

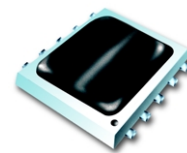
Ceramic

# Frequency Mixer

WIDE BAND

MCA1-12G+

Level 7 (LO Power +7 dBm) 3800 to 12000 MHz



## Features

- wide bandwidth, 3800 to 12000 MHz
- low conversion loss, 6.2 dB typ.
- high L-R isolation, 32 dB typ.
- IF, DC to 1800 MHz
- LTCC double balanced mixer
- low cost
- low profile, 0.08"

## Applications

- satellite up and down converters
- line of sight links
- defense radar
- defense communication
- federal fixed service

CASE STYLE: DZ885  
PRICE: \$10.95 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 ( $T_{AMB} = -55^{\circ}\text{C}$ to $100^{\circ}\text{C}$ )

MODEL NO.	FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 @ center band Typ. (dBm)	E FACTOR
	LO/RF $f_L - f_U$	IF	$\bar{x}$	$\sigma$	Max.	Typ.	Min.	Typ.	Min.		
MCA1-12G+	3800-12000	DC-1800									
	3800-6500	DC-1800	5.4	0.2	8.3*	32	18	13	8	11	0.4
	6500-9500	DC-1800	6.2	0.1	8.0*	38	25	40	23	8	0.1
	9500-12000	DC-1800	6.0	0.2	8.5*	26	18	21	17	10	0.3

1dB Compr.: +1 dBm typ.

E =  $(IP3(\text{dBm}) - LO \text{ Power}(\text{dBm})) / 10$ 

\* Conversion loss at 30 MHz IF, increases with IF frequency

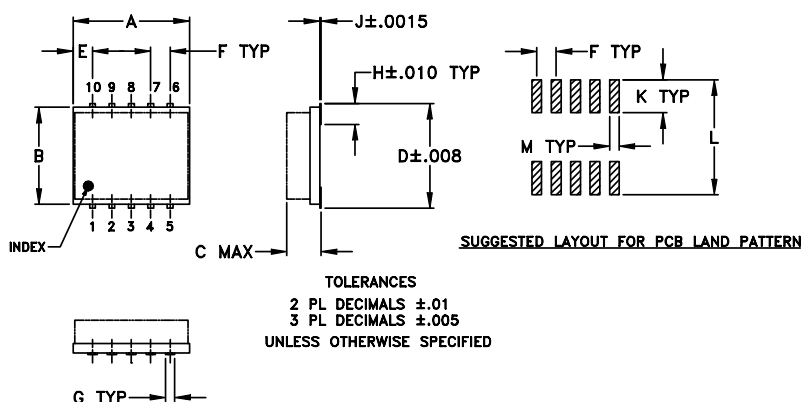
## Pin Connections

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	50mW
IF Current	40mA

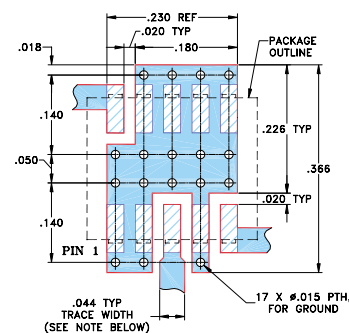
## Outline Drawing



## 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	

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

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

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REV. B  
M98898  
ED-11119/1  
MCA1-12G+  
DJ/RS/CP  
050914  
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## 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 +7 dBm	LO +7 dBm	LO +7 dBm	LO +7 dBm	LO +7 dBm
3800.10	3770.10	5.64	30.15	10.49	2.93	1.81
4200.10	4170.10	5.12	31.14	11.80	2.57	1.81
4600.10	4570.10	4.96	29.60	13.89	3.07	1.48
5000.10	4970.10	5.78	29.71	13.15	2.22	2.07
5400.10	5370.10	6.23	22.64	12.43	2.95	1.64
5800.10	5770.10	6.67	24.41	17.17	2.67	1.80
6200.10	6170.10	5.79	30.53	25.46	3.58	1.68
6600.10	6570.10	5.57	41.04	32.74	3.45	1.59
7000.10	6970.10	5.93	47.90	35.58	3.15	2.35
7400.10	7370.10	5.64	40.88	37.64	2.52	1.85
7800.10	7770.10	6.28	37.93	40.88	2.59	1.92
8200.10	8170.10	5.81	39.67	46.44	2.51	1.84
8600.10	8570.10	5.63	35.96	45.14	2.04	2.02
9000.10	8970.10	5.80	36.27	36.70	2.07	2.22
9400.10	9370.10	6.02	31.32	29.66	2.06	2.34
9800.10	9770.10	6.47	29.70	24.93	3.15	2.16
10200.10	10170.10	6.21	29.25	25.01	2.68	1.90
10800.10	10770.10	5.46	25.88	30.01	2.08	1.65
11200.10	11170.10	6.12	24.47	27.61	1.93	1.97
12000.10	11970.10	7.23	21.86	27.34	1.43	1.73

## Performance Charts

