520LW1 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	11	15	0
1 x 2	14.4	9.2	-38
1 x 3	16.4	6.8	-13
2 x 1	9	14	-50
2 x 2	12	14	-55
2 x 3	15.5	9	-46
3 x 1	7.33	18	-56
3 x 2	8	10	-55
3 x 3	10.66	12	-50

**MAXIMUM RATINGS**

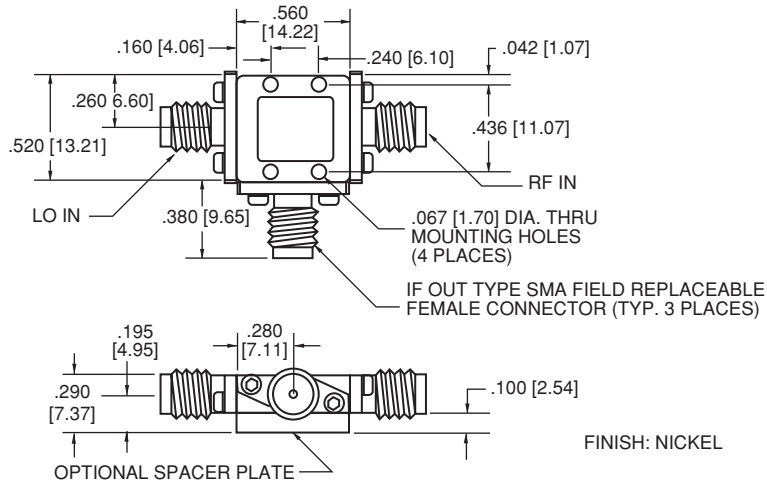
Specification temperature..... +25°C  
 Operating temperature ..... -54 to +85°C  
 Storage temperature ..... -65 to +125°C

**AVAILABLE OPTIONS**

Medium/high dynamic range options  
 M (LO = +13 to +17 dBm), (IP<sup>3</sup> = +18 dBm)  
 H (LO = +17 to +20 dBm), (IP<sup>3</sup> = +22 dBm)  
 DM0520, M, H (Conversion loss = 10 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.