

# Frequency Mixer WIDE BAND

## MCA1-42MH+

Level 13 (LO Power+13 dBm) 1000 to 4200 MHz

### Maximum Ratings

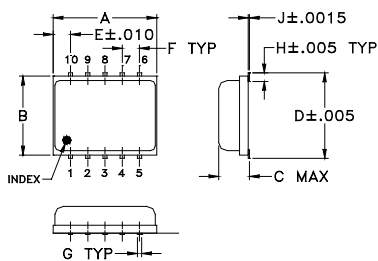
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200 mW
IF Current	40 mA

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

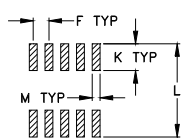
### Pin Connections

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

### Outline Drawing



#### PCB Land Pattern

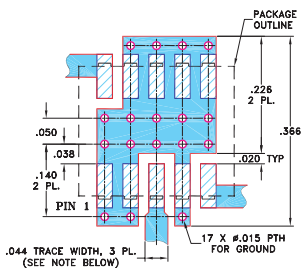


Suggested Layout,  
Tolerance to be within ±.002

### 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](http://www.minicircuits.com/MCLStore/terms.jsp)

### Features

- wide bandwidth, 1000 to 4200 MHz
- low conversion loss, 6.2 dB typ.
- excellent L-R isolation, 35 dB typ.
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7,027,795

### Applications

- cellular
- PCN
- fixed satellite
- WCDMA
- defense radar
- defense communications



CASE STYLE: DZ885

#### +RoHS Compliant

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

#### Recommended Replacement: MAC-42MH+

- Footprint Compatible
- MIL Level Reliability



[Click here for data sheet](#)

### Electrical Specifications (T<sub>AMB</sub> = -55°C to 100°C)

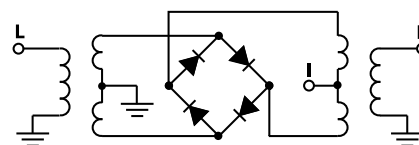
FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)			
		Typ.	Min.	Typ.	Min.				
LO/RF f <sub>l</sub> -f <sub>u</sub>	$\bar{X}$ $\sigma$ Max.								
1000-4200	DC-1500	6.2	0.1	8.9	35	20	20	10	16

