

## DESCRIPTION

These image rejection mixers offer octave plus RF bandwidths and a selectable IF bandwidth for downconversion applications where rejection of the image frequency is required. The hybrid circuit is hermetically packaged with SMA connector interfaces for a wide variety of environmental conditions and system applications.

## SPECIFICATIONS @ +25°C

RF/LO Frequency Range (GHz)	L-R Isolation (dB) Min.	L-I Isolation (dB) Min.	VSWR (Ratio)			Image Rejection (dB) Min	LO Input Range (dBm) Min/Max	Conversion Loss (dB) Typ/Max	RF Input 1dB Compression Point (dBm) Min.	Part Number
			R Typ	L Typ	I Typ					
1.0 - 2.0	20	20	1.7	2.0	1.5	18	+9/+13	6.5/8.0	+3	ML21XX-08-IRL
							+13/+17	6.5/8.5	+9	ML21XX-08-IRM
							+17/+21	7.0/9.0	+13	ML21XX-08-IRH
2.0 - 4.0	20	23	1.7	2.0	1.5	18	+9/+13	6.0/8.0	+3	ML22XX-08-IRL
							+13/+17	6.0/8.5	+9	ML22XX-08-IRM
							+17/+21	6.5/9.0	+13	ML22XX-08-IRH
4.0 - 8.0	20	23	1.7	2.0	1.5	18	+9/+13	6.0/8.0	+3	ML23XX-08-IRL
							+13/+17	6.0/8.5	+9	ML23XX-08-IRM
							+17/+21	6.5/9.0	+13	ML23XX-08-IRH
2.0 - 8.0	20	23	1.7	2.0	1.5	18	+9/+13	7.0/8.0	+3	ML24XX-08-IRL
							+13/+17	7.0/8.5	+9	ML24XX-08-IRM
							+17/+21	7.5/9.0	+13	ML24XX-08-IRH
8.0 - 12.0	20	23	1.8	2.5	1.5	17	+9/+13	7.0/9.5	+3	ML25XX-08-IRL
							+13/+17	7.0/10.0	+9	ML25XX-08-IRM
							+17/+21	7.5/11.0	+13	ML25XX-08-IRH
12.0 - 18.0	18	23	1.8	2.5	1.5	17	+9/+13	8.0/10.5	+3	ML26XX-08-IRL
							+13/+17	8.0/11.0	+9	ML26XX-08-IRM
							+17/+21	8.5/12.0	+13	ML26XX-08-IRH
8.0 - 18.0	18	23	1.8	2.5	1.5	15	+9/+13	8.5/10.5	+3	ML28XX-08-IRL
							+13/+17	8.5/11.0	+9	ML28XX-08-IRM
							+17/+21	9.0/12.0	+13	ML28XX-08-IRH

### NOTES:

1. Maximum RF input power 400mW to any port.
2. All measurements performed in a 50ohm system.
3. The desired IF output will appear at the IF 1 port when the RF input frequency is above the LO frequency.
4. Image rejection measured at centre IF frequency.
5. Case operating temperature -55°C to +85°C.  
Storage temperature -55°C to +125°C.

## IF SELECTION TABLE

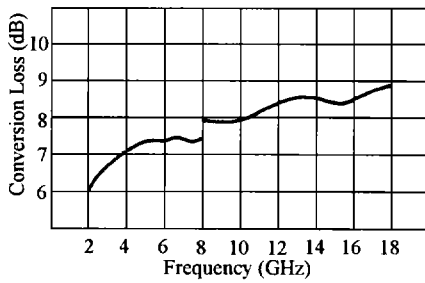
Replace the 'XX' in the part number with the required IF frequency code as below.

'XX'	IF Frequency Range
05	20 - 40 MHz
06	40 - 80 MHz
07	80 - 160 MHz
08	100 - 200 MHz

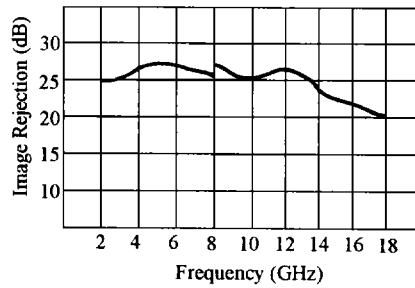
Other IF ranges are also available, please consult the factory for details.

