

Frequency Mixer

MCA1-60MH+

Level 13 (LO Power+13 dBm) 1600 to 6000 MHz

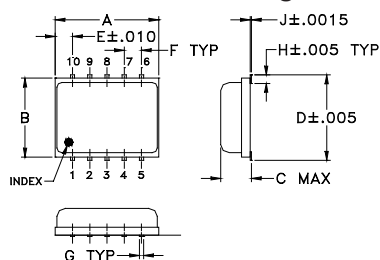
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200 mW
IF Current	40 mA
Permanent damage may occur if any of these limits are exceeded	

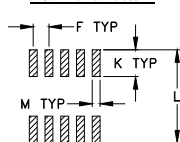
Pin Connections

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

Outline Drawing



PCB Land Pattern

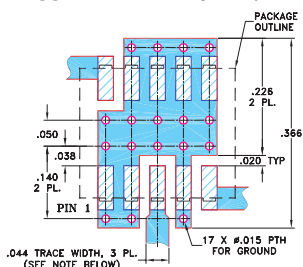


Suggested Layout,
Tolerance to be within $\pm .002$

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

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)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" $\pm$.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

- 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/MCStore/terms.iso

Features

- wide bandwidth, 1600 to 6000 MHz
- useable to 8000 MHz
- low conversion loss, 6.2 dB typ.
- IF, DC to 2000 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7.027.795

Applications

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

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.
1600-4400	DC-2000	6.9	0.1	8.5*	32	25	17	—	15
4400-6000	DC-2000	6.0	0.1	8.5*	22	18	15	—	15

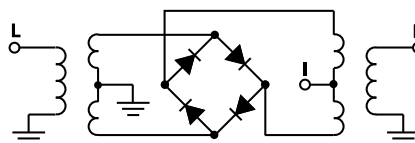
1 dB COMPR. +9 dBm typ.

*Conversion loss at 30 MHz IF, increases with IF frequency. See Graphs

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 +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
1600.00	1630.00	5.80	34.40	18.22	2.36	4.29
1800.00	1830.00	5.69	40.40	20.40	2.50	3.06
2000.00	2030.00	5.71	34.08	20.59	2.85	2.20
2400.00	2430.00	5.71	29.81	17.48	2.56	1.48
2600.00	2630.00	5.66	31.17	17.47	2.51	1.68
2800.00	2830.00	6.40	33.79	17.35	3.54	2.07
3000.00	3030.00	7.00	32.33	17.15	4.90	2.75
3200.00	3230.00	6.83	31.52	17.08	3.71	3.90
3400.00	3430.00	6.42	31.43	16.73	3.42	4.56
3600.00	3630.00	6.01	31.58	15.66	3.10	4.51
3800.00	3830.00	6.01	32.37	16.98	2.53	6.19
4000.00	4030.00	6.35	32.97	18.41	2.23	4.62
4400.00	4430.00	6.15	30.70	18.49	2.54	4.58
4600.00	4630.00	5.89	28.56	18.16	2.31	4.46
4800.00	4830.00	6.68	28.20	18.36	2.52	2.50
5000.00	5030.00	5.94	25.23	18.75	2.46	1.19
5200.00	5230.00	5.87	23.87	19.82	2.58	1.58
5600.00	5630.00	6.30	24.95	15.42	2.72	3.97
5800.00	5830.00	6.24	24.65	13.88	3.33	6.41
6000.00	6030.00	7.10	23.11	12.81	4.37	13.10

Electrical Schematic



CASE STYLE: DZ885

PRICE: \$8.95 ea. QTY (10-49)

