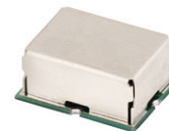


Up Converter Frequency Mixer

HJK-U151H+

Level 17 (LO Power +17 dBm) 10 to 280 MHz



Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -20°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| LO Power | +19 dBm |
| IF Power | +19 dBm |
| Permanent damage may occur if any of these limits are exceeded. | |

Pin Connections

| | |
|----------|-------|
| LO | 2 |
| IF (IN) | 3 |
| RF (OUT) | 1 |
| GROUND | 4,5,6 |

Features

- up converter mixer
- high IP3, 28 dBm typ.
- excellent L-R isolation, 55 dB typ;
L-I isolation, 40 dB typ.
- protected by US Patent 6,807,407

Applications

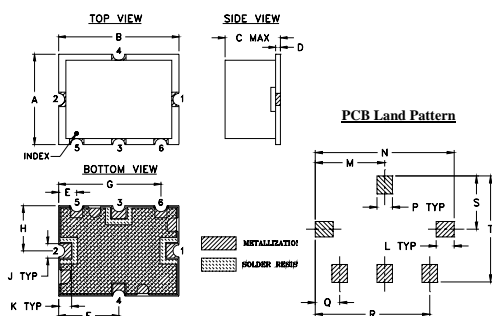
- mobile satellite
- differential GPS
- amateur radio
- aeronautical communications

CASE STYLE: TTT881
PRICE: \$11.95 ea. QTY. (1-9)

+ 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.

Outline Drawing

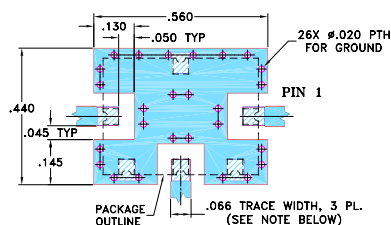


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch)

| A | B | C | D | E | F | G | H | J | K |
|------|-------|-------|------|------|-------|-------|-------|-------|------|
| .38 | .50 | .23 | .020 | .075 | .250 | .425 | .187 | .050 | .050 |
| 9.65 | 12.70 | 5.84 | 0.51 | 1.91 | 6.35 | 10.80 | 4.75 | 1.27 | 1.27 |
| L | M | N | P | Q | R | S | T | wt. | |
| .070 | .270 | .540 | .060 | .095 | .445 | .208 | .415 | grams | |
| 1.78 | 6.86 | 13.72 | 1.52 | 2.41 | 11.30 | 5.28 | 10.54 | 0.8 | |

Demo Board MCL P/N: TB-12 Suggested PCB Layout (PL-079)



- NOTE: 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. GROUND PAD SHALL BE FREE OF SOLDER MASK IF REQUIRED FOR SOLDERING.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER), SEE NOTE 2.
 - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications

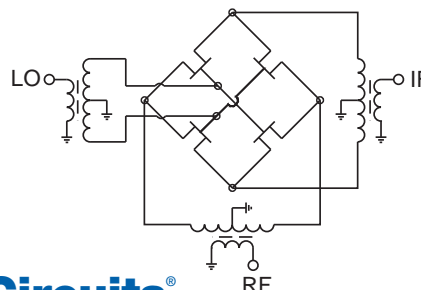
| FREQUENCY (MHz) | | | CONVERSION LOSS (dB) | | | LO-IF (IN) ISOLATION (dB) | | LO-RF (OUT) ISOLATION (dB) | | IP3 at center band (dBm) |
|-----------------|---------|----------|----------------------|-----|------|---------------------------|------|----------------------------|------|--------------------------|
| IF (IN) | LO | RF (OUT) | Typ. | σ* | Max. | Typ. | Min. | Typ. | Min. | Typ. |
| 10-130 | 140-280 | 70-150 | 7.6 | 0.1 | 9.2 | 40 | 30 | 55 | 48 | 28 |

1 dB COMPR. +17 dBm typ.
* σ is a standard deviation

Typical Performance Data

| Frequency (MHz) | | | Conversion Loss (dB) | Isolation L-I (dB) | Isolation L-R (dB) | VSWR LO Port (:1) | IP3 (dBm) | Freq. (MHz) | VSWR RF (OUT) Port (:1) |
|-----------------|--------|----------|----------------------|--------------------|--------------------|-------------------|-----------|-------------|-------------------------|
| IF (IN) | LO | RF (OUT) | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm |
| 10.10 | 140.10 | 130.00 | 7.72 | 42.54 | 55.17 | 2.34 | 30.47 | 70.00 | 1.98 |
| 15.10 | 146.10 | 131.00 | 7.67 | 42.45 | 54.87 | 2.32 | 30.11 | 74.00 | 1.97 |
| 20.10 | 152.10 | 132.00 | 7.65 | 42.26 | 54.66 | 2.31 | 29.50 | 78.00 | 1.96 |
| 25.10 | 158.10 | 133.00 | 7.65 | 41.96 | 54.39 | 2.31 | 29.62 | 82.00 | 1.95 |
| 30.10 | 164.10 | 134.00 | 7.67 | 41.63 | 54.02 | 2.32 | 31.07 | 86.00 | 1.95 |
| 35.10 | 170.10 | 135.00 | 7.72 | 41.21 | 53.70 | 2.34 | 32.74 | 90.00 | 1.94 |
| 40.10 | 176.10 | 136.00 | 7.75 | 40.74 | 53.58 | 2.37 | 31.71 | 94.00 | 1.94 |
| 45.10 | 182.10 | 137.00 | 7.79 | 40.29 | 53.70 | 2.41 | 29.81 | 98.00 | 1.93 |
| 50.10 | 188.10 | 138.00 | 7.80 | 39.99 | 53.96 | 2.46 | 27.61 | 102.00 | 1.92 |
| 55.10 | 194.10 | 139.00 | 7.80 | 39.90 | 54.05 | 2.52 | 26.14 | 106.00 | 1.92 |
| 60.10 | 200.10 | 140.00 | 7.80 | 40.10 | 53.73 | 2.59 | 28.38 | 110.00 | 1.91 |
| 65.10 | 206.10 | 141.00 | 7.79 | 40.43 | 53.15 | 2.67 | 28.84 | 114.00 | 1.91 |
| 70.10 | 212.10 | 142.00 | 7.75 | 40.61 | 52.79 | 2.76 | 29.95 | 118.00 | 1.91 |
| 80.10 | 224.10 | 144.00 | 7.72 | 40.76 | 52.57 | 2.91 | 28.32 | 126.00 | 1.90 |
| 85.10 | 230.10 | 145.00 | 7.71 | 40.73 | 52.57 | 2.98 | 27.67 | 130.00 | 1.90 |
| 90.10 | 236.10 | 146.00 | 7.74 | 40.64 | 52.64 | 3.02 | 27.27 | 134.00 | 1.90 |
| 100.10 | 247.10 | 147.00 | 7.75 | 40.38 | 52.74 | 3.03 | 26.72 | 138.00 | 1.90 |
| 110.10 | 258.10 | 148.00 | 7.80 | 39.93 | 52.45 | 3.00 | 26.55 | 142.00 | 1.90 |
| 120.10 | 269.10 | 149.00 | 7.83 | 39.35 | 51.90 | 3.00 | 27.14 | 146.00 | 1.90 |
| 130.10 | 280.10 | 150.00 | 7.88 | 38.74 | 51.55 | 3.11 | 27.66 | 150.00 | 1.90 |

Electrical Schematic



For detailed performance specs & shopping online see web site

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IF/RF MICROWAVE COMPONENTS

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