

High IP3 Frequency Mixer

LAVI-452VH+

Level 23 (LO Power +23 dBm) 3220 to 4500 MHz

Maximum Ratings

| | |
|-----------------------|----------------|
| Operating Temperature | -45°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| LO Power | +25 dBm |
| RF Power | +23 dBm |

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

| | |
|--------|--------------------------------|
| LO | 10 |
| RF | 2 |
| IF | 14 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Features

- very high IP3, 33 dBm typ.
- excellent L-R isolation, 45 dB typ. and L-I isolation, 40 dB typ.
- high 1 dB compression, 20 dBm typ.
- shielded metal cover
- aqueous washable
- protected by US Patent 6,807,407

Applications

- broadband wireless 4G system
- WiMax
- amateur radio
- wireless communications
- fixed microwave



Generic photo used for illustration purposes only

CASE STYLE: CK605

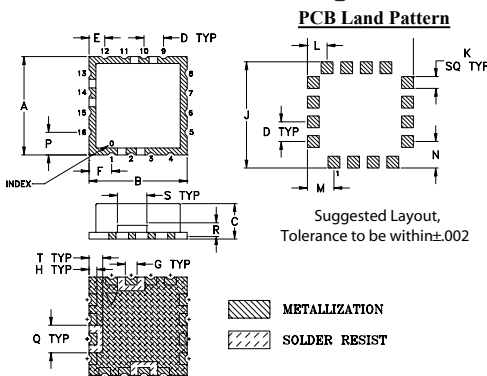
+RoHS Compliant

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

Electrical Specifications at 25°C

| Parameter | Min. | Typ. | Max. | Unit |
|------------------------------------|------|------|------|------|
| Frequency Range, RF | 3220 | — | 4500 | MHz |
| Frequency Range, LO | 2370 | — | 3650 | MHz |
| Frequency Range, IF | 300 | — | 1500 | MHz |
| Conversion Loss | — | 8.6 | 9.8 | dB |
| LO to RF Isolation | 28 | 36 | — | dB |
| LO to IF Isolation | 25 | 32 | — | dB |
| IP3 | — | 33 | — | dBm |
| RF Input Power at 1 dB Compression | — | +20 | — | dBm |

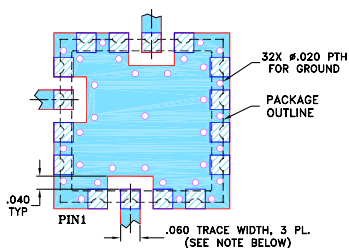
Outline Drawing



Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H | J | K |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| .500 | .500 | .180 | .100 | .080 | .115 | .060 | .040 | .540 | .060 |
| 12.7 | 12.7 | 4.572 | 2.54 | 2.032 | 2.921 | 1.524 | 1.016 | 13.72 | 1.524 |
| L | M | N | P | Q | R | S | T | wt. | |
| .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 | grams | |
| 2.54 | 3.429 | 3.429 | 2.921 | 3.556 | 1.778 | 3.81 | 1.778 | 1.0 | |

Demo Board MCL P/N: TB-433+ Suggested PCB Layout (PL-012)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR FR4 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

