

Frequency Mixer WIDE BAND

MCA1-80H+

Level 17 (LO Power+17 dBm) 2800 to 8000 MHz



CASE STYLE: DZ885

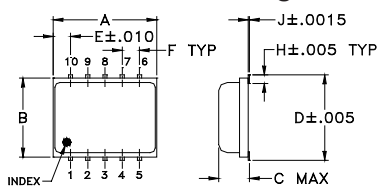
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200 mW
IF Current	40 mA
Permanent damage may occur if any of these limits are exceeded.	

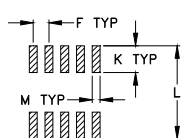
Pin Connections

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

Outline Drawing



PCB Land Pattern

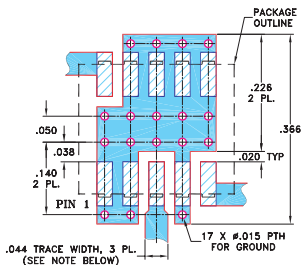


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.085	.266	.050	.050	.012
7.62	6.35	2.16	6.76	1.27	1.27	0.30
H	J	K	L	M	wt	
.029	.004	.085	.296	.030	grams	
0.74	0.10	2.16	7.52	0.76	0.25	

Demo Board MCL P/N: TB-144 Suggested PCB Layout (PL-045)



- 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.
- 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

Features

- wide bandwidth, 2800 to 8000 MHz
- low conversion loss, 6.3 dB typ.
- high L-R isolation, 35 dB typ.
- IF, DC to 1250 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7,027,795

Applications

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

Electrical Specifications (T_{AMB} = -55°C to 100°C)

FREQUENCY (MHz)	CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)			
	LO/RF f _c -f _u	IF	σ	Max.	Typ.	Min.	Typ.		Min.		
2800-8000	DC-1250			6.5	0.2	8.9*	34	22	12	8	24
2800-5000	DC-1250			6.0	0.2	8.9*	35	21	35	13	21

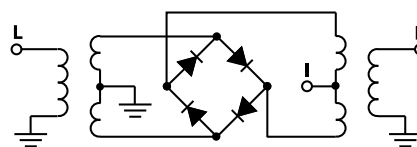
1 dB COMPR. +14 dBm typ.