+RoHS Compliant

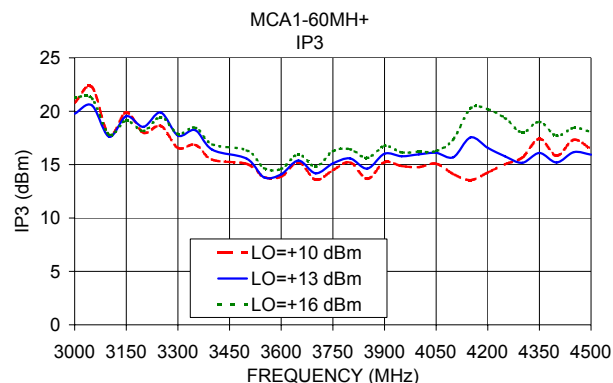
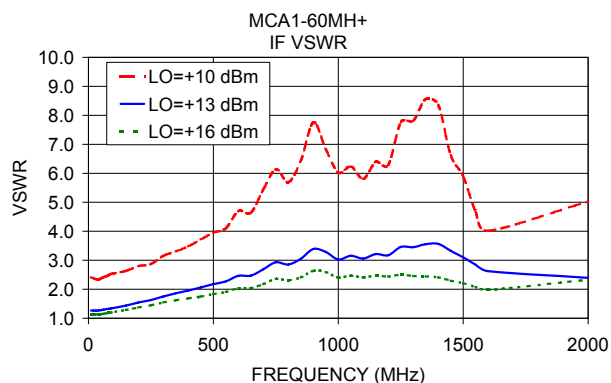
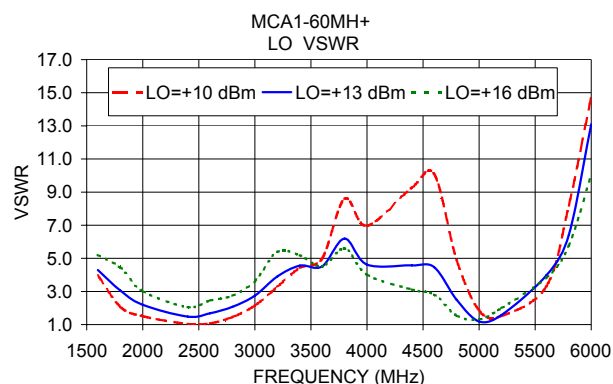
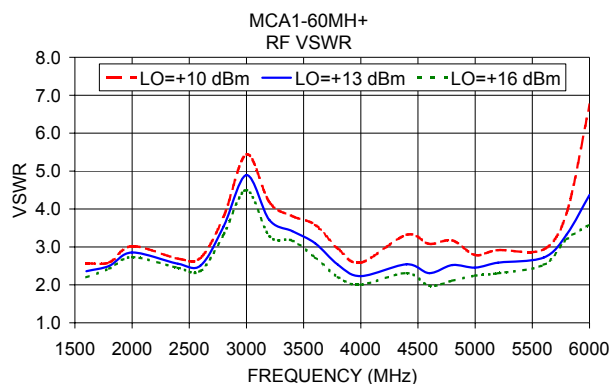
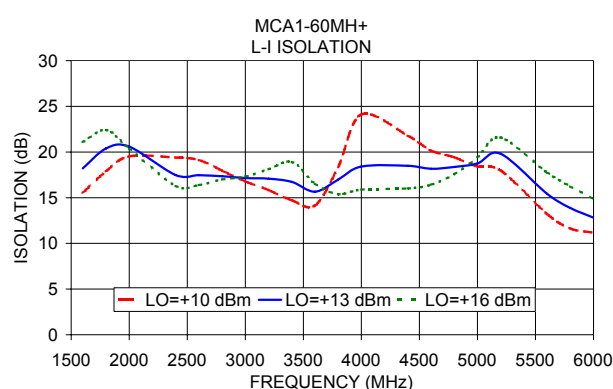
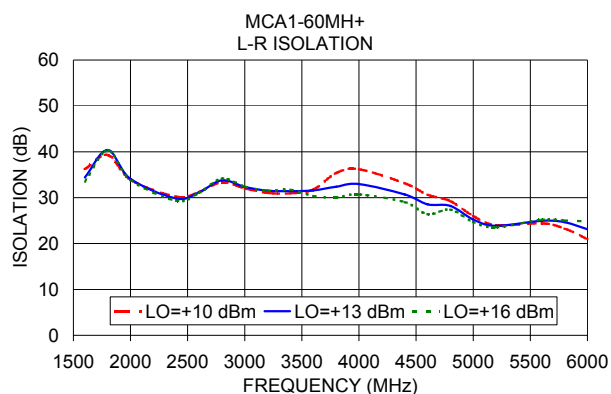
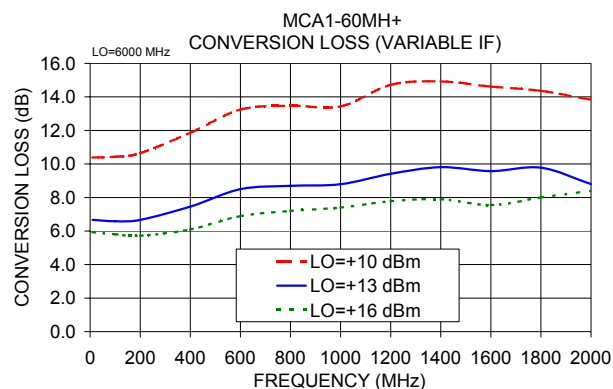
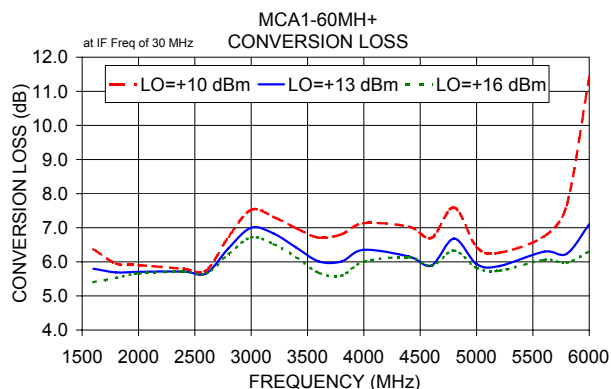
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Recommended Replacement:
MAC-60MH+

- Footprint Compatible
- MIL Level Reliability
- Price \$7.45 Qty. (10)

[Click here for data sheet](#)





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