

# Ceramic Frequency Mixer

Level 13 LO Power+13 dBm 1850 to 1910 MHz

**MCA-19FMH+**  
**MCA-19FMH**



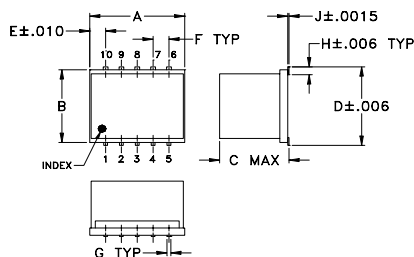
## Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
LO & RF Power	16 dBm

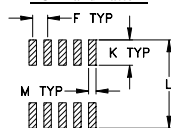
## Pin Connections

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

## Outline Drawing



### PCB Land Pattern

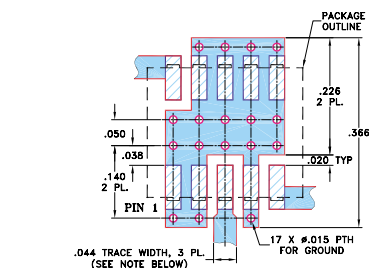


Suggested Layout,  
Tolerance to be within ±.002

## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.190	.262	.050	.050	.012
7.62	6.35	4.83	6.66	1.27	1.27	0.30
H	J	K	L	M	wt	
.027	.004	.085	.296	.030	grams	
0.69	0.10	2.16	7.52	0.76	0.5	

**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.  
3. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
4. DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Features

- excellent IP3, 30 dBm typ.
- excellent L-R isolation, 40 dB typ.
- excellent 1 dB compression, RF>LO power
- industry standard foot print
- LTCC design for excellent temperature stability performance repeatability and small size
- aqueous washable
- double balanced mixer
- low price
- protected by US Patent 6,959,180

## Applications

- GSM
- DECT

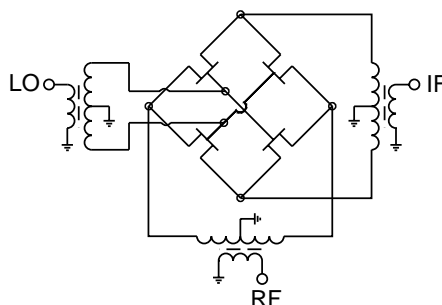
## Electrical Specifications (T<sub>AMB</sub>=-55°C to 100°C)

FREQUENCY (MHz)			IP3 (dBm)	RF in at 1 dB compr. (dBm)	CONVERSION LOSS (dB)		LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)	
RF	LO	IF			Typ	Max.	Typ	Min.	Typ	Min.
1850-1910	1760-1820	70-130	30	13	6.9	8.4	40	22	39	20

## Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)	IP3 (dBm)
RF	LO	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
1850.00	1760.00	6.85	43.51	45.47	1.73	2.51	30.46
1865.00	1775.00	6.87	42.53	46.32	1.78	2.14	31.19
1880.00	1790.00	6.86	41.50	43.61	1.77	1.98	31.17
1895.00	1805.00	6.85	41.15	40.87	1.74	2.01	31.16
1910.00	1820.00	6.80	41.04	39.00	1.72	2.22	30.98

## Electrical Schematic



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Page 1 of 2

## Performance Charts

# MCA-19FMH+ MCA-19FMH

