

Ceramic Active Mixer

Level 0 (LO Power 0 dBm) 2000 to 6000 MHz

MACA-63H+



CASE STYLE: DZ1034

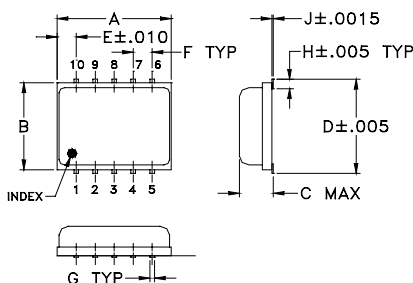
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	100mW
IF Current	40mA
LO Power	10mW
Permanent damage may occur if any of these limits are exceeded.	

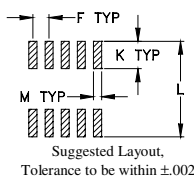
Pin Connections

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

Outline Drawing



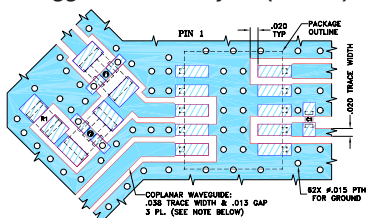
PCB Land Pattern



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-404
Suggested PCB Layout (PL-283)



CAPACITOR C1: 1000 pF, 0402 SIZE
RESISTOR R1: 49.9 Ohm, 0805 SIZE
FILTER F1: LFCN-1400+, FY1206 CASE STYLE
FILTER F2: HFCN-1810+, FY1206 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.
3. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
4. 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, 6.9 dB typ.
- wide bandwidth, 2000 to 6000 MHz
- LTCC double balanced mixer with LO amplifier
- aqueous washable
- low profile
- low cost
- protected by US patent 7,027,795

Applications

- PCN
- defense & weather radar
- WCDMA
- defense communications

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		DC POWER		IP3 at center band (dBm)
		$\bar{X}$	σ	Max.	Typ.	Min.	Typ.	Min.	Volt	Current (mA) Max.	
2000-3500	DC-1000	6.9	0.1	8.9	16	10	35	23	5	110	20
3500-6000	DC-1000	6.9	0.1	8.9**	8	3	35	27	5	110	19

1 dB Compr. +10 dBm typ.

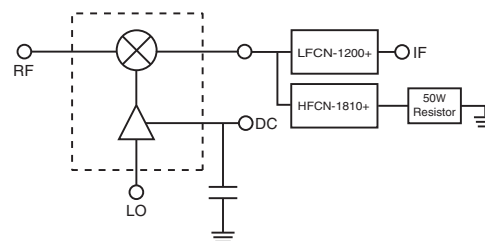
* Conversion loss at 30 MHz IF.

** 9.6 dB over at 3500-4500 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 0dBm	LO 0dBm	LO 0dBm	LO 0dBm	LO 0dBm
2005.10	1975.10	6.41	22.93	35.96	2.40	5.17
2205.10	2175.10	6.50	20.61	45.55	2.42	5.83
2405.10	2375.10	5.80	21.34	33.28	2.11	3.80
2605.10	2575.10	5.89	18.60	33.35	1.87	3.21
2805.10	2775.10	6.96	17.66	35.62	3.43	3.09
3005.10	2975.10	6.65	14.13	36.97	2.95	3.10
3205.10	3175.10	7.25	12.80	36.60	3.12	3.17
3405.10	3375.10	7.25	15.03	34.47	3.15	2.97
3605.10	3575.10	7.95	14.75	33.49	3.73	2.39
3805.10	3775.10	7.78	18.55	31.52	3.26	1.82
4005.10	3975.10	7.16	18.19	32.59	2.66	1.44
4405.10	4375.10	6.15	8.68	37.37	1.40	1.48
4605.10	4575.10	6.67	8.24	37.63	1.63	1.56
4805.10	4775.10	7.06	8.76	37.81	1.58	1.62
5005.10	4975.10	6.81	6.77	36.56	1.17	1.67
5205.10	5175.10	6.40	6.01	35.48	1.61	1.60
5405.10	5375.10	6.46	6.05	34.71	1.65	1.47
5605.10	5575.10	6.95	7.12	33.12	2.21	1.36
5805.10	5775.10	7.27	7.91	33.45	2.57	1.35
6005.10	5975.10	7.48	8.62	33.08	2.82	1.43

