

Ceramic

Frequency Mixer WIDE BAND

MCA1T-12G+

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

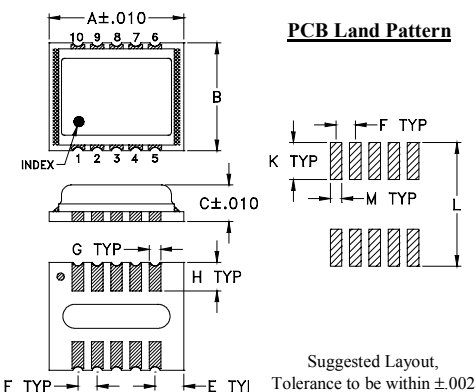
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°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

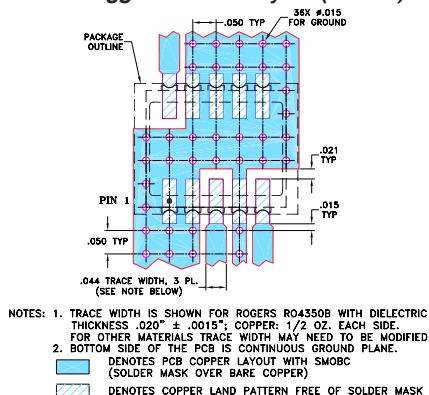
Outline Drawing



Outline Dimensions (inch)

A	B	C	E	F	G
.350	.280	.095	.075	.050	.030
8.89	7.11	2.41	1.91	1.27	0.76
H	K	L	M	wt	
.074	.096	.321	.030	grams	
1.88	2.44	8.15	0.76	0.21	

Demo Board MCL P/N: TB-493+ Suggested PCB Layout (PL-288)



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, 0.095"
- protected by US Patent 7,027,795
- additional patent pending

Applications

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

Electrical Specifications (T_{AMB}=-40°C to 85°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	$\bar{X}$	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
3800-12000	DC-1800								
3800-6500	DC-1800	5.4	0.2	8.3*	32	18	13	8	8
6500-9500	DC-1800	6.2	0.1	8.0*	38	23	40	23	11
9500-12000	DC-1800	6.0	0.2	8.5*	26	17	21	16	12

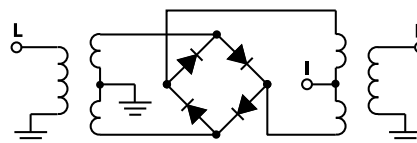
1 dB COMPR. +1 dBm typ.

* 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 +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
3800.00	3830.00	5.66	29.45	11.32	1.78	3.44
4000.00	4030.00	5.21	30.46	12.34	1.65	3.51
4500.00	4530.00	4.92	28.36	13.08	1.44	3.27
5000.00	5030.00	5.89	29.08	12.31	1.85	3.10
5500.00	5530.00	6.56	20.45	12.80	1.30	2.92
6000.00	6030.00	5.96	24.87	21.31	1.42	3.18
6500.00	6530.00	5.90	29.93	29.67	1.64	3.22
7124.00	7154.00	5.97	34.67	33.25	2.25	3.61
8015.00	8045.00	5.99	47.18	41.35	2.18	2.88
9203.00	9233.00	5.53	28.95	33.78	1.82	3.00
9530.00	9560.00	5.81	26.43	29.06	1.80	3.28
10106.00	10136.00	6.24	26.67	20.07	1.77	2.73
10538.00	10568.00	6.19	23.56	25.18	2.10	2.05
11000.00	11030.00	6.44	23.40	24.98	1.92	1.72
11300.00	11330.00	6.98	23.06	23.69	2.42	1.75
11500.00	11530.00	6.82	21.85	22.29	2.36	1.76
11600.00	11630.00	6.75	21.57	21.86	2.27	1.74
11800.00	11830.00	6.77	20.70	21.83	2.12	1.71
11900.00	11930.00	6.59	20.23	21.40	2.01	1.67
12000.00	12030.00	6.77	19.91	20.70	1.98	1.64