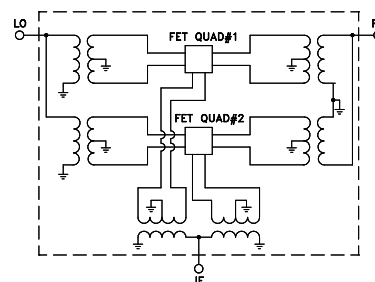
Notes

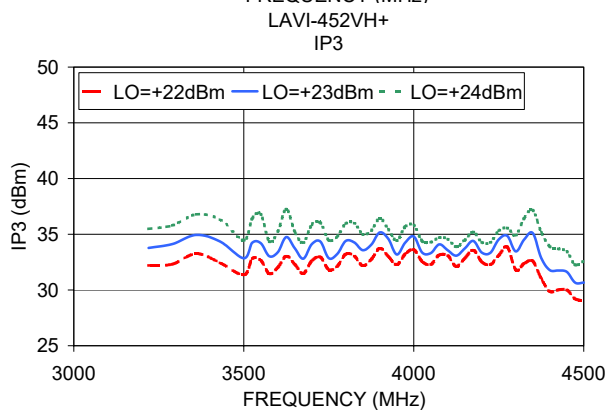
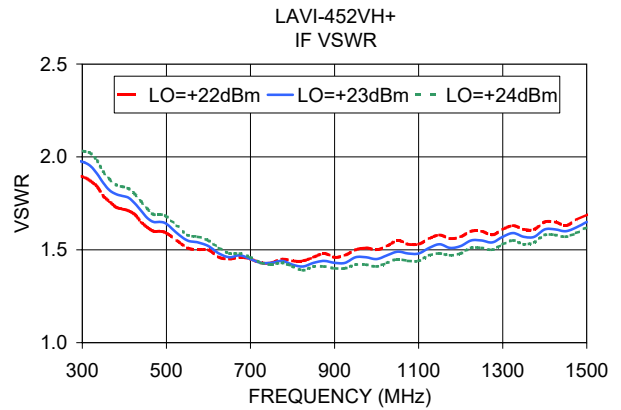
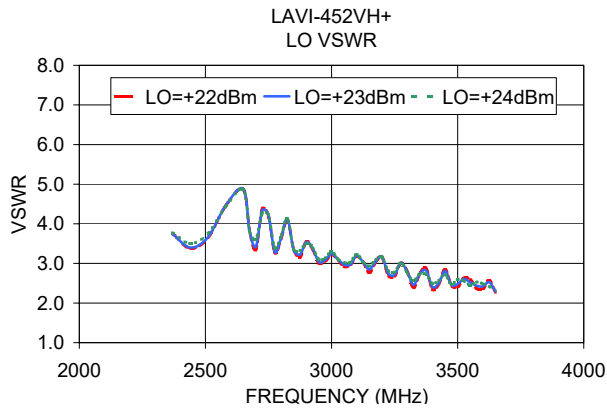
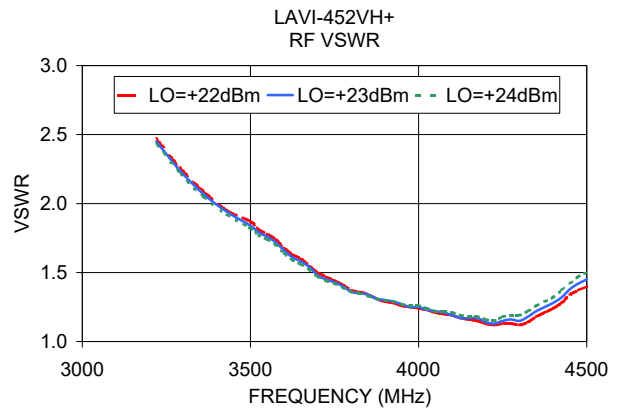
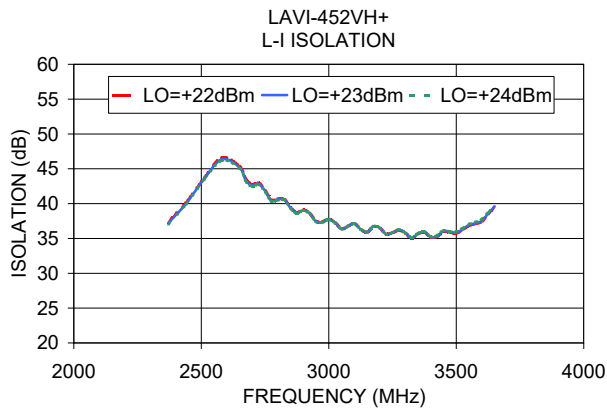
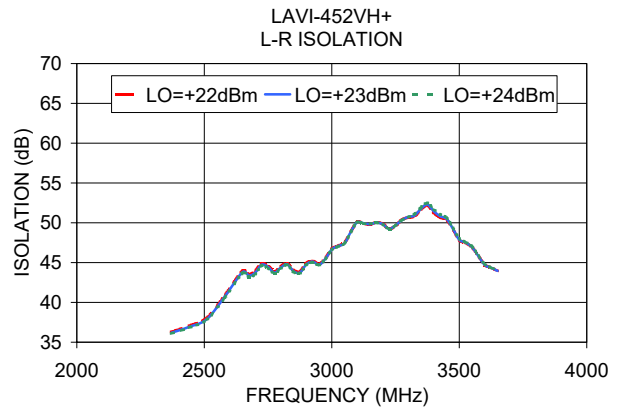
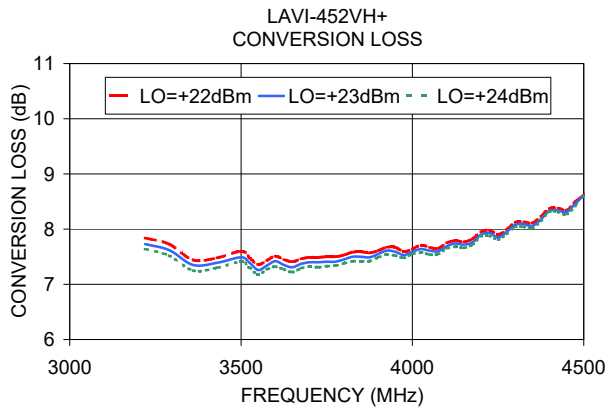
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Typical Performance Data

