



DBM-178
High Level
Subminiature
Flatpack, Double
Balanced Mixer
10-1500 MHz



DESCRIPTION

DBM-178 double balanced mixer combines several state of the art features. It offers very high intercept point, typically + 25 dBm, very wide bandwidth and is constructed to withstand severe environments. It is recommended for advanced new designs requiring exceptional signal handling performance over wide bandwidths, such as front-end mixer for up/down converters. The circuitry is comprised of eight specially matched beamlead Schottky diodes and two rugged transmission line transformers.

Each DBM-178 is sealed and individually tested to S.M.D.I.'s demanding quality and performance specifications.

GUARANTEED MINIMUM PERFORMANCE DATA

TEST CONDITION:

LO + 17 dBm (High side LO)
RF - 10 dBm
IF 100 MHz

NOTE:

Specifications below, guaranteed with IF from DC to 500 MHz. For higher IF frequencies, consult IF response curve for typical rolloff.

OVERALL FREQUENCY RANGE IN MHz:

L	R	X
10-1500	10-1500	DC-1500

FREQUENCY BANDS IN MHz:

	10-100	100-500	500-1000	1000-1500
Conversion Loss	8.5	7.0	8.0	9.5
L-R Isolation	40	30	30	30
L-X Isolation	37	27	23	20
R-X Isolation	35	23	20	12

ABSOLUTE MAXIMUM RATINGS:

Operating Temp. - 54 to +100°C
X-port Input Current 50 mA
Total Input Power 400 mW @ +25°C
Derate linearly to 100 mW @ 100°C

DC POLARITY:

Negative with L and R port signals in-phase.

Specifications subject to change without notice.

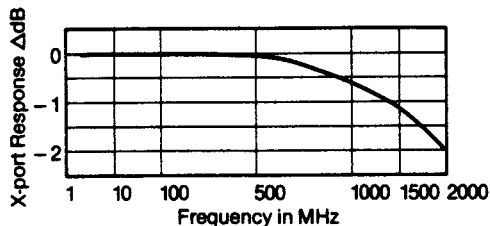
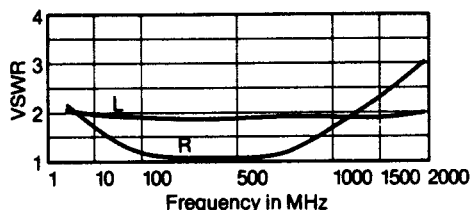
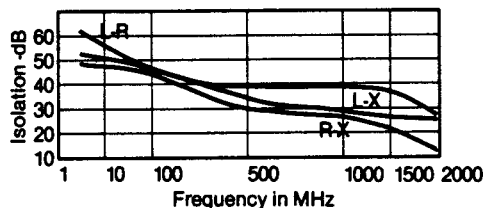
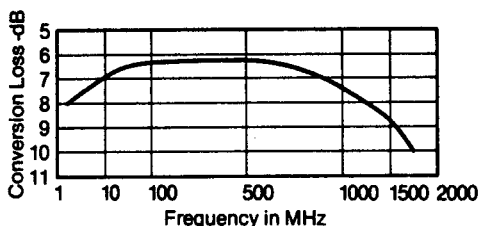
8.10.04 Rev. A

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TYPICAL PERFORMANCE

Impedance: All ports 50 ohms
 1 dB Compression Point: +13 dBm
 1 dB Desensitization Point: +11 dBm
 3rd Order Intercept Point: +25 dBm
 Noise Figure is within 1 dB of conversion loss
 LO Power Range: +10 to +20 dBm



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ENVIRONMENTAL CONDITIONS

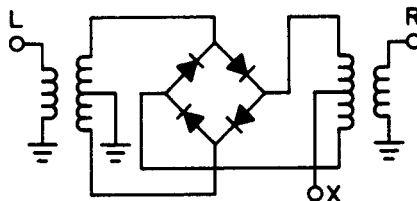
GUARANTEED ENVIRONMENTAL PERFORMANCE:

All units are designed to meet their specifications over -54°C to +100°C and after exposure to any or all of the following tests per MIL-STD-202E.

Exposure	Method	Test Condition
Thermal Shock	107D	B
Altitude	105C	G
H.F. Vibration	204C	D
Mechanical Shock	213B	C
Random Vibration	214	IIF
(15 minutes per axis)		
Solderability	208C	
Terminal Strength	211A	C
Resistance to Soldering Heat	210A	B

Sealed units, meet the requirements of Method 106D of MIL-STD-202E when exposed to humidity.

FUNCTIONAL SCHEMATIC



PACKAGE

CASE MATERIAL:

F15 Kovar per ASTM Standard F-15-68, (Chemical Composition per MIL-STD-1276, Type K)

FINISH:

Plating, all metal parts: gold per MIL-G-45204, Type I, Grade A, Class 1, over nickel per MIL-C-26074, Class 1

LEADS:

Kovar per MIL-STD-1276, Type K

