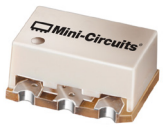
# X3 Frequency Multiplier

## 50Ω Output 900 to 1200 MHz

# RMK-3-122+



CASE STYLE: TT1224

### +RoHS Compliant

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

## Maximum Ratings

| | |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Input Power | 17 dBm |

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

## Pin Connections

| | |
|---|---|
| INPUT | 1 |
| OUTPUT | 4 |
| GROUND | 2,3,5,6 |

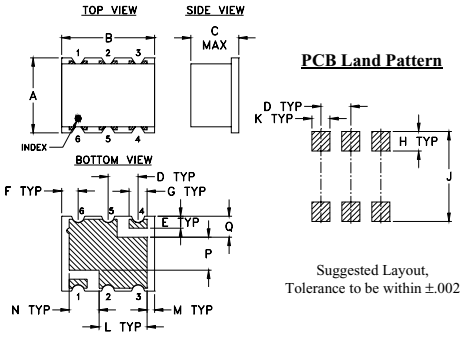
## Features

- broadband
- low conversion loss, 14.5 dB typ.
- high rejection F2, -48 dBc typ.; F4, -52 dBc typ.
- low cost
- aqueous washable

## Applications

- synthesizers
- local oscillators
- satellite up and down converters

## Outline Drawing

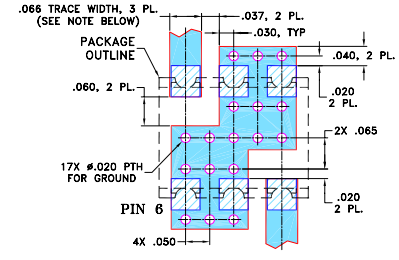



## Outline Dimensions (inch / mm)

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| .25 | .31 | .16 | .100 | .040 | .055 | .060 | .065 |
| 6.35 | 7.87 | 4.06 | 2.54 | 1.02 | 1.40 | 1.52 | 1.65 |

| J | K | L | M | N | P | Q | wt. |
|---|---|---|---|---|---|---|---|
| .300 | .060 | .160 | .025 | .100 | .110 | .070 | grams |
| 7.62 | 1.52 | 4.06 | 0.64 | 2.54 | 2.79 | 1.78 | 0.16 |

### *Demo Board MCL P/N: TB-393*
### *Suggested PCB Layout (PL-258)*




NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; 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

## Electrical Specifications

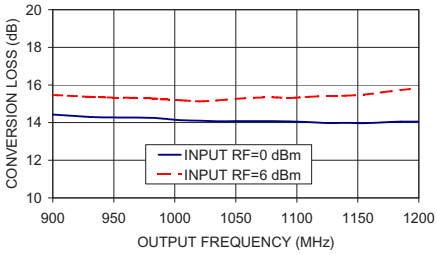
| MULTIPLICATION FACTOR | FREQUENCY (MHz) | | INPUT POWER (dBm) | | CONVERSION LOSS (dB) | | *HARMONIC OUTPUT (dBc) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F1 | F3 | | | | | F1 | | F2 | | F4 | |
| | Input | Output | Min. | Max. | Typ. | Max. | Typ. | Min. | Typ. | Min. | Typ. | Min. |
| 3 | 300-400 | 900-1200 | 0 | 6 | 14.5 | 18 | 6 | -3 | 48 | 33 | 52 | 40 |

