

Surface Mount Frequency Mixer

Level 10 (LO Power +10 dBm) 20 to 1000 MHz

JMS-2LH+ JMS-2LH



Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

Pin Connections

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

Features

- excellent L-R isolation, up to 60 dB typ.
- miniature surface mount
- J-leads for strain relief and excellent solderability

Applications

- up & down converters for receivers & transmitters
- UHF TV
- cellular/ISM/GSM

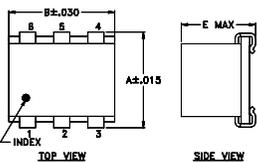
CASE STYLE: BH292

PRICE: \$9.45 ea. QTY (1-9)

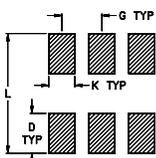
+RoHS Compliant

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

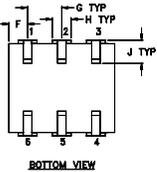
Outline Drawing



PCB Land Pattern



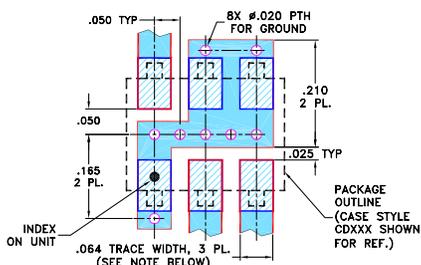
Suggested Layout,
Tolerance to be within ±.002



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G		
.280	.310	--	.100	.225	.055	.100		
7.11	7.87	--	2.54	5.72	1.40	2.54		
H	J	K	L				wt	
.047	.065	.065	.300				grams	
1.19	1.65	1.65	7.62				0.45	

Demo Board MCL P/N: TB-03 Suggested PCB Layout (PL-052)



- NOTES: 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. 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

- 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.
C. The parts covered by this specification document 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

Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)										
		L	M	U	L	M	U											
LO/RF f_L - f_U	Mid-Band m Total Range Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.										
20-1000	DC-1000	6.5	.10	7.5	9.0	60	40	48	25	37	20	45	30	35	20	27	11	20

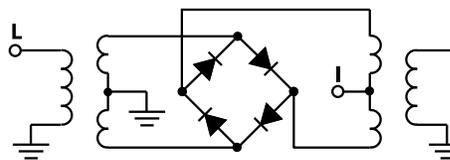
1 dB COMP: +5 dBm typ.
Phase detection, positive polarity

L = low range [f_L to 10 f_L]
M = mid range [10 f_L to $f_U/2$]
U = upper range [$f_U/2$ to f_U]

