

High IP3

Frequency Mixer

MCA-30FH+

Level 17 LO Power+17 dBm 2960 to 3060 MHz



CASE STYLE: DZ883

Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| LO & RF Power | 20 dBm |
| Permanent damage may occur if any of these limits are exceeded. | |

Pin Connections

| | |
|--------|---------------|
| LO | 10 |
| RF | 5 |
| IF | 3 |
| GROUND | 1,2,4,6,7,8,9 |

Features

- high IP3, 34 dBm typ.
- good L-R isolation, 37 dB typ.
- excellent 1 dB compression, RF>LO power
- industry standard foot print
- LTCC design for excellent temperature stability performance repeatability and small size
- aqueous washable
- double balanced mixer
- low price
- protected by US Patent 6,959,180

Applications

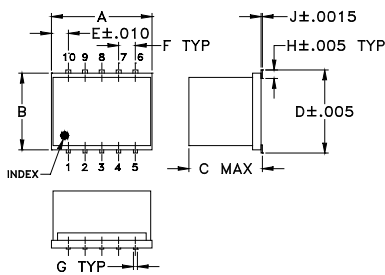
- line of sight links
- satellite communications

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

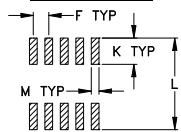
Available Tape and Reel at no extra cost

| Reel Size | Devices/Reel |
|-----------|----------------------|
| 7" | 10, 20, 50, 100, 200 |
| 13" | 500, 1000 |

Outline Drawing



PCB Land Pattern



Suggested L layout, Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G |
|------|------|------|------|------|-------|------|
| .30 | .250 | .190 | .266 | .050 | .050 | .012 |
| 7.62 | 6.35 | 4.83 | 6.76 | 1.27 | 1.27 | 0.30 |
| H | J | K | L | M | wt | |
| .029 | .004 | .085 | .296 | .030 | grams | |
| 0.74 | 0.10 | 2.16 | 7.52 | 0.76 | 0.5 | |

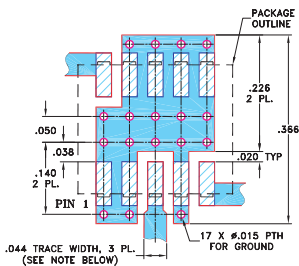
Electrical Specifications (T_{AMB}=-55°C to 100°C)

| FREQUENCY (MHz) | | | IP3 (dBm) | RF in at 1 dB compr. (dBm) | CONVERSION LOSS (dB) | LO-RF ISOLATION (dB) | LO-IF ISOLATION (dB) |
|-----------------|-----------|---------|-----------|----------------------------|----------------------|----------------------|----------------------|
| RF | LO | IF | Typ. | Min. | Typ. Max. | Typ. Min. | Typ. Min. |
| 2960-3060 | 2780-2880 | 130-230 | 34 | 17 | 7.4 8.9 | 37 20 | 27 15 |

Typical Performance Data

| Frequency (MHz) | | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) | IP3 (dBm) |
|-----------------|---------|----------------------|--------------------|--------------------|-------------------|-------------------|-----------|
| RF | LO | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm |
| 2960.00 | 2780.00 | 7.50 | 38.58 | 31.14 | 1.89 | 2.64 | 36.07 |
| 2970.00 | 2790.00 | 7.46 | 38.53 | 31.27 | 1.89 | 2.50 | 36.21 |
| 2980.00 | 2800.00 | 7.39 | 38.51 | 31.36 | 1.92 | 2.51 | 35.72 |
| 2990.00 | 2810.00 | 7.35 | 38.24 | 31.40 | 1.97 | 2.59 | 35.37 |
| 3000.00 | 2820.00 | 7.35 | 38.02 | 31.45 | 2.03 | 2.62 | 35.57 |
| 3010.00 | 2830.00 | 7.36 | 37.94 | 31.51 | 2.09 | 2.55 | 35.47 |
| 3020.00 | 2840.00 | 7.38 | 38.04 | 31.60 | 2.12 | 2.42 | 34.92 |
| 3030.00 | 2850.00 | 7.42 | 38.15 | 31.66 | 2.14 | 2.29 | 34.91 |
| 3040.00 | 2860.00 | 7.43 | 38.17 | 31.70 | 2.16 | 2.23 | 34.79 |
| 3050.00 | 2870.00 | 7.44 | 38.19 | 31.66 | 2.17 | 2.28 | 34.93 |
| 3060.00 | 2880.00 | 7.45 | 38.48 | 31.62 | 2.19 | 2.45 | 35.20 |

Demo Board MCL P/N: TB-144 Suggested PCB Layout (PL-045)



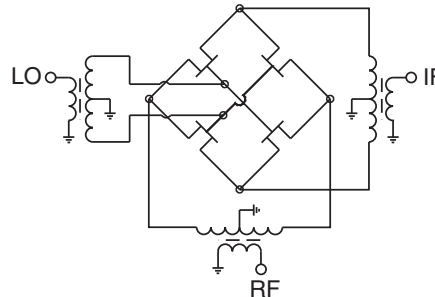
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

