

# High IP3 Frequency Mixer

## MCA-36FMH+

Level 13 (LO Power+13 dBm) 3500 to 3600 MHz



CASE STYLE: DZ883

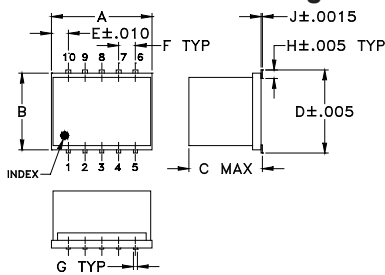
### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
LO & RF Power	16 dBm
Permanent damage may occur if any of these limits are exceeded.	

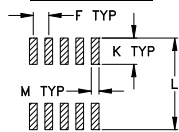
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

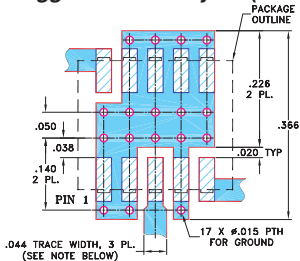


Suggested L layout,  
Tolerance to be within ±0.02

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.190	.266	.050	.050	.012
7.62	6.35	4.83	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	0.5	

### Demo Board MCL P/N: TB-144 Suggested PCB Layout (PL-045)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .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-Circuits' applicable established test performance criteria and measurement instructions.  
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### Features

- excellent IP3, 30 dBm typ.
- excellent L-R isolation, 42 dB typ.
- excellent 1dB compression, RF>LO power
- industry standard foot print
- LTCC design for excellent temperature stability, performance repeatability and small size
- aqueous washable
- double balanced mixer
- low price
- protected by US Patent 6,959,180

### Applications

- line of sight links
- satellite communications
- WiMAX

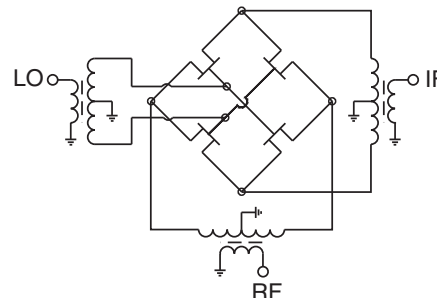
### Electrical Specifications (T<sub>AMB</sub> = -55°C to 100°C)

FREQUENCY (MHz)			IP3 (dBm)	RF in at 1 dB compr. (dBm)	CONVERSION LOSS (dB)		LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)	
RF	LO	IF	Typ.	Min.	Typ.	Max.	Typ.	Min.	Typ.	Min.
3500-3600	3070-3170	380-480	30	13	8.3	9.3	42	20	27	15

