

# Surface Mount Frequency Mixer

## ADE-12MH+ ADE-12MH

Level 13 (LO Power +13 dBm) 10 to 1200 MHz



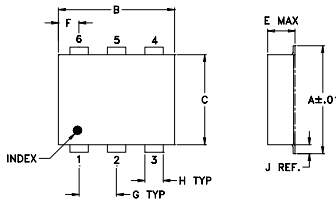
### Maximum Ratings

|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Power              | 200mW          |
| IF Current            | 40mA           |

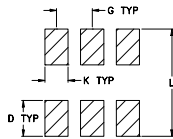
### Pin Connections

|        |       |
|--------|-------|
| LO     | 6     |
| RF     | 3     |
| IF     | 2     |
| GROUND | 1,4,5 |

### Outline Drawing



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

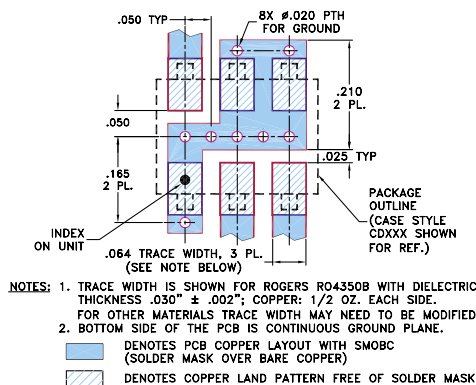
### Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E    | F    | G    |
|------|------|------|------|------|------|------|
| .272 | .310 | .220 | .100 | .112 | .055 | .100 |
| 6.91 | 7.87 | 5.59 | 2.54 | 2.84 | 1.40 | 2.54 |

| H    | J    | K    | L    | wt    |
|------|------|------|------|-------|
| .030 | .026 | .065 | .300 | grams |
| 0.76 | 0.66 | 1.65 | 7.62 | 0.20  |

### Demo Board MCL P/N: TB-03 Suggested PCB Layout (PL-052)



### Features

- low conversion loss, 6.3 dB typ.
- good L-R isolation, 45 dB typ.; L-I isolation, 42 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

### Applications

- cellular
- VHF/UHF receivers

CASE STYLE: CD542

PRICE: \$6.45 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) |    |    |    |    |    |    |    |    |    |    |
|-----------------|----------------------|----------------------|------|-----|----------------------|----|----|--------------------------|----|----|----|----|----|----|----|----|----|----|
|                 |                      | L                    | M    | U   | L                    | M  | U  |                          |    |    |    |    |    |    |    |    |    |    |
| 10-1200         | DC-1200              | 6.3                  | 0.10 | 8.0 | 8.5                  | 62 | 45 | 45                       | 32 | 40 | 26 | 68 | 40 | 42 | 27 | 30 | 20 | 22 |

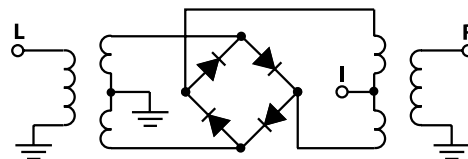
1 dB COMP.: +9 dBm typ.

L = low range [ $f_L$  to  $10 f_L$ ] M = mid range [ $10 f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]  
 m = mid band [ $2f_L$  to  $f_U/2$ ]

### 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         |
| 10.00           | 40.00   | 6.42                 | 66.67              | 60.68              | 1.54              | 1.59              |
| 15.00           | 45.00   | 6.45                 | 65.33              | 59.84              | 1.52              | 1.59              |
| 20.00           | 50.00   | 6.41                 | 64.50              | 59.34              | 1.54              | 1.56              |
| 40.00           | 70.00   | 6.40                 | 62.00              | 56.67              | 1.55              | 1.52              |
| 70.00           | 100.00  | 6.50                 | 58.50              | 54.67              | 1.52              | 1.46              |
| 105.74          | 135.74  | 6.48                 | 56.16              | 53.17              | 1.54              | 1.48              |
| 150.00          | 180.00  | 6.56                 | 53.49              | 52.50              | 1.56              | 1.50              |
| 210.97          | 240.97  | 6.44                 | 51.17              | 55.51              | 1.56              | 1.50              |
| 316.21          | 346.21  | 6.49                 | 48.50              | 49.00              | 1.61              | 1.50              |
| 421.45          | 451.45  | 6.61                 | 47.17              | 44.16              | 1.62              | 1.49              |
| 526.68          | 556.68  | 6.63                 | 45.33              | 39.67              | 1.65              | 1.51              |
| 570.00          | 600.00  | 6.78                 | 44.67              | 38.33              | 1.74              | 1.56              |
| 600.00          | 630.00  | 6.77                 | 44.67              | 38.01              | 1.73              | 1.54              |
| 737.16          | 767.16  | 7.05                 | 45.33              | 37.17              | 1.77              | 1.49              |
| 842.40          | 872.40  | 7.74                 | 43.17              | 35.66              | 1.95              | 1.46              |
| 947.63          | 977.63  | 6.98                 | 40.83              | 32.34              | 2.07              | 1.45              |
| 1000.00         | 1030.00 | 6.54                 | 40.33              | 30.99              | 2.10              | 1.36              |
| 1052.87         | 1082.87 | 6.37                 | 39.50              | 29.83              | 2.13              | 1.28              |
| 1170.00         | 1200.00 | 6.60                 | 37.67              | 29.34              | 2.28              | 1.12              |
| 1200.00         | 1230.00 | 6.70                 | 37.00              | 29.34              | 2.41              | 1.09              |

### Electrical Schematic



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RF/IF MICROWAVE COMPONENTS

REV. D  
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ED-7607/1  
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# Performance Charts

# ADE-12MH+ ADE-12MH

