

High IP3

# Frequency Mixer

Level 17 (LO Power +17 dBm) 235 to 355 MHz

HJK-351H+



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, 30 dBm typ.
- excellent L-R isolation, 55 dB typ.; L-I isolation, 38 dB typ.
- protected by US Patent 6,807,407

## Applications

- mobile
- defense communication

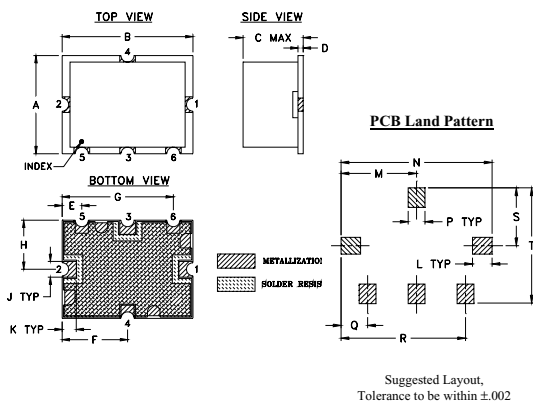
**+RoHS Compliant**

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	—	7.1	8.2	dB
LO to RF Isolation	45	55	—	dB
LO to IF Isolation	32	38	—	dB
IP3	—	30	—	dBm
RF Input Power at 1 dB Compression	—	+20	—	dBm

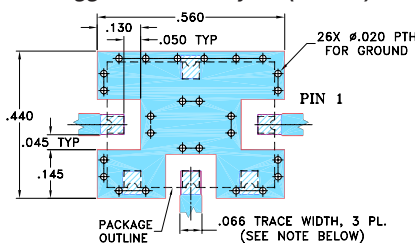
## Outline Drawing



## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K
.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)



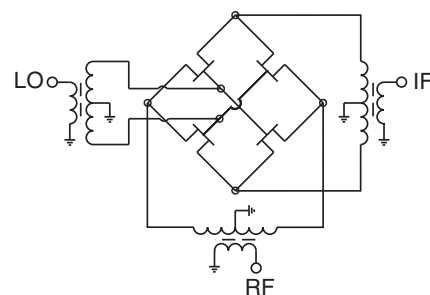
### NOTE:

1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS  $.030 \pm .002$ ”; 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 DAM BE APPLIED AROUND EACH GROUND PAD TO ENSURE FILLET AND CONNECTION AT GROUND PADS.
  3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
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## 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 +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
235.00	177.00	6.98	61.83	46.79	2.05	3.05	30.98
245.00	187.00	6.91	60.87	45.47	2.01	3.07	32.44
255.00	197.00	6.75	59.71	44.00	2.01	3.05	33.17
265.00	207.00	6.63	58.60	42.42	2.04	2.85	35.14
275.00	217.00	6.64	57.52	40.88	2.04	2.44	36.91
285.00	227.00	6.73	56.73	39.63	2.01	1.97	37.68
295.00	237.00	6.74	56.25	38.84	1.94	1.56	37.14
305.00	247.00	6.63	56.15	38.55	1.90	1.35	36.91
315.00	257.00	6.51	56.15	38.69	1.89	1.41	38.51
325.00	267.00	6.50	56.36	39.24	1.87	1.62	38.20
335.00	277.00	6.61	56.74	40.06	1.82	1.89	36.52
345.00	287.00	6.73	57.04	41.07	1.77	2.20	34.13
355.00	297.00	6.74	57.25	42.08	1.74	2.50	32.28

