

# X3 Frequency Multiplier

50Ω Output 5400 to 8100 MHz

## RMK-3-812+



CASE STYLE: TT1224  
PRICE: \$8.95 ea. QTY (10-49)

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

### Pin Connections

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

### Features

- broadband
- high rejection F2, -40 dBc typ.; F4, -37 dBc typ.
- low cost
- aqueous washable

### Applications

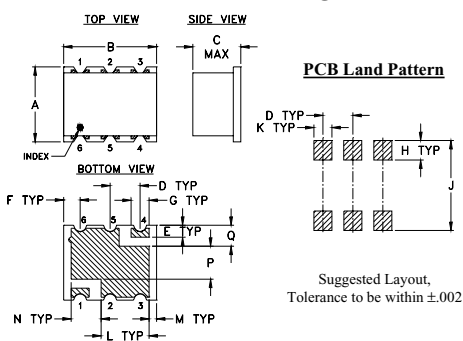
- synthesizers
- local oscillators
- satellite up and down converters

### Electrical Specifications

| MULTIPLICATION FACTOR | FREQUENCY (MHz) |           | INPUT POWER (dBm) |      | CONVERSION LOSS (dB) |      | *HARMONIC OUTPUT (dBc) |         |         |    |    |    |
|-----------------------|-----------------|-----------|-------------------|------|----------------------|------|------------------------|---------|---------|----|----|----|
|                       | F1 Input        | F3 Output | Min.              | Max. | Typ.                 | Max. | F1 Typ.                | F2 Typ. | F4 Typ. |    |    |    |
| 3                     | 1800-2700       | 5400-8100 | 0                 | 6    | 16                   | 21   | 6                      | -6      | 40      | 22 | 37 | 24 |

\* Harmonics of input frequency below the power level of F3

### Outline Drawing



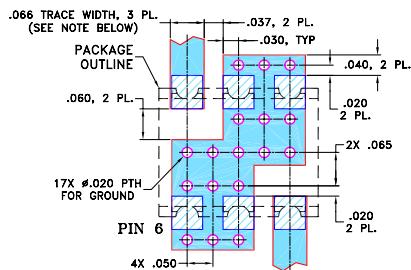
### Outline Dimensions (inch/mm)

| 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 | .250 | .100 | .110 | .070 | grams |
| 7.62 | 1.52 | 4.06 | 6.35 | 2.54 | 2.79 | 1.78 | 0.16  |

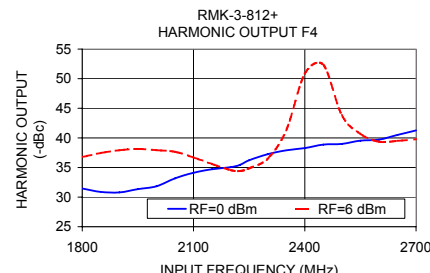
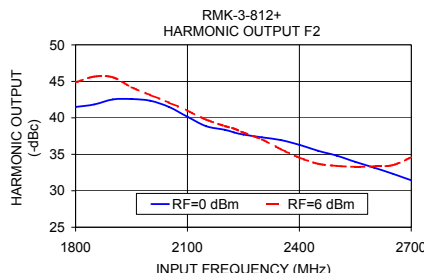
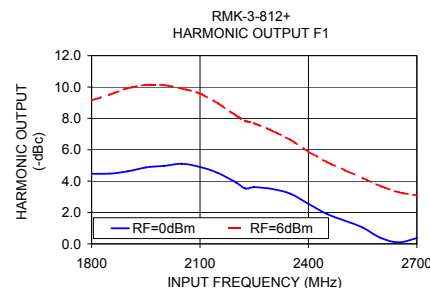
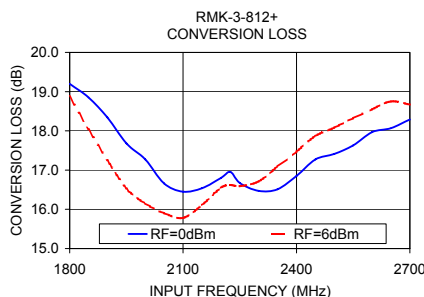
### Typical Performance Data

| Input Frequency (MHz) | INPUT RF= 0 dBm      |                                 |       | INPUT RF= 6 dBm      |                                 |       |       |       |
|-----------------------|----------------------|---------------------------------|-------|----------------------|---------------------------------|-------|-------|-------|
|                       | Conversion Loss (dB) | Harmonic Output Below F3 (-dBc) |       | Conversion Loss (dB) | Harmonic Output Below F3 (-dBc) |       |       |       |
|                       |                      | F1                              | F2    | F4                   | F1                              | F2    | F4    |       |
| 1800.00               | 19.20                | 4.47                            | 41.49 | 31.45                | 18.88                           | 9.15  | 44.86 | 36.77 |
| 1850.00               | 18.85                | 4.48                            | 41.84 | 30.87                | 18.04                           | 9.52  | 45.65 | 37.45 |
| 1900.00               | 18.34                | 4.62                            | 42.52 | 30.79                | 17.25                           | 9.92  | 45.56 | 37.91 |
| 1950.00               | 17.68                | 4.87                            | 42.58 | 31.34                | 16.53                           | 10.13 | 44.19 | 38.13 |
| 2000.00               | 17.27                | 4.97                            | 42.35 | 31.83                | 16.15                           | 10.12 | 43.14 | 37.93 |
| 2050.00               | 16.66                | 5.10                            | 41.50 | 33.16                | 15.90                           | 9.90  | 42.10 | 37.65 |
| 2100.00               | 16.45                | 4.90                            | 40.15 | 34.10                | 15.78                           | 9.58  | 40.97 | 36.70 |
| 2150.00               | 16.54                | 4.52                            | 38.86 | 34.71                | 16.11                           | 8.96  | 39.75 | 35.59 |
| 2200.00               | 16.80                | 3.91                            | 38.37 | 35.05                | 16.55                           | 8.19  | 38.88 | 34.56 |
| 2225.00               | 16.95                | 3.53                            | 38.00 | 35.44                | 16.62                           | 7.85  | 38.52 | 34.41 |
| 2250.00               | 16.67                | 3.61                            | 37.71 | 36.23                | 16.59                           | 7.69  | 37.98 | 34.86 |
| 2300.00               | 16.47                | 3.50                            | 37.32 | 37.24                | 16.71                           | 7.20  | 37.03 | 36.50 |
| 2350.00               | 16.51                | 3.20                            | 36.96 | 37.90                | 17.09                           | 6.64  | 35.72 | 41.27 |
| 2400.00               | 16.85                | 2.55                            | 36.30 | 38.28                | 17.47                           | 5.88  | 34.55 | 50.85 |
| 2450.00               | 17.27                | 1.92                            | 35.49 | 38.87                | 17.87                           | 5.23  | 33.71 | 52.34 |
| 2500.00               | 17.41                | 1.48                            | 34.82 | 38.99                | 18.08                           | 4.71  | 33.41 | 43.83 |
| 2550.00               | 17.63                | 1.04                            | 33.97 | 39.53                | 18.32                           | 4.20  | 33.29 | 40.68 |
| 2600.00               | 17.97                | 0.38                            | 33.17 | 39.71                | 18.55                           | 3.68  | 33.34 | 39.35 |
| 2650.00               | 18.07                | 0.10                            | 32.34 | 40.50                | 18.75                           | 3.29  | 33.51 | 39.50 |
| 2700.00               | 18.29                | 0.37                            | 31.44 | 41.26                | 18.67                           | 3.09  | 34.59 | 39.79 |

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



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B 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



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