

Frequency Mixer

MCA1-12GL+

Level 4 (LO Power+4 dBm) 3800 to 12000 MHz

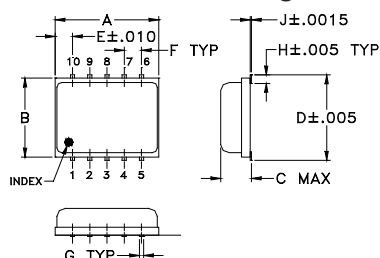
Maximum Ratings

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.	

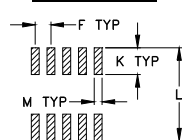
Pin Connections

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

Outline Drawing



PCB Land Pattern

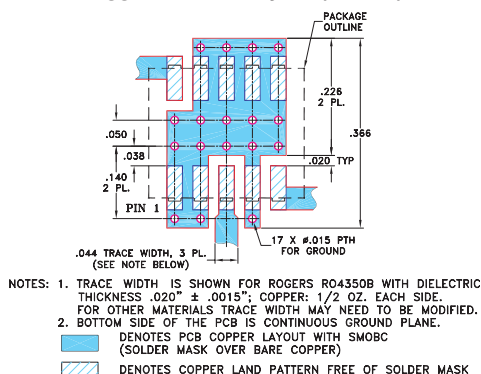


Suggested Layout,
Tolerance to be within $\pm .002$

Outline Dimensions ($\frac{\text{inch}}{\text{mm}}$)

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)



Features

- wide bandwidth, 3800 to 12000 MHz
- high L-R isolation, 32 dB typ.
- IF, DC to 1500 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_{AMB}=-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_L - f_U	IF	$\overline{X}$	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
3800-12000	DC-1500								
3800-6500	DC-1500	6.8	0.2	8.5*	32	17	13	8	9
6500-9500	DC-1500	6.5	0.3	9.2*	38	24	40	23	7
9500-12000	DC-1500	7.0	0.3	—	25	17	26	15	6

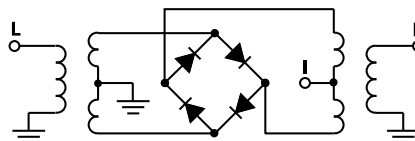
1 dB COMPR. +1 dBm typ.

* 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)
RF	LO	LO +4dBm	LO +4dBm	LO +4dBm	LO +4dBm	LO +4dBm
3800.10	3770.10	5.83	31.67	11.75	2.08	2.41
4200.10	4170.10	5.28	33.16	12.89	2.07	2.08
4600.10	4570.10	5.07	30.20	14.54	1.67	2.33
5000.10	4970.10	5.98	30.01	13.24	2.24	1.89
5400.10	5370.10	6.53	21.42	11.36	1.78	2.38
5800.10	5770.10	7.07	22.02	15.36	1.95	2.37
6200.10	6170.10	6.21	28.40	23.67	1.97	3.46
6600.10	6570.10	5.94	39.11	32.57	1.87	3.60
7000.10	6970.10	6.69	48.57	37.06	2.66	3.48
7400.10	7370.10	6.28	39.19	39.61	2.08	3.09
7800.10	7770.10	6.75	35.85	42.58	2.15	3.22
8200.10	8170.10	6.17	36.80	46.61	1.98	3.44
8600.10	8570.10	5.98	35.42	43.55	2.14	2.72
9000.10	8970.10	5.99	33.01	35.36	2.33	2.63
9400.10	9370.10	6.26	32.37	28.27	2.46	2.50
9800.10	9770.10	6.84	32.40	23.97	2.36	4.18
10200.10	10170.10	6.70	31.25	23.95	2.01	3.87
10800.10	10770.10	6.07	26.53	31.09	1.74	3.19
11200.10	11170.10	6.61	24.29	27.16	2.14	2.99
12000.10	11970.10	7.41	21.24	25.82	1.76	2.04

Electrical Schematic



CASE STYLE: DZ885

PRICE: \$11.95 ea. QTY (10-49)

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Recommended Replacement:

MAC-12GL+

- Footprint Compatible
- MIL Level Reliability
- Price \$8.95 Qty. (10)

[Click here for data sheet](#)



