

CM-1H8
Miniature
High Level
Double
Balanced
Mixer
.5-500 MHz



DESCRIPTION

CM-1H8 is a moderately priced, high level double balanced mixer offering outstanding linearity and excellent overall electrical performance to 500 MHz. Its performance/cost ratio offers advanced performance to the designer, restricted to tight materials budgets. It is ideally suited as the first mixer in receiver and converter designs to 500 MHz due to its strong signal handling capability. The low midband conversion loss may make front-end RF amplifiers unnecessary in some applications, thus improving overall input intercept point.

The circuitry consists of eight specially matched Schottky diodes and two rugged transmission line transformers. Each CM-1H8 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 400 MHz. For higher IF frequencies, consult IF response curve for typical rolloff.

OVERALL FREQUENCY RANGE IN MHz:

L	R	X
.5-500	.5-500	DC-500

FREQUENCY BANDS IN MHz:

	.5-100	100-300	300-500
Conversion Loss	6.5	7.0	9.5
L-R Isolation	40	35	25
L-X Isolation	45	30	20
R-X Isolation	25	17	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:

Negative with L and R port signals in-phase.

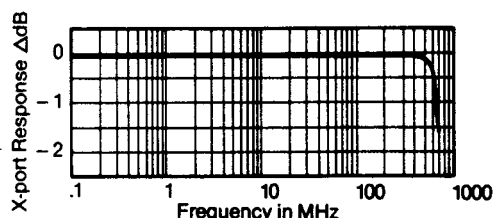
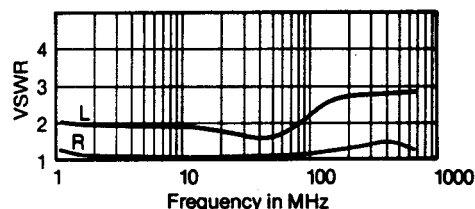
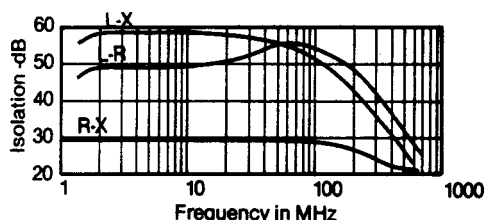
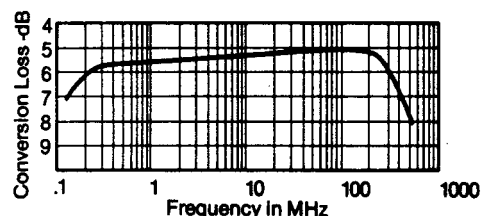


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TYPICAL PERFORMANCE

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



ENVIRONMENTAL CONDITIONS

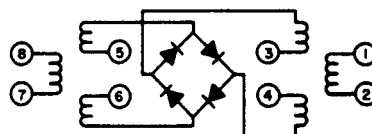
GUARANTEED ENVIRONMENTAL PERFORMANCE:

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



Pin Connections:

LO	8
RF	1
IF	3,4
Ground	2,5,6,7
Case Ground	2,5,6

NOTE: PINS 3 AND 4 MUST BE CONNECTED TOGETHER.
ALL GROUND PINS MUST BE GROUNDED.

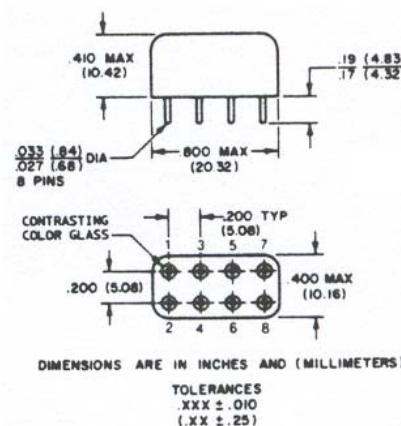
PACKAGE

MATERIAL:

Header: 1010 CRS
Pins: #52 Alloy
Seals: Glass
Cover: 18% Grade A Nickel
Silver per ASTM B112-66, Alloy 2; QQ-C-585-1, Comp. 2,
CDA-752 (65% Copper, 18% Nickel, 17% Zinc)

FINISH:

Cover: Nickel Silver
Header: Bright Tin Dip Per MIL-T-10727 Class II
Pins: Bright Tin Dip Per MIL-T-10727 Class II



DIMENSIONS ARE IN INCHES AND (MILLIMETERS)

TOLERANCES
XXX ± 0.010
(.XX ± .25)