

Ceramic

# Frequency Mixer WIDE BAND

## MCA1-24LH+

Level 10 (LO Power+10 dBm) 300 to 2400 MHz

### Maximum Ratings

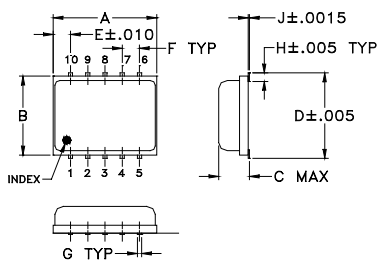
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50 mW
IF Current	40 mA

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

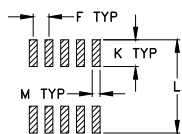
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern



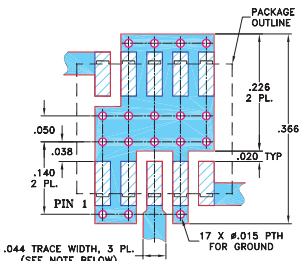
Suggested Layout,  
Tolerance to be within ±.002

### 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	grams	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

### Features

- wide bandwidth, 300 to 2400 MHz
- low conversion loss, 6.5 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

### Applications

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



CASE STYLE: DZ885  
PRICE: \$5.95 ea. QTY (10-49)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

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

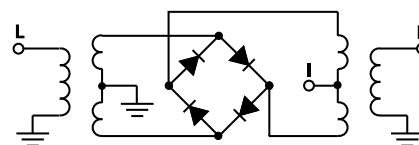
FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF	IF	$\bar{X}$	$\sigma$	Max.	Typ.	Min.	Typ.	Min.	Typ.
300-2400	DC-700	6.5	0.1	8.9	40	25	22	12	13

1 dB COMPR. +5 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)
RF	LO	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm
301.00	331.00	5.75	47.96	22.24	1.84	6.52
401.00	431.00	5.00	41.59	24.26	1.46	2.34
501.00	531.00	6.40	43.45	27.04	3.74	1.38
701.00	731.00	6.34	43.78	27.28	3.52	2.43
901.00	931.00	7.26	42.42	26.85	4.31	3.80
1151.00	1181.00	7.32	44.15	30.33	4.79	4.23
1301.00	1331.00	7.16	42.78	34.33	3.38	3.84
1501.00	1531.00	5.61	40.19	29.17	1.87	2.26
1701.00	1731.00	5.14	36.19	25.42	1.46	1.40
2001.00	2031.00	6.07	33.56	22.01	2.01	2.77
2401.00	2431.00	6.73	33.38	25.12	2.32	3.97

### Electrical Schematic



**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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).

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# Performance Charts

# MCA1-24LH+