Electrical Schematic

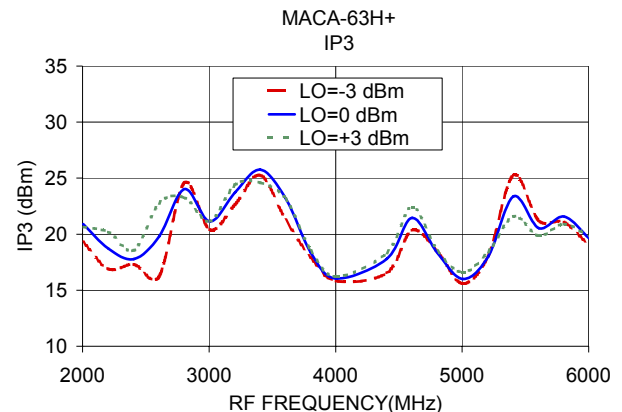
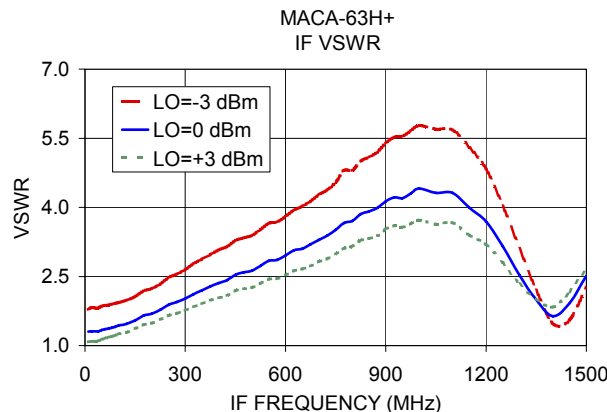
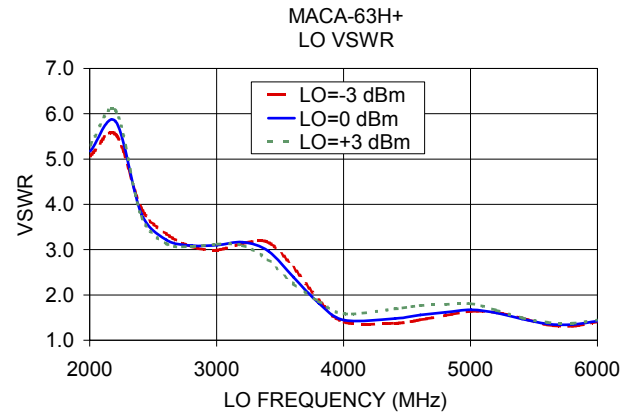
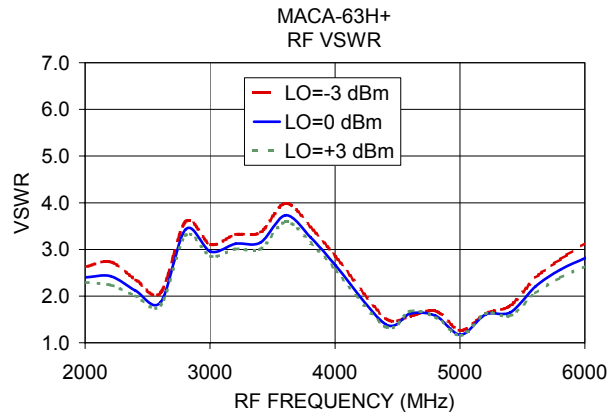
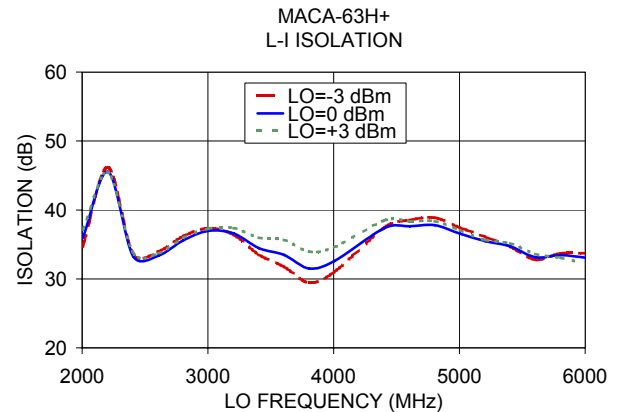
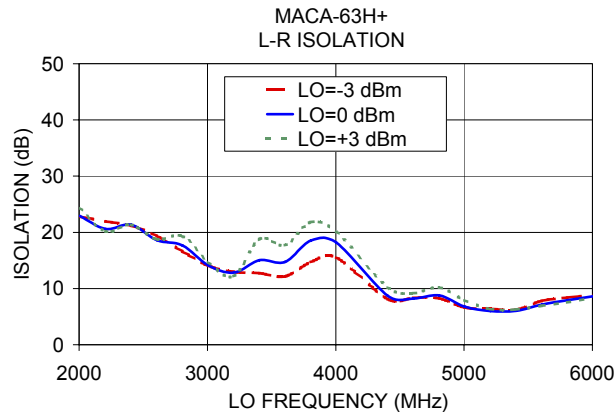
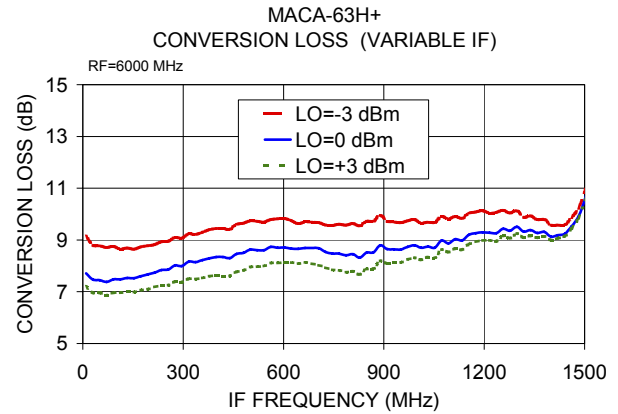
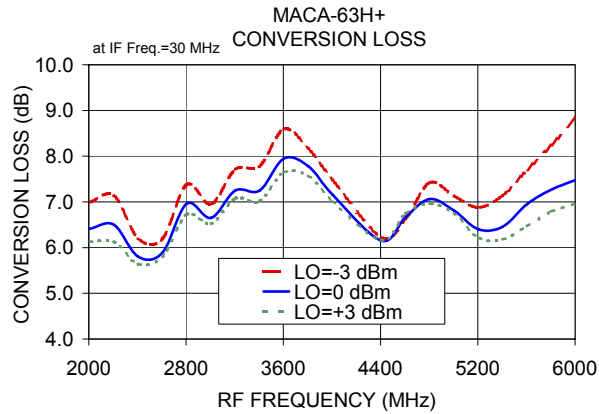


LFCN-1200+ & HFCN-1810+ are added to improve isolations.



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