Typical Performance Data

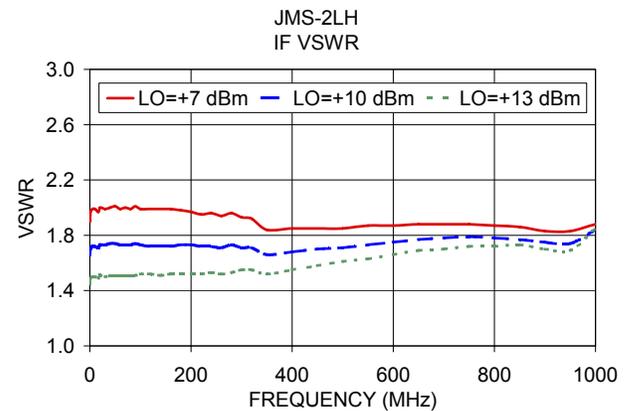
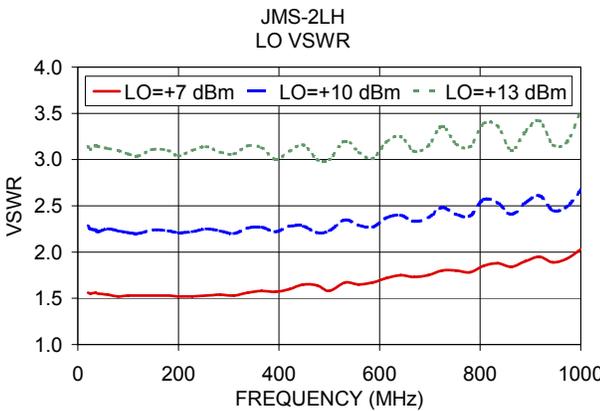
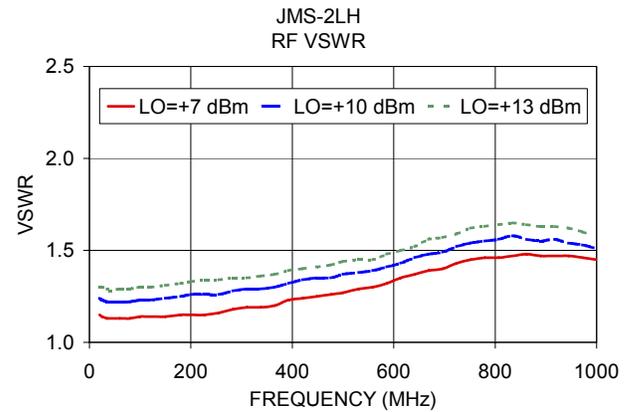
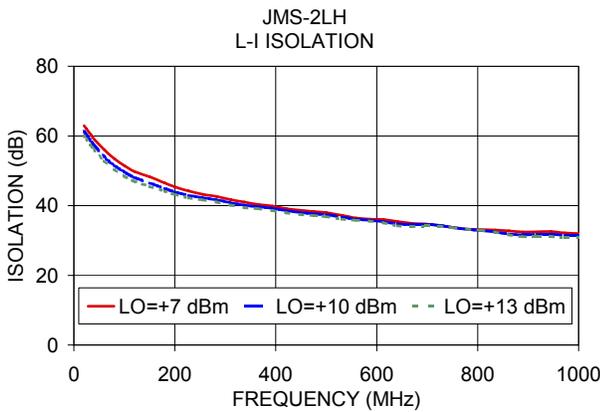
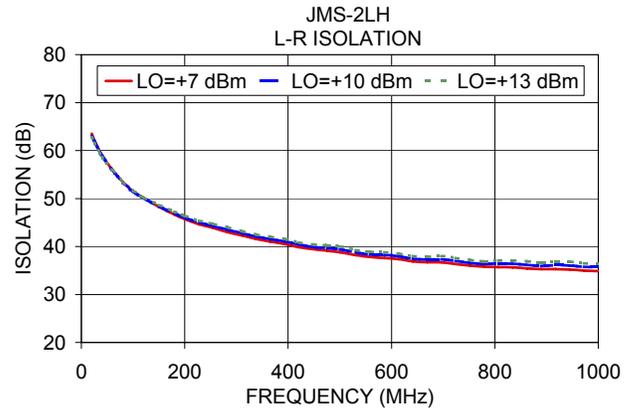
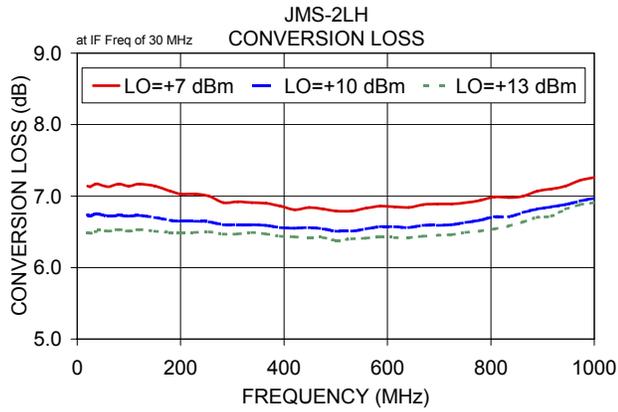
Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
20.10	50.10	6.74	62.98	61.31	1.24	2.28
40.10	70.10	6.75	58.93	57.30	1.22	2.22
100.10	130.10	6.72	51.46	49.64	1.23	2.21
150.10	180.10	6.70	48.38	46.49	1.24	2.24
200.10	230.10	6.65	46.01	43.92	1.26	2.21
255.27	285.27	6.64	44.26	42.27	1.26	2.25
310.45	340.45	6.60	42.75	40.85	1.29	2.20
365.62	395.62	6.59	41.54	39.67	1.30	2.27
420.79	450.79	6.55	40.42	38.53	1.34	2.28
475.96	505.96	6.54	39.69	37.65	1.35	2.21
500.10	530.10	6.51	39.42	37.42	1.37	2.23
558.72	588.72	6.54	38.36	36.11	1.39	2.29
613.89	643.89	6.57	37.95	35.34	1.43	2.37
669.07	699.07	6.59	37.29	34.51	1.48	2.33
724.24	754.24	6.60	36.99	34.33	1.52	2.48
779.41	809.41	6.66	36.37	33.21	1.55	2.39
834.58	864.58	6.71	36.41	32.42	1.58	2.53
889.76	919.76	6.82	35.95	31.60	1.55	2.53
944.93	974.93	6.88	36.03	31.80	1.54	2.45
1000.10	1030.10	6.97	35.70	31.47	1.51	2.67

Electrical Schematic



Performance Charts

JMS-2LH+ JMS-2LH



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.
- C. The parts covered by this specification document 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

