

Ceramic

# Frequency Mixer WIDE BAND

MCA1T-60LH+

Level 10 (LO Power+10 dBm) 1700 to 6000 MHz

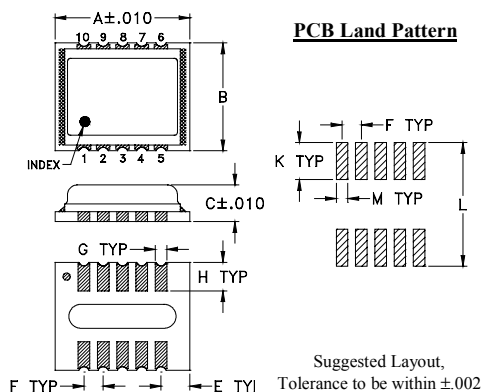
## Maximum Ratings

|                                                                 |               |
|-----------------------------------------------------------------|---------------|
| Operating Temperature                                           | -40°C to 85°C |
| Storage Temperature                                             | -40°C to 85°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 |

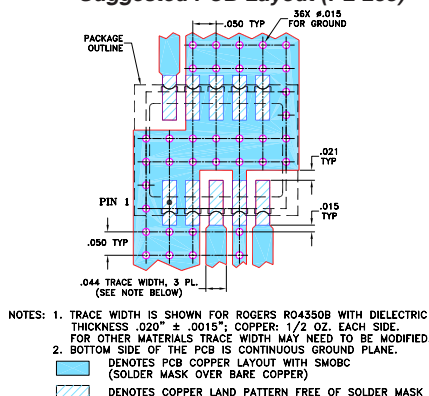
## Outline Drawing



## Outline Dimensions (inch)

| A    | B    | C    | E    | F     | G    |
|------|------|------|------|-------|------|
| .350 | .280 | .095 | .075 | .050  | .030 |
| 8.89 | 7.11 | 2.41 | 1.91 | 1.27  | 0.76 |
| H    | K    | L    | M    | wt    |      |
| .074 | .096 | .321 | .030 | grams |      |
| 1.88 | 2.44 | 8.15 | 0.76 | 0.21  |      |

## Demo Board MCL P/N: TB-493+ Suggested PCB Layout (PL-288)



### 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-Circuits' applicable established test performance criteria and measurement instructions.
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## Features

- wide bandwidth, 1700 to 6000 MHz
- useable to 8000 MHz
- low conversion loss, 6.2 dB typ.
- IF, DC to 2000 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.095"
- protected by US Patent 7,027,795 & 8,749,989

## Applications

- PCN
- defense & weather radar
- WCDMA
- defense communications

## Electrical Specifications (T<sub>AMB</sub>=-40°C to 85°C)

| FREQUENCY (MHz)                         |         | CONVERSION LOSS (dB) |          |      | LO-RF ISOLATION (dB) |      | LO-IF ISOLATION (dB) |      | IP3 at center band (dBm) |
|-----------------------------------------|---------|----------------------|----------|------|----------------------|------|----------------------|------|--------------------------|
| LO/RF<br>f <sub>L</sub> -f <sub>U</sub> | IF      | $\bar{X}$            | $\sigma$ | Max. | Typ.                 | Min. | Typ.                 | Min. | Typ.                     |
| 1700-4400                               | DC-2000 | 6.6                  | 0.1      | 7.9* | 35                   | 23   | 17                   | —    | 13                       |
| 4400-6000                               | DC-2000 | 6.0                  | 0.1      | 8.3* | 27                   | 20   | 21                   | —    | 11                       |

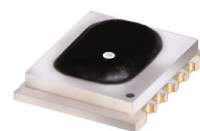
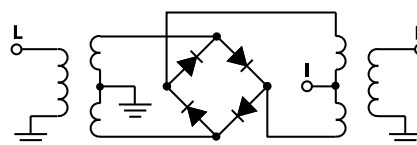
1 dB COMPR. +5 dBm typ.

