

High IP3

Frequency Mixer

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

HJK-351MH+



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

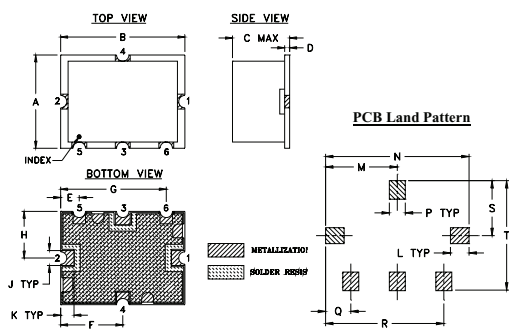
- mobile
- defense communication

CASE STYLE: TTT881
PRICE: \$8.95 ea. QTY. (10)

+RoHS Compliant

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

Outline Drawing

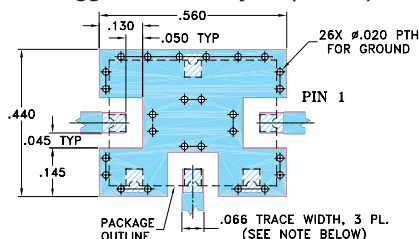


Suggested Layout,
Tolerance to be within ±.002

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" ± .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.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER). SEE NOTE 2.

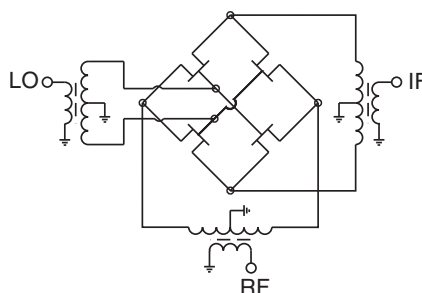
Electrical Specifications at 25°C

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

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



Mini-Circuits®
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs
& shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

