

# High IP3 Frequency Mixer

Level 17 (LO Power +17 dBm) 20 to 750 MHz

## ADE-751H+



Generic photo used for illustration purposes only

CASE STYLE: CD541

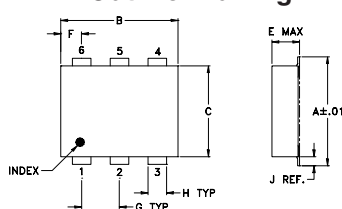
### Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| 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. |                |

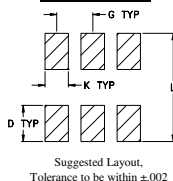
### Pin Connections

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

### Outline Drawing



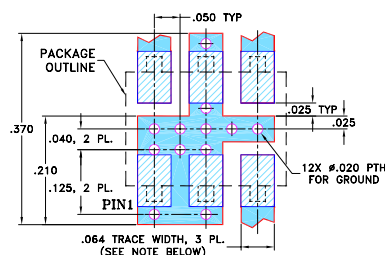
#### PCB Land Pattern



### Outline Dimensions (inch)

|      |      |      |      |      |      |       |
|------|------|------|------|------|------|-------|
| A    | B    | C    | D    | E    | F    | G     |
| .272 | .310 | .220 | .100 | .082 | .055 | .100  |
| 6.91 | 7.87 | 5.59 | 2.54 | 2.08 | 1.40 | 2.54  |
| H    | J    | K    | L    |      |      | wt    |
| .030 | .026 | .065 | .300 |      |      | grams |
| 0.76 | 0.66 | 1.65 | 7.62 |      |      | 0.15  |

### Demo Board MCL P/N: TB-02+ Suggested PCB Layout (PL-051)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; 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.  
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### Features

- high IP3, 27 dBm typ.
- low conversion loss, 6.5 dB typ.
- good L-R isolation, 42 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

### Applications

- cellular

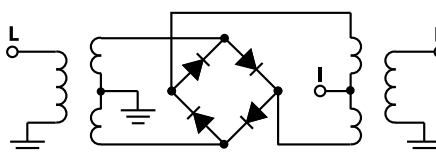
### Electrical Specifications at 25°C

| Parameter                          | Min. | Typ. | Max. | Unit |
|------------------------------------|------|------|------|------|
| Frequency Range, RF                | 20   | —    | 750  | MHz  |
| Frequency Range, LO                | 50   | —    | 780  | MHz  |
| Frequency Range, IF                | DC   | —    | 250  | MHz  |
| Conversion Loss                    | —    | 6.5  | 8.0  | dB   |
| LO to RF Isolation                 | 28   | 42   | —    | dB   |
| LO to IF Isolation                 | 27   | 40   | —    | dB   |
| IP3                                | —    | 27   | —    | dBm  |
| RF Input Power at 1 dB Compression | —    | +9   | —    | dBm  |

### Typical Performance Data

| Frequency (MHz) |        | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) | IP3 (dBm) |
|-----------------|--------|----------------------|--------------------|--------------------|-------------------|-------------------|-----------|
| RF              | LO     | LO +17dBm            | LO +17dBm          | LO +17dBm          | LO +17dBm         | LO +17dBm         | LO +17dBm |
| 20.10           | 50.10  | 6.55                 | 62.00              | 64.65              | 1.24              | 2.86              | 28.64     |
| 50.10           | 80.10  | 6.51                 | 57.54              | 61.04              | 1.22              | 2.96              | 40.05     |
| 100.10          | 130.10 | 6.51                 | 53.50              | 58.09              | 1.21              | 2.77              | 38.21     |
| 150.10          | 180.10 | 6.50                 | 50.42              | 54.59              | 1.21              | 2.83              | 32.38     |
| 200.10          | 230.10 | 6.45                 | 48.87              | 52.36              | 1.21              | 2.67              | 30.83     |
| 250.10          | 280.10 | 6.37                 | 47.00              | 49.43              | 1.20              | 2.81              | 30.69     |
| 300.10          | 330.10 | 6.30                 | 46.10              | 48.17              | 1.20              | 2.69              | 29.85     |
| 350.10          | 380.10 | 6.31                 | 44.73              | 45.32              | 1.19              | 2.81              | 28.17     |
| 400.10          | 430.10 | 6.21                 | 44.09              | 45.53              | 1.19              | 2.68              | 27.83     |
| 450.10          | 480.10 | 6.14                 | 43.50              | 42.41              | 1.18              | 2.83              | 28.33     |
| 500.10          | 530.10 | 6.20                 | 42.96              | 42.40              | 1.21              | 2.70              | 34.04     |
| 550.10          | 580.10 | 6.05                 | 42.26              | 41.46              | 1.16              | 2.78              | 27.56     |
| 600.10          | 630.10 | 6.06                 | 42.54              | 39.50              | 1.14              | 2.76              | 24.27     |
| 650.10          | 680.10 | 6.11                 | 42.37              | 37.81              | 1.14              | 2.98              | 27.81     |
| 700.10          | 730.10 | 6.18                 | 42.01              | 37.68              | 1.14              | 2.93              | 29.20     |
| 710.10          | 740.10 | 6.14                 | 41.83              | 37.47              | 1.12              | 2.96              | 28.44     |
| 720.10          | 750.10 | 6.12                 | 41.70              | 37.39              | 1.11              | 2.97              | 27.37     |
| 730.10          | 760.10 | 6.14                 | 41.50              | 37.25              | 1.11              | 2.97              | 26.07     |
| 740.10          | 770.10 | 6.13                 | 41.19              | 37.16              | 1.11              | 2.99              | 25.24     |
| 750.10          | 780.10 | 6.10                 | 40.97              | 37.19              | 1.10              | 2.97              | 24.34     |

