

High IP3

Frequency Mixer WIDE BAND

MCA-35MH+

Level 13 (LO Power+13 dBm) 500 to 3500 MHz



CASE STYLE: DZ883
PRICE: \$7.95 ea. QTY.(10-49)

Maximum Ratings

| | |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 200 mW |
| IF Current | 40 mA |

Pin Connections

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

Features

- wide bandwidth, 500 to 3500 MHz
- excellent L-R isolation, 32 dB typ. (1800-2500 MHz)
- good matching 2:1 VSWR typ. (over 1800-2800 MHz)
- small size 0.25"x0.3"x0.2"
- aqueous washable
- triple balanced mixer
- protected by US Patent 6,917,796

Applications

- cellular
- PHS
- PCN
- WiMAX
- PDC
- DECT

+ 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.

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

| FREQUENCY (MHz) | | CONVERSION LOSS (dB) | | | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 at center band (dBm) |
|--------------------------------------|---------|----------------------|----------|------|----------------------|------|----------------------|------|--------------------------|
| LO/RF f _i -f _o | IF | \bar{X} | σ | Max. | Typ. | Min. | Typ. | Min. | Typ. |
| 500-3500 | 10-1500 | 6.9 | 0.1 | 8.7 | | | | | |
| 500-800 | 10-300 | 6.3 | 0.1 | 7.7 | 18 | 11 | 29 | 23 | 19 |
| 800-1000 | 10-200 | 6.5 | 0.1 | 7.7 | 24 | 17 | 28 | 20 | 22 |
| 1000-1800 | 10-800 | 6.6 | 0.1 | 8.7 | 29 | 20 | 28 | 20 | 20 |
| 1800-2000 | 10-200 | 6.3 | 0.1 | 7.7* | 32 | 25 | 29 | 23 | 19 |
| 1800-2500 | 10-700 | 5.8 | 0.1 | 7.9 | 32 | 22 | 27 | 20 | 19 |
| 2000-3500 | 10-1500 | 6.5 | 0.1 | 8.7 | 29 | 17 | 23 | 15 | 19 |

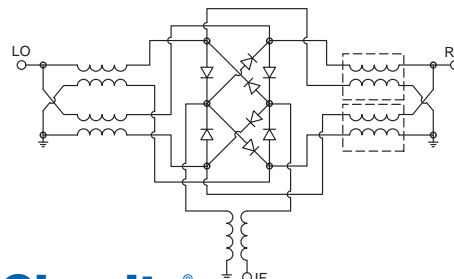
1 dB COMPR. +9 dBm typ.
*Conversion loss tested at 30 MHz IF

• see individual band specs

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 |
| 460.00 | 490.00 | 6.07 | 14.89 | 31.56 | 1.65 | 1.44 |
| 820.00 | 850.00 | 6.55 | 22.74 | 28.78 | 2.86 | 1.11 |
| 1000.00 | 1030.00 | 6.52 | 27.75 | 27.75 | 3.40 | 1.27 |
| 1400.00 | 1430.00 | 6.99 | 32.26 | 26.14 | 2.21 | 1.75 |
| 1800.00 | 1830.00 | 6.07 | 32.12 | 30.09 | 1.92 | 1.57 |
| 1992.00 | 2022.00 | 5.92 | 33.68 | 28.32 | 1.70 | 1.54 |
| 2097.00 | 2127.00 | 5.70 | 32.52 | 28.29 | 1.55 | 1.38 |
| 2202.00 | 2232.00 | 5.82 | 31.97 | 28.76 | 1.54 | 1.34 |
| 2395.00 | 2425.00 | 6.15 | 30.82 | 26.29 | 1.67 | 1.35 |
| 2500.00 | 2530.00 | 5.95 | 30.44 | 26.01 | 1.87 | 1.37 |
| 2600.00 | 2630.00 | 6.13 | 31.78 | 26.48 | 2.20 | 1.30 |
| 2700.00 | 2730.00 | 6.47 | 30.50 | 26.37 | 2.54 | 1.28 |
| 2800.00 | 2830.00 | 6.75 | 30.68 | 25.93 | 2.82 | 1.34 |
| 2900.00 | 2930.00 | 6.94 | 30.99 | 25.14 | 3.05 | 1.49 |
| 3000.00 | 3030.00 | 6.74 | 28.34 | 24.21 | 3.53 | 1.62 |
| 3100.00 | 3130.00 | 6.80 | 29.07 | 23.03 | 3.88 | 1.83 |
| 3200.00 | 3230.00 | 6.80 | 28.43 | 21.62 | 3.85 | 2.01 |
| 3300.00 | 3330.00 | 6.81 | 27.62 | 22.07 | 3.63 | 2.12 |
| 3400.00 | 3430.00 | 6.53 | 27.00 | 21.28 | 3.23 | 2.19 |
| 3500.00 | 3530.00 | 6.35 | 24.71 | 20.83 | 2.77 | 2.20 |

