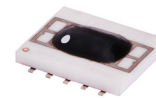


Frequency Mixer WIDE BAND

MCA1-85+

Level 7 (LO Power+7 dBm) 2800 to 8500 MHz



Generic photo used for illustration purposes only

CASE STYLE: DZ885

Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50 mW |
| IF Current | 40 mA |
| 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

- wide bandwidth, 2800 to 8500 MHz
- low conversion loss, 5.6 dB typ.
- high L-R isolation, 35 dB typ.
- IF, DC to 1250 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7,027,795

Recommended Replacement:

MAC-85+

- Footprint Compatible
- MIL Level Reliability

[Click here for data sheet](#)

+RoHS Compliant

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

| Reel Size | Available Tape and Reel at no extra cost |
|-----------|--|
| 7" | 10, 20, 50, 100, 200 |
| 13" | 500, 1000 |

Applications

- satellite up and down converters
- line of sight links
- defense radar
- defense communication

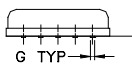
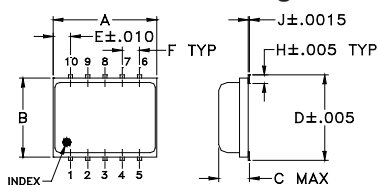
Electrical Specifications (T_{AMB} = -55°C to 100°C)

| FREQUENCY (MHz) | CONVERSION LOSS (dB) | | | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 at center band (dBm) |
|-----------------|--------------------------------------|----|-------------------------|----------------------|------|----------------------|------|--------------------------|
| | LO/RF f _c -f _u | IF | \bar{X} σ Max. | Typ. | Min. | Typ. | Min. | |
| 2800-8500 | DC-1250 | | 5.5 0.2 8.1* | 40 | 20 | 13 | 9 | 13 |
| 2800-5000 | DC-1250 | | | | | | | |
| 5000-8500 | DC-1250 | | 5.7 0.2 8.2* | 35 | 20 | 40 | 20 | 8 |

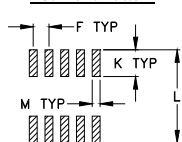
1 dB COMPR. 1 dBm typ.

* Conversion loss at 30 MHz IF, increases with IF frequency.

Outline Drawing



PCB Land Pattern

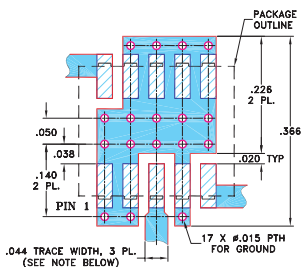


Suggested Layout, Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| | | | | | | | |
|------|------|------|------|------|------|------|-------|
| A | B | C | D | E | F | G | |
| .30 | .250 | .085 | .266 | .050 | .050 | .012 | |
| 7.62 | 6.35 | 2.16 | 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 | | | 0.25 |

