

High IP3

# Frequency Mixer WIDE BAND

## MCA-50MH+

Level 13 (LO Power+13 dBm) 1000 to 5000 MHz



Generic photo used for illustration purposes only  
CASE STYLE: DZ883

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200 mW
IF Current	40 mA

### Pin Connections

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

### Features

- wide bandwidth, 1000 to 5000 MHz
- good L-R isolation, 25 dB typ.; L-I isolation, 30 dB typ.
- small size 0.25" x 0.3" x 0.2"
- aqueous washable
- triple balanced mixer
- protected by US Patent 6,917,796

### Applications

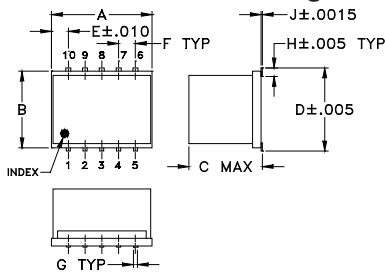
- PCN
- satellite
- line of sight links
- WiMax

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

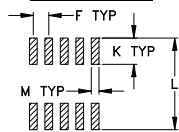
Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500, 1000

### Outline Drawing



### PCB Land Pattern

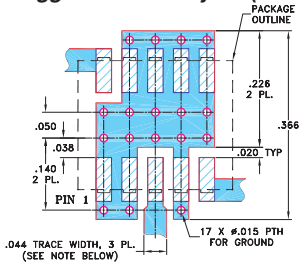


Suggested L layout,  
Tolerance to be within ±0.02

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.190	.266	.050	.050	.012
7.62	6.35	4.83	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	0.5	

### 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.  
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### Electrical Specifications (T<sub>AMB</sub> = -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 <sub>L</sub> -f <sub>U</sub>	IF	σ	Max.	Typ.	Min.	Typ.	
1000-5000	10-1500	7.3	0.2	9.9				
1000-1400	10-400	6.2	0.1	7.8	20	11	32	25
1400-2000	10-600	6.0	0.1	7.7	34	20	28	20
2000-2600	10-600	7.8	0.1	9.9	25	18	28	20
2600-4500	10-1500	6.6	0.1	8.6	39	22	30	20
4500-5000	50-500	7.3	0.2	8.9	35	22	30	20

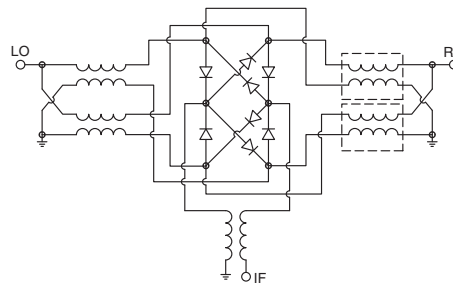
1 dB COMPR. +9 dBm typ.

