

Ceramic Active Mixer

MACA-242H+

Level -3 (LO Power -3 dBm) 750 to 2400 MHz



CASE STYLE: DZ1034

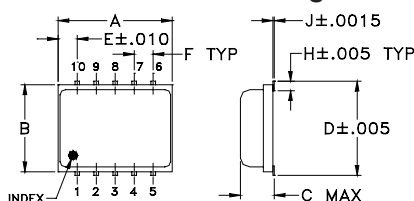
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	100mW
IF Current	40mA
LO Power	10mW

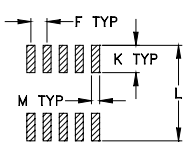
Pin Connections

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

Outline Drawing



PCB Land Pattern

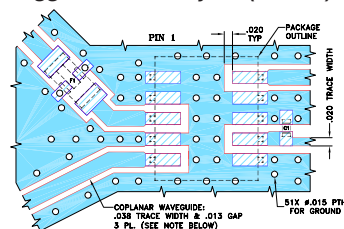


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.30	.250	.105	.266	.050	.050	.012
7.62	6.35	2.67	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		0.3

Demo Board MCL P/N: TB-403 Suggested PCB Layout (PL-145)



- CAPACITOR C1: 1000 pF, 0402 SIZE
FILTER F1: LFCN-490+, FV1206 CASE STYLE
- NOTE: 1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015". 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

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.
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Features

- low conversion loss, 6.1 dB typ.
- wide bandwidth, 750 to 2400 MHz
- LTCC double balanced mixer with LO amplifier
- aqueous washable
- low profile
- low cost
- protected by U.S. Patent 7,027,795

Applications

- PCN
- defense & weather radar
- cellular
- UHF TV

Electrical Specifications

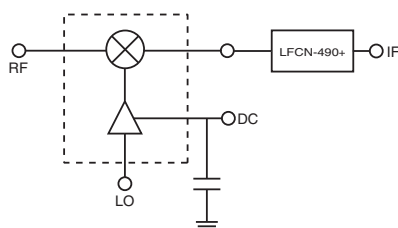
FREQUENCY (MHz)	CONVERSION LOSS* (dB)	LO-RF ISOLATION (dB)	LO-IF ISOLATION (dB)	DC POWER	IP3 at center band (dBm)						
						LO/RF f_L, f_U	IF	\bar{X}	σ	Max.	Typ.
750-2400	6.1	20	55	5	18						

1 dB Compr. +10 dBm typ.
*Conversion Loss at IF= 30 MHz.

