

Ceramic

# Frequency Mixer WIDE BAND

MCA1-80H+

Level 17 (LO Power+17 dBm) 2800 to 8000 MHz

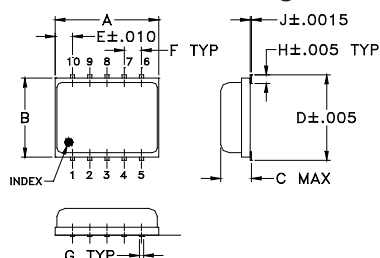
## Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -55°C to 100°C |
| Storage Temperature                                             | -55°C to 100°C |
| RF Power                                                        | 200 mW         |
| IF Current                                                      | 40 mA          |
| Permanent damage may occur if any of these limits are exceeded. |                |

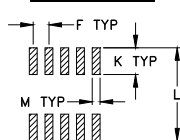
## Pin Connections

|        |               |
|--------|---------------|
| LO     | 10            |
| RF     | 5             |
| IF     | 3             |
| GROUND | 1,2,4,6,7,8,9 |

## Outline Drawing



### PCB Land Pattern

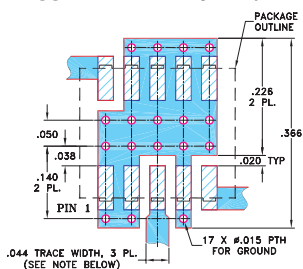


Suggested Layout,  
Tolerance to be within ±.002

## Outline Dimensions (inch)

| A    | B    | C    | D    | E    | F     | G    |
|------|------|------|------|------|-------|------|
| .30  | .250 | .085 | .266 | .050 | .050  | .012 |
| 7.62 | 6.35 | 2.16 | 6.76 | 1.27 | 1.27  | 0.30 |
| H    | J    | K    | L    | M    | wt    |      |
| .029 | .004 | .085 | .296 | .030 | grams |      |
| 0.74 | 0.10 | 2.16 | 7.52 | 0.76 | 0.25  |      |

## Demo Board MCL P/N: TB-144 Suggested PCB Layout (PL-045)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Features

- wide bandwidth, 2800 to 8000 MHz
- low conversion loss, 6.3 dB typ.
- high L-R isolation, 35 dB typ.
- IF, DC to 1250 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7,027,795

## Applications

- satellite up and down converters
- line of sight links
- defense radar
- defense communication

## Electrical Specifications (T<sub>AMB</sub>=-55°C to 100°C)

| FREQUENCY (MHz)                      |         | CONVERSION LOSS (dB) |          |      | LO-RF ISOLATION (dB) |      | LO-IF ISOLATION (dB) |      | IP3 at center band (dBm) |
|--------------------------------------|---------|----------------------|----------|------|----------------------|------|----------------------|------|--------------------------|
| LO/RF f <sub>c</sub> -f <sub>u</sub> | IF      | $\bar{X}$            | $\sigma$ | Max. | Typ.                 | Min. | Typ.                 | Min. | Typ.                     |
| 2800-8000                            | DC-1250 | 6.5                  | 0.2      | 8.9* | 34                   | 22   | 12                   | 8    | 24                       |
| 2800-5000                            | DC-1250 | 6.0                  | 0.2      | 8.9* | 35                   | 21   | 35                   | 13   | 21                       |
| 5000-8000                            | DC-1250 |                      |          |      |                      |      |                      |      |                          |

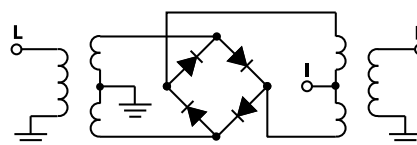
1 dB COMPR. +14 dBm typ.

\* Conversion loss at 30 MHz IF, increases with IF frequency.