Notes

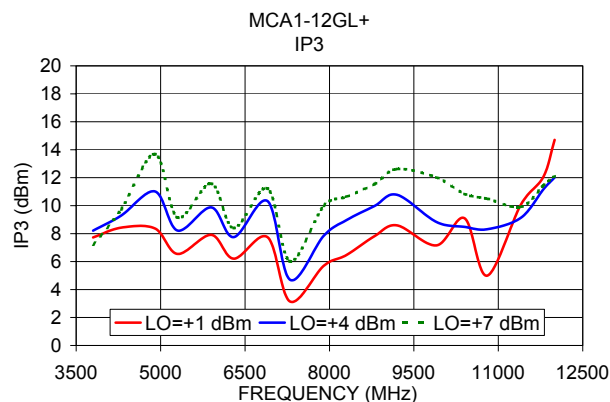
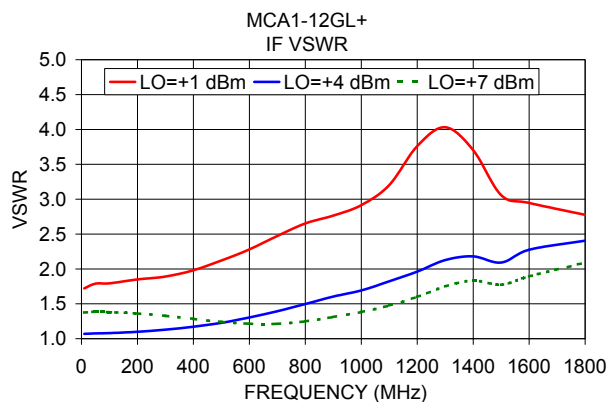
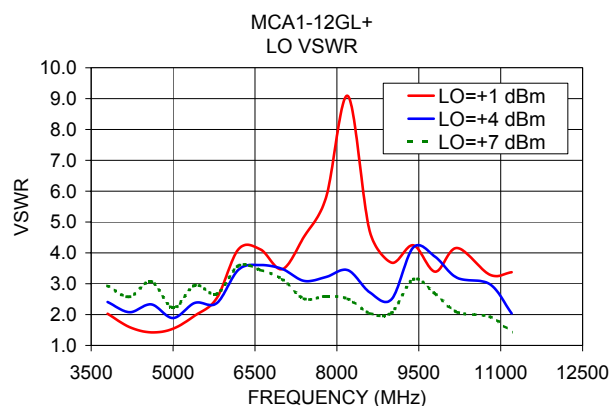
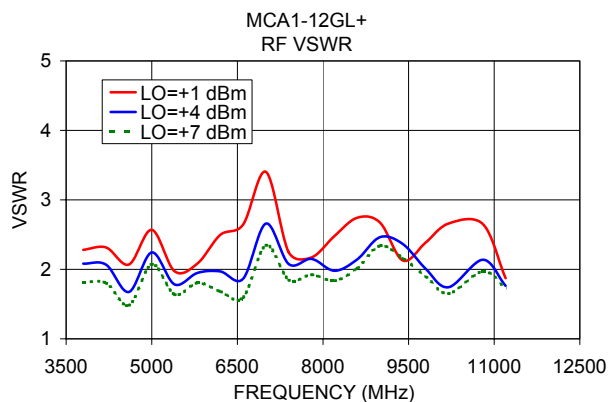
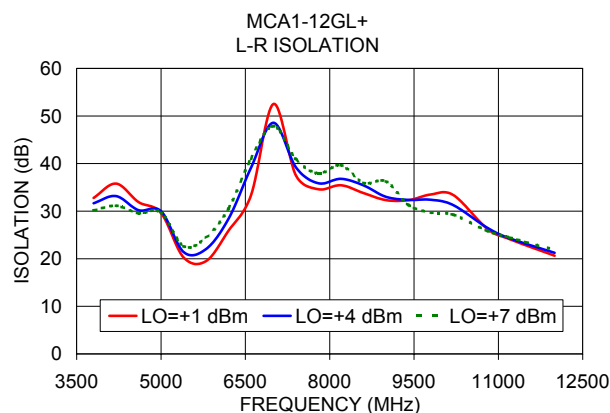
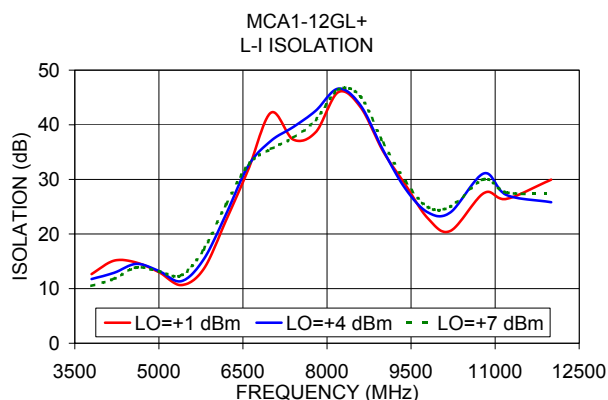
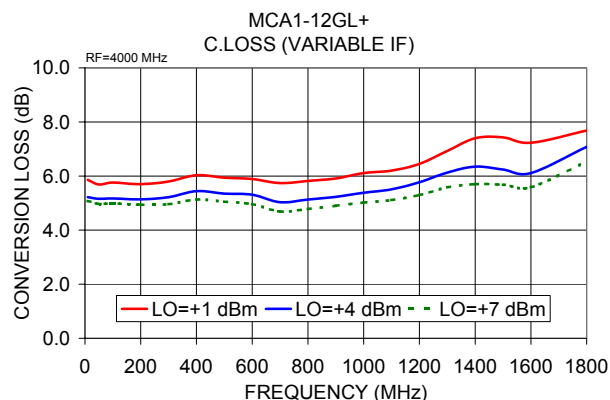
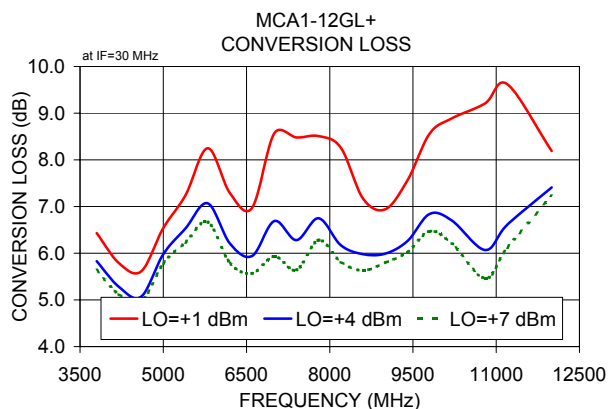
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

C. The parts covered by this specification document 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

Performance Charts

MCA1-12GL+



Notes

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