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

## 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 +10dBm            | LO +10dBm          | LO +10dBm          | LO +10dBm         | LO +10dBm         |
| 1700.00         | 1730.00 | 6.12                 | 31.11              | 17.21              | 2.04              | 3.80              |
| 1900.00         | 1930.00 | 5.58                 | 41.49              | 18.61              | 2.25              | 2.23              |
| 2100.00         | 2130.00 | 5.56                 | 36.04              | 17.55              | 2.45              | 1.85              |
| 2500.00         | 2530.00 | 5.57                 | 34.25              | 17.48              | 2.19              | 1.72              |
| 2700.00         | 2730.00 | 5.54                 | 36.00              | 18.36              | 2.22              | 1.90              |
| 2900.00         | 2930.00 | 5.92                 | 40.21              | 18.81              | 3.68              | 2.18              |
| 3100.00         | 3130.00 | 6.80                 | 36.38              | 18.44              | 5.02              | 2.63              |
| 3300.00         | 3330.00 | 6.75                 | 35.64              | 17.41              | 3.64              | 2.73              |
| 3500.00         | 3530.00 | 6.51                 | 34.52              | 14.61              | 4.06              | 3.26              |
| 3700.00         | 3730.00 | 6.81                 | 34.43              | 12.04              | 3.26              | 3.62              |
| 3900.00         | 3930.00 | 6.24                 | 35.17              | 14.87              | 2.71              | 3.93              |
| 4100.00         | 4130.00 | 6.49                 | 37.36              | 15.93              | 2.04              | 2.62              |
| 4300.00         | 4330.00 | 6.05                 | 37.95              | 18.73              | 1.83              | 2.45              |
| 4500.00         | 4530.00 | 5.97                 | 34.27              | 19.90              | 1.93              | 2.66              |
| 4700.00         | 4730.00 | 5.76                 | 32.31              | 21.16              | 1.47              | 2.76              |
| 4900.00         | 4930.00 | 6.58                 | 34.11              | 22.13              | 2.70              | 1.96              |
| 5100.00         | 5130.00 | 5.50                 | 29.13              | 22.12              | 1.90              | 1.35              |
| 5300.00         | 5330.00 | 5.92                 | 27.47              | 22.67              | 2.24              | 1.37              |
| 5700.00         | 5730.00 | 5.76                 | 26.99              | 17.82              | 1.75              | 2.61              |
| 6000.00         | 6030.00 | 6.73                 | 26.82              | 11.81              | 2.14              | 6.10              |

## Electrical Schematic



CASE STYLE: DZ885-2

PRICE: \$6.95 ea. QTY (10-49)