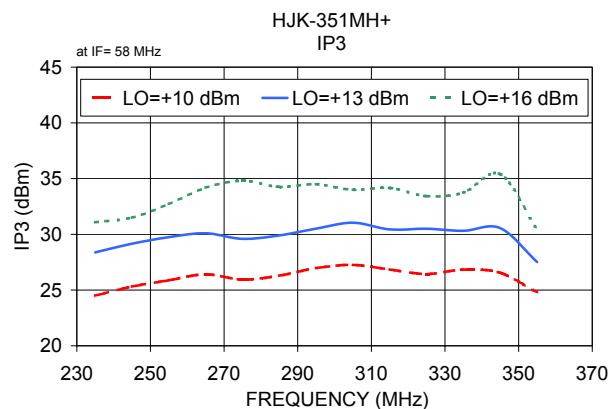
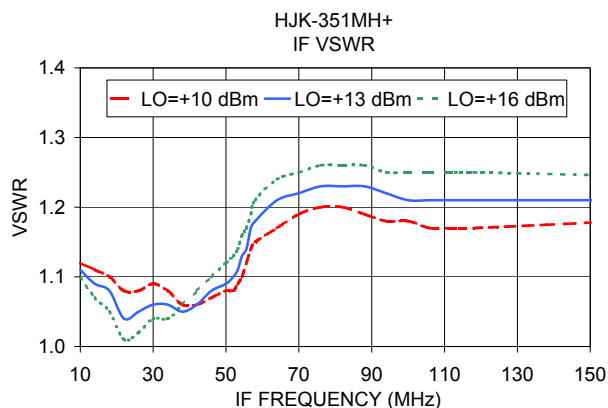
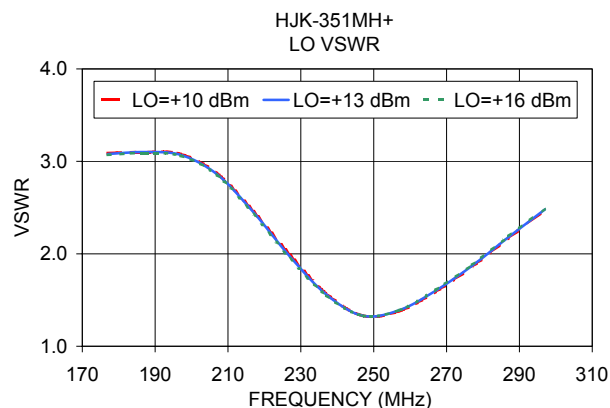
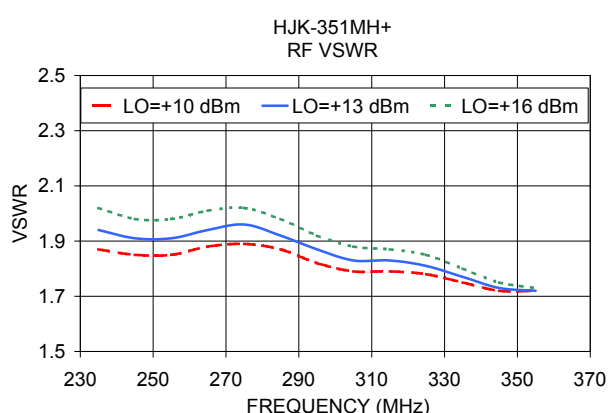
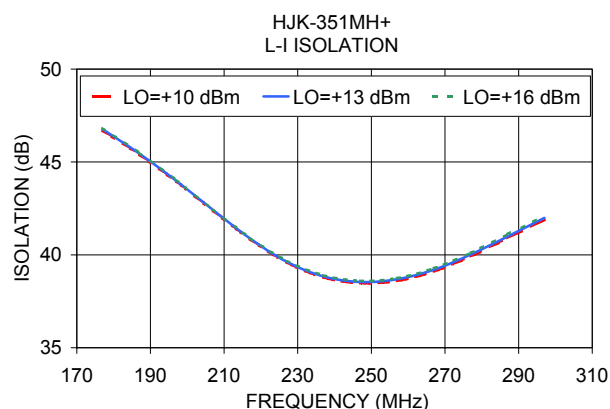
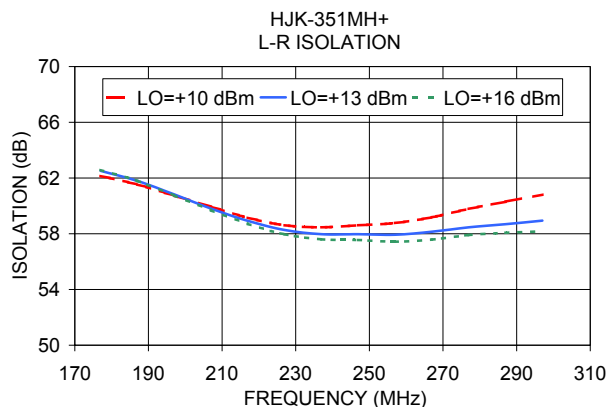
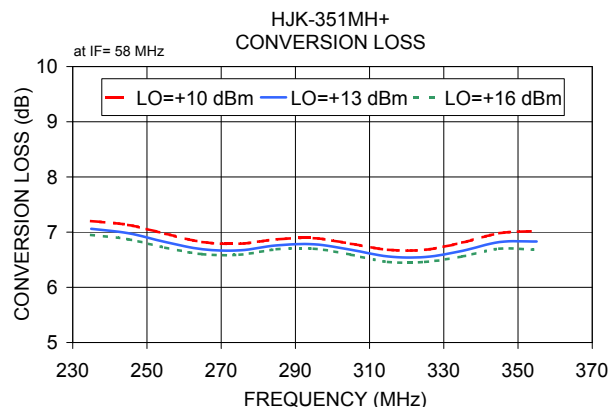
IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

REV. OR
M137921
ED-13654/1
HJK-351MH+
WL/CP/AM
120713
Page 1 of 2

Performance Charts

HJK-351MH+



For detailed performance specs
& shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.