

# Coaxial Frequency Mixer

Level 13 (LO Power +13 dBm) 10 to 2400 MHz

## Maximum Ratings

|                       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature   | -55°C to 100°C |
| RF Power              | 200mW          |
| IF Current            | 40mA           |

Permanent damage may occur if any of these limits are exceeded.

## Coaxial Connections

|    |   |
|----|---|
| LO | 3 |
| RF | 2 |
| IF | 1 |

## Features

- low conversion loss, 6.9 dB typ.
- excellent isolation, 43 dB typ. L-R, 44 dB typ. L-I
- wideband, 10 to 2400 MHz

## Applications

- VHF/UHF
- cellular
- GPS

# ZEM-M2TMH+ ZEM-M2TMH



CASE STYLE: V37

| Connectors | Model        | Price    | Qty.  |
|------------|--------------|----------|-------|
| SMA        | ZEM-M2TMH(+) | \$114.95 | (1-9) |

+ RoHS compliant in accordance  
with EU Directive (2002/95/EC)

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

## Electrical Specifications

| FREQUENCY (MHz) |         | CONVERSION LOSS (dB) |          |       |       | LO-RF ISOLATION (dB) |      |      |      |      |      | LO-IF ISOLATION (dB) |      |      |      |      |      |
|-----------------|---------|----------------------|----------|-------|-------|----------------------|------|------|------|------|------|----------------------|------|------|------|------|------|
| LO/RF           | IF      | Mid-Band             |          | Total |       | L                    |      | M    |      | U    |      | L                    |      | M    |      | U    |      |
| $f_L$ - $f_U$   |         | $\bar{X}$            | $\sigma$ | Max.  | Range | Typ.                 | Min. | Typ. | Min. | Typ. | Min. | Typ.                 | Min. | Typ. | Min. | Typ. | Min. |
| 10-2400         | 10-1000 | 6.9                  | 0.10     | 9.0   | 9.5   | 49                   | 40   | 43   | 35   | 42   | 35   | 49                   | 40   | 44   | 30   | 40   | 30   |

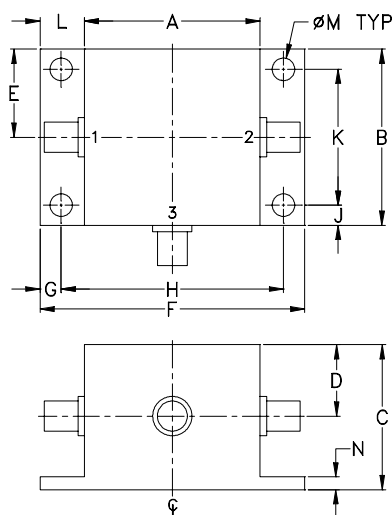
1 dB COMP.: +9 dBm typ.

L = low range [ $f_L$  to 10  $f_L$ ] M = mid range [10  $f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]  
m = mid band [ $2f_L$  to  $f_U/2$ ]

## 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         |
| 10.00           | 40.00   | 6.87                 | 48.7               | 47.5               | 1.06              | 1.43              |
| 25.00           | 55.00   | 6.77                 | 48.7               | 47.4               | 1.02              | 1.43              |
| 40.00           | 70.00   | 6.83                 | 48.9               | 47.3               | 1.02              | 1.43              |
| 70.00           | 100.00  | 6.69                 | 48.9               | 47.0               | 1.04              | 1.39              |
| 100.00          | 130.00  | 6.64                 | 49.1               | 46.9               | 1.06              | 1.41              |
| 200.00          | 230.00  | 6.44                 | 47.6               | 45.9               | 1.13              | 1.44              |
| 400.00          | 430.00  | 6.25                 | 44.0               | 43.4               | 1.31              | 1.56              |
| 600.00          | 630.00  | 6.31                 | 40.9               | 41.7               | 1.40              | 1.59              |
| 700.00          | 730.00  | 6.37                 | 40.6               | 41.2               | 1.51              | 1.58              |
| 800.00          | 830.00  | 6.39                 | 40.6               | 40.3               | 1.53              | 1.59              |
| 1000.00         | 1030.00 | 6.45                 | 43.2               | 37.9               | 1.46              | 1.62              |
| 1200.00         | 1230.00 | 6.40                 | 41.9               | 37.3               | 1.42              | 1.74              |
| 1300.00         | 1330.00 | 6.46                 | 40.3               | 37.5               | 1.42              | 1.81              |
| 1500.00         | 1530.00 | 6.73                 | 38.5               | 36.9               | 1.43              | 1.80              |
| 1700.00         | 1730.00 | 6.98                 | 38.8               | 37.4               | 1.45              | 1.83              |
| 1800.00         | 1830.00 | 7.26                 | 39.3               | 37.0               | 1.57              | 1.85              |
| 2000.00         | 2030.00 | 7.60                 | 40.2               | 36.3               | 1.84              | 1.73              |
| 2200.00         | 2230.00 | 7.88                 | 42.3               | 36.4               | 1.92              | 1.56              |
| 2300.00         | 2330.00 | 7.91                 | 44.9               | 35.8               | 1.83              | 1.50              |
| 2400.00         | 2430.00 | 7.74                 | 49.9               | 34.2               | 1.65              | 1.44              |

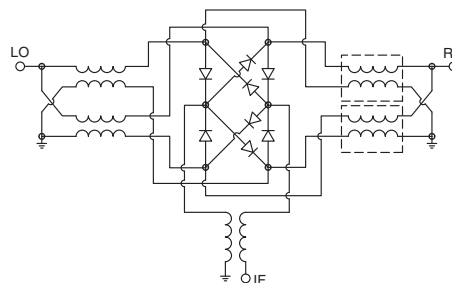
## Outline Drawing



## Outline Dimensions (inch/mm)

| A     | B     | C     | D    | E     | F     | G     |
|-------|-------|-------|------|-------|-------|-------|
| .83   | .83   | .75   | .37  | .42   | 1.25  | .10   |
| 21.08 | 21.08 | 19.05 | 9.40 | 10.67 | 31.75 | 2.54  |
| H     | J     | K     | L    | M     | N     | wt    |
| 1.050 | .10   | .640  | .21  | .106  | .06   | grams |
| 26.67 | 2.54  | 16.26 | 5.33 | 2.69  | 1.52  | 22.0  |

## Electrical Schematic



**Mini-Circuits®**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

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IF/RF MICROWAVE COMPONENTS

For detailed performance specs  
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# Performance Charts

## ZEM-M2TMH+ ZEM-M2TMH