### +RoHS Compliant

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

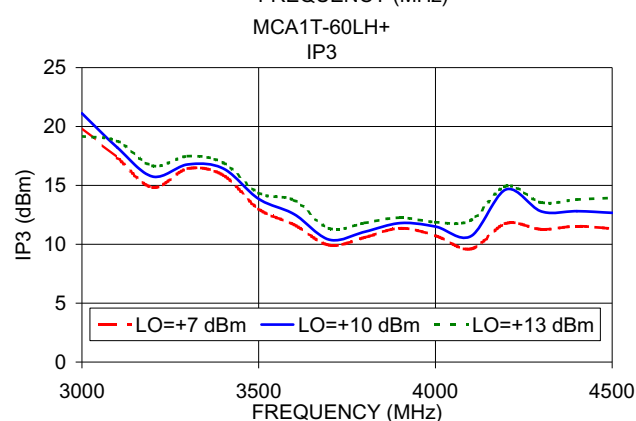
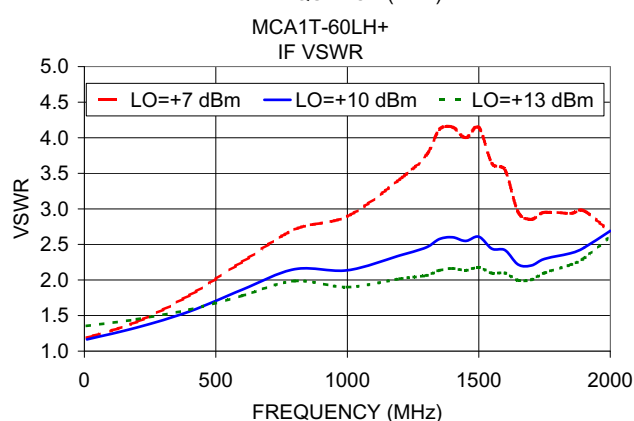
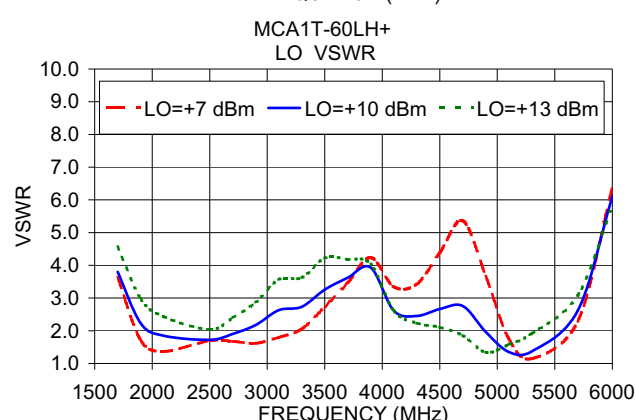
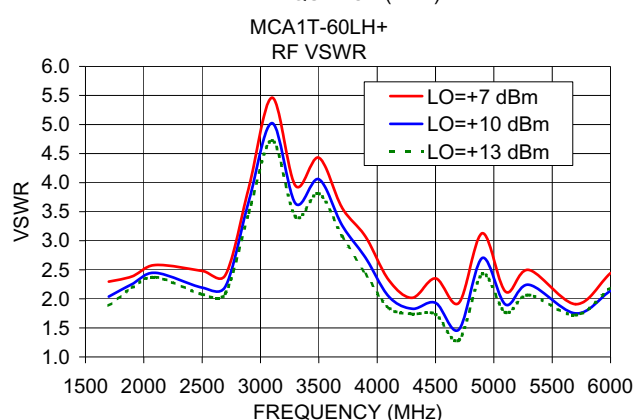
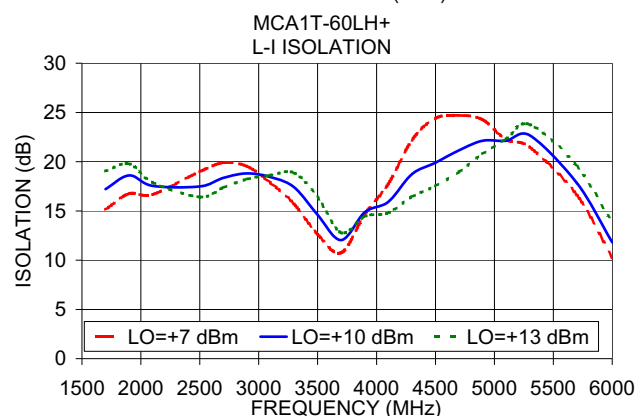
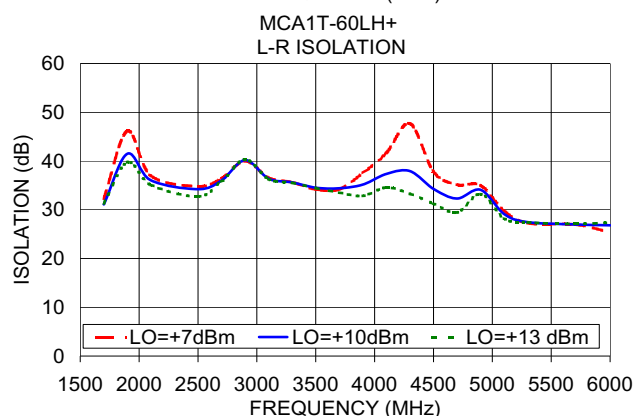
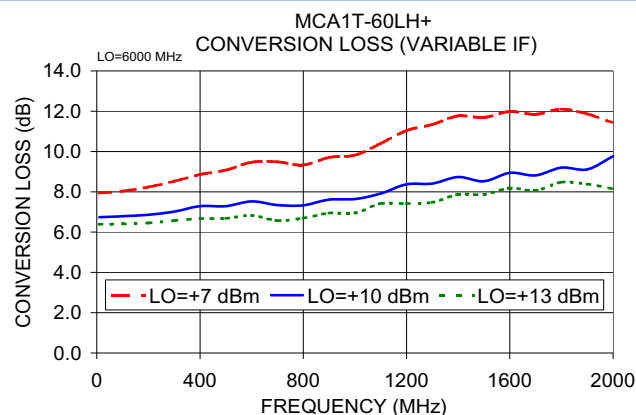
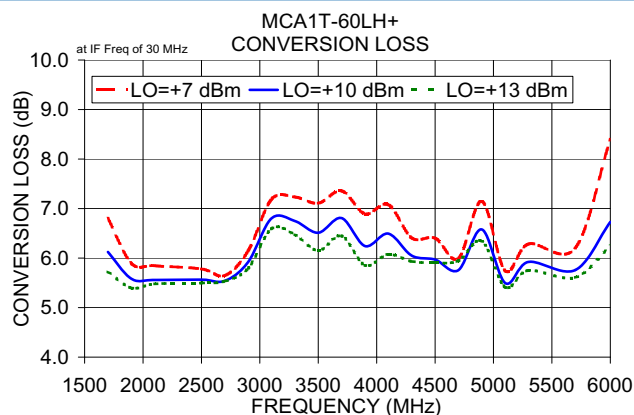


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140626

# Performance Charts

# MCA1T-60LH+



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