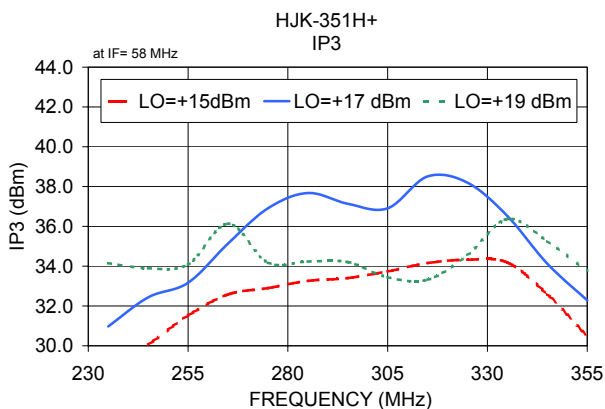
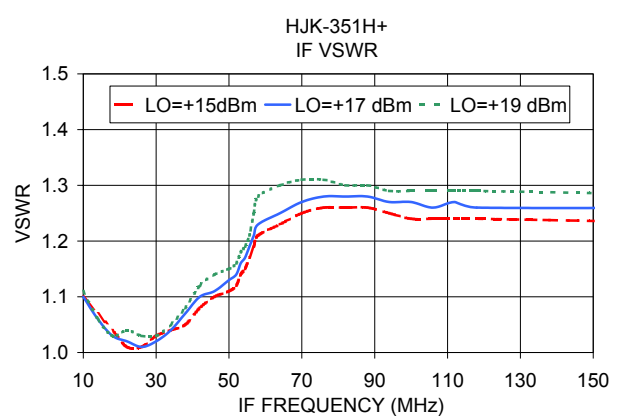
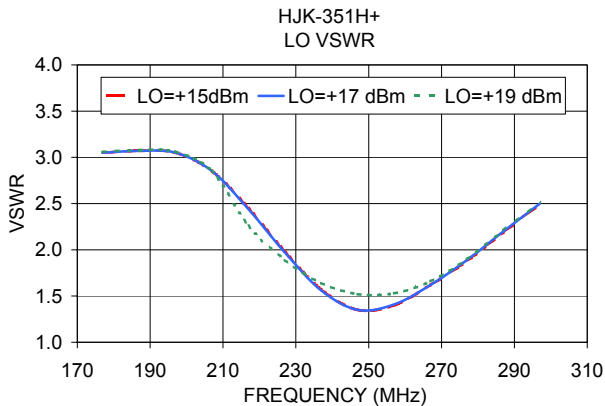
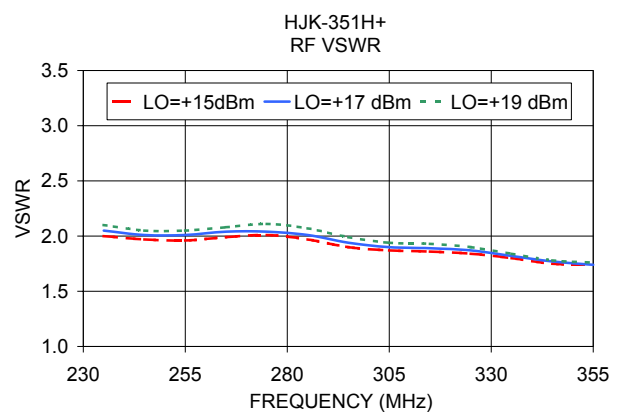
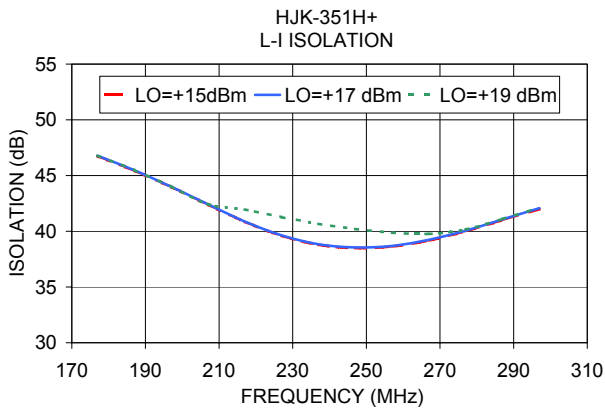
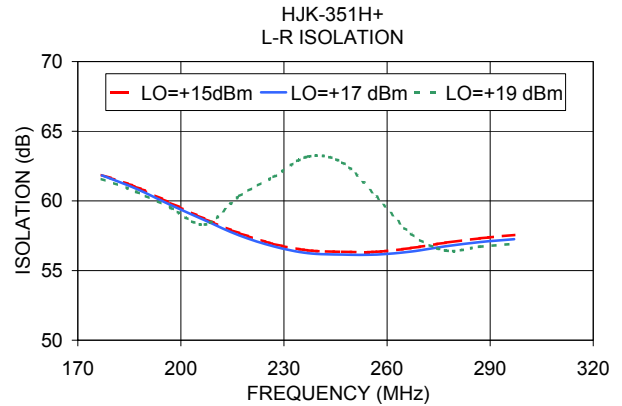
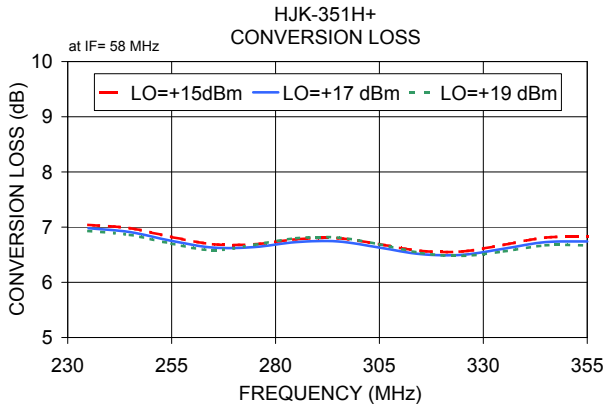
## Electrical Schematic



### 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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