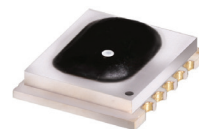


# Frequency Mixer WIDE BAND

MCA1T-113H+

Level 17 (LO Power+17 dBm) 3800 to 11000 MHz



CASE STYLE: DZ885-2

## Maximum Ratings

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

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

## Pin Connections

LO	10
RF	5
IF	3
GROUND	1,2,4,6,7,8,9

## Features

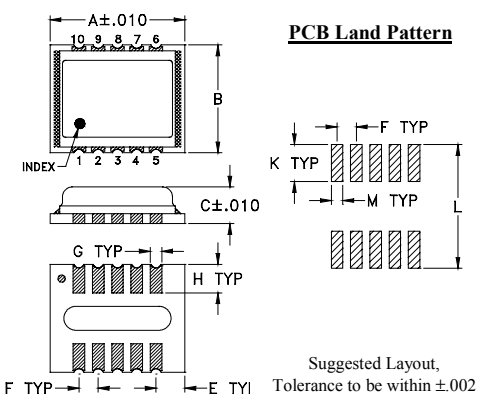
- wide bandwidth, 3800 to 11000 MHz
- low conversion loss, 6.8 dB typ.
- high L-R isolation, 35 dB typ.
- IF, DC to 1800 MHz
- LTCC double balanced mixer
- low cost
- low profile, 0.095"
- aqueous washable
- protected by US Patent 7,027,795<sup>A</sup>, 8,749,989

## Applications

- satellite up and down converters
- line of sight links
- defense radar
- defense communication
- federal fixed service

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

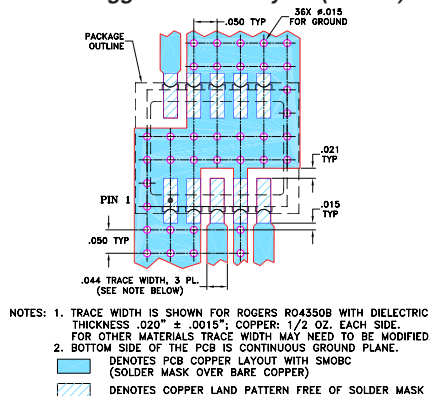
## Outline Drawing



## Outline Dimensions (inch/mm)

A	B	C	E	F	G
.350	.280	.095	.075	.050	.030
8.89	7.11	2.41	1.91	1.27	0.76
H	K	L	M	wt	
.074	.096	.321	.030		grams
1.88	2.44	8.15	0.76		0.21

## Demo Board MCL P/N: TB-493+ Suggested PCB Layout (PL-288)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; 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.

### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

## Electrical Specifications

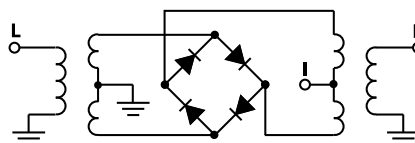
FREQUENCY (MHz)		CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF	IF	$\bar{X}$	$\sigma$	Max.	Typ.	Min.	Typ.	Min.	Typ.
3800-11000	DC-1800								
3800-6500	DC-1800	6.7	0.2	9.0	27	15	13	8	22
6500-9500	DC-1800	6.8	0.2	8.8	35	20	32	20	21
9500-11000	DC-1800	7.5	0.2	9.5	28	18	25	15	21

1 dB COMPR. +14 dBm typ.  
\* Conversion loss at 30 MHz IF, increases with IF frequency.

