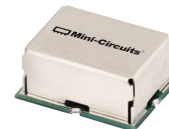


High IP3

Frequency Mixer

Level 13 (LO Power +13 dBm) 235 to 355 MHz

HJK-351MH+



CASE STYLE: TTT881

Maximum Ratings

| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| LO Power | +19 dBm |
| RF Power | +20 dBm |

Pad Connections

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

Features

- high IP3, 27 dBm typ.
- excellent L-R isolation, 53 dB typ.; L-I isolation, 38 dB typ.
- protected by US Patent 6,807,407

Applications

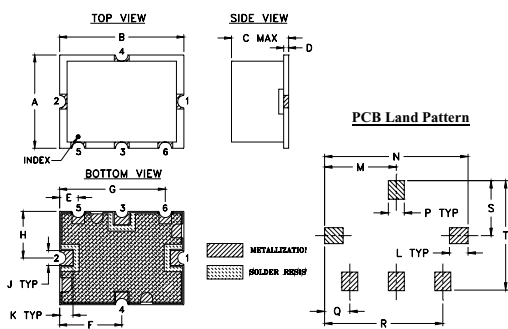
- mobile
- defense communication

+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 | 235 | — | 355 | MHz |
| Frequency Range, LO | 177 | — | 297 | MHz |
| Frequency Range, IF | 10 | — | 150 | MHz |
| Conversion Loss | — | 7 | 8.4 | dB |
| LO to RF Isolation | 45 | 53 | — | dB |
| LO to IF Isolation | 32 | 38 | — | dB |
| IP3 | — | 27 | — | dBm |
| RF Input Power at 1 dB Compression | — | +14 | — | dBm |

Outline Drawing

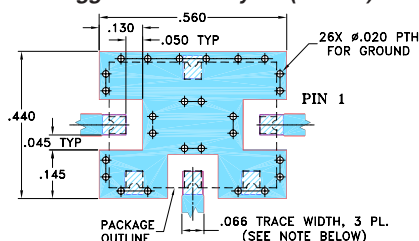


Suggested Layout.
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H | J | K | wt. |
|------|-------|-------|------|------|-------|-------|-------|-------|------|-----|
| .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 | grams | | |
| .070 | .270 | .540 | .060 | .095 | .445 | .208 | .415 | 0.8 | | |
| 1.78 | 6.86 | 13.72 | 1.52 | 2.41 | 11.30 | 5.28 | 10.54 | | | |

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



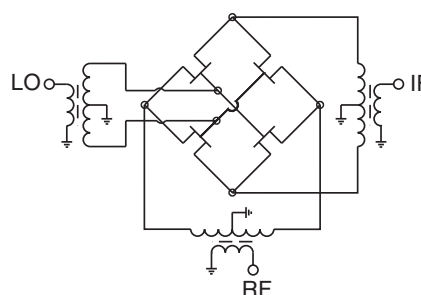
NOTE:

1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
 2. THE USE OF SOLDER MASK OVER THE GROUND AREA UNDER THE UNIT AS SHOWN IS RECOMMENDED TO PREVENT POTENTIAL SHORTING. IF USER CHOOSES TO EXPOSE METAL UNDER THE ENTIRE UNIT GROUND PAD FOR IMPROVED GROUNDING, IT IS RECOMMENDED A SOLDER MASK DAW BE APPLIED AROUND EACH GROUND PAD TO ENSURE FILLET AND CONNECTION AT GROUND PADS.
 3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER). SEE NOTE 2.

Typical Performance Data

| Frequency | | Conversion Loss (dB) | Isolation L-R | Isolation L-I | VSWR RF Port | VSWR LO Port | IP3 (dBm) |
|-----------|--------|----------------------|---------------|---------------|--------------|--------------|-----------|
| RF MHz | LO MHz | LO +13dBm | LO +13dBm | LO +13dBm | LO +13dBm | LO +13dBm | LO +13dBm |
| 235.00 | 177.00 | 7.06 | 62.52 | 46.76 | 1.94 | 3.08 | 28.38 |
| 245.00 | 187.00 | 6.98 | 61.79 | 45.45 | 1.91 | 3.10 | 29.16 |
| 255.00 | 197.00 | 6.82 | 60.83 | 43.99 | 1.91 | 3.07 | 29.75 |
| 265.00 | 207.00 | 6.69 | 59.81 | 42.42 | 1.94 | 2.86 | 30.10 |
| 275.00 | 217.00 | 6.67 | 58.93 | 40.89 | 1.96 | 2.45 | 29.59 |
| 285.00 | 227.00 | 6.76 | 58.27 | 39.63 | 1.92 | 1.97 | 29.90 |
| 295.00 | 237.00 | 6.78 | 57.97 | 38.84 | 1.87 | 1.56 | 30.51 |
| 305.00 | 247.00 | 6.68 | 57.97 | 38.54 | 1.83 | 1.33 | 31.04 |
| 315.00 | 257.00 | 6.56 | 57.93 | 38.69 | 1.83 | 1.39 | 30.44 |
| 325.00 | 267.00 | 6.55 | 58.15 | 39.20 | 1.81 | 1.60 | 30.50 |
| 335.00 | 277.00 | 6.66 | 58.46 | 40.02 | 1.77 | 1.87 | 30.32 |
| 345.00 | 287.00 | 6.82 | 58.69 | 40.99 | 1.73 | 2.18 | 30.56 |
| 355.00 | 297.00 | 6.83 | 58.94 | 41.99 | 1.72 | 2.48 | 27.52 |

