

Ceramic Active Mixer

MACA-242H+

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



CASE STYLE: DZ1034

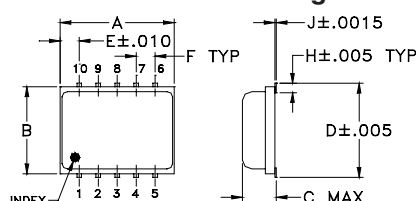
Maximum Ratings

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

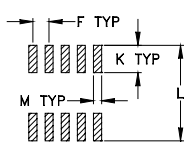
Pin Connections

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

Outline Drawing



PCB Land Pattern



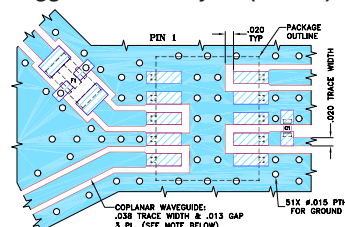
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch)

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	N	O
.029	.004	.085	.296	.030		
0.74	0.10	2.16	7.52	0.76		
					wt	grams
						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.
C. The parts covered by this specification document are subject to Mini-Circuit's 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

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 Current (mA)	IP3 at center band (dBm)
LO/RF f _L -f _U	IF	X	σ	Max.	Typ. Min.
750-2400	DC-500	6.1	0.1	9.8	20 4
					55 28
					5 110
					18

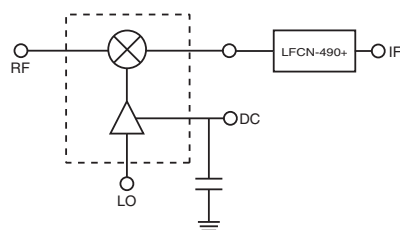
1 dB Compr. +10 dBm typ.

*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)
RF	LO	LO -3dBm	LO -3dBm	LO -3dBm	LO -3dBm
740.00	710.00	5.98	25.78	32.91	2.24
800.00	770.00	6.25	21.44	40.53	2.11
900.00	870.00	9.01	21.78	51.64	1.96
1000.00	970.00	7.39	15.99	36.56	1.90
1100.00	1070.00	6.51	11.39	46.11	1.60
1200.00	1170.00	8.22	14.01	56.21	1.45
1300.00	1270.00	7.75	23.06	62.69	1.25
1400.00	1370.00	6.35	19.72	65.30	1.10
1500.00	1470.00	6.15	17.29	69.44	1.42
1600.00	1570.00	5.22	12.57	71.04	1.53
1700.00	1670.00	5.23	8.87	61.70	1.49
1800.00	1770.00	5.58	14.87	58.23	1.38
1900.00	1870.00	5.41	18.11	54.22	1.29
2000.00	1970.00	6.16	17.88	52.30	1.16
2100.00	2070.00	8.05	14.77	52.20	1.24
2140.00	2110.00	7.81	16.43	53.26	1.33
2200.00	2170.00	7.37	15.65	57.24	1.45
2300.00	2270.00	6.90	16.43	60.29	1.72
2340.00	2310.00	6.79	17.73	58.64	1.88
2400.00	2370.00	6.92	22.78	58.59	2.05