Electrical Schematic



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For detailed performance specs
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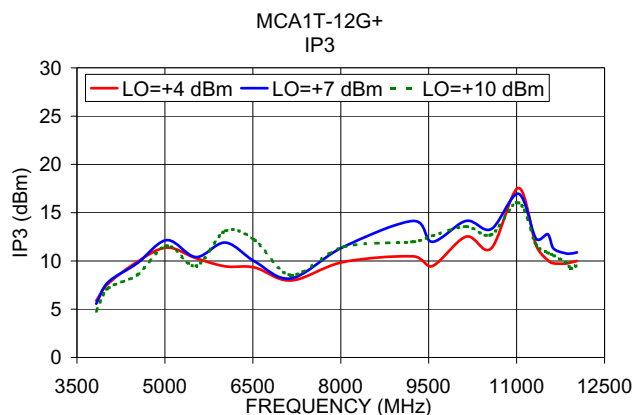
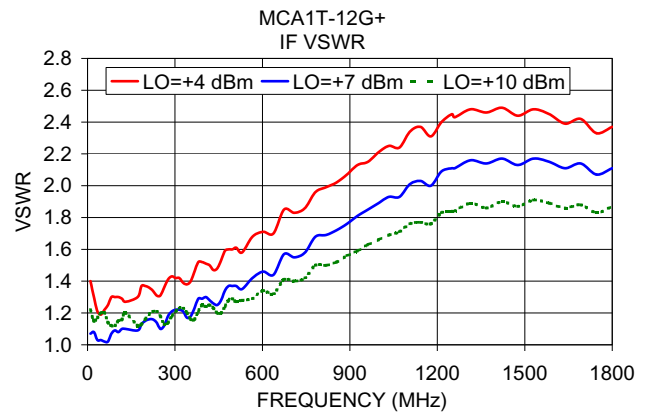
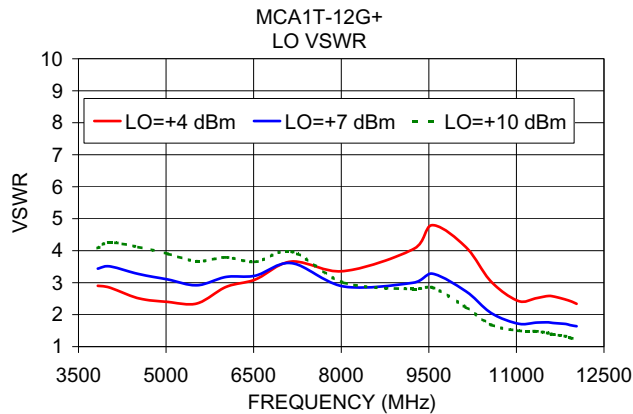
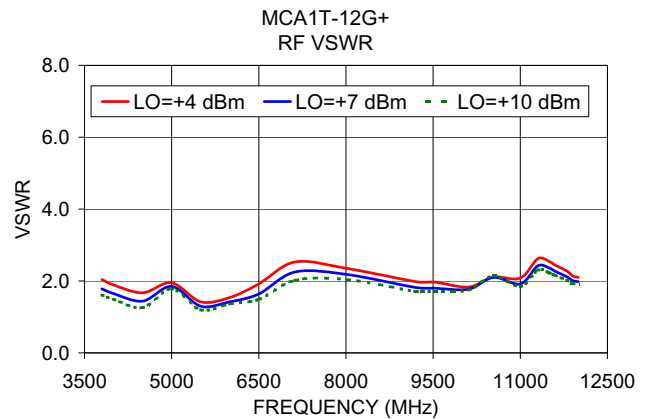
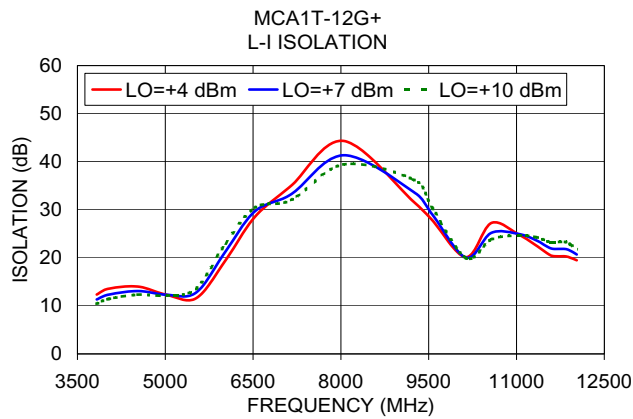
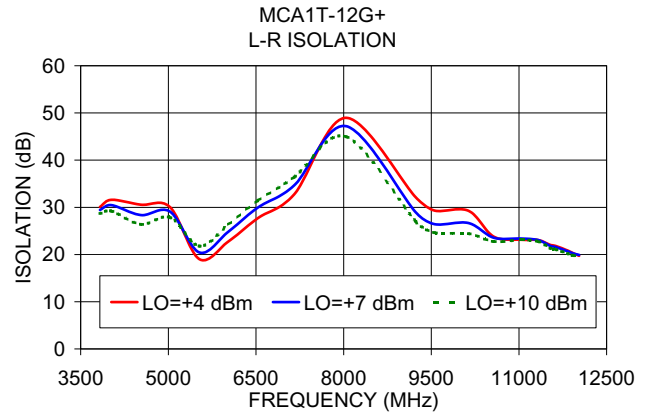
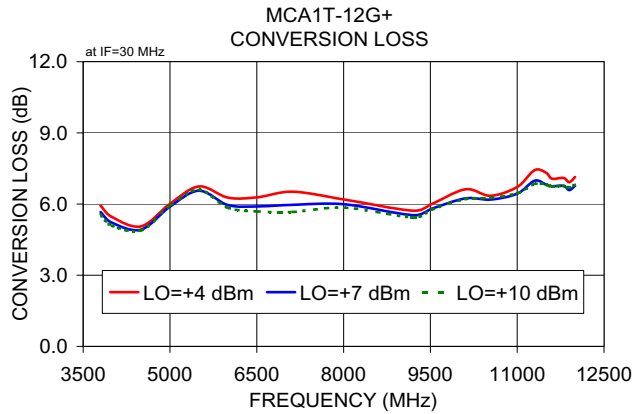
IF/RF MICROWAVE COMPONENTS

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Performance Charts

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