

## 4 TO 40 GHz DOUBLE-BALANCED MIXER

### MODELS: DB0440LW1 AND DB0440HW1

#### FEATURES

- RF/LO coverage ..... 4 to 40 GHz
- IF operation ..... DC to 2 GHz
- LO power range ..... +10 to +15 dBm
- Input 1 dB comp. .... +5 dBm typical
- Packaging ..... Hermetically sealed

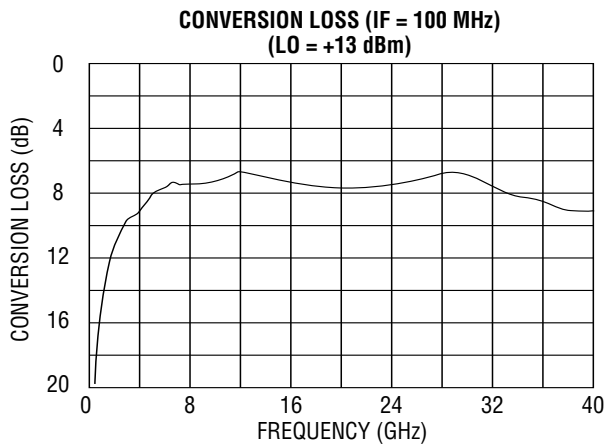
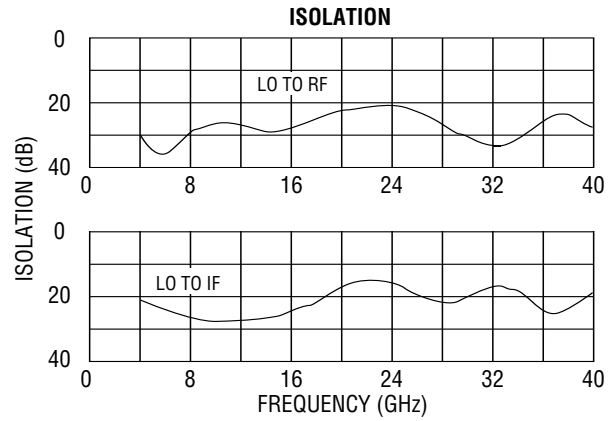
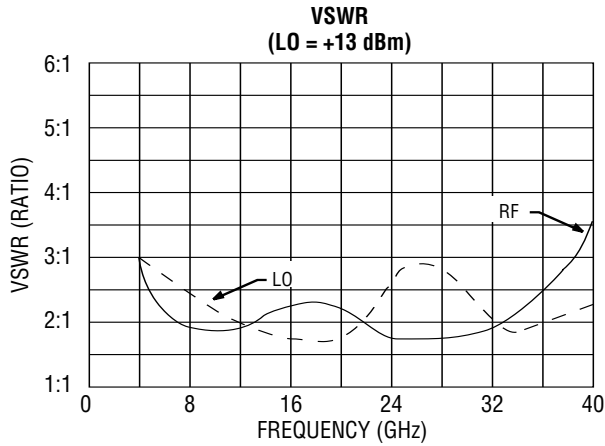


The DB0440 Series provides a broad frequency span in a single device. Furthermore, from 12 to 40 GHz this mixer can be used in the third harmonic mode with a lower frequency 4 to 13 GHz local oscillator. The conversion loss is typically 10 dB higher in this mode. This device performs as an up- or downconverter.

#### ELECTRICAL SPECIFICATIONS

INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
RF frequency range		GHz	4		40
RF VSWR (RF = -10 dBm, LO = +13 dBm)	6 to 30 GHz 4 to 40 GHz	Ratio Ratio		2.5:1 3:1	
LO frequency range		GHz	4		40
LO power range L		dBm	+10	+13	+15
H		dBm	+17	+18.5	+20
LO VSWR (LO = +13 dBm)	6 to 30 GHz 4 to 40 GHz	Ratio Ratio		2.5:1 3:1	
TRANSFER CHARACTERISTICS	CONDITION	UNITS	MIN.	TYP.	MAX.
Conversion loss (IF = 100 MHz, LO = +13 dBm)	4 to 40 GHz	dB		9	10
Single-sideband noise figure	5 to 30 GHz	dB		8.5	
	4 to 40 GHz	dB			9.5
LO-to-RF isolation	4 to 40 GHz	dB	20	25	
LO-to-IF isolation	4 to 40 GHz	dB		20	
RF-to-IF isolation	4 to 40 GHz	dB		30	
Input power at 1 dB compression	LO = +13 dBm	dBm		+5	
Input two-tone third-order intercept point	LO = +13 dBm	dBm		+15	
OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
IF frequency range	3 dB bandwidth	GHz	DC		2
IF VSWR (IF = -10 dBm, LO = +13 dBm)		Ratio		2.5:1	

# DB0440LW1 TYPICAL TEST DATA



**SINGLE-TONE (m) RF x (n) LO RELATIVE SPUR LEVEL (dBc)**  
(AVERAGE MIDBAND RF, LO FREQUENCIES,  
RF = -10 dBm, LO = +13 dBm)

	SPUR (m) RF x (n) LO	RF TEST FREQ. (GHz)	LO TEST FREQ. (GHz)	SPUR LEVEL (dBc)
1	x 1	20	20.1	REF
1	x 2	20	10.05	30
1	x 3	20	6.7	10
2	x 1	10	20.1	42
2	x 2	10	10.05	53
2	x 3	10	6.7	41
3	x 1	6.67	20.1	58
3	x 2	6.67	10.05	70
3	x 3	6.67	6.7	56

**MAXIMUM RATINGS**

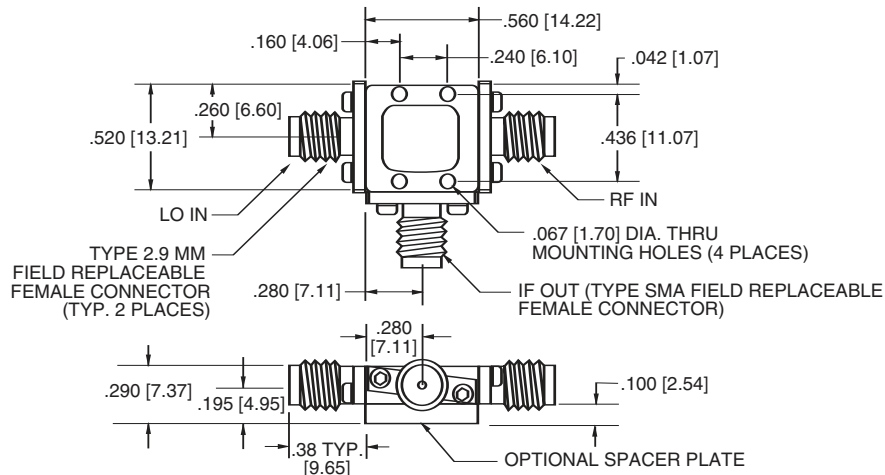
Specification temperature ..... +25°C  
 Operating temperature ..... -54 to +85°C  
 Storage temperature ..... -65 to +125°C

**AVAILABLE OPTION**

High dynamic range option  
 H (LO = +20 dBm), (IP<sup>3</sup> = +20 dBm typ.)  
 Conversion loss = 11 dB  
 For V connectors, use P/N DB0440LW1V.

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.

