



CM-2
Low Cost
Miniature
Double
Balanced
Mixer
10-1000 MHz



DESCRIPTION

CM-2 is a low cost double balanced mixer offering excellent performance to 1000 MHz in a miniature package. Its performance/cost ratio offers advanced mixer technology with wide bandwidth, low conversion loss and outstanding isolation performance. It has multiple applications over the same wide bandwidth, such as a phase detector, electronic attenuator and modulator.

The circuitry consists of four precisely matched Schottky diodes and two rugged transmission line transformers. Each CM-2 is individually tested to S.M.D.I.'s demanding quality and performance specifications.

GUARANTEED MINIMUM PERFORMANCE DATA

TEST CONDITION:

LO + 7 dBm (High side LO)
RF -10 dBm
IF 100 MHz

NOTE:

Specifications below, guaranteed with IF from DC to 200 MHz. For higher IF frequencies, consult IF response curve for typical rolloff.

OVERALL FREQUENCY RANGE IN MHz:

L	R	X
10-1000	10-1000	DC-1000

FREQUENCY BANDS IN MHz:

	10-100	100-700	700-1000
Conversion Loss	8.0	7.5	8.0
L-R Isolation	30	25	20
L-X Isolation	25	15	15
R-X Isolation	20	15	10

ABSOLUTE MAXIMUM RATINGS:

Operating Temp. - 54 to +100°C
X-port Input Current 50 mA
Total Input Power 200 mW @ +25°C
Derate linearly to 50 mW @ 100°C

DC POLARITY:

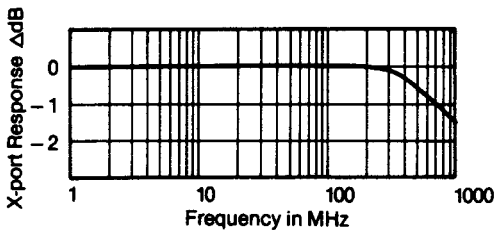
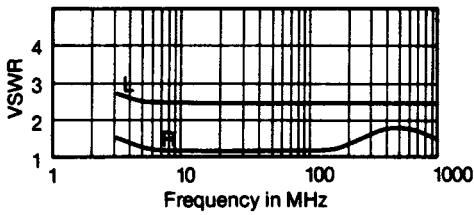
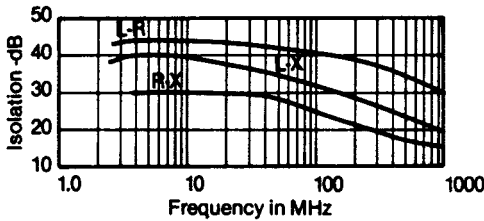
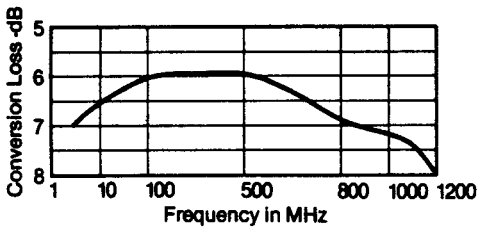
Negative with L and R port signals in-phase.

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TYPICAL PERFORMANCE

Impedance: All ports 50 ohms
 1 dB Compression Point: 0 dBm
 1 dB Desensitization Point: -2 dBm
 3rd Order Intercept Point: +13 dBm
 Noise Figure is within 1 dB of conversion loss
 LO Power Range: +4 to +13 dBm



ENVIRONMENTAL CONDITIONS

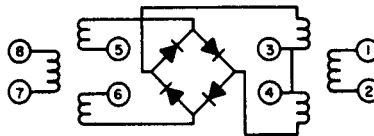
GUARANTEED ENVIRONMENTAL PERFORMANCE:

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



Pin Connections:

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

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

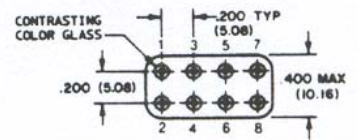
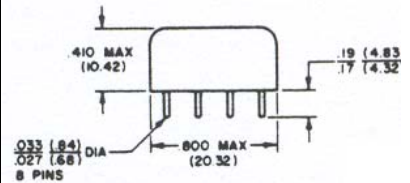
PACKAGE

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 ± .010
 (.XX ± .25)

Specifications subject to change without notice.

8.10.04 Rev. A