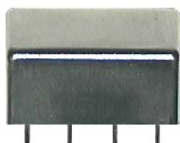




CM-2  
 Low Cost  
 Miniature  
 Double  
 Balanced  
 Mixer  
 10-1000 MHz



**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.

Specifications subject to change without notice.

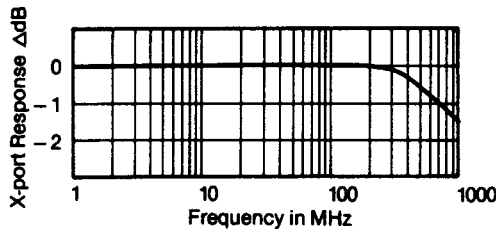
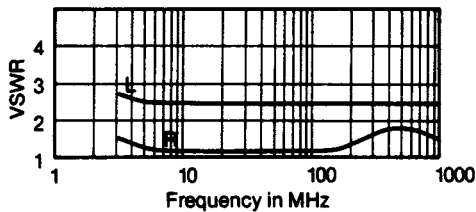
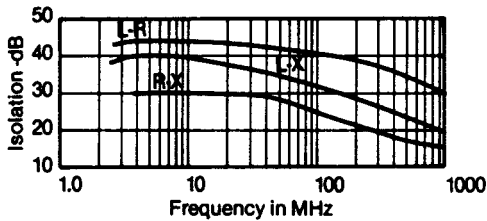
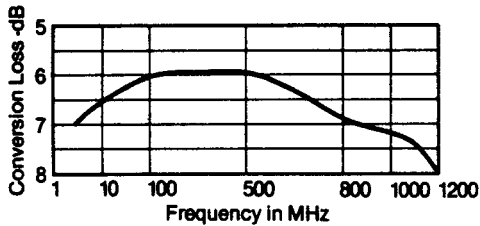
8.10.04 Rev. A

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



### 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

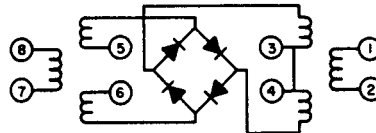
#### GUARANTEED ENVIRONMENTAL PERFORMANCE:

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.

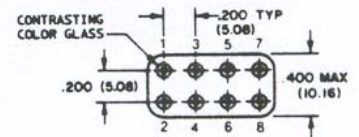
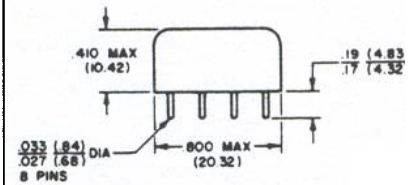
### PACKAGE

#### 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.

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