Electrical Schematic

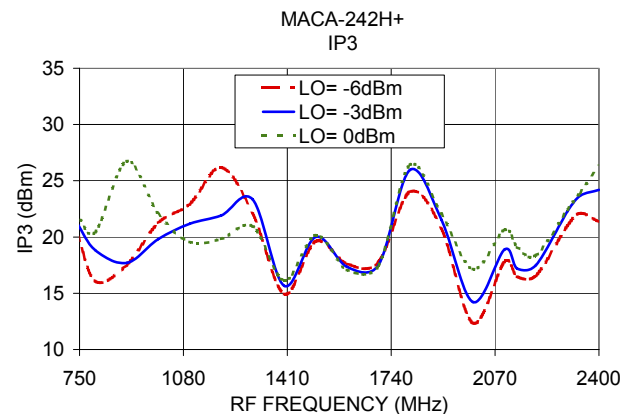
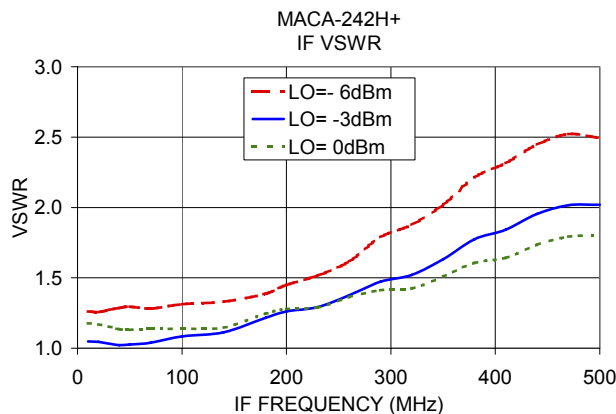
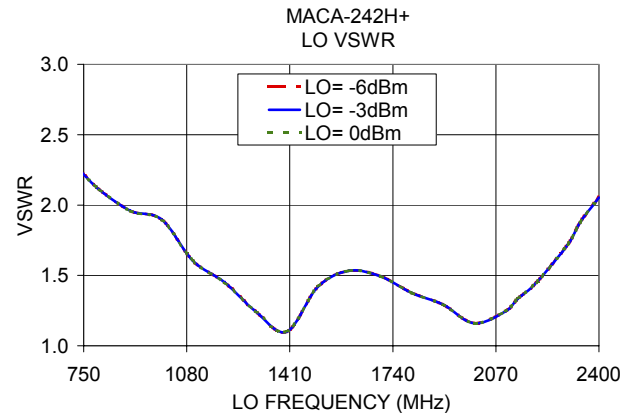
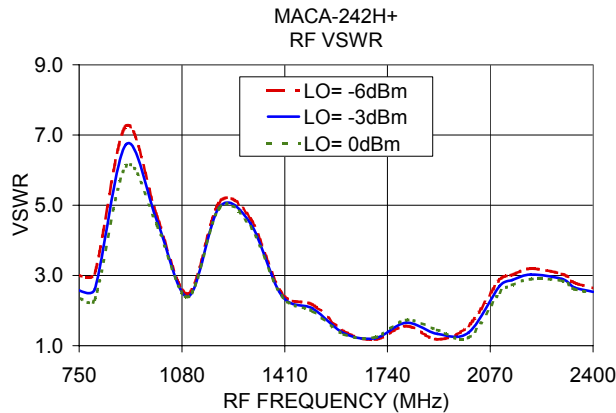
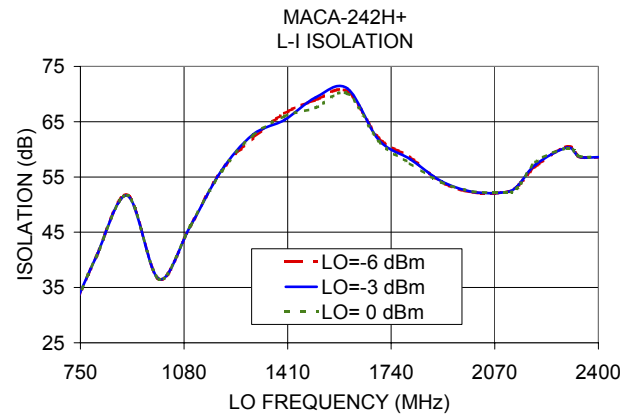
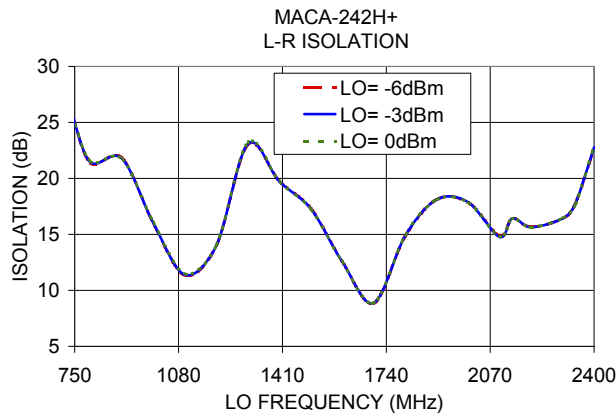
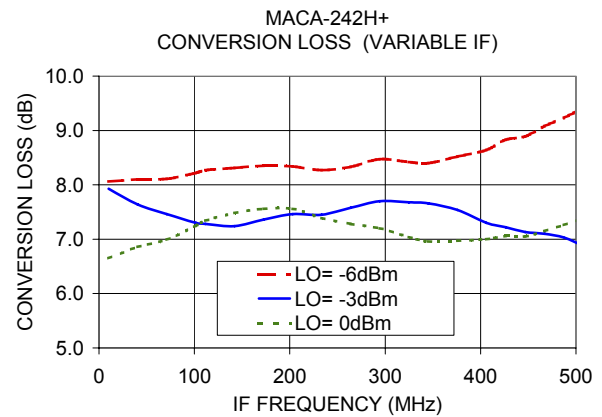
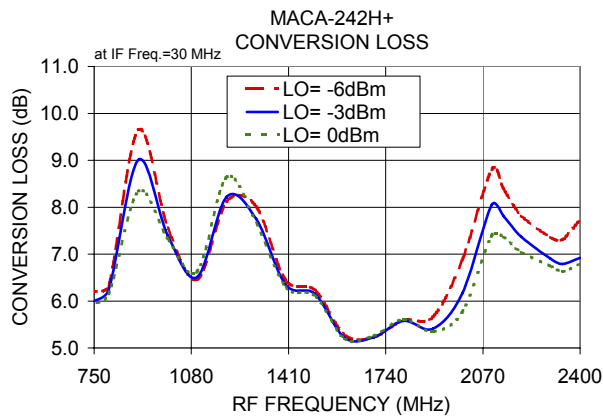


LFCN-490+ is added to improve L-I isolation.



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MACA-242H
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