

High IP3

# Frequency Mixer WIDE BAND

## MCA-50LH+

Level 10 (LO Power+10 dBm) 1000 to 5000 MHz



CASE STYLE: DZ883

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50 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

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

### Applications

- PCN
- satellite
- line of sight links
- WiMAX

### 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	$\bar{X}$ σ Max.	Typ.	Min.	Typ.	Min.	
1000-5000	10-1500		7.3 0.2 9.9					
1000-1400	10-400		6.8 0.1 8.5	20	11	32	25	17
1400-2000	10-600		6.6 0.1 7.7	25	20	32	25	17
2000-2600	10-600		7.8 0.2 9.9	25	18	30	24	18
2600-4500	10-1500		7.8 0.1 8.6	35	20	25	15	15
4500-5000	50-500		8.0 0.2 9.9	35	22	25	15	16

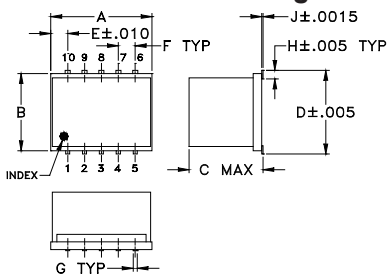
1 dB COMPR. +6 dBm typ.

• see individual band specs

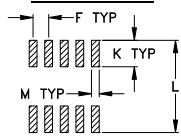
### Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)		Isolation L-R (dB)		Isolation L-I (dB)		VSWR RF Port (:1)		VSWR LO Port (:1)	
	RF	LO	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm		
1000.00	1030.00	6.60	17.81	29.70	1.29	1.98				
1200.00	1230.00	6.15	24.04	29.91	1.21	2.24				
1400.00	1430.00	6.43	34.07	29.94	1.24	2.29				
1600.00	1630.00	6.37	39.60	29.40	1.25	2.44				
1800.00	1830.00	6.62	31.69	28.02	1.37	2.20				
2000.00	2030.00	6.78	24.37	27.19	1.46	2.26				
2200.00	2230.00	7.92	21.31	26.29	1.70	1.96				
2400.00	2430.00	8.07	20.77	27.01	1.75	1.90				
2600.00	2630.00	6.95	23.92	27.47	1.62	2.03				
2800.00	2830.00	6.40	27.26	27.23	1.77	1.77				
3000.00	3030.00	6.19	31.17	27.36	1.69	1.36				
3200.00	3230.00	5.94	32.33	27.58	1.72	1.18				
3400.00	3430.00	5.98	37.20	28.87	1.83	1.14				
3600.00	3630.00	5.98	38.18	28.74	1.93	1.26				
3800.00	3830.00	6.15	36.23	30.47	2.05	1.43				
4000.00	4030.00	6.45	34.76	32.27	2.17	1.60				
4200.00	4230.00	6.28	34.62	30.62	2.18	2.08				
4400.00	4430.00	6.12	31.09	29.11	2.21	2.52				
4600.00	4630.00	5.93	31.30	28.75	2.26	2.31				
5000.00	5030.00	5.70	37.55	29.58	1.92	1.52				

### Outline Drawing



### PCB Land Pattern

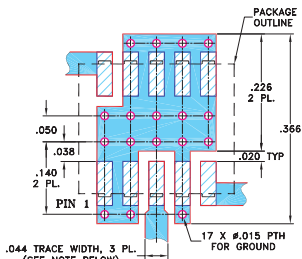


Suggested Layout, Tolerance to be within ±.002

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.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)



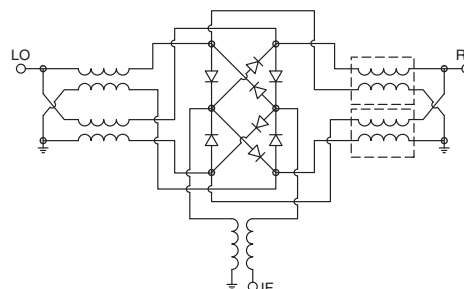
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Notes

