

Ceramic

# Frequency Mixer WIDE BAND

## MCA1-60MH+

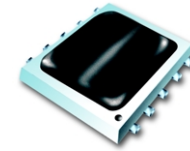
Level 13 (LO Power +13 dBm) 1600 to 6000 MHz

### Features

- low conversion loss, 6.2 dB typ.
- wide bandwidth, 1600 to 6000 MHz
- useable to 8 GHz
- IF, DC to 2000 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"

### Applications

- PCN
- defense & weather radar
- WCDMA
- defense communications



CASE STYLE: DZ885  
PRICE: \$8.95 ea. QTY (10-49)

(Patent pending)

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

The +suffix has been added in order to identify RoHS Compliance. There has been no change to the model's material, form, fit, or function. See our web site for RoHS Compliance methodologies and qualifications.

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

MODEL NO.	FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3@ center band Typ. (dBm)	E FACTOR
	LO/RF f <sub>L</sub> -f <sub>U</sub>	IF	$\bar{x}$	$\sigma$	Max.	Typ.	Min.	Typ.	Min.		
MCA1-60MH+	1600-4400	DC-2000	6.9	0.1	8.5*	32	25	17	—	15	0.2
	4400-6000	DC-2000	6.0	0.1	8.5*	22	18	15	—	15	0.2

1dB Compr.: +9 dBm typ.  
E= [(IP3(dBm)-LO Power(dBm)]/10  
\* Conversion loss at 30 MHz IF, increases with IF frequency. See Graphs

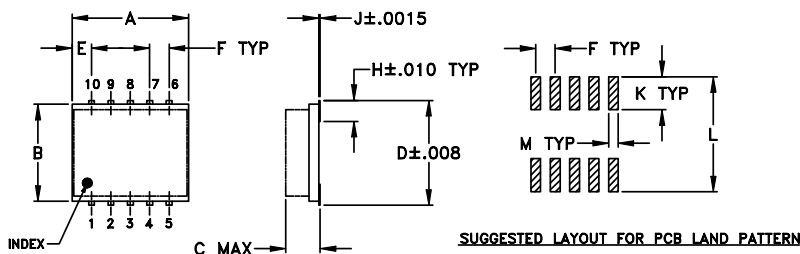
### Pin Connections

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

### Maximum Ratings

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

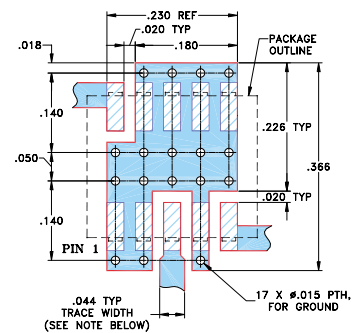
### Outline Drawing



TOLERANCES  
2 PL DECIMALS ±.01  
3 PL DECIMALS ±.005  
UNLESS OTHERWISE SPECIFIED

SUGGESTED LAYOUT FOR PCB LAND PATTERN

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



NOTE: TRACE WIDTH IS SHOWN FOR ROGERS R04350 WITH DIELECTRIC THICKNESS 0.020" ± 0.0015", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

- DENOTES PCB COPPER LAYOUT
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.085	.274	.050	.050	.012
7.62	6.35	2.16	6.96	1.27	1.27	0.30
H	J	K	L	M	wt	
.057	.004	.085	.296	.030	grams	
1.45	0.10	2.16	7.52	0.76	0.25	



INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified



REV. C  
M98898  
ED-10107/15  
MCA1-60MH+  
DJ/TD/CP  
050914  
Page 1 of 2

## Typical Performance Data at 25°C

Frequency		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR LO port (:1)	VSWR RF port (:1)
RF MHz	LO MHz					
		LO +13 dBm	LO +13 dBm	LO +13 dBm	LO +13 dBm	LO +13 dBm
1600.00	1630.00	5.80	34.40	18.22	4.29	2.36
1800.00	1830.00	5.69	40.40	20.40	3.06	2.50
2000.00	2030.00	5.71	34.08	20.59	2.20	2.85
2400.00	2430.00	5.71	29.81	17.48	1.48	2.56
2600.00	2630.00	5.66	31.17	17.47	1.68	2.51
2800.00	2830.00	6.40	33.79	17.35	2.07	3.54
3000.00	3030.00	7.00	32.33	17.15	2.75	4.90
3200.00	3230.00	6.83	31.52	17.08	3.90	3.71
3400.00	3430.00	6.42	31.43	16.73	4.56	3.42
3600.00	3630.00	6.01	31.58	15.66	4.51	3.10
3800.00	3830.00	6.01	32.37	16.98	6.19	2.53
4000.00	4030.00	6.35	32.97	18.41	4.62	2.23
4400.00	4430.00	6.15	30.70	18.49	4.58	2.54
4600.00	4630.00	5.89	28.56	18.16	4.46	2.31
4800.00	4830.00	6.68	28.20	18.36	2.50	2.52
5000.00	5030.00	5.94	25.23	18.75	1.19	2.46
5200.00	5230.00	5.87	23.87	19.82	1.58	2.58
5600.00	5630.00	6.30	24.95	15.42	3.97	2.72
5800.00	5830.00	6.24	24.65	13.88	6.41	3.33
6000.00	6030.00	7.10	23.11	12.81	13.10	4.37

## Performance Charts

