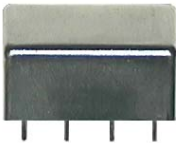




CM-1H8  
Miniature  
High Level  
Double  
Balanced  
Mixer  
.5-500 MHz



**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.

Specifications subject to change without notice.

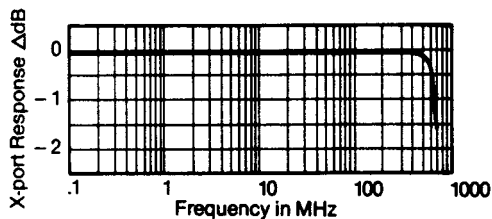
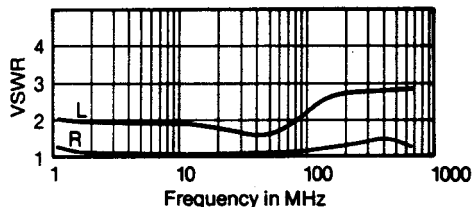
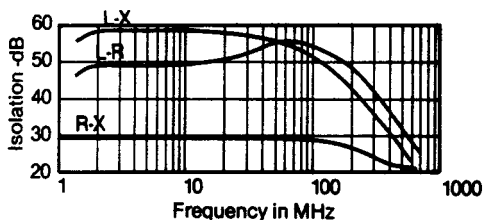
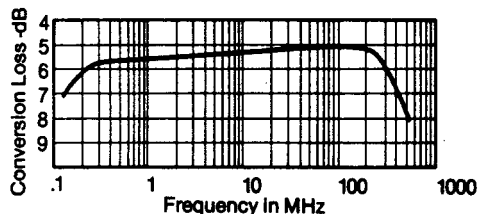
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CM-1H8  
 Miniature  
 High Level  
 Double  
 Balanced  
 Mixer  
 .5-500 MHz



### 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

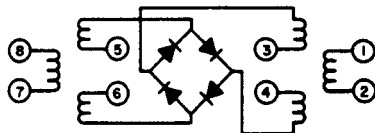
#### GUARANTEED ENVIRONMENTAL PERFORMANCE:

All units are designed to meet their specifications over -54°C to +100°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.

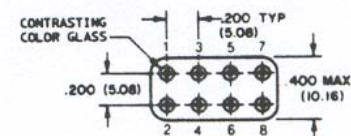
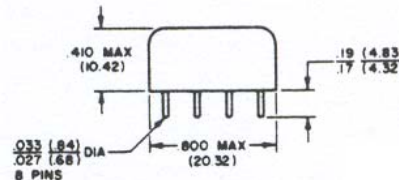
### PACKAGE

#### 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 ± .010  
 (.XX ± .25)

Specifications subject to change without notice.

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