Electrical Schematic



For detailed performance specs & shopping online see web site

Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED

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

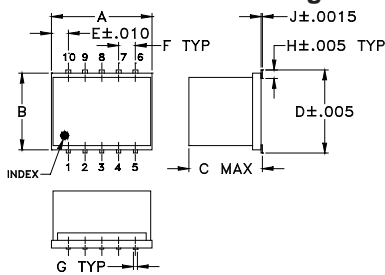
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IF/RF MICROWAVE COMPONENTS

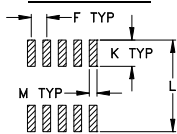
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Outline Drawing



PCB Land Pattern



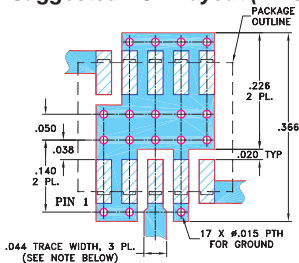
Suggested L layout,
Tolerance to be within ±0.02

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 |

Demo Board MCL P/N: TB-144

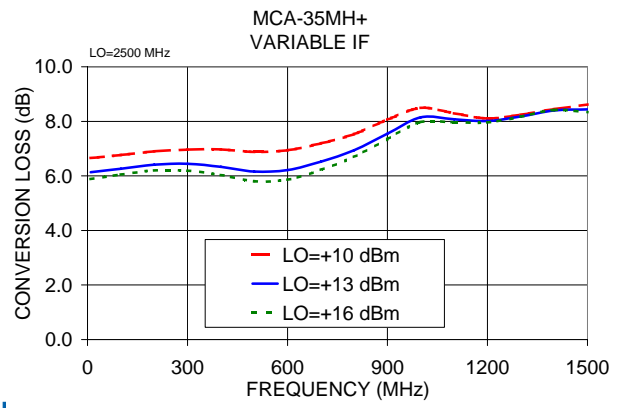
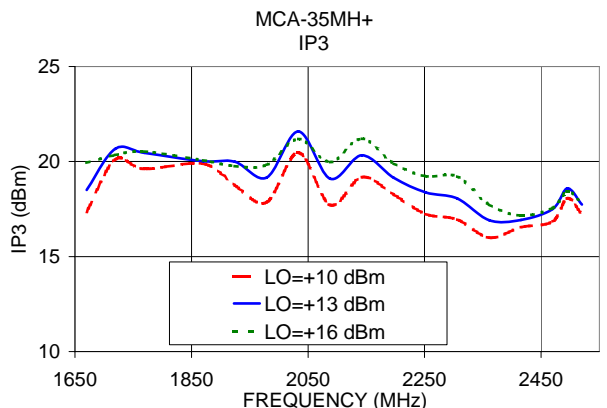
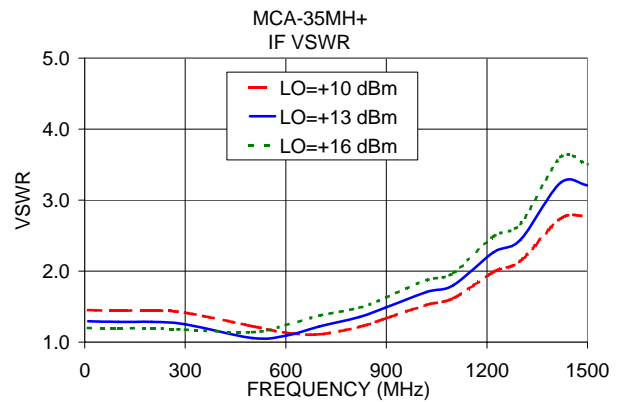
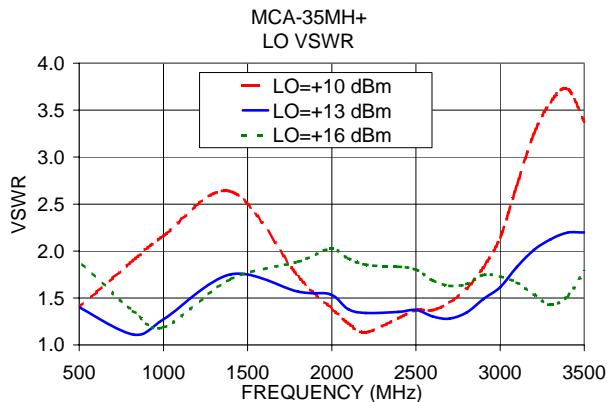
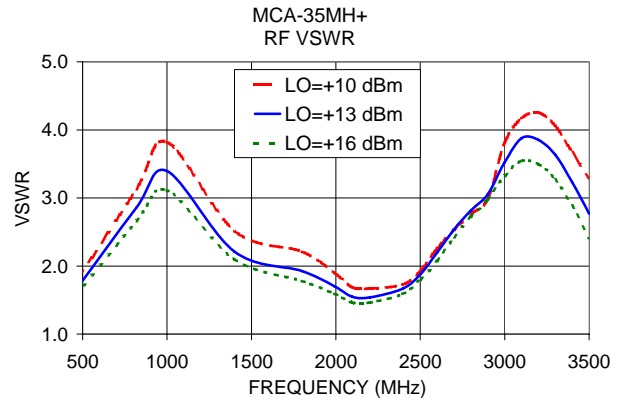
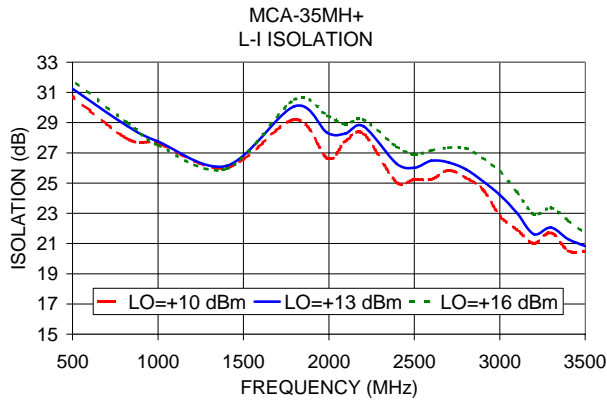
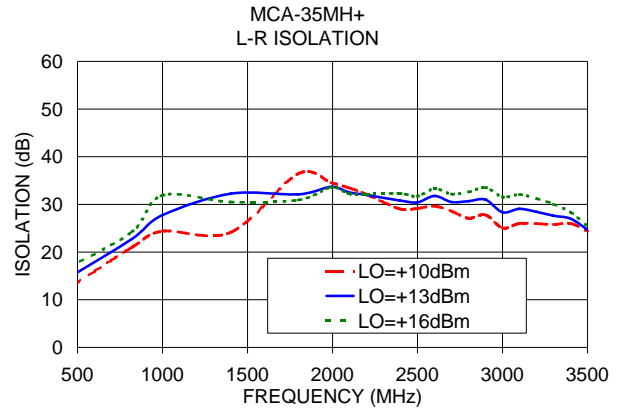
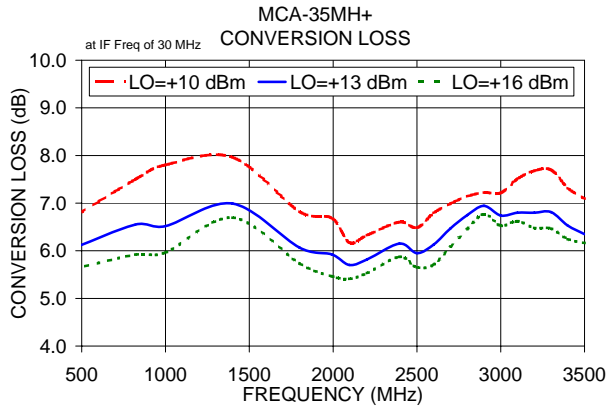
Suggested PCB Layout (PL-045)



- 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

Performance Charts

MCA-35MH+



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