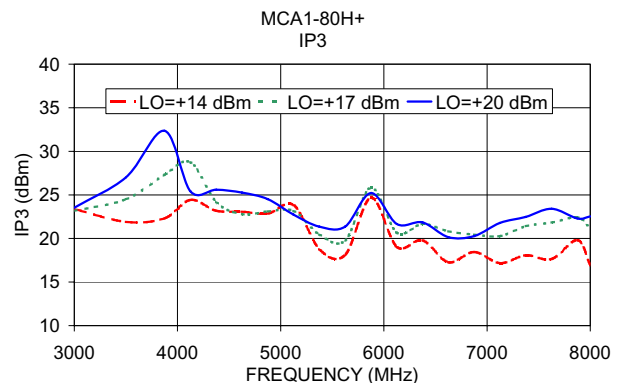
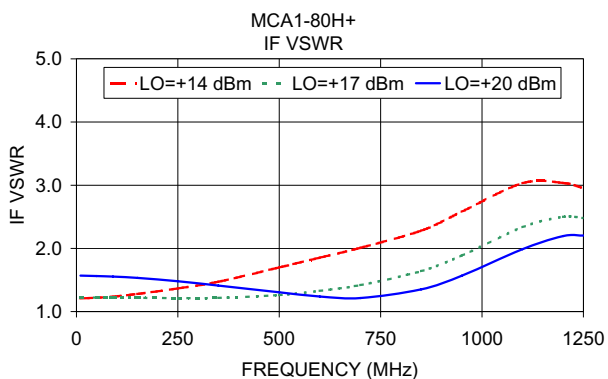
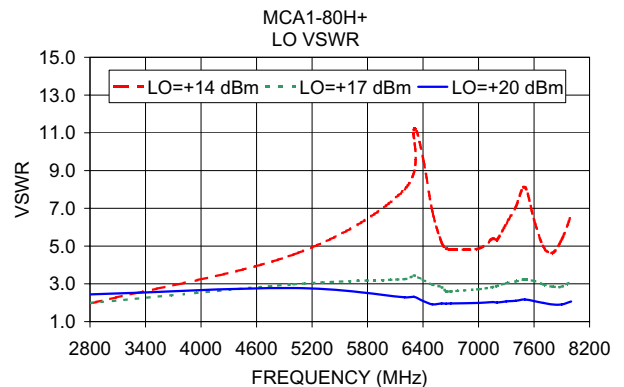
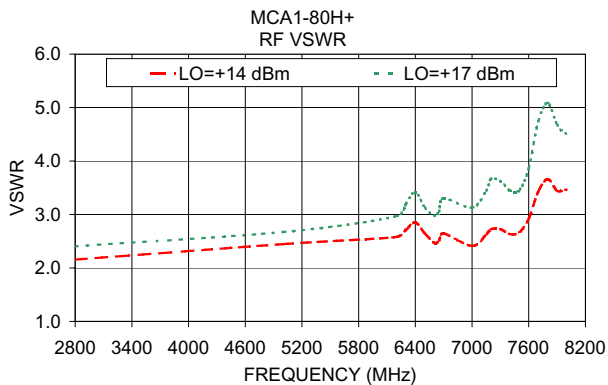
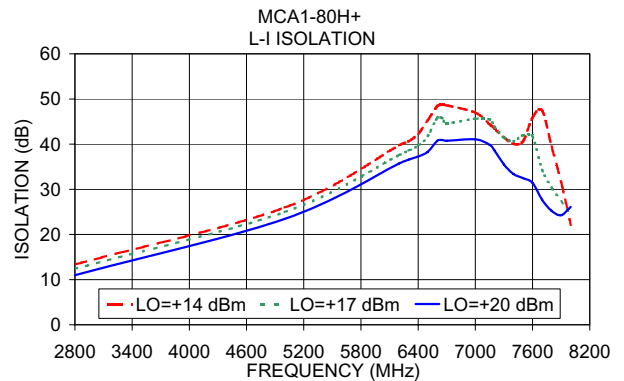
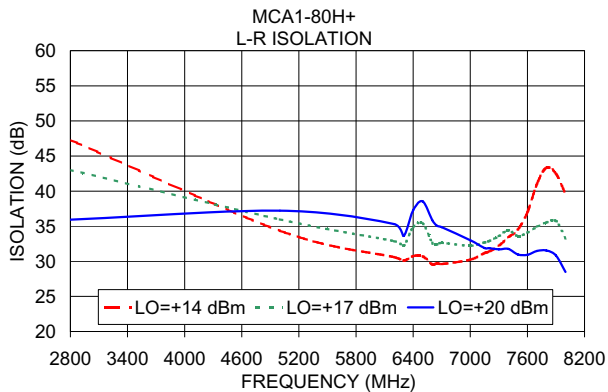
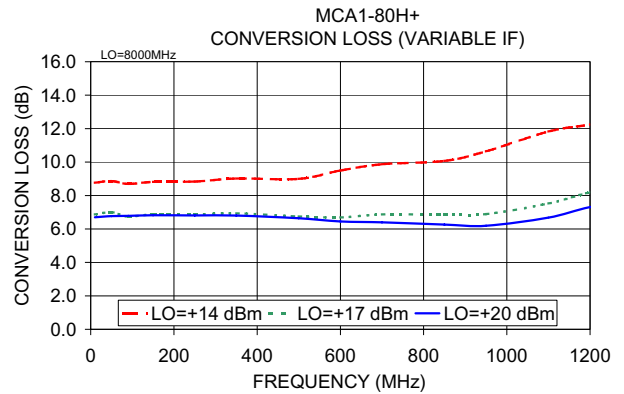
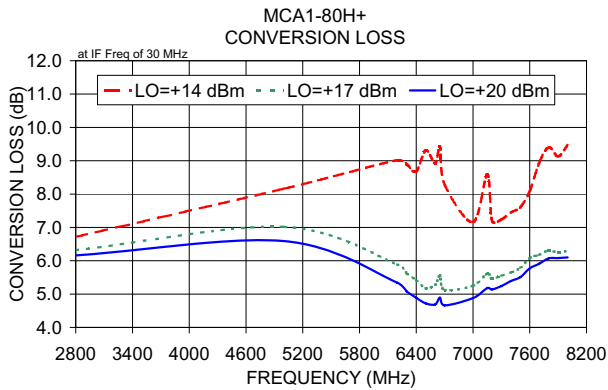
* Conversion loss at 30 MHz IF, increases with IF frequency.

Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)		Isolation L-R (dB)		Isolation L-I (dB)		VSWR RF Port (:1)	VSWR LO Port (:1)
	LO	+13dBm	LO	+13dBm	LO	+13dBm	LO	+13dBm
2800.00	2830.10	6.32	43.01	35.38	12.42	2.41	1.99	
5000.00	5030.10	7.02	35.98	24.98	2.67	2.98	2.83	
6200.00	6230.10	5.89	32.88	37.57	2.97	3.25	2.60	
6300.00	6330.10	5.62	32.26	38.59	3.20	3.45	2.60	
6400.00	6430.10	5.42	34.86	39.69	3.42	3.20	2.72	
6500.00	6530.10	5.18	35.38	41.78	3.13	2.96	2.89	
6600.00	6630.10	5.28	32.64	45.82	2.98	2.83	2.89	
6650.00	6680.10	5.56	32.40	45.78	3.06	2.60	2.60	
6700.00	6730.10	5.13	32.63	44.65	3.30	2.60	2.60	
7000.00	7030.10	5.25	32.22	45.62	3.13	2.72	2.83	
7150.00	7180.10	5.61	32.69	45.49	3.45	2.83	2.89	
7200.00	7230.10	5.46	32.89	43.89	3.67	2.89	2.89	
7300.00	7330.10	5.55	33.59	41.45	3.62	3.04	3.04	
7400.00	7430.10	5.65	34.45	40.66	3.45	3.13	3.13	
7500.00	7530.10	5.79	33.59	41.99	3.45	3.22	3.22	
7600.00	7630.10	6.08	34.10	41.64	3.86	3.16	3.16	
7700.00	7730.10	6.18	34.94	34.31	4.74	2.97	2.97	
7800.00	7830.10	6.31	35.54	30.40	5.09	2.86	2.86	
7900.00	7930.10	6.25	35.75	27.33	4.68	2.86	2.86	
8000.00	8030.10	6.30	33.26	24.54	4.50	3.15	3.15	

Electrical Schematic





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