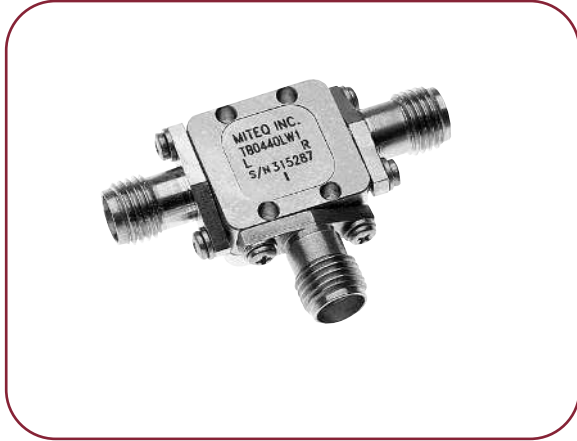


# 4 TO 40 GHz TRIPLE-BALANCED MIXER

## MODEL: TB0440LW1

### FEATURES

- RF coverage..... 4 to 40 GHz
- LO coverage ..... 4 to 42 GHz  
(usable to 50 GHz)
- IF operation..... 0.5 to 20 GHz
- LO power range..... +10 to +15 dBm
- RF-to-IF isolation..... 30 dB typical
- Removable K connectors

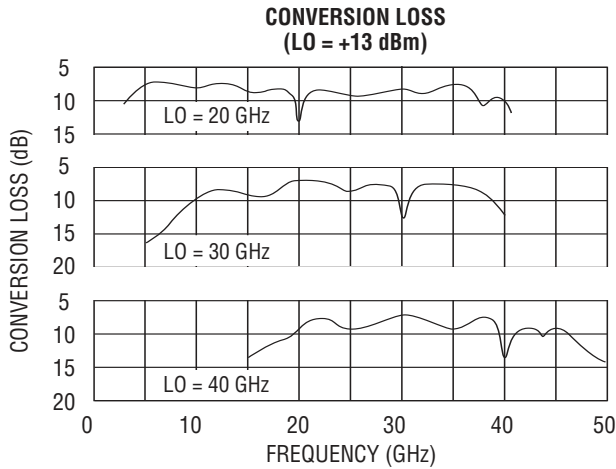
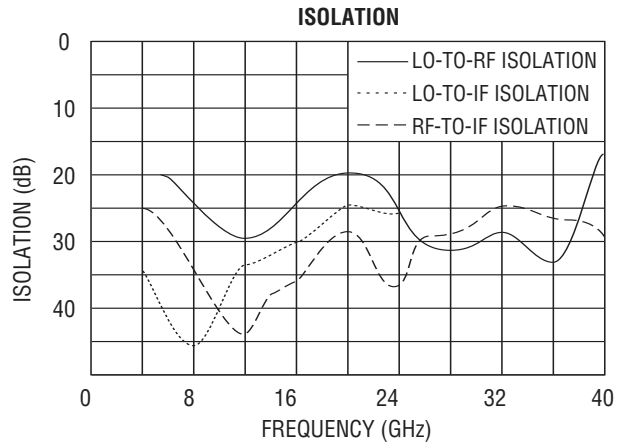
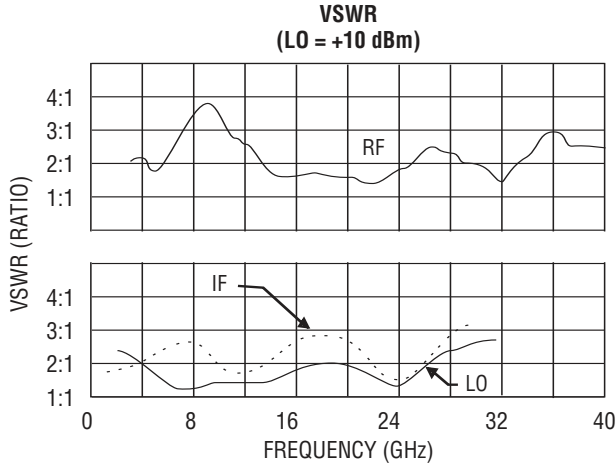


MITEQ's Model TB0440LW1 offers the industry's first millimeter-wave triple-balanced mixer. The unique balun design and custom semiconductor packaging allows coverage of 4 to 40 GHz through the RF and LO port with simultaneous IF operation from 0.5 to 20 GHz. Applications include a single LO block conversion of the low Ka-bands into an existing common frequency receiver front end. This device performs as an up- and downconverter.

### ELECTRICAL SPECIFICATIONS

INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
RF frequency range		GHz	4		40
RF VSWR (RF = -10 dBm, LO = +13 dBm)		Ratio		2.5:1	
LO frequency range		GHz	4		42
LO power range		dBm	+10	+13	+15
LO VSWR	LO = +13 dBm	Ratio		2:1	
TRANSFER CHARACTERISTICS	CONDITION	UNITS	MIN.	TYP.	MAX.
Conversion loss (IF = 1000 MHz, LO = +13 dBm) L/H		dB		10/11	12/13
Single-sideband noise figure at 25°C		dB		10.5	
LO-to-RF isolation		dB	18	20	
LO-to-IF isolation		dB	20	25	
RF-to-IF isolation		dB	20	30	
Input power at 1 dB compression L/H		dBm		+5/+10	
Input two-tone third-order intercept point L/H		dBm		+15/+20	
OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
IF frequency range	3 dB bandwidth	GHz	0.5		20
IF VSWR (IF = -10 dBm, LO = +13 dBm)		Ratio		2.5:1	

# TB0440LW1 TYPICAL TEST DATA



**SINGLE-TONE (m) RF x (n) LO RELATIVE SPUR LEVEL (dBc) TO REF (RF = -10 dBm, LO = +10 dBm)**

5	> 85	> 85	> 85	> 85	> 85
4	80	> 85	80	> 85	> 85
3	58	63	59	70	63
2	46	52	46	56	47
1	REF	27	12	33	22
	1	2	3	4	5

LO HARMONIC (n)

**MAXIMUM RATINGS**

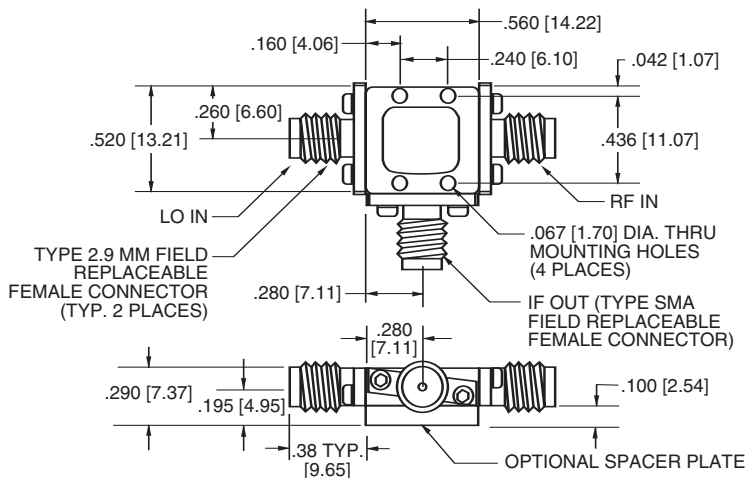
Specification temperature..... +25°C  
 Operating temperature ..... -54 to +85°C  
 Storage temperature ..... -65 to +125°C

**AVAILABLE OPTION**

High dynamic range option  
 H (LO = +17 to +23 dBm)

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.

**BLOCK DIAGRAM**