Typical Performance Data

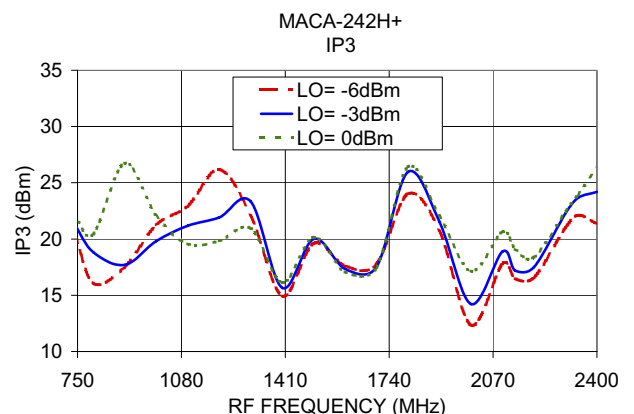
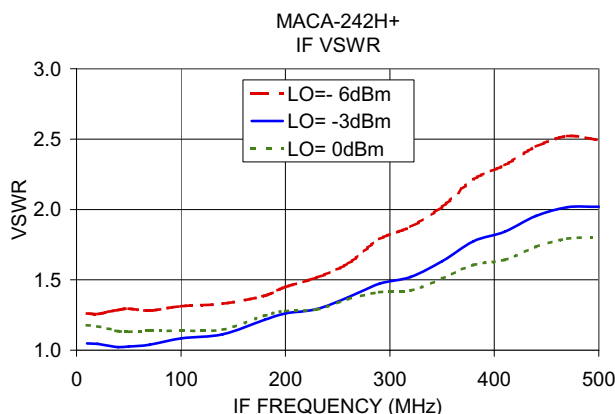
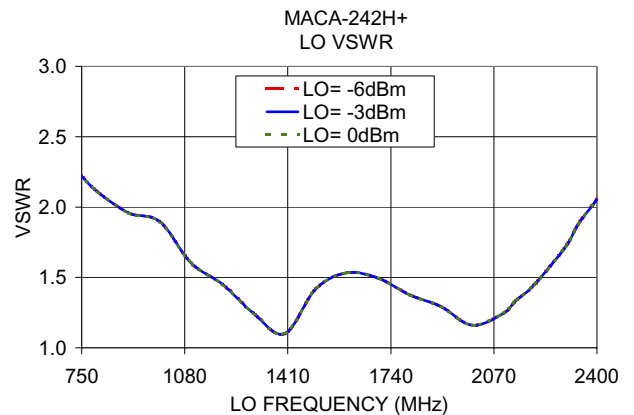
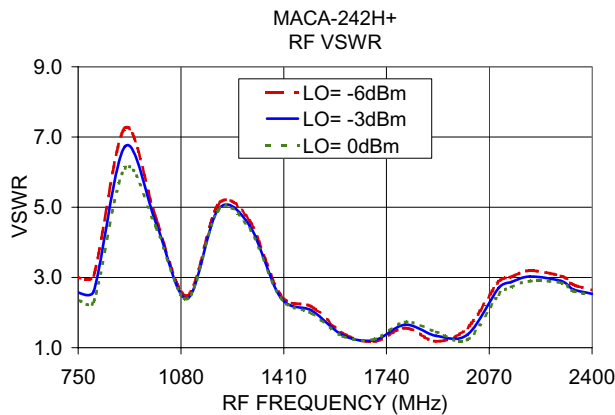
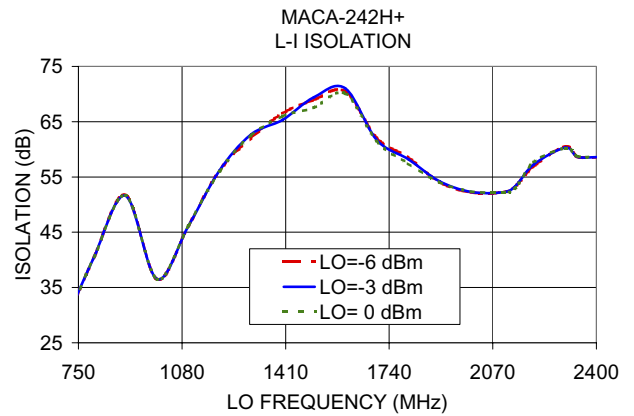
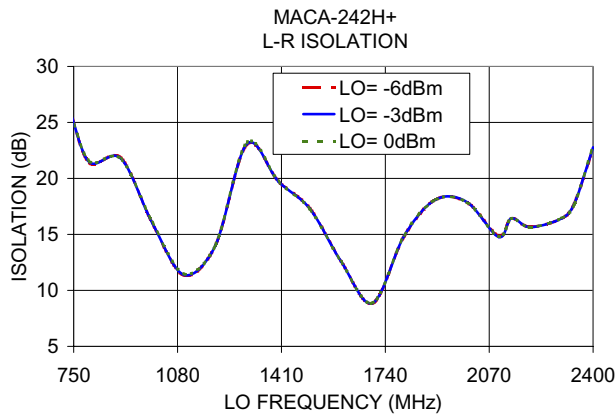
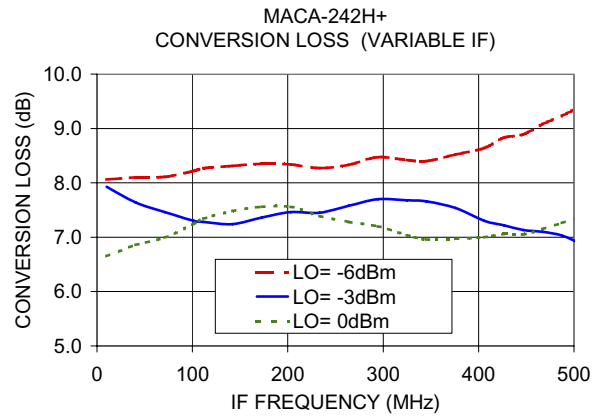
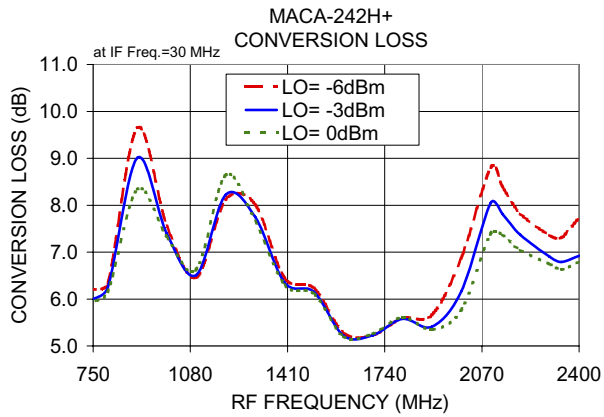
Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
740.00	5.98	25.78	32.91	2.60	2.24
800.00	6.25	21.44	40.53	2.61	2.11
900.00	9.01	21.78	51.64	6.73	1.96
1000.00	7.39	15.99	36.56	4.55	1.90
1100.00	6.51	11.39	46.11	2.40	1.60
1200.00	8.22	14.01	56.21	4.95	1.45
1300.00	7.75	23.06	62.69	4.48	1.25
1400.00	6.35	19.72	65.30	2.44	1.10
1500.00	6.15	17.29	69.44	2.06	1.42
1600.00	5.22	12.57	71.04	1.36	1.53
1700.00	5.23	8.87	61.70	1.21	1.49
1800.00	5.58	14.87	58.23	1.65	1.38
1900.00	5.41	18.11	54.22	1.34	1.29
2000.00	6.16	17.88	52.30	1.37	1.16
2100.00	8.05	14.77	52.20	2.70	1.24
2140.00	7.81	16.43	53.26	2.87	1.33
2200.00	7.37	15.65	57.24	3.02	1.45
2300.00	6.90	16.43	60.29	2.90	1.72
2340.00	6.79	17.73	58.64	2.66	1.88
2400.00	6.92	22.78	58.59	2.53	2.05

Electrical Schematic



LFCN-490+ is added to improve L-I isolation.





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