

Frequency Mixer WIDE BAND

MCA1-85+

Level 7 (LO Power+7 dBm) 2800 to 8500 MHz

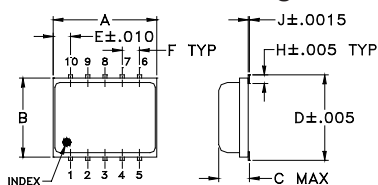
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50 mW
IF Current	40 mA
Permanent damage may occur if any of these limits are exceeded.	

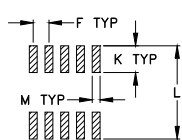
Pin Connections

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

Outline Drawing



PCB Land Pattern

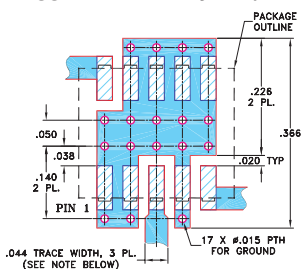


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (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 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-Circuit's applicable established test performance criteria and measurement instructions.
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Features

- wide bandwidth, 2800 to 8500 MHz
- low conversion loss, 5.6 dB typ.
- high L-R isolation, 35 dB typ.
- IF, DC to 1250 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08"
- protected by US Patent 7,027,795

Applications

- satellite up and down converters
- line of sight links
- defense radar
- defense communication



CASE STYLE: DZ885

+RoHS Compliant

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

Recommended Replacement: MAC-85+

- Footprint Compatible
- MIL Level Reliability



[Click here for data sheet](#)

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 _c -f _u	IF	σ	Max.	Typ.	Min.	Typ.		Min.
2800-8500	DC-1250			8.1*	40	20	13	9	13
2800-5000	DC-1250				35	20	40	20	8
5000-8500	DC-1250			8.2*					

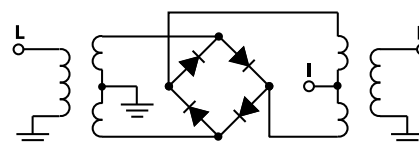
1 dB COMPR. 1 dBm typ.