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

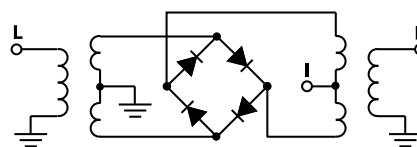
Notes

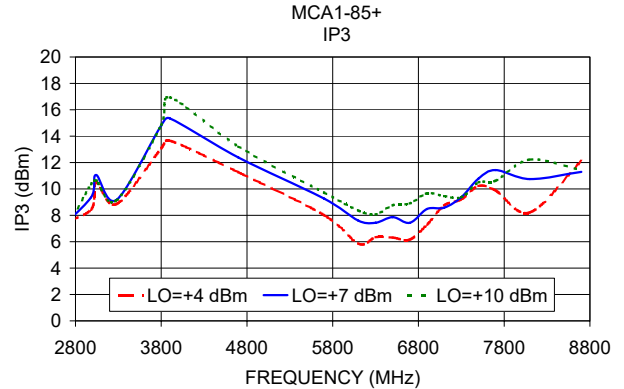
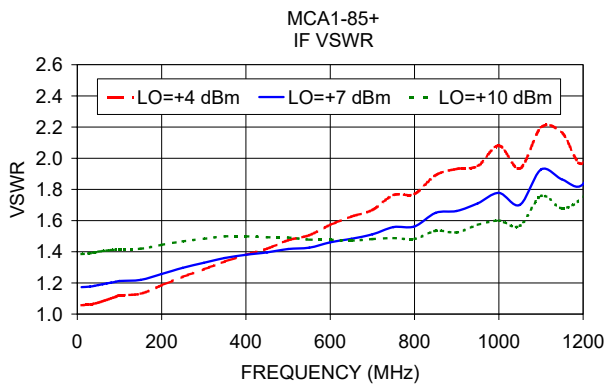
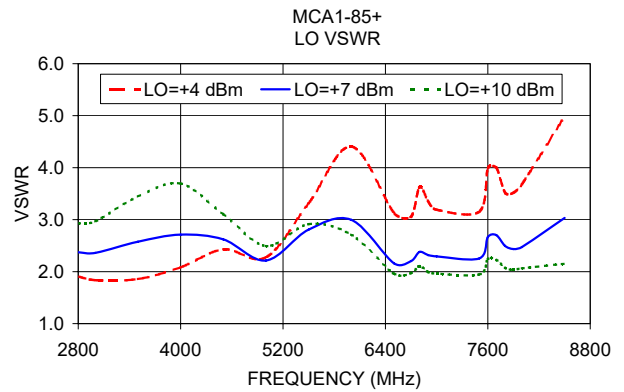
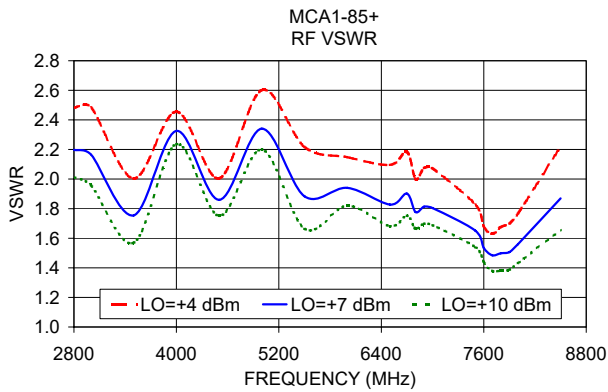
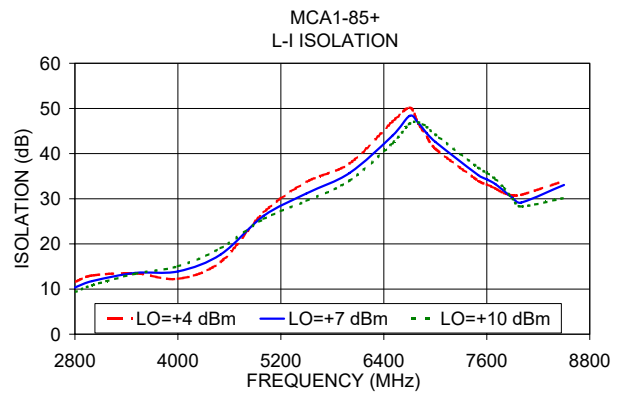
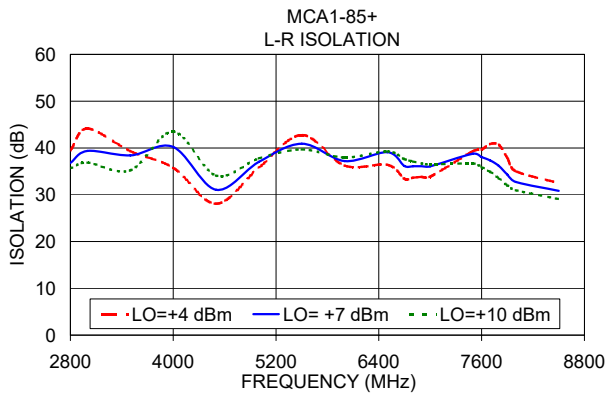
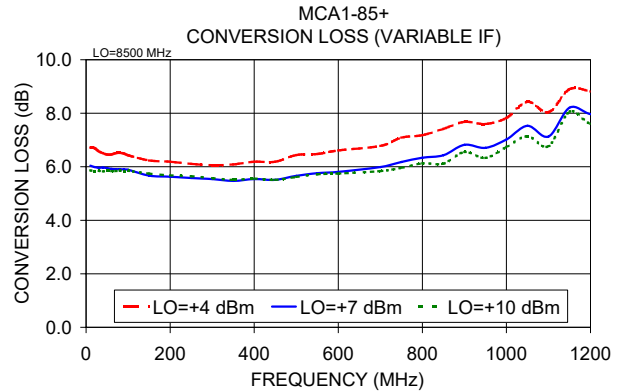
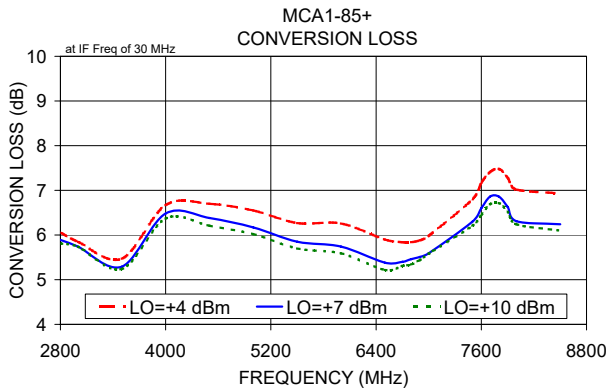
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Typical Performance Data

