

Ceramic

# Frequency Mixer WIDE BAND

## MCA1-12G+

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

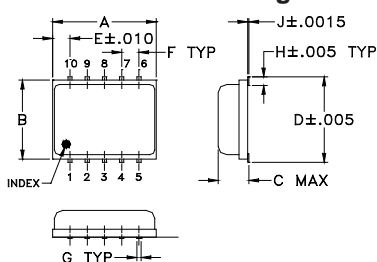
### Maximum Ratings

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.	

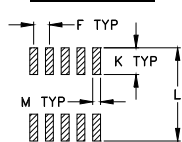
### Pin Connections

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

### Outline Drawing



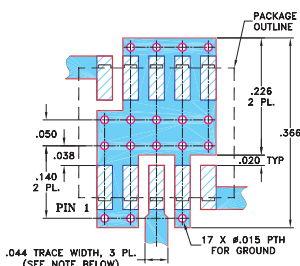
### PCB Land Pattern



### 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	

### 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, 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
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7,027,795

### Applications

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

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

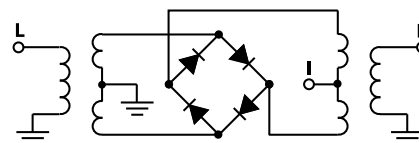
FREQUENCY (MHz)	CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
	LO/RF f <sub>L</sub> -f <sub>U</sub>	IF	$\bar{X}$ σ Max.	Typ.	Min.	Typ.	Min.	
3800-12000	DC-1800		5.4 0.2 8.3*	32	18	13	8	11
3800-6500	DC-1800		6.2 0.1 8.0*	38	25	40	23	8
6500-9500	DC-1800		6.0 0.2 8.5*	26	18	21	17	10

1 dB COMPR. +1 dBm typ.  
\* Conversion loss at 30 MHz IF, increases with IF frequency.

### Typical Performance Data at 25°C

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

### Electrical Schematic



CASE STYLE: DZ885  
PRICE: \$10.95 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.

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For detailed performance specs & shopping online see web site

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