## Typical Performance Data

| Frequency (MHz) |         | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|-----------------|---------|----------------------|--------------------|--------------------|-------------------|-------------------|
| RF              | LO      | LO +13dBm            | LO +13dBm          | LO +13dBm          | LO +13dBm         | LO +13dBm         |
| 2800.00         | 2830.10 | 6.32                 | 43.01              | 12.42              | 2.41              | 1.99              |
| 5000.00         | 5030.10 | 7.02                 | 35.98              | 24.98              | 2.67              | 2.98              |
| 6200.00         | 6230.10 | 5.89                 | 32.88              | 37.57              | 2.97              | 3.25              |
| 6300.00         | 6330.10 | 5.62                 | 32.26              | 38.59              | 3.20              | 3.45              |
| 6400.00         | 6430.10 | 5.42                 | 34.86              | 39.69              | 3.42              | 3.20              |
| 6500.00         | 6530.10 | 5.18                 | 35.38              | 41.78              | 3.13              | 2.96              |
| 6600.00         | 6630.10 | 5.28                 | 32.64              | 45.82              | 2.98              | 2.83              |
| 6650.00         | 6680.10 | 5.56                 | 32.40              | 45.78              | 3.06              | 2.60              |
| 6700.00         | 6730.10 | 5.13                 | 32.63              | 44.65              | 3.30              | 2.60              |
| 7000.00         | 7030.10 | 5.25                 | 32.22              | 45.62              | 3.13              | 2.72              |
| 7150.00         | 7180.10 | 5.61                 | 32.69              | 45.49              | 3.45              | 2.83              |
| 7200.00         | 7230.10 | 5.46                 | 32.89              | 43.89              | 3.67              | 2.89              |
| 7300.00         | 7330.10 | 5.55                 | 33.59              | 41.45              | 3.62              | 3.04              |
| 7400.00         | 7430.10 | 5.65                 | 34.45              | 40.66              | 3.45              | 3.13              |
| 7500.00         | 7530.10 | 5.79                 | 33.59              | 41.99              | 3.45              | 3.22              |
| 7600.00         | 7630.10 | 6.08                 | 34.10              | 41.64              | 3.86              | 3.16              |
| 7700.00         | 7730.10 | 6.18                 | 34.94              | 34.31              | 4.74              | 2.97              |
| 7800.00         | 7830.10 | 6.31                 | 35.54              | 30.40              | 5.09              | 2.86              |
| 7900.00         | 7930.10 | 6.25                 | 35.75              | 27.33              | 4.68              | 2.86              |
| 8000.00         | 8030.10 | 6.30                 | 33.26              | 24.54              | 4.50              | 3.15              |

## Electrical Schematic



CASE STYLE: DZ885

PRICE: \$11.95 ea. QTY (10-49)

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Recommended Replacement: MAC-80H+

- Footprint Compatible
- MIL Level Reliability
- Price \$8.95 Qty. (10)



[Click here for data sheet](#)