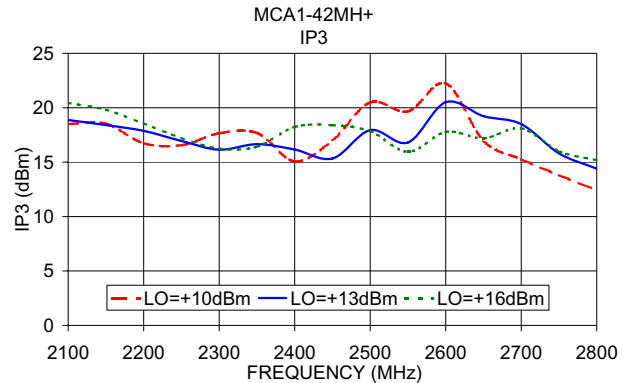
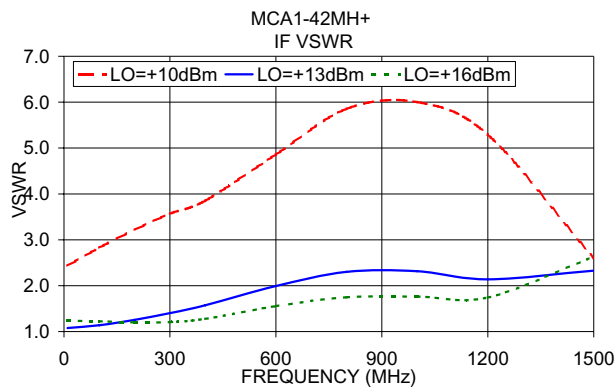
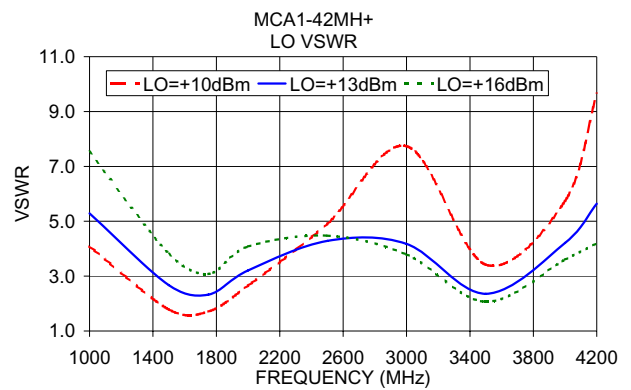
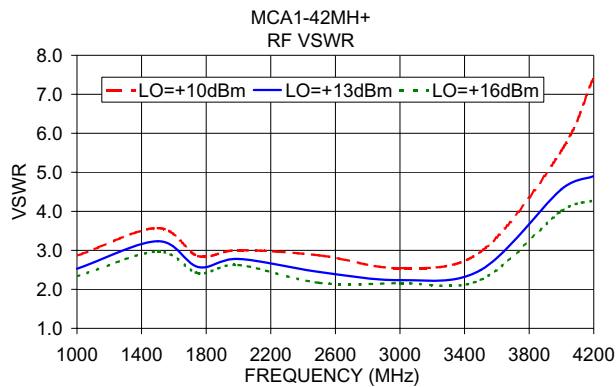
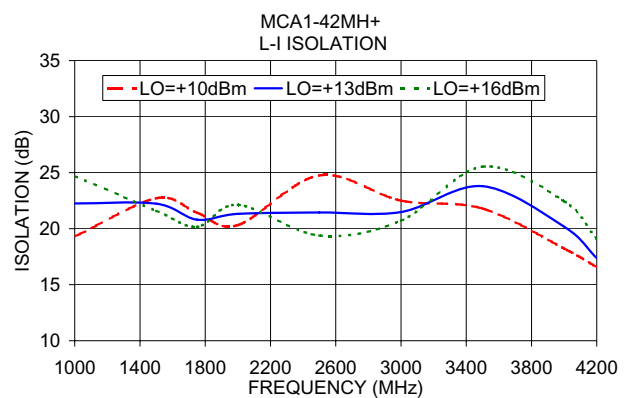
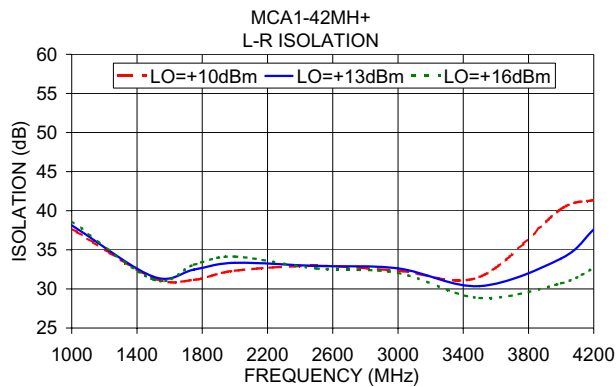
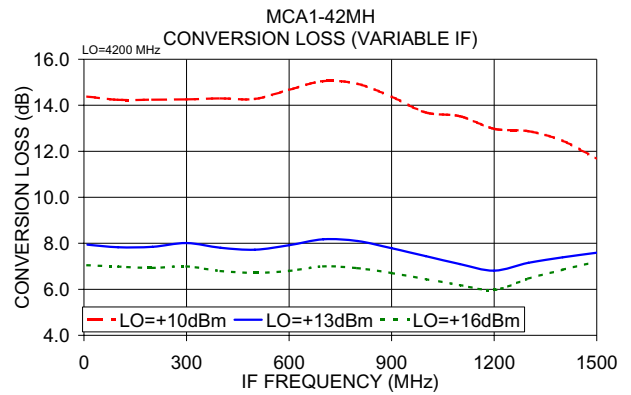
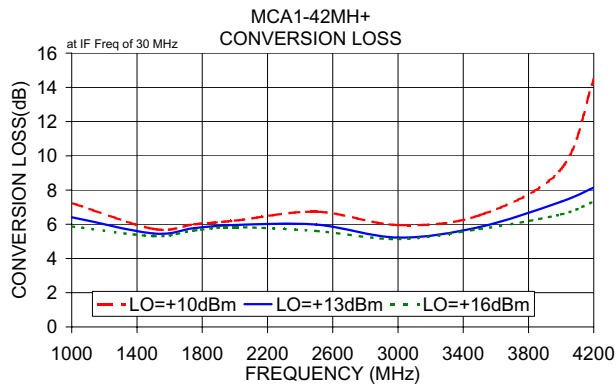
1 dB COMPR. +9 dBm typ.

### 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
RF	LO	LO	LO	LO	LO	
1000.1	1030.1	6.41	38.13	22.25	2.53	5.29
1500.1	1530.1	5.46	31.57	22.23	3.23	2.67
1750.1	1780.1	5.77	32.48	20.81	2.57	2.33
2000.1	2030.1	5.96	33.34	21.32	2.78	3.21
2500.1	2530.1	5.99	32.94	21.44	2.45	4.29
3000.1	3030.1	5.22	32.62	21.48	2.24	4.18
3500.0	3530.1	5.84	30.35	23.79	2.50	2.35
4000.1	4030.1	7.32	33.89	20.18	4.57	4.21
4200.1	4230.1	8.14	37.60	17.38	4.90	5.64

### Electrical Schematic





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