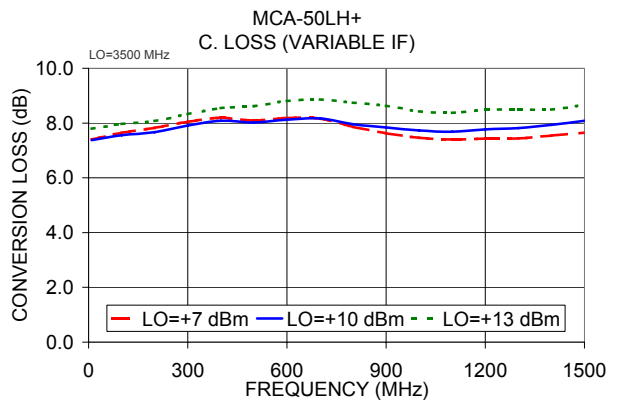
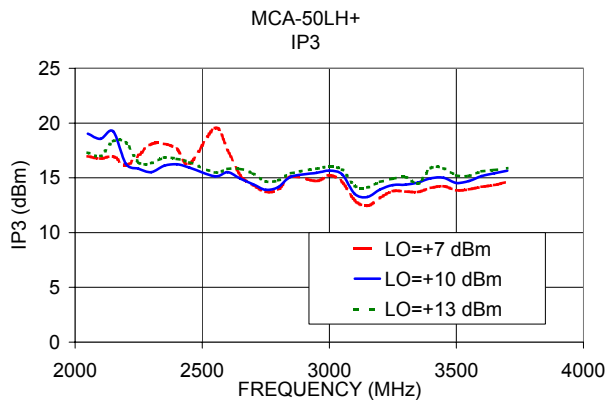
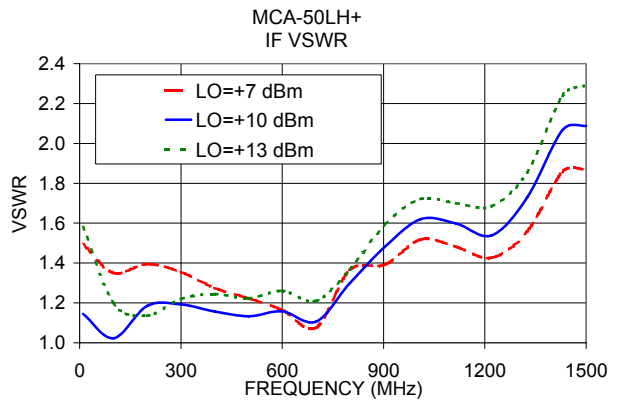
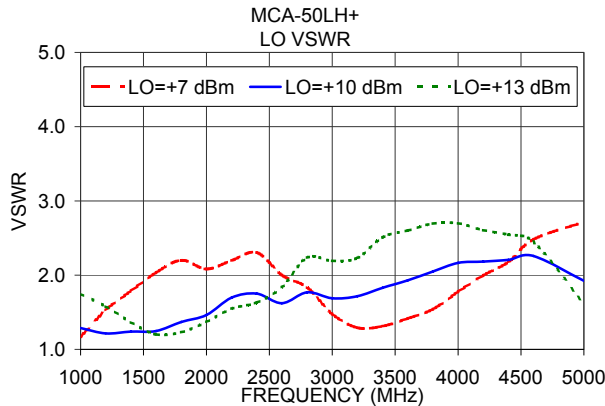
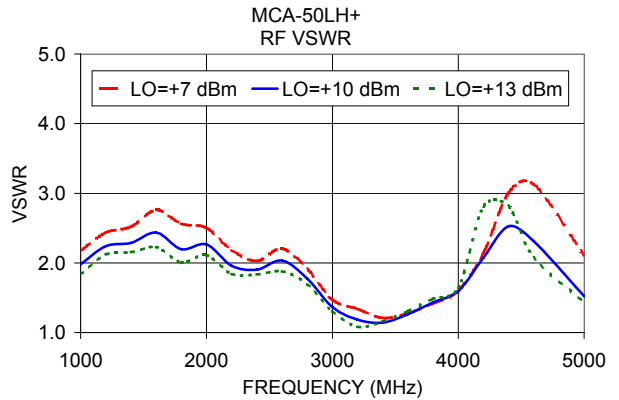
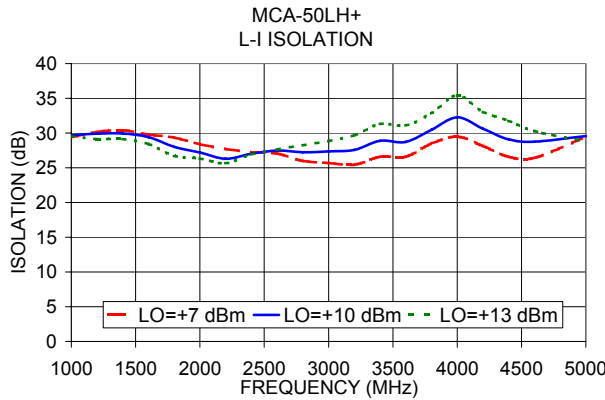
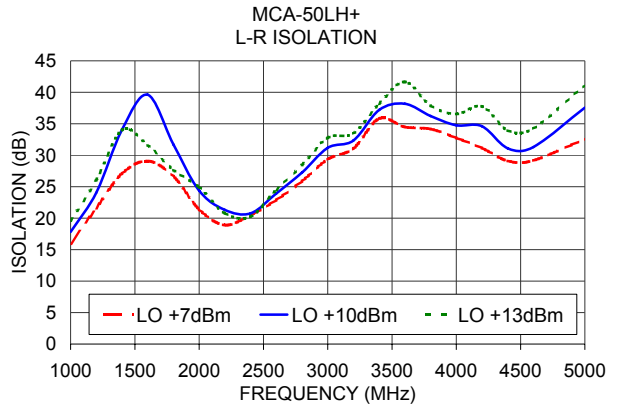
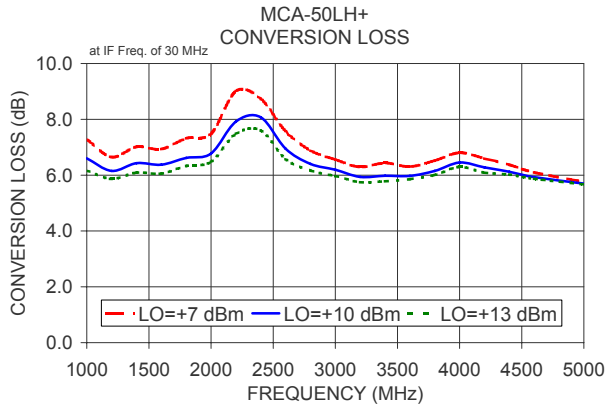
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### Electrical Schematic



# Performance Charts

# MCA-50LH+



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