| Frequency (MHz) | Conversion Loss (dB) | | Isolation L-R (dB) | | Isolation L-I (dB) | | VSWR RF Port (:1) | | VSWR LO Port (:1) | |
|-----------------|----------------------|------|--------------------|-------|--------------------|------|-------------------|----|-------------------|----|
| | LO | IF | LO | LO | LO | LO | LO | LO | LO | LO |
| 2800.10 | 2770.10 | 5.89 | 36.81 | 10.35 | 2.20 | 2.37 | | | | |
| 3000.10 | 2970.10 | 5.74 | 39.38 | 11.75 | 2.17 | 2.36 | | | | |
| 3500.10 | 3470.10 | 5.29 | 38.41 | 13.58 | 1.75 | 2.57 | | | | |
| 4000.10 | 3970.10 | 6.48 | 40.21 | 13.89 | 2.33 | 2.71 | | | | |
| 4500.10 | 4470.10 | 6.38 | 31.07 | 17.67 | 1.86 | 2.62 | | | | |
| 5000.10 | 4970.10 | 6.17 | 37.03 | 26.23 | 2.34 | 2.21 | | | | |
| 5500.10 | 5470.10 | 5.85 | 40.91 | 31.19 | 1.88 | 2.81 | | | | |
| 6000.10 | 5970.10 | 5.74 | 37.20 | 35.68 | 1.94 | 3.00 | | | | |
| 6500.10 | 6470.10 | 5.38 | 39.09 | 43.95 | 1.83 | 2.16 | | | | |
| 6700.10 | 6670.10 | 5.40 | 36.15 | 48.35 | 1.90 | 2.20 | | | | |
| 6800.10 | 6770.10 | 5.46 | 36.09 | 46.81 | 1.78 | 2.38 | | | | |
| 6900.10 | 6870.10 | 5.51 | 36.10 | 44.52 | 1.81 | 2.32 | | | | |
| 7000.10 | 6970.10 | 5.59 | 36.07 | 42.59 | 1.80 | 2.29 | | | | |
| 7500.10 | 7470.10 | 6.30 | 38.79 | 35.25 | 1.65 | 2.25 | | | | |
| 7600.10 | 7570.10 | 6.60 | 38.05 | 34.31 | 1.53 | 2.67 | | | | |
| 7700.10 | 7670.10 | 6.86 | 37.33 | 33.25 | 1.48 | 2.70 | | | | |
| 7800.10 | 7770.10 | 6.86 | 36.19 | 31.74 | 1.50 | 2.50 | | | | |
| 7900.10 | 7870.10 | 6.63 | 34.32 | 30.19 | 1.51 | 2.44 | | | | |
| 8000.10 | 7970.10 | 6.31 | 32.74 | 29.14 | 1.56 | 2.47 | | | | |
| 8500.10 | 8470.10 | 6.24 | 30.84 | 33.04 | 1.87 | 3.03 | | | | |

Electrical Schematic





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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

