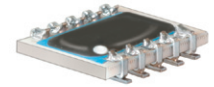


Surface Mount Frequency Mixer

MBA-15MH+ MBA-15MH

Level 13 (LO Power +13 dBm) 1400 to 2400 MHz



Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -40°C to 85°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 | 10 |
| RF | 5 |
| IF | 3 |
| GROUND | 1,2,4,6,7,8,9 |

Features

- excellent temperature stability
- excellent performance repeatability
- leads with strain relief
- very low cost
- ultra low height, 0.07"
- aqueous washable
- protected by US Patent 5,534,830

Applications

- PCN/PCS/wideband CDMA
- satellite communication
- GPS
- PCMCIA

CASE STYLE: SM2
PRICE: \$7.95 ea. QTY (10-49)

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

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

Electrical Specifications

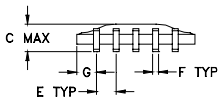
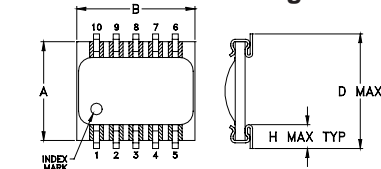
| FREQUENCY (MHz) | | CONVERSION LOSS (dB) | | | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 at center band (dBm) |
|-----------------|--------|----------------------|----------|------|----------------------|------|----------------------|------|--------------------------|
| LO/RF | IF | \bar{X} | σ | Max. | Typ. | Min. | Typ. | Min. | Typ. |
| 1400-2400 | DC-600 | 5.5 | 0.1 | 8.5 | 28 | 16 | 16 | 8 | 18 |

1 dB COMP.: +8 dBm typ.

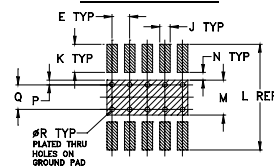
Typical Performance Data

| Frequency (MHz) | | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|-----------------|---------|----------------------|--------------------|--------------------|-------------------|-------------------|
| RF | LO | LO +13dBm | LO +13dBm | LO +13dBm | LO +13dBm | LO +13dBm |
| 1200.00 | 1230.00 | 6.70 | 34.90 | 14.30 | 3.38 | 3.44 |
| 1230.00 | 1260.00 | 6.82 | 35.70 | 14.20 | 3.11 | 3.64 |
| 1300.00 | 1330.00 | 5.98 | 35.10 | 15.10 | 2.61 | 3.06 |
| 1400.00 | 1430.00 | 5.29 | 34.50 | 15.80 | 2.30 | 2.96 |
| 1412.50 | 1442.50 | 5.36 | 35.00 | 15.40 | 2.23 | 2.92 |
| 1500.00 | 1530.00 | 5.40 | 34.40 | 16.20 | 1.96 | 2.68 |
| 1600.00 | 1630.00 | 5.37 | 34.30 | 17.60 | 1.67 | 2.35 |
| 1700.00 | 1730.00 | 5.54 | 32.90 | 19.30 | 1.52 | 1.84 |
| 1777.50 | 1807.50 | 5.65 | 32.00 | 20.10 | 1.38 | 1.85 |
| 1800.00 | 1830.00 | 5.44 | 31.80 | 20.50 | 1.35 | 1.60 |
| 1900.00 | 1930.00 | 5.62 | 30.00 | 21.20 | 1.19 | 1.50 |
| 1960.00 | 1990.00 | 5.52 | 29.30 | 21.30 | 1.13 | 1.63 |
| 2000.00 | 2030.00 | 5.58 | 28.80 | 21.10 | 1.12 | 1.55 |
| 2100.00 | 2130.00 | 5.73 | 26.10 | 20.10 | 1.15 | 1.57 |
| 2142.50 | 2172.50 | 5.74 | 25.60 | 19.80 | 1.16 | 1.54 |
| 2200.00 | 2230.00 | 6.02 | 25.00 | 19.10 | 1.20 | 1.61 |
| 2300.00 | 2330.00 | 6.33 | 25.30 | 18.00 | 1.48 | 1.66 |
| 2325.00 | 2355.00 | 6.35 | 25.40 | 17.50 | 1.55 | 1.61 |
| 2400.00 | 2430.00 | 6.71 | 25.00 | 16.70 | 1.73 | 1.64 |
| 2507.50 | 2537.50 | 6.61 | 24.20 | 15.20 | 1.91 | 1.60 |

Outline Drawing



PCB Land Pattern

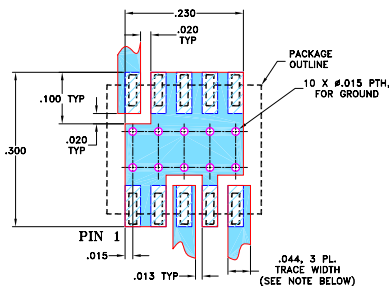


Suggested Layout,
Tolerance to be within ±.002
ADJACENT GROUND PINS SHALL BE CONNECTED TO EACH OTHER AND TO GROUND PAD

Outline Dimensions (inch/mm)

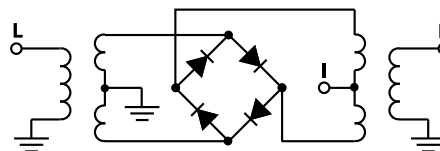
| A | B | C | D | E | F | G | H | |
|------|------|------|------|------|------|------|------|-------|
| .250 | .300 | .095 | .290 | .050 | .015 | .050 | .060 | |
| 6.35 | 7.62 | 2.41 | 7.37 | 1.27 | 0.38 | 1.27 | 1.52 | |
| J | K | L | M | N | P | Q | R | wt |
| .030 | .080 | .300 | .100 | .020 | .015 | .070 | .014 | grams |
| 0.76 | 2.03 | 7.62 | 2.54 | 0.51 | 0.38 | 1.78 | 0.36 | 0.3 |

Demo Board MCL P/N: TB-99 Suggested PCB Layout (PL-066)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015". 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

Electrical Schematic



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The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

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P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

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