## TYPICAL PERFORMANCE

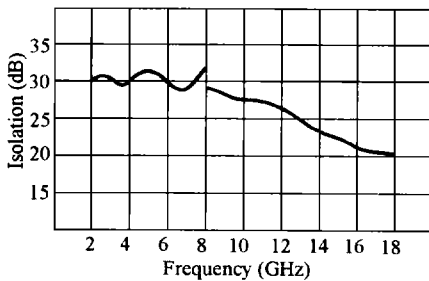
**CONVERSION LOSS**



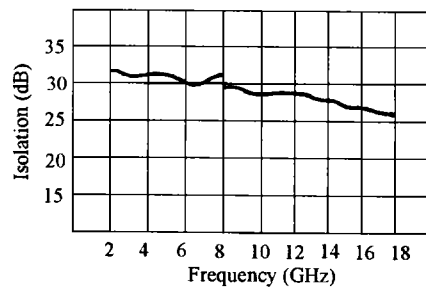
**IMAGE REJECTION**



**L-R ISOLATION**



**L-I ISOLATION**



**SINGLE SIDEBAND MODULATORS**  
**ML 2000-08-SSX SERIES**

**DESCRIPTION**

These single sideband modulators offer octave plus RF bandwidths and a selectable IF bandwidth for upconversion applications where single sideband transmission is required. The hybrid circuit is hermetically packaged with SMA connector interfaces for a wide variety of environmental conditions and system applications.

**SPECIFICATIONS @ +25°C**

RF/LO Frequency Range (GHz)	L-R Isolation (dB) Min.	L-I Isolation (dB) Min.	VSWR (Ratio)			Sideband Suppress -ion (dB) Min	LO (Carrier) Range (dBm) Min/Max	Conversion Loss (dB) Typ/Max	IF Input 1dB Compression Point (dBm) Min.	Part Number
			R Typ	L Typ	I Typ					
1.0 - 2.0	20	20	1.7	2.0	1.5	18	+9/+13	6.0/8.5	+3	ML21XX-08-SSL
							+13/+17	6.0/9.0	+9	ML21XX-08-SSM
							+17/+21	6.5/9.5	+13	ML21XX-08-SSH
2.0 - 4.0	20	23	1.7	2.0	1.5	18	+9/+13	6.0/8.5	+3	ML22XX-08-SSL
							+13/+17	6.0/9.0	+9	ML22XX-08-SSM
							+17/+21	6.5/9.5	+13	ML22XX-08-SSH
4.0 - 8.0	20	23	1.7	2.0	1.5	18	+9/+13	6.5/8.5	+3	ML23XX-08-SSL
							+13/+17	6.5/9.0	+9	ML23XX-08-SSM
							+17/+21	7.0/9.5	+13	ML23XX-08-SSH
2.0 - 8.0	20	23	1.7	2.0	1.5	18	+9/+13	7.5/8.5	+3	ML24XX-08-SSL
							+13/+17	7.5/9.0	+9	ML24XX-08-SSM
							+17/+21	8.0/9.5	+13	ML24XX-08-SSH
8.0 - 12.0	20	23	1.8	2.5	1.5	17	+9/+13	7.5/10.0	+3	ML25XX-08-SSL
							+13/+17	7.5/10.5	+9	ML25XX-08-SSM
							+17/+21	8.0/11.5	+13	ML25XX-08-SSH
12.0 - 18.0	18	23	1.8	2.5	1.5	17	+9/+13	8.0/11.0	+3	ML26XX-08-SSL
							+13/+17	8.0/11.5	+9	ML26XX-08-SSM
							+17/+21	8.5/12.5	+13	ML26XX-08-SSH
8.0 - 18.0	18	23	1.8	2.5	1.5	15	+9/+13	8.5/11.0	+3	ML28XX-08-SSL
							+13/+17	8.5/11.5	+9	ML28XX-08-SSM
							+17/+21	9.0/12.5	+13	ML28XX-08-SSH

**NOTES:**

1. Maximum RF input power 400mW to any port.
2. All measurements performed in a 50ohm system.
3. Conversion loss measured relative to IF input level
4. Sideband suppression measured relative to desired sideband output level.
5. RF output frequency will be above the carrier frequency when IF input modulation signal is applied to IF 1 port.
6. Case operating temperature -55°C to +85°C.  
Storage temperature -55°C to +125°C.

M/A-COM Ltd, Humphrys Road, Dunstable, Bedfordshire, LU5 4SX United Kingdom.

Europe: (44) 1344 869595

North America: 800 366 2266

Asia Pacific: (81) 3 3226 1671

# IF SELECTION TABLE

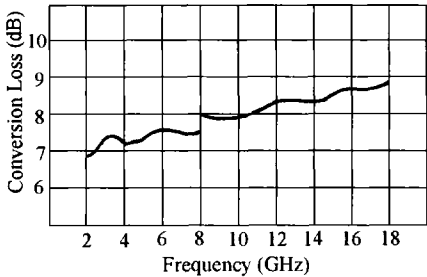
Replace the 'XX' in the part number with the required IF frequency code as below.

'XX'	IF Frequency Range
05	20 - 40 MHz
06	40 - 80 MHz
07	80 - 160 MHz
08	100 - 200 MHz

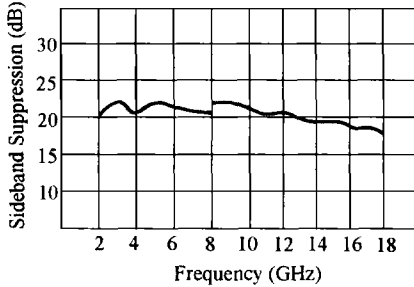
Other IF ranges are also available, please consult the factory for details.