* Harmonics of input frequency below the power level of F3

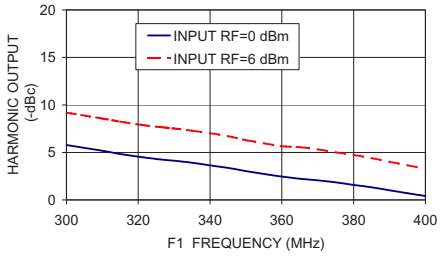
## Typical Performance Data

| | INPUT RF= 0 dBm | | | | INPUT RF= 6 dBm | | | |
|---|---|---|---|---|---|---|---|---|
| Input Frequency (MHz) | Conversion Loss (dB) | Harmonic Output Below F3 (-dBc) | | | Conversion Loss (dB) | Harmonic Output Below F3 (-dBc) | | |
| | F3 | F1 | F2 | F4 | F3 | F1 | F2 | F4 |
| 300.00 | 14.43 | 5.78 | 50.39 | 49.94 | 15.47 | 9.19 | 57.23 | 51.74 |
| 310.00 | 14.30 | 5.17 | 49.76 | 50.11 | 15.37 | 8.56 | 56.40 | 51.93 |
| 315.00 | 14.28 | 4.84 | 49.36 | 50.23 | 15.34 | 8.24 | 55.95 | 52.07 |
| 321.00 | 14.27 | 4.50 | 48.88 | 50.36 | 15.32 | 7.89 | 55.34 | 52.31 |
| 327.00 | 14.25 | 4.23 | 48.56 | 50.46 | 15.29 | 7.63 | 55.00 | 52.44 |
| 330.00 | 14.21 | 4.12 | 48.41 | 50.53 | 15.24 | 7.52 | 54.81 | 52.59 |
| 335.00 | 14.13 | 3.92 | 48.15 | 50.64 | 15.19 | 7.29 | 54.41 | 52.71 |
| 340.00 | 14.10 | 3.64 | 47.81 | 50.79 | 15.13 | 7.02 | 54.00 | 52.88 |
| 345.00 | 14.07 | 3.37 | 47.61 | 50.93 | 15.18 | 6.71 | 53.71 | 53.02 |
| 350.00 | 14.08 | 3.03 | 47.35 | 51.03 | 15.26 | 6.29 | 53.27 | 53.11 |
| 355.00 | 14.08 | 2.74 | 47.10 | 51.17 | 15.32 | 5.96 | 52.88 | 53.16 |
| 360.00 | 14.08 | 2.45 | 46.82 | 51.33 | 15.35 | 5.65 | 52.49 | 53.26 |
| 365.00 | 14.06 | 2.22 | 48.25 | 53.03 | 15.31 | 5.56 | 52.52 | 53.78 |
| 370.00 | 14.03 | 2.07 | 48.18 | 53.27 | 15.37 | 5.32 | 52.29 | 53.97 |
| 375.00 | 13.98 | 1.85 | 47.96 | 53.50 | 15.42 | 5.01 | 51.91 | 54.04 |
| 380.00 | 13.99 | 1.58 | 47.75 | 53.70 | 15.43 | 4.74 | 51.63 | 54.21 |
| 385.00 | 13.97 | 1.32 | 47.64 | 53.91 | 15.49 | 4.40 | 51.41 | 54.31 |
| 390.00 | 14.01 | 1.01 | 47.48 | 54.07 | 15.61 | 4.02 | 51.06 | 54.34 |
| 395.00 | 14.05 | 0.71 | 47.30 | 54.26 | 15.73 | 3.66 | 50.79 | 54.52 |
| 400.00 | 14.05 | 0.41 | 47.11 | 54.53 | 15.82 | 3.26 | 50.42 | 54.57 |

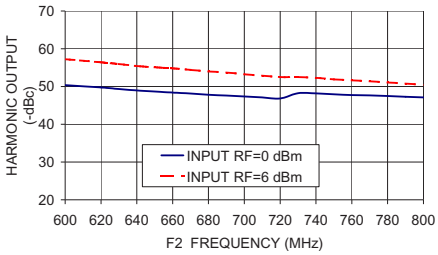
RMK-3-122+
CONVERSION LOSS



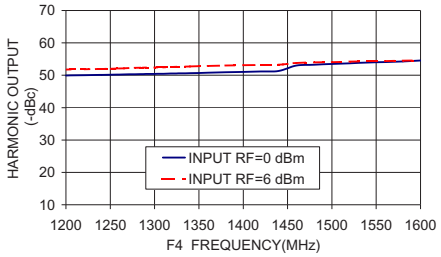

RMK-3-122+
HARMONIC OUTPUT F1




RMK-3-122+
HARMONIC OUTPUT F2




RMK-3-122+
HARMONIC OUTPUT F4




Notes

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