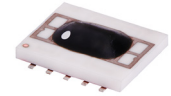


Ceramic

# Frequency Mixer WIDE BAND

## MCA1-24+

Level 7 (LO Power+7 dBm) 300 to 2400 MHz



Generic photo used for illustration purposes only

CASE STYLE: DZ885

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°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, 300 to 2400 MHz
- low conversion loss, 6.1 dB typ.
- excellent L-R isolation, 40 dB typ.
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7,027,795

### Recommended Replacement:

**MAC-24+**

- Footprint Compatible
- MIL Level Reliability

[Click here for data sheet](#)

### Applications

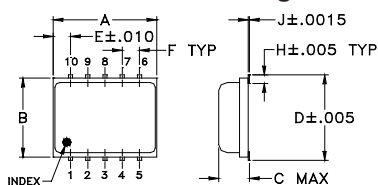
- cellular
- PCN
- defense & weather radar
- UHF TV
- WCDMA
- defense communications

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

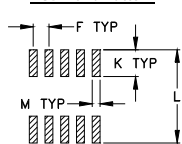
Available Tape and Reel at no extra cost

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

### Outline Drawing



### PCB Land Pattern



Suggested 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	

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

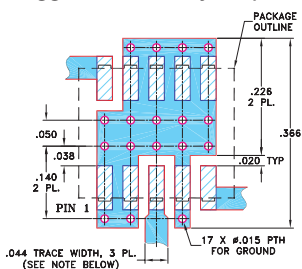
FREQUENCY (MHz)	CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
	LO/RF f <sub>L</sub> -f <sub>U</sub>	IF	$\bar{X}$ $\sigma$ Max.	Typ.	Min.	Typ.	Min.	
300-2400	DC-700		6.1    0.1    8.9	40	25	25	15	10

1 dB COMPR. +1 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	RF	LO	RF	LO	RF	LO	RF
	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm
301.00	331.00	5.65	49.09	22.79	1.98	6.94		
401.00	431.00	4.79	42.44	24.50	1.37	2.42		
501.00	531.00	6.25	44.11	26.82	3.58	1.36		
701.00	731.00	6.44	43.51	26.63	3.58	2.12		
901.00	931.00	6.94	42.58	28.29	4.77	3.78		
1151.00	1181.00	7.00	43.47	29.90	4.79	4.32		
1301.00	1331.00	7.04	41.88	30.02	3.94	4.91		
1501.00	1531.00	5.51	39.43	27.85	1.91	3.22		
1701.00	1731.00	4.99	36.78	25.41	1.29	1.64		
2001.00	2031.00	5.90	33.55	23.65	2.15	2.56		
2401.00	2431.00	7.09	36.83	29.81	3.39	4.83		

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



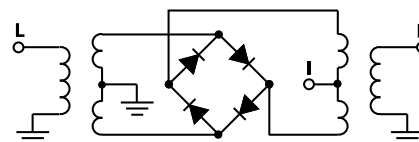
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