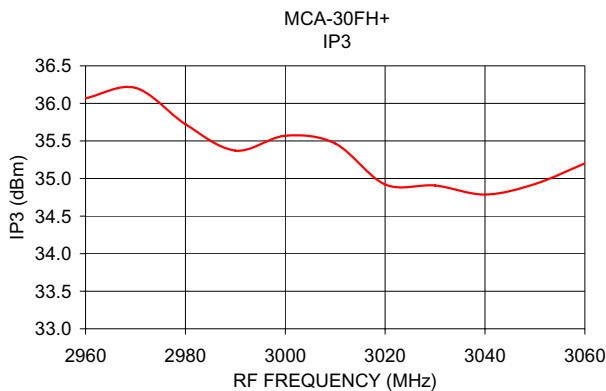
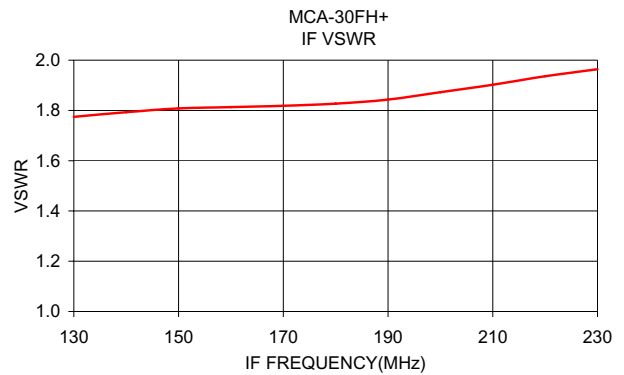
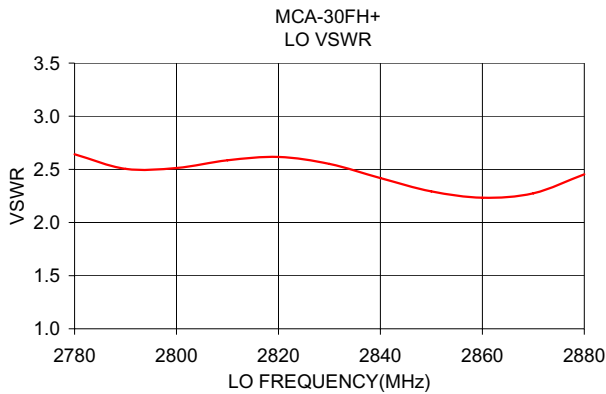
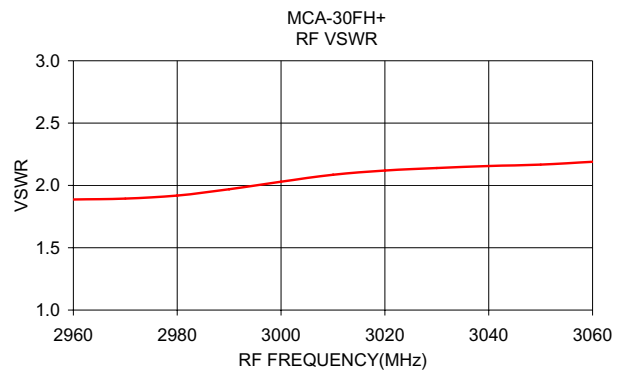
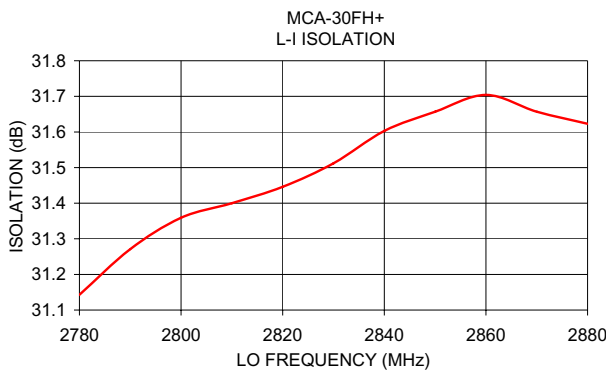
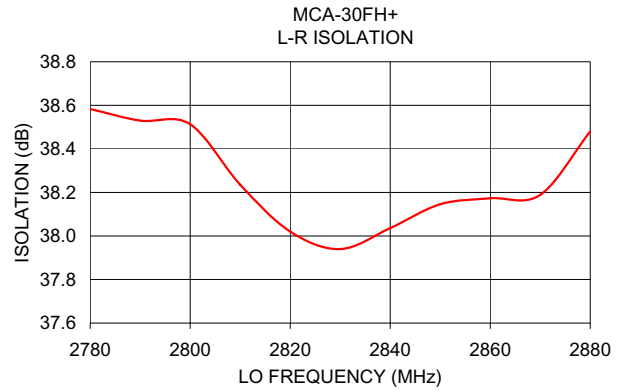
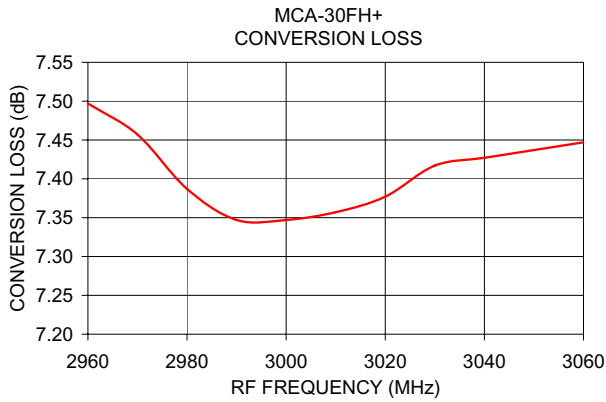
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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Electrical Schematic





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