



DBM-176
High Level TO-8
Packaged
Double
Balanced
Mixer
5-1500 MHz



DESCRIPTION

DBM-176 is a miniature double balanced mixer combining state of the art signal handling capability (+ 25 dBm intercept point) with the convenience of a TO-8 package. Eight specially matched diodes and two rugged transmission line transformers are sealed in this package.

DBM-176 is recommended in wideband up/down frequency convertor applications where high intercept point performance is critical.

Each DBM-176 mixer is 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 300 MHz. For higher IF frequencies, consult IF response curve for typical rolloff.

For best performance do not rely on the ground pin alone for grounding. The above performance is guaranteed with the base surface of the header grounded to the circuit board ground plane. Use of conductive epoxy, or a mechanical clip is recommended.

OVERALL FREQUENCY RANGE IN MHz:

L	R	X
5-1500	5-1500	DC-1500

FREQUENCY BANDS IN MHz:

	5-20	20-800	800-1500
Conversion Loss	9.0	7.5	9.5
L-R Isolation	45	25	20
L-X Isolation	45	25	15
R-X Isolation	40	15	10

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:

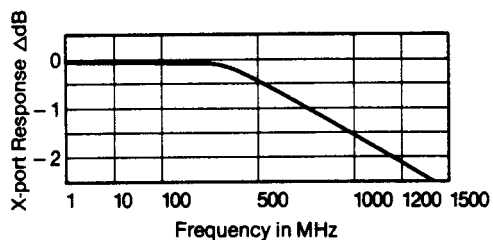
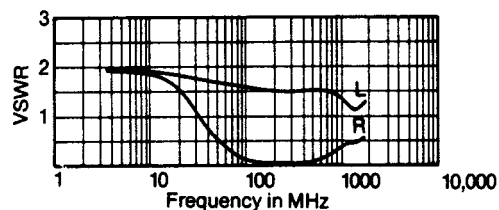
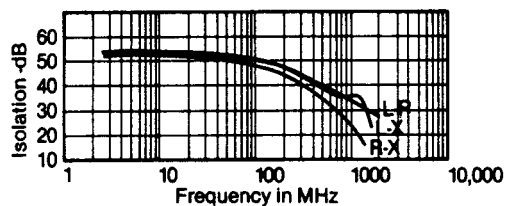
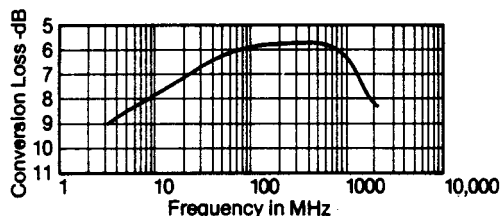
Positive with L and R port signals in-phase.

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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



Specifications subject to
change without notice.

ENVIRONMENTAL CONDITIONS

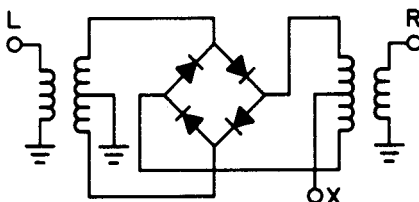
GUARANTEED ENVIRONMENTAL PERFORMANCE:

All units are designed to meet their specifications over -54°C to $+100^{\circ}\text{C}$ 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

MATERIAL:

Header: F15 Kovar per ASTM Standard F-15-68, (Chemical Composition per MIL-STD-1276, Type K)
Cover: Nickel 200 per ASTM B162-58T
Leads: Kovar, Chemical Composition per MIL-STD-1276, Type K
Seals: Glass

FINISH:

Header & Leads: Nickel per QQ-N-290, Class II
Cover: Nickel 200 per ASTM B162-58T