### Typical Performance Data

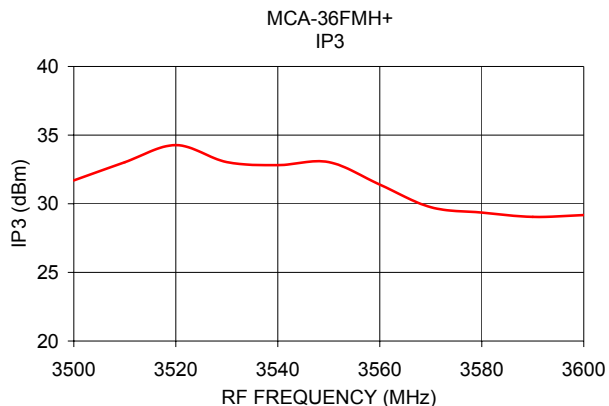
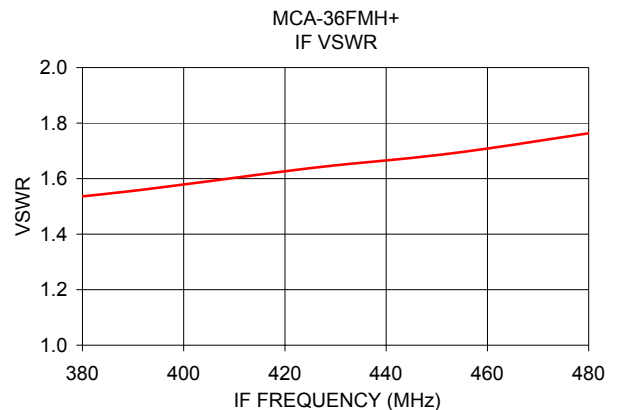
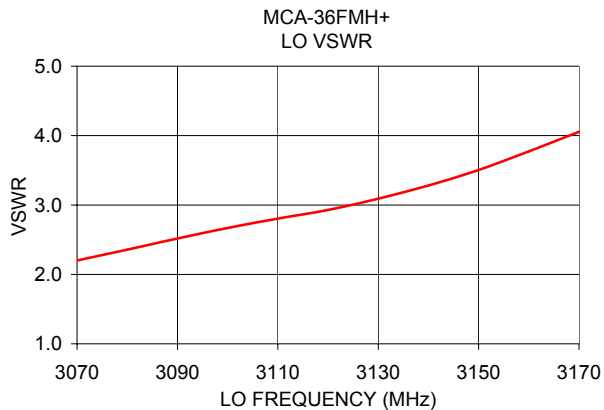
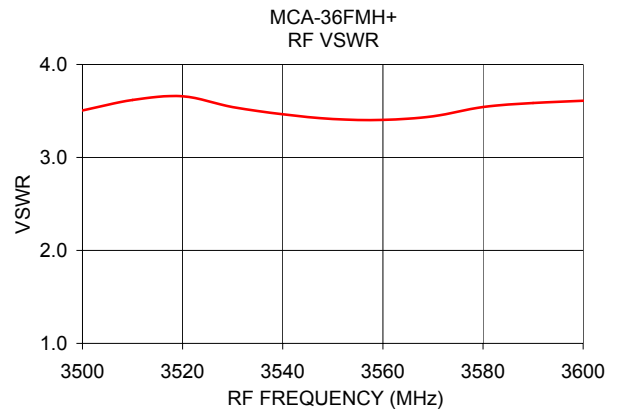
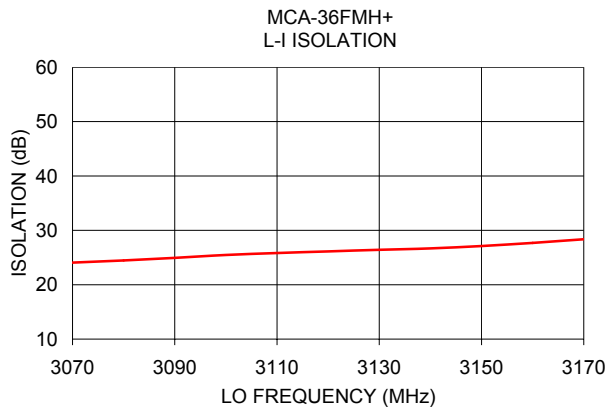
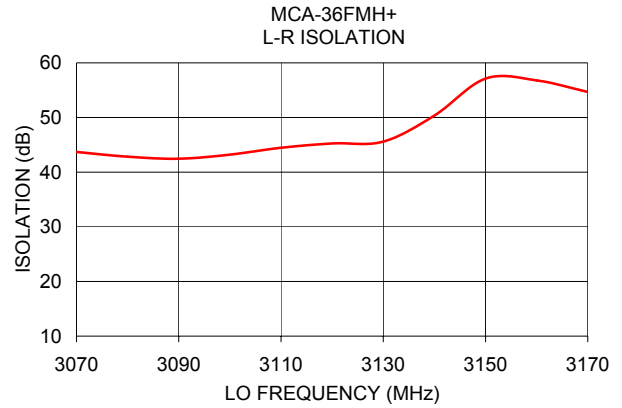
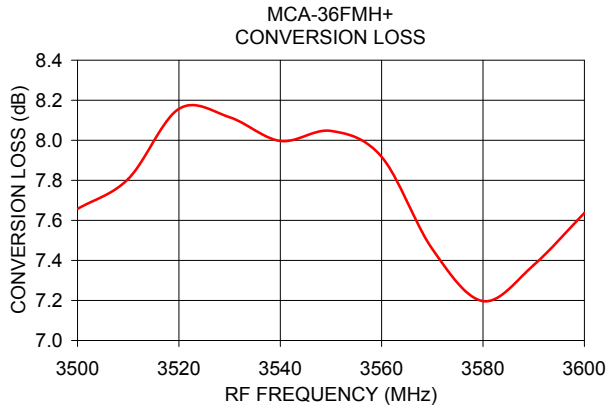
Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)	IP3 (dBm)
RF	LO	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
3500.00	3070.00	7.66	43.70	24.07	2.20	3.50	32.03
3510.00	3080.00	7.81	42.84	24.46	2.36	3.62	32.45
3520.00	3090.00	8.16	42.47	24.94	2.52	3.66	34.10
3530.00	3100.00	8.12	43.22	25.47	2.67	3.54	32.67
3540.00	3110.00	8.00	44.47	25.83	2.80	3.47	32.06
3550.00	3120.00	8.05	45.26	26.13	2.93	3.41	33.59
3560.00	3130.00	7.92	45.60	26.42	3.09	3.40	33.95
3570.00	3140.00	7.46	50.36	26.68	3.28	3.44	32.32
3580.00	3150.00	7.20	57.12	27.11	3.50	3.54	32.46
3590.00	3160.00	7.38	56.79	27.68	3.77	3.59	32.93
3600.00	3170.00	7.64	54.68	28.36	4.05	3.61	32.34

### Electrical Schematic



# Performance Charts

# MCA-36FMH+



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