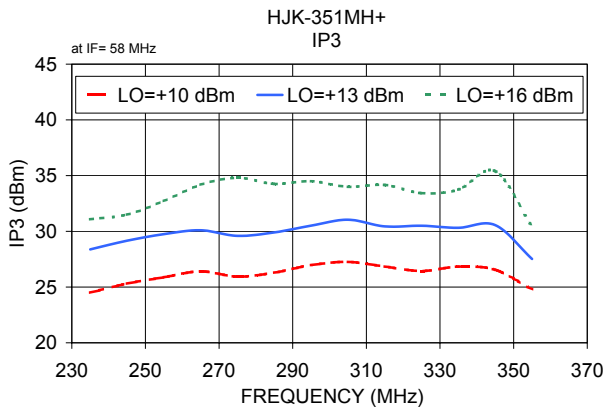
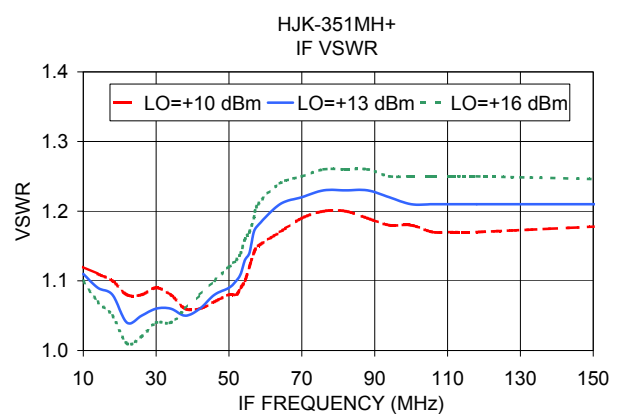
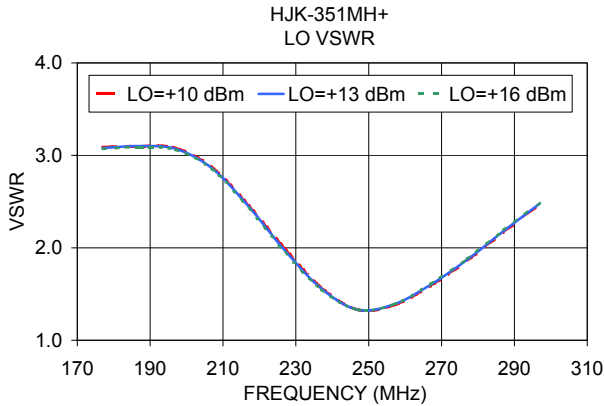
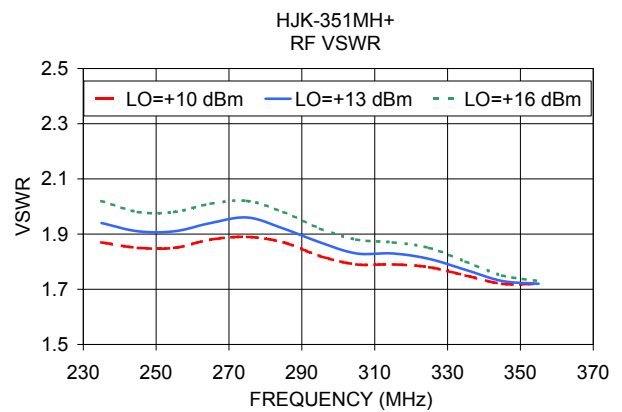
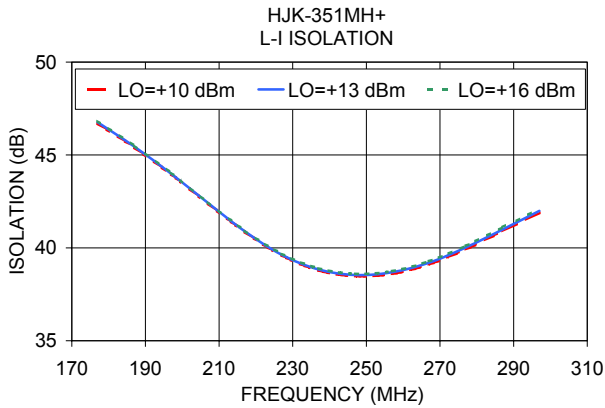
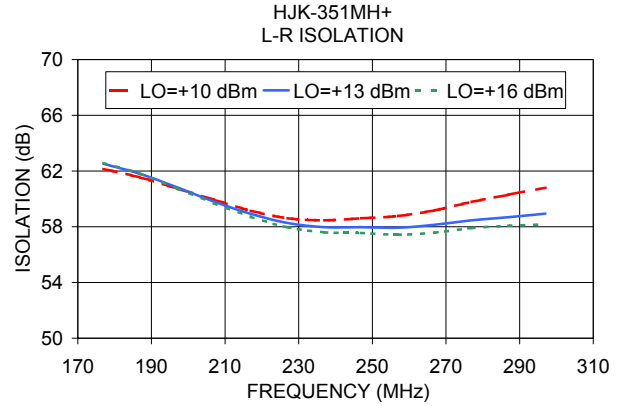
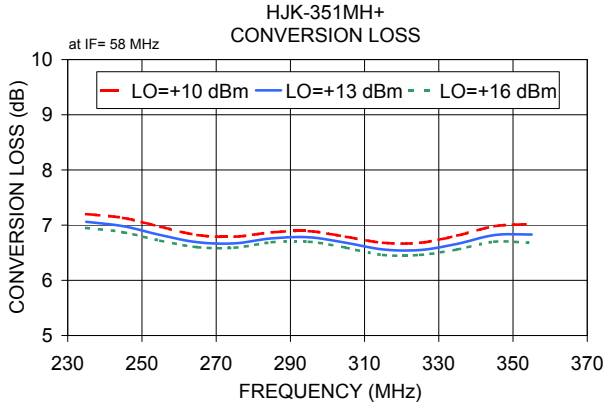
Electrical Schematic



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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