| Frequency (MHz) | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) | IP3 (dBm) | IF Freq. (MHz) | VSWR IF (:1) | |
|-----------------|----------------------|--------------------|--------------------|-------------------|-------------------|-----------|----------------|--------------|--------|
| | | | | | | | | LO | LO |
| RF | LO | +23dBm | +23dBm | +23dBm | +23dBm | +23dBm | LO | LO | +23dBm |
| 3220 | 2370 | 7.73 | 36.18 | 37.19 | 2.45 | 3.74 | 33.77 | 290 | 1.98 |
| 3500 | 2650 | 7.49 | 43.81 | 45.20 | 1.84 | 4.88 | 32.85 | 410 | 1.78 |
| 3600 | 2750 | 7.42 | 44.44 | 41.81 | 1.66 | 4.23 | 33.39 | 500 | 1.64 |
| 3700 | 2850 | 7.40 | 43.91 | 39.37 | 1.48 | 3.34 | 34.11 | 600 | 1.52 |
| 3800 | 2950 | 7.45 | 44.73 | 37.42 | 1.36 | 3.04 | 34.40 | 700 | 1.45 |
| 3900 | 3050 | 7.55 | 47.43 | 36.34 | 1.30 | 2.97 | 35.16 | 800 | 1.42 |
| 4000 | 3150 | 7.59 | 49.82 | 35.87 | 1.25 | 2.85 | 34.80 | 900 | 1.43 |
| 4100 | 3250 | 7.69 | 49.67 | 35.83 | 1.19 | 2.71 | 33.56 | 1000 | 1.45 |
| 4150 | 3300 | 7.72 | 50.73 | 35.81 | 1.17 | 2.79 | 33.73 | 1100 | 1.48 |
| 4200 | 3350 | 7.90 | 51.77 | 35.68 | 1.14 | 2.74 | 33.36 | 1200 | 1.52 |
| 4300 | 3450 | 8.08 | 50.49 | 36.06 | 1.15 | 2.81 | 33.47 | 1300 | 1.57 |
| 4350 | 3500 | 8.06 | 47.88 | 35.81 | 1.22 | 2.48 | 35.11 | 1350 | 1.57 |
| 4400 | 3550 | 8.33 | 46.93 | 36.93 | 1.28 | 2.52 | 31.79 | 1400 | 1.61 |
| 4450 | 3600 | 8.31 | 44.70 | 37.50 | 1.38 | 2.42 | 31.63 | 1450 | 1.60 |
| 4500 | 3650 | 8.61 | 43.96 | 39.58 | 1.45 | 2.29 | 30.67 | 1500 | 1.65 |

Electrical Schematic





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