# TYPICAL PERFORMANCE

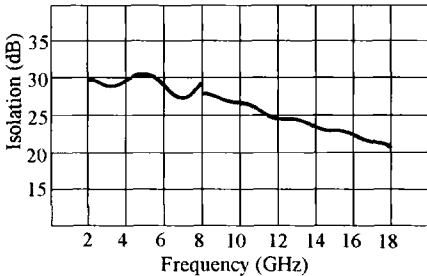
**CONVERSION LOSS**



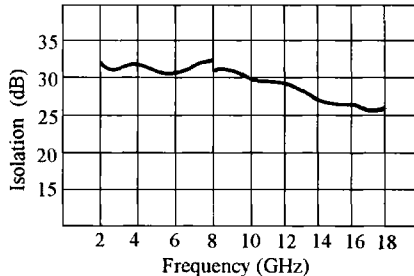
**SIDEBAND SUPPRESSION**



**L-R ISOLATION**

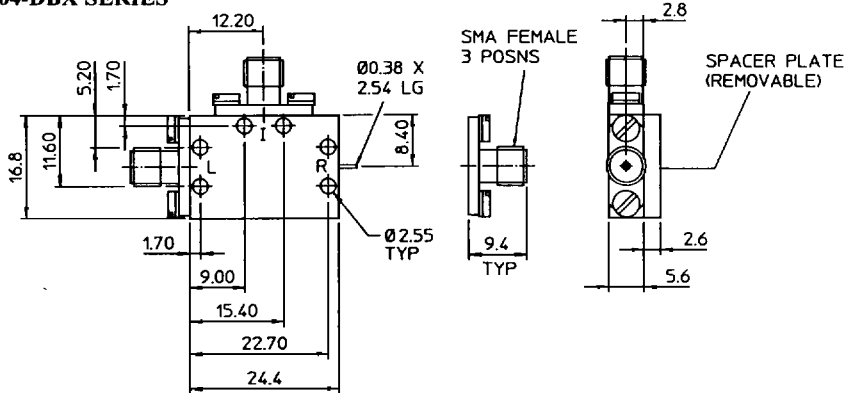


**L-I ISOLATION**

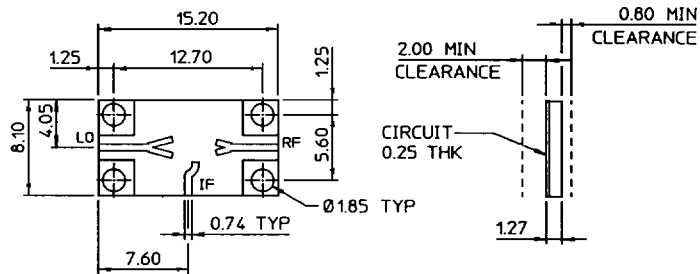


OUTLINE DRAWINGS

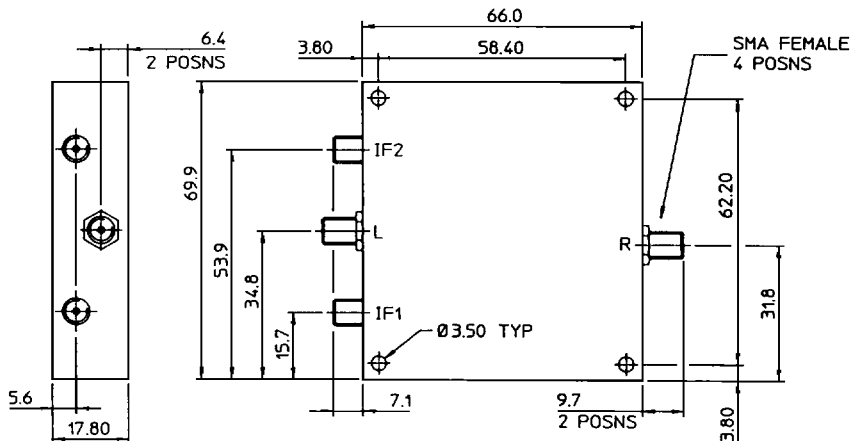
ML 2000-04-DBX SERIES



ML 2902-10-DBX SERIES



ML 2000-08-IRX AND SSX SERIES



DRAWING NOTES:

Third Angle Projection

All dimensions in mm

Tolerances

X.X = ±0.5mm

X.XX = ±0.2mm

Standard Finish

ML2000-04-DBXS

Stainless Steel

ML2902-10-DBX

Gold Plate

ML2000-08-IRX

Matt black paint to DTD 5555A

All specifications subject to change without notice.

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