see individual band specs

### Typical Performance Data

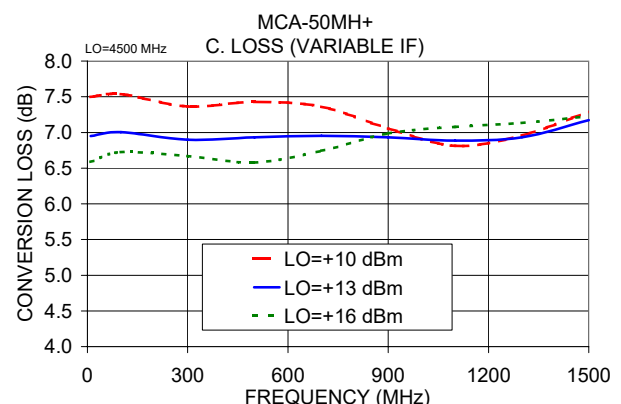
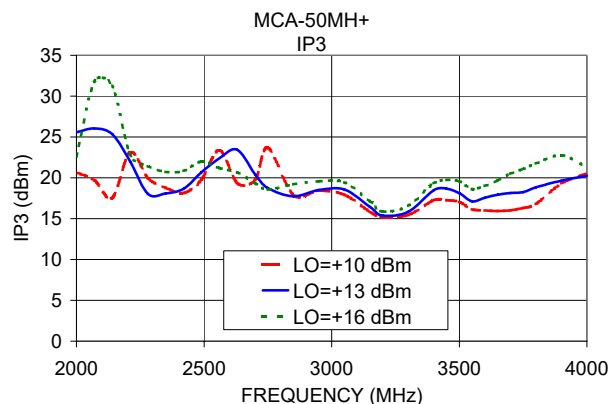
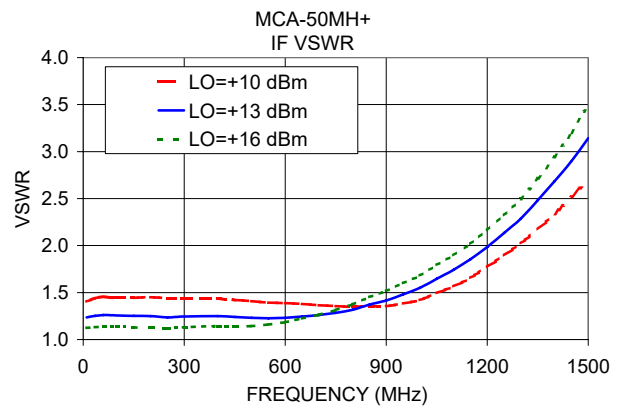
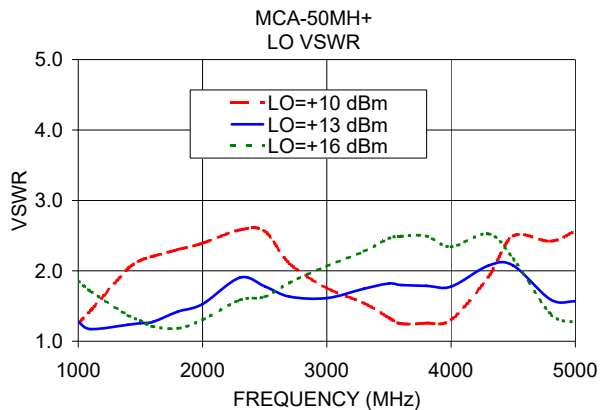
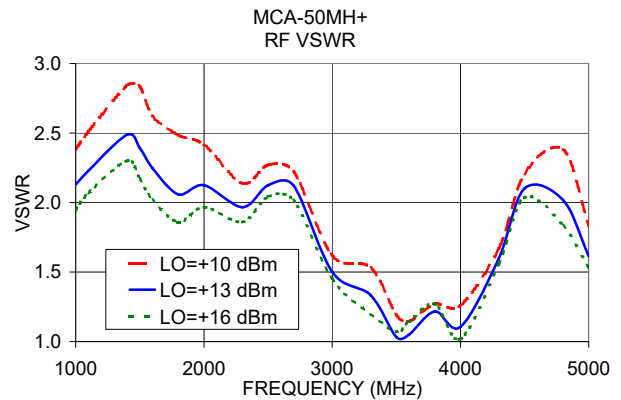
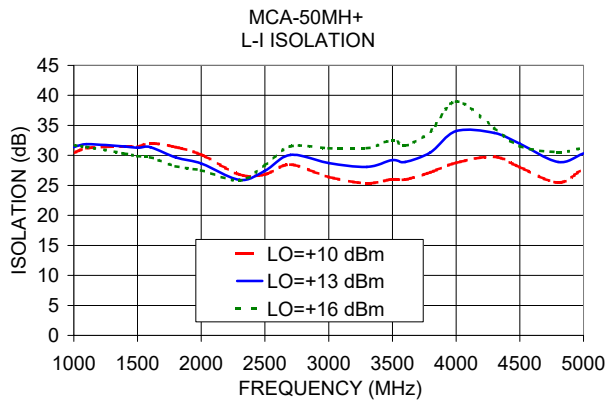
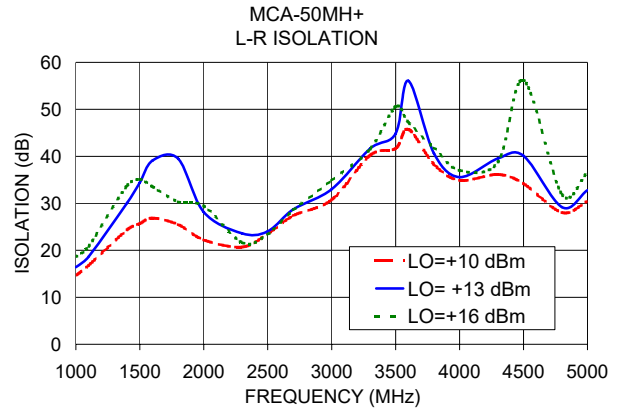
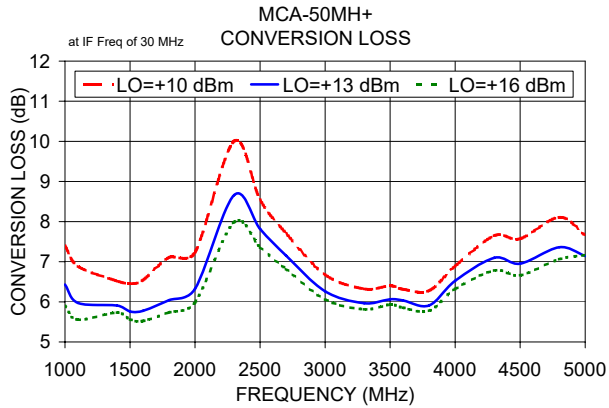
Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
1000.10	1030.10	6.43	16.42	31.37	1.28	2.13
1100.10	1130.10	5.97	18.64	31.89	1.17	2.23
1400.10	1430.10	5.91	30.08	31.47	1.23	2.49
1500.10	1530.10	5.76	34.43	31.25	1.26	2.39
1600.10	1630.10	5.78	39.11	31.37	1.28	2.25
1800.10	1830.10	6.04	39.49	29.65	1.42	2.06
2000.10	2030.10	6.32	28.14	28.64	1.53	2.12
2300.10	2330.10	8.66	23.59	25.91	1.90	1.97
2500.10	2530.10	7.82	24.04	27.43	1.78	2.12
2700.10	2730.10	7.15	28.71	30.07	1.63	2.12
3000.10	3030.10	6.26	33.02	28.73	1.61	1.50
3300.10	3330.10	5.97	41.64	28.07	1.75	1.33
3500.10	3530.10	6.06	44.84	29.22	1.82	1.03
3600.10	3630.10	6.03	56.06	28.90	1.80	1.05
3800.10	3830.10	5.91	40.61	30.53	1.79	1.22
4000.10	4030.10	6.53	35.57	34.07	1.78	1.11
4300.10	4330.10	7.10	39.56	33.74	2.07	1.60
4500.10	4530.10	6.95	40.10	31.97	2.08	2.10
4800.10	4830.10	7.36	29.20	28.90	1.59	2.02
5000.10	5030.10	7.14	32.79	30.33	1.57	1.61

### Electrical Schematic



# Performance Charts

# MCA-50MH+



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