

Plug-In

Frequency Mixer

Level 7 (LO Power +7 dBm) 0.04 to 400 MHz

TFM-3+



CASE STYLE: B02
PRICE: \$25.70 ea. QTY (1-9)

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

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

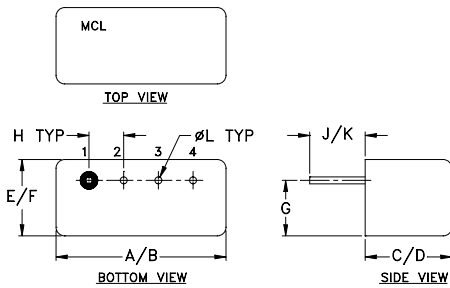
Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50mW |
| 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 |

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 |

Features

- low conversion loss, 4.70 dB typ.
- excellent isolation, 50 dB typ. L-R, 45 dB typ. L-I
- rugged welded construction
- hermetically sealed
- phase detection, positive polarity

Applications

- VHF/UHF
- aviation
- federal & defense communications

Electrical Specifications

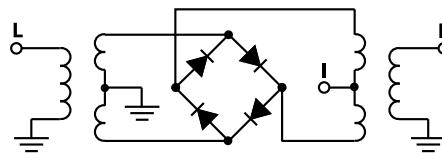
| FREQUENCY (MHz) | | CONVERSION LOSS (dB) | | | | LO-RF ISOLATION (dB) | | | | | | LO-IF ISOLATION (dB) | | | | | | | | | | | |
|-----------------|--------|----------------------|----------|------|------------------|----------------------|------|------|------|------|------|----------------------|------|------|------|------|------|------|------|------|------|--|--|
| LO/RF | IF | Mid-Band | | | Total Range Max. | L | | | M | | | U | | | L | | | M | | | U | | |
| f_L - f_U | | \bar{X} | σ | Max. | | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. | | |
| 0.04-400* | DC-400 | 4.70 | 0.06 | 7.0 | 8.0 | 60 | 50 | 50 | 35 | 35 | 25 | 55 | 40 | 45 | 30 | 35 | 25 | | | | | | |

1 dB COMP.: +1 dBm typ.
*Below 10°C, f_U is 0.2 MHz
For phase detection, DC output polarity is positive with in-phase LO and RF signals.
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]

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 +7dBm | LO +7dBm | LO +7dBm | LO +7dBm | LO +7dBm |
| 0.04 | 30.04 | 6.15 | >67.00 | >67.00 | 1.24 | 2.69 |
| 0.05 | 30.05 | 5.52 | >67.00 | >67.00 | 1.25 | 2.55 |
| 0.07 | 30.07 | 5.12 | >67.00 | >67.00 | 1.25 | 2.67 |
| 0.10 | 30.10 | 4.92 | >67.00 | >67.00 | 1.24 | 2.63 |
| 0.50 | 30.50 | 4.77 | >67.00 | >67.00 | 1.23 | 2.55 |
| 1.00 | 31.00 | 4.76 | >67.00 | 63.53 | 1.23 | 2.45 |
| 5.00 | 35.00 | 4.75 | >67.00 | 60.91 | 1.21 | 2.48 |
| 10.00 | 40.00 | 4.75 | >67.00 | 60.97 | 1.21 | 2.42 |
| 20.00 | 50.00 | 4.74 | >67.00 | 58.52 | 1.19 | 2.42 |
| 60.87 | 90.87 | 4.73 | 50.40 | 49.37 | 1.18 | 2.36 |
| 100.00 | 70.00 | 4.63 | 44.80 | 44.05 | 1.16 | 2.38 |
| 162.61 | 132.61 | 4.79 | 39.22 | 39.87 | 1.15 | 2.46 |
| 200.00 | 170.00 | 4.95 | 37.18 | 37.86 | 1.13 | 2.40 |
| 230.44 | 200.44 | 4.89 | 35.78 | 37.67 | 1.13 | 2.42 |
| 281.31 | 251.31 | 5.05 | 33.68 | 35.71 | 1.13 | 2.41 |
| 315.23 | 285.23 | 5.25 | 34.22 | 33.98 | 1.14 | 2.56 |
| 349.14 | 319.14 | 5.32 | 35.64 | 34.07 | 1.14 | 2.63 |
| 366.10 | 336.10 | 5.37 | 35.56 | 34.58 | 1.14 | 2.68 |
| 383.05 | 353.05 | 5.44 | 35.25 | 34.26 | 1.15 | 2.69 |
| 400.00 | 370.00 | 5.56 | 34.72 | 32.46 | 1.15 | 2.76 |

Electrical Schematic



Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED

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For detailed performance specs & shopping online see web site

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp.

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Page 1 of 2

