

Plug-In

# Frequency Mixer

Level 13 (LO Power +13 dBm) 2 to 600 MHz

TUF-1MH+



CASE STYLE: B02  
PRICE: \$10.20 ea. QTY (10)

## 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. |                |

## Pin Connections

|             |   |
|-------------|---|
| LO          | 4 |
| RF          | 1 |
| IF          | 2 |
| GROUND      | 3 |
| CASE GROUND | 3 |

## Features

- low conversion loss, 6.3 dB typ.
- high isolation, 50 dB typ. L-R, 48 dB typ. L-I
- rugged welded construction

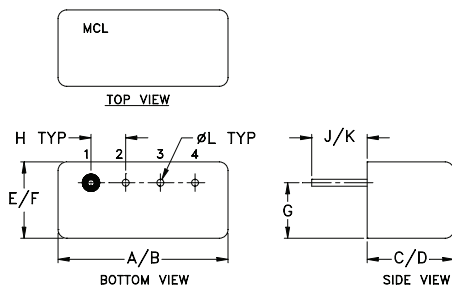
## Applications

- VHF/UHF
- defense & federal communications

## +RoHS Compliant

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

## Outline Drawing



## Outline Dimensions (inch/mm)

| A     | B     | C    | D    | E    | F     |
|-------|-------|------|------|------|-------|
| .480  | .500  | .240 | .255 | .210 | .230  |
| 12.19 | 12.70 | 6.10 | 6.48 | 5.33 | 5.84  |
| G     | H     | J    | K    | L    | wt    |
| .16   | .100  | .14  | .20  | .020 | grams |
| 4.06  | 2.54  | 3.56 | 5.08 | 0.51 | 1.9   |

## Electrical Specifications

| FREQUENCY (MHz) |        | CONVERSION LOSS (dB) |          |                  |     | LO-RF ISOLATION (dB) |      |      | LO-IF ISOLATION (dB) |      |      |
|-----------------|--------|----------------------|----------|------------------|-----|----------------------|------|------|----------------------|------|------|
| LO/RF           | IF     | Mid-Band m           |          | Total Range Max. |     | L                    | M    | U    | L                    | M    | U    |
| $f_L$ - $f_U$   |        | $\bar{X}$            | $\sigma$ | Max.             |     | Typ.                 | Min. | Typ. | Min.                 | Typ. | Min. |
| 2-600           | DC-600 | 6.3                  | 0.12     | 7.0              | 8.0 | 68                   | 50   | 50   | 30                   | 43   | 25   |

1 dB COMP.: +9 dBm typ.

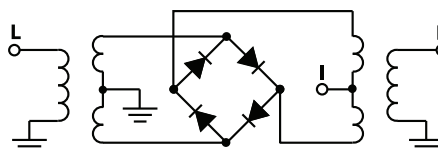
L = low range [ $f_L$  to  $10 f_L$ ] M = mid range [ $10 f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]

m = mid band [ $2f_L$  to  $f_U/2$ ]

## Typical Performance Data

| Frequency (MHz) |        | Conversion Loss (dB) | VSWR RF Port (:1) | Frequency (MHz) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR LO Port (:1) |
|-----------------|--------|----------------------|-------------------|-----------------|--------------------|--------------------|-------------------|
| RF              | LO     | LO +13dBm            | LO +13dBm         | LO              | LO +13dBm          | LO +13dBm          | LO +13dBm         |
| 2.00            | 32.00  | 6.69                 | 1.71              | 2.30            | 72.70              | 67.41              | 2.47              |
| 4.00            | 34.00  | 6.16                 | 1.37              | 5.30            | 70.19              | 66.64              | 2.38              |
| 10.00           | 40.00  | 5.88                 | 1.15              | 10.30           | 66.20              | 64.23              | 2.34              |
| 16.00           | 46.00  | 5.86                 | 1.10              | 15.30           | 63.06              | 61.97              | 2.28              |
| 33.00           | 63.00  | 5.84                 | 1.05              | 20.30           | 60.88              | 60.01              | 2.30              |
| 50.00           | 80.00  | 5.81                 | 1.03              | 30.30           | 58.09              | 57.73              | 2.22              |
| 101.00          | 131.00 | 5.84                 | 1.03              | 40.10           | 56.62              | 56.49              | 2.23              |
| 171.00          | 201.00 | 5.97                 | 1.07              | 80.00           | 50.45              | 50.68              | 2.16              |
| 211.00          | 241.00 | 6.00                 | 1.09              | 114.00          | 48.55              | 49.14              | 2.21              |
| 271.00          | 301.00 | 5.99                 | 1.12              | 161.00          | 46.23              | 47.36              | 2.14              |
| 311.00          | 341.00 | 6.02                 | 1.14              | 201.00          | 44.75              | 46.87              | 2.19              |
| 331.00          | 361.00 | 6.00                 | 1.16              | 241.00          | 43.64              | 46.01              | 2.11              |
| 355.00          | 385.00 | 6.01                 | 1.17              | 301.00          | 41.84              | 43.65              | 2.18              |
| 398.00          | 428.00 | 6.00                 | 1.18              | 346.00          | 40.23              | 41.40              | 2.19              |
| 441.00          | 471.00 | 6.08                 | 1.19              | 406.50          | 39.17              | 39.27              | 2.18              |
| 484.00          | 514.00 | 6.16                 | 1.22              | 449.50          | 38.01              | 37.50              | 2.14              |
| 505.50          | 535.50 | 6.14                 | 1.23              | 471.00          | 37.37              | 36.34              | 2.18              |
| 548.50          | 578.50 | 6.19                 | 1.26              | 514.00          | 36.67              | 36.01              | 2.20              |
| 570.00          | 600.00 | 6.16                 | 1.27              | 557.00          | 36.02              | 35.09              | 2.25              |
| 600.00          | 630.00 | 6.30                 | 1.30              | 600.00          | 35.65              | 33.93              | 2.18              |

## Electrical Schematic



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

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IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

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