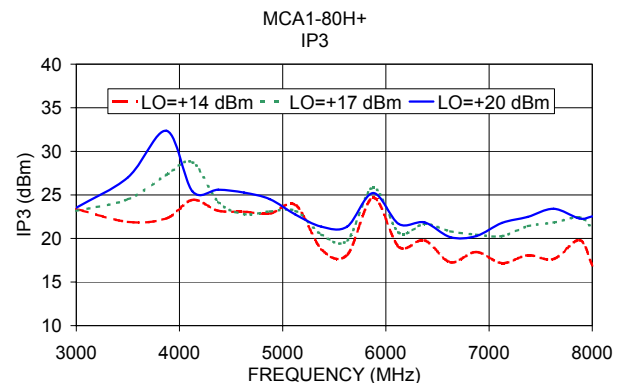
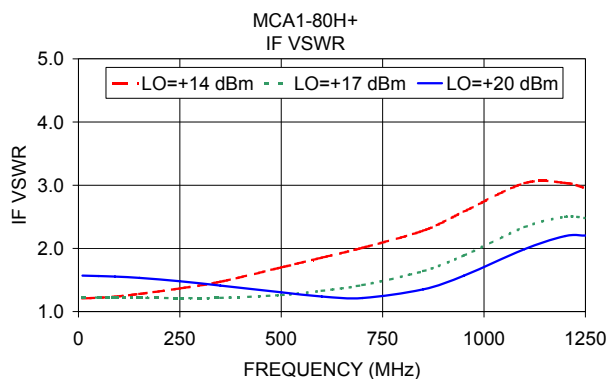
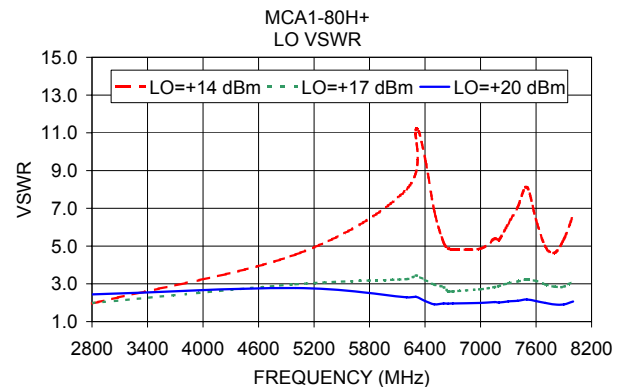
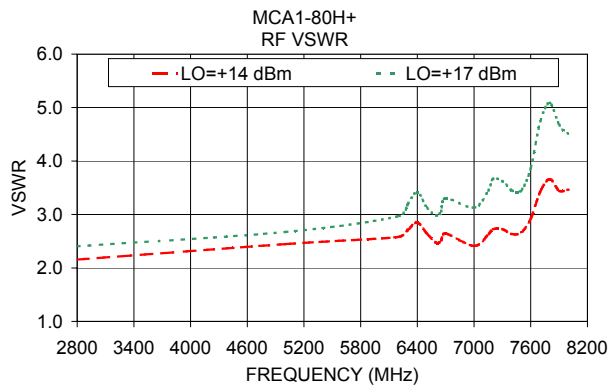
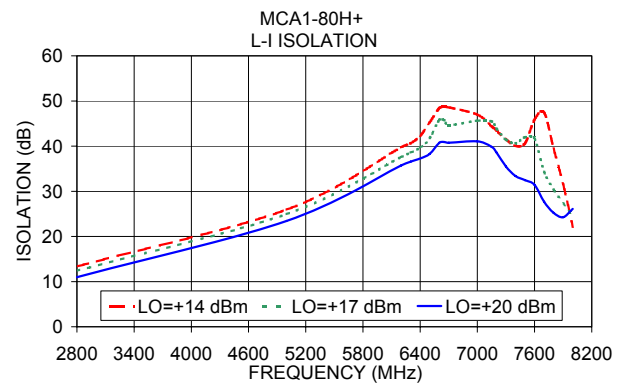
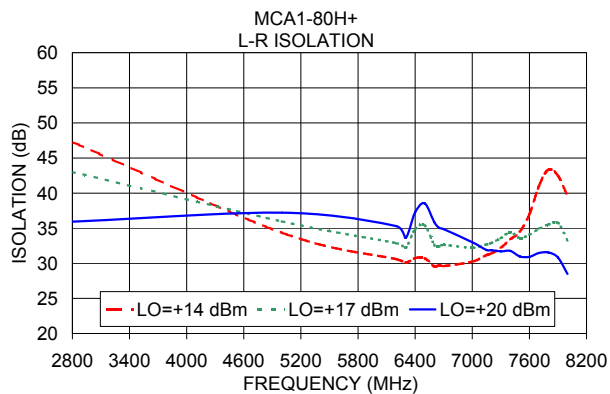
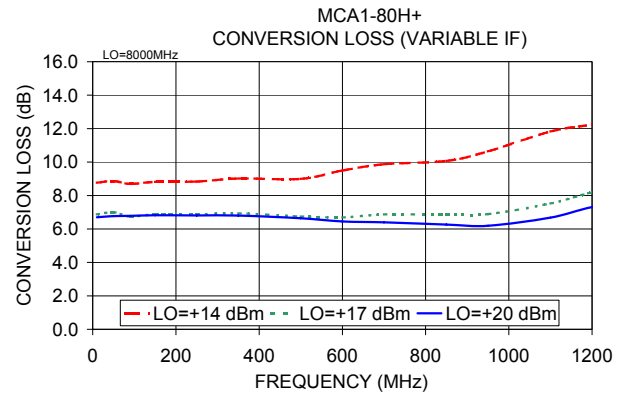
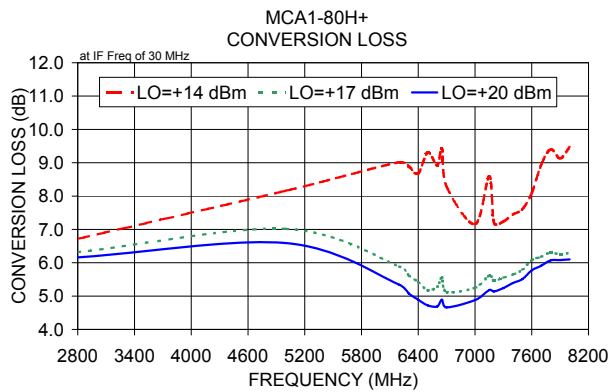
### Notes

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