## Typical Performance Data at 25°C

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
3800.00	3830.00	6.02	29.37	12.51	1.96	2.88
4000.00	4030.00	5.58	30.22	13.41	1.75	2.98
4200.00	4230.00	5.30	28.87	12.84	1.59	2.87
4500.00	4530.00	5.24	27.75	12.99	1.34	2.83
4800.00	4830.00	5.38	24.29	12.36	1.10	2.77
5000.00	5030.00	6.19	25.35	11.60	1.47	2.79
5200.00	5230.00	6.94	21.26	11.03	1.68	2.70
5500.00	5530.00	7.86	17.52	10.68	1.48	2.72
5800.00	5830.00	7.81	19.64	15.00	1.61	3.28
6000.00	6030.00	7.19	22.63	19.10	1.83	3.51
6200.00	6230.00	6.86	25.31	23.08	2.04	3.48
6500.00	6530.00	7.18	29.58	29.51	2.23	3.16
6827.00	6857.00	6.54	34.24	34.49	1.61	3.84
8015.00	8045.00	7.07	44.15	35.76	2.45	3.11
8609.00	8639.00	7.39	32.87	39.74	3.88	3.21
9203.00	9233.00	7.31	28.64	39.11	2.08	3.67
9500.00	9530.00	7.15	24.36	35.38	1.90	4.20
10106.00	10136.00	7.28	24.03	18.50	2.17	3.93
10538.00	10568.00	7.63	25.90	21.31	2.09	2.66
11000.00	11030.00	8.60	26.28	22.34	2.22	2.75