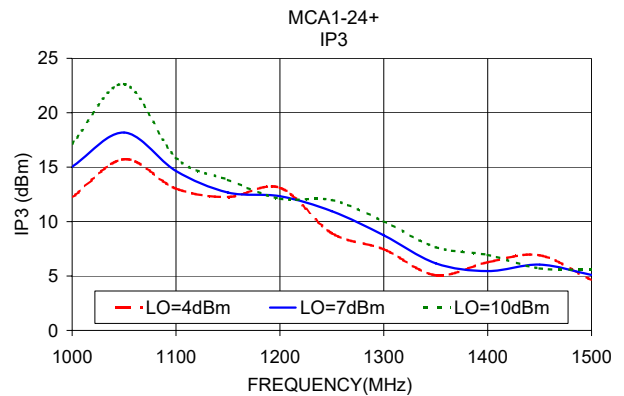
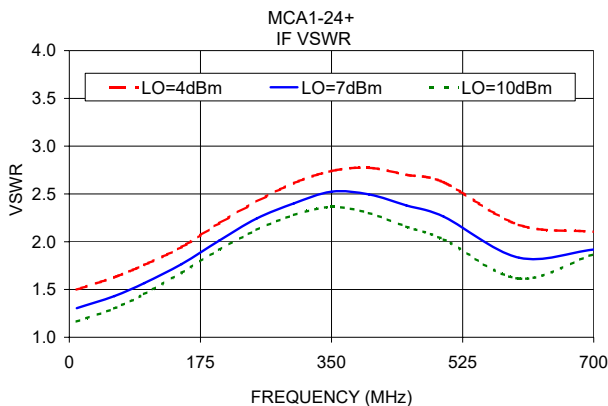
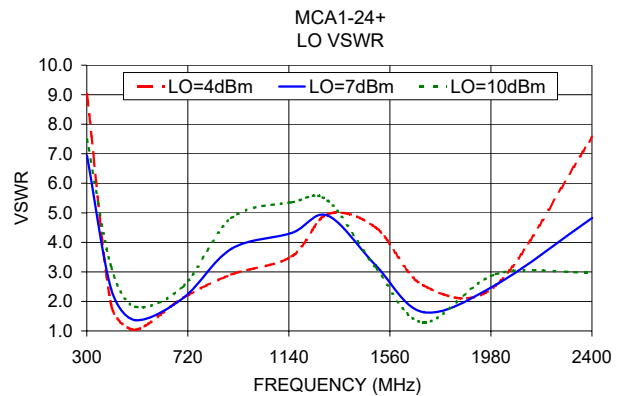
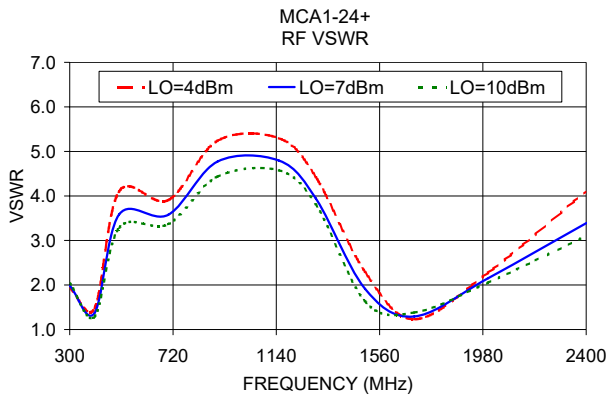
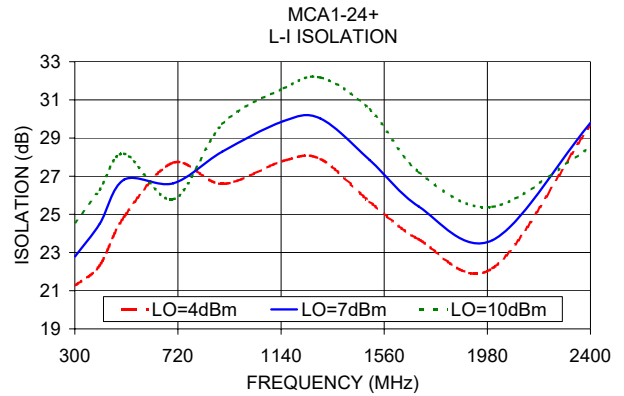
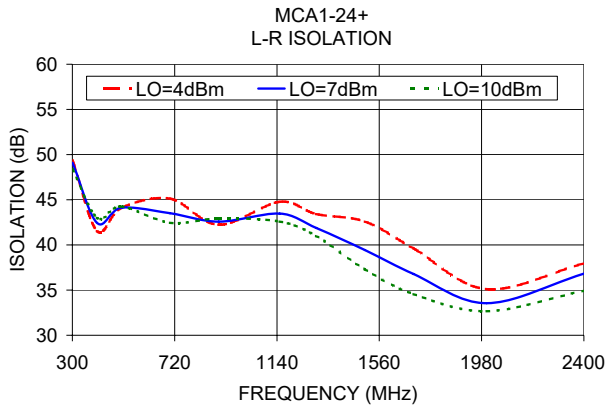
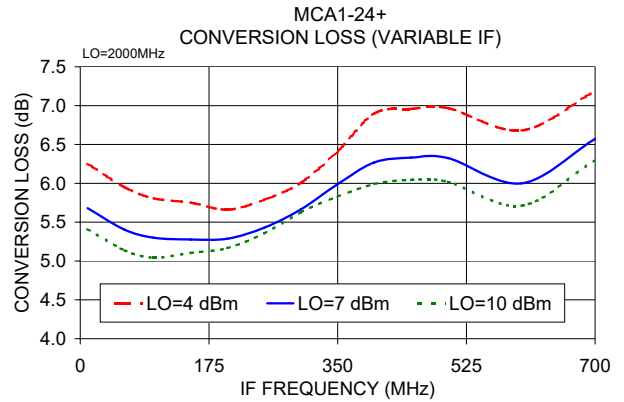
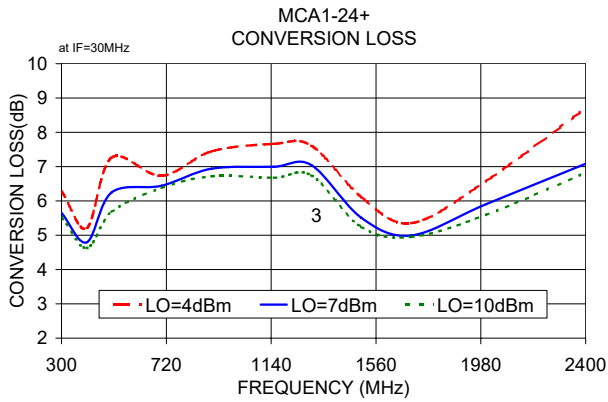
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Notes

- 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.
- 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 Schematic





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