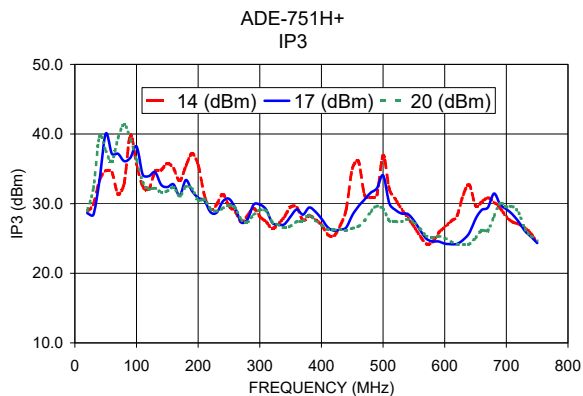
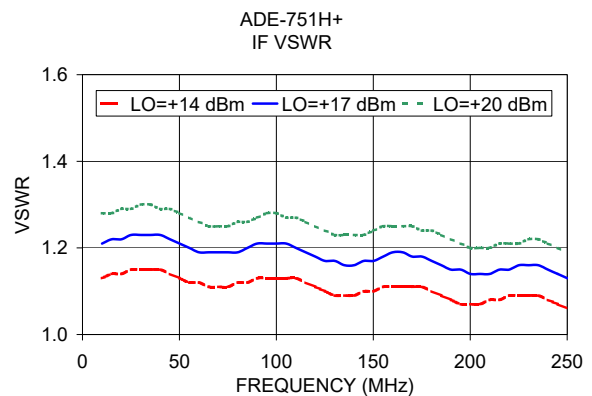
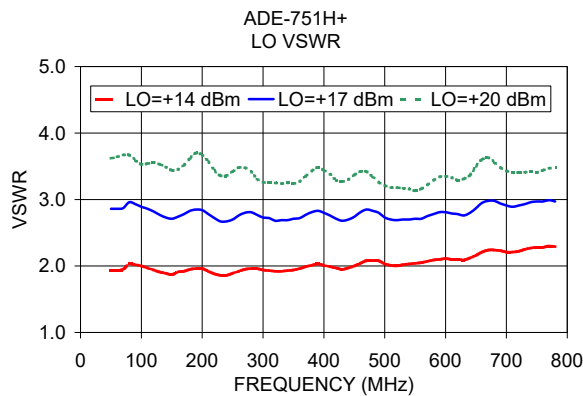
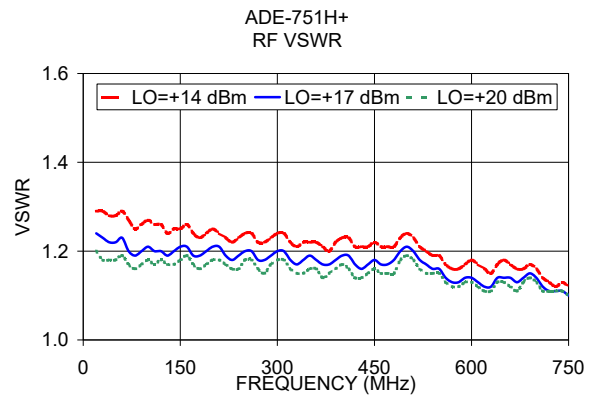
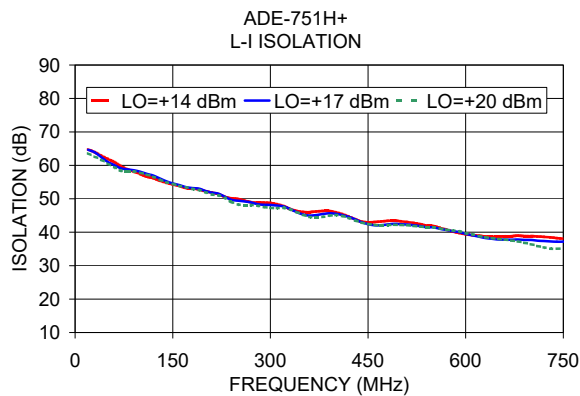
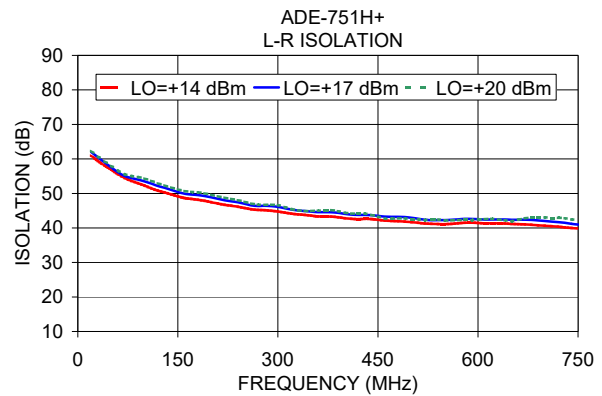
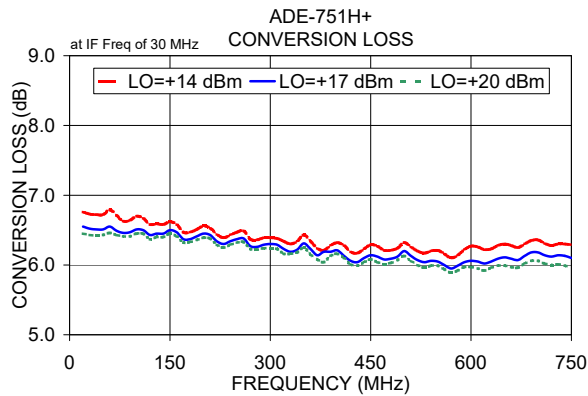
### Electrical Schematic



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