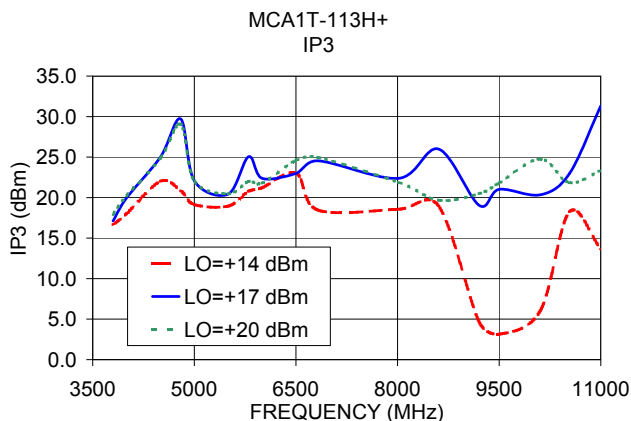
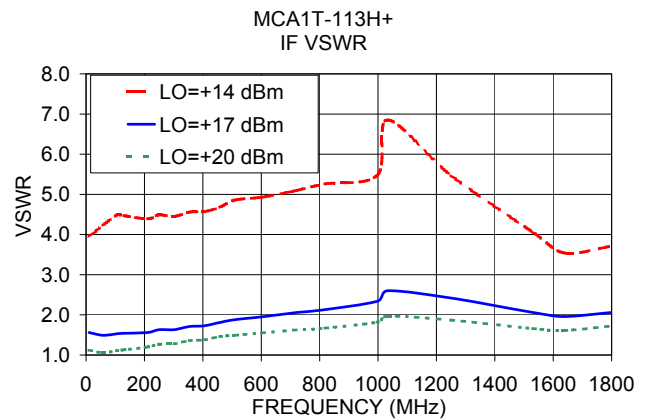
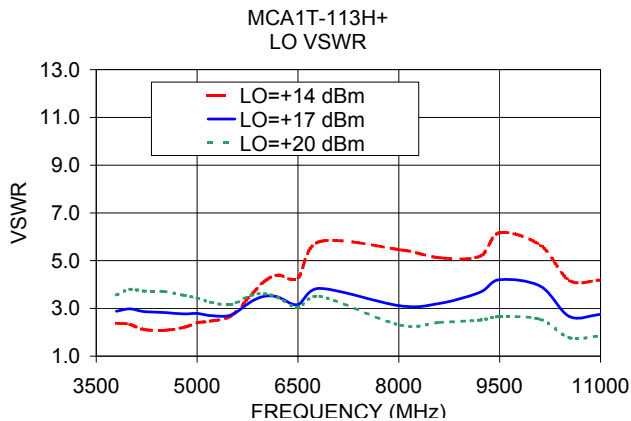
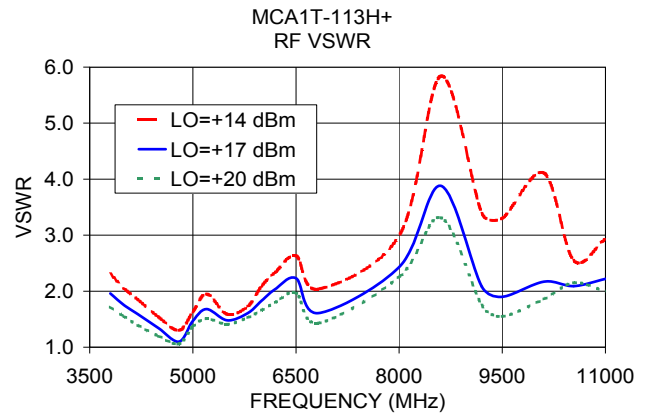
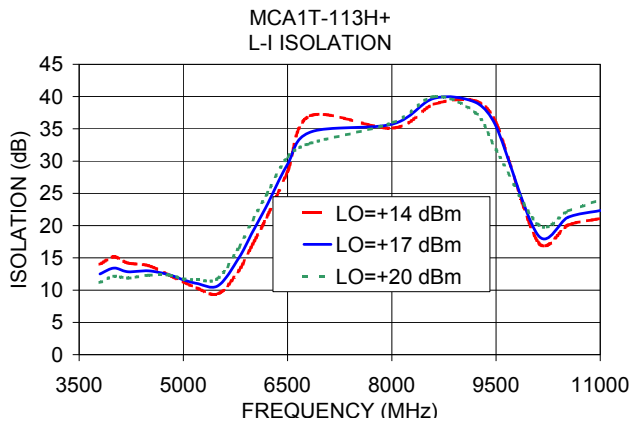
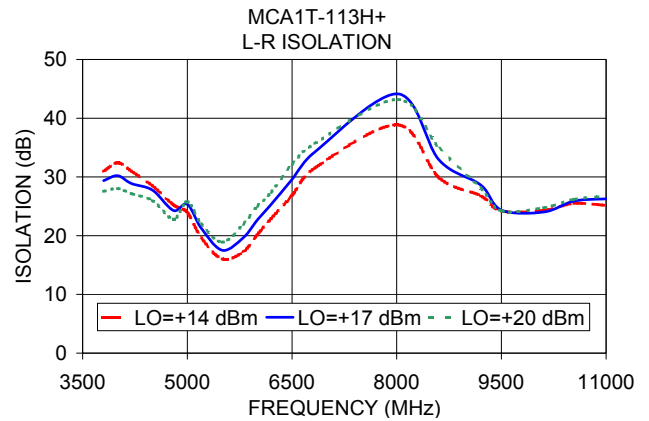
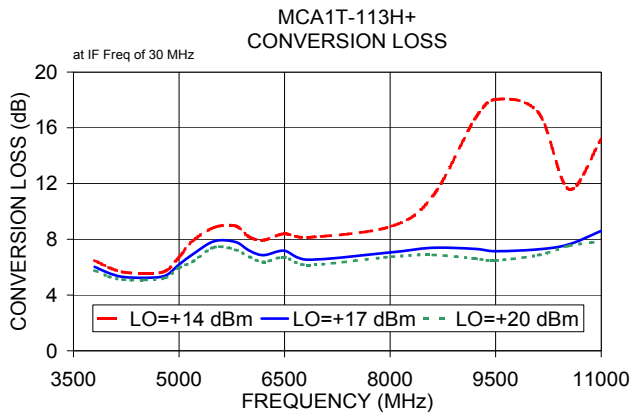
## Electrical Schematic



# NON-CATALOG

## Performance Charts

## MCA1T-113H+



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