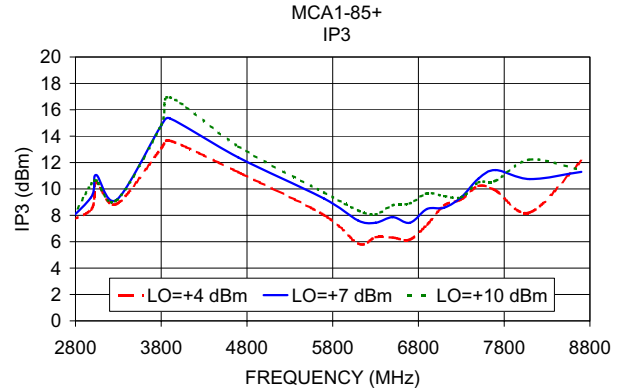
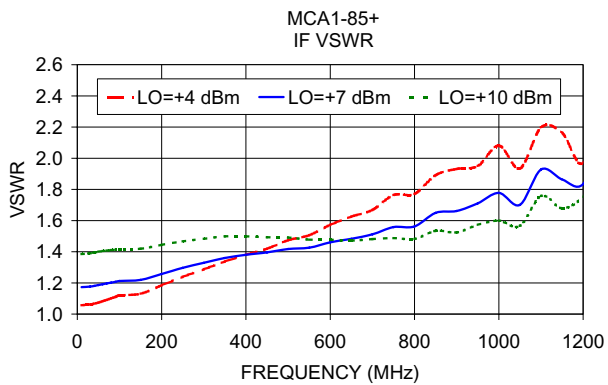
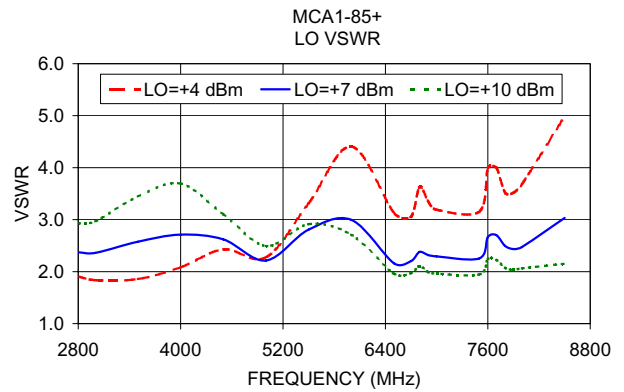
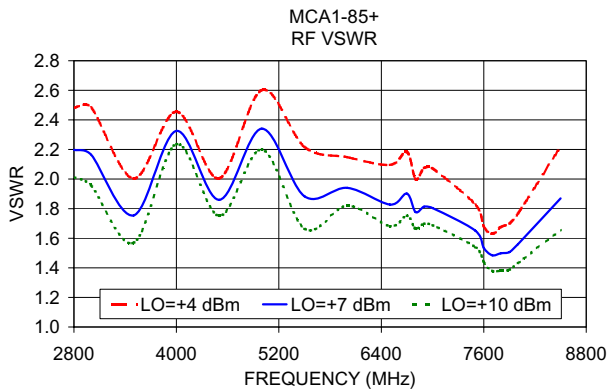
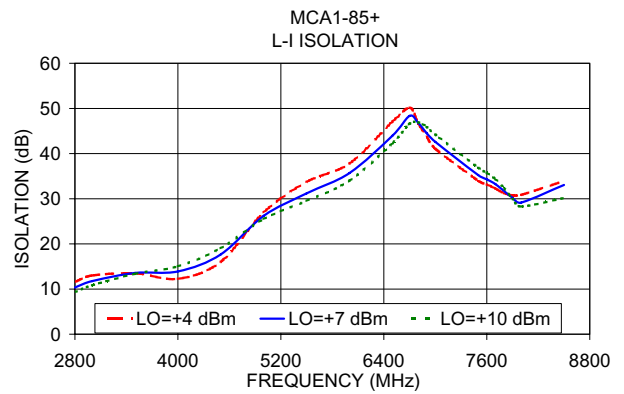
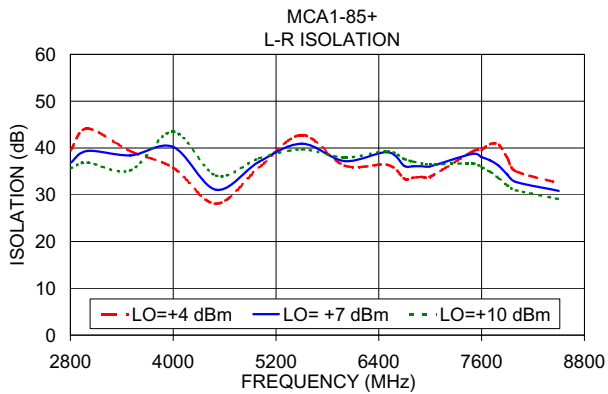
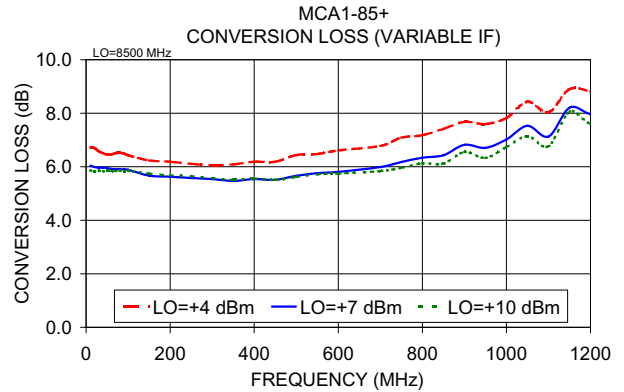
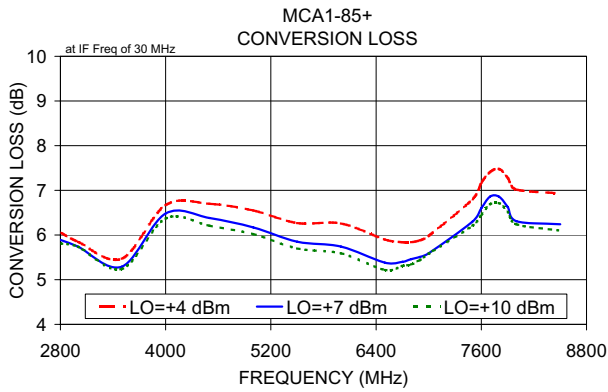
* Conversion loss at 30 MHz IF, increases with IF frequency.

Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)		Isolation L-R (dB)		Isolation L-I (dB)		VSWR RF Port (:1)		VSWR LO Port (:1)	
	LO	IF	LO	IF	LO	IF	LO	IF	LO	IF
	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm	+7dBm
2800.10	2770.10	5.89	36.81	10.35	2.20	2.37				
3000.10	2970.10	5.74	39.38	11.75	2.17	2.36				
3500.10	3470.10	5.29	38.41	13.58	1.75	2.57				
4000.10	3970.10	6.48	40.21	13.89	2.33	2.71				
4500.10	4470.10	6.38	31.07	17.67	1.86	2.62				
5000.10	4970.10	6.17	37.03	26.23	2.34	2.21				
5500.10	5470.10	5.85	40.91	31.19	1.88	2.81				
6000.10	5970.10	5.74	37.20	35.68	1.94	3.00				
6500.10	6470.10	5.38	39.09	43.95	1.83	2.16				
6700.10	6670.10	5.40	36.15	48.35	1.90	2.20				
6800.10	6770.10	5.46	36.09	46.81	1.78	2.38				
6900.10	6870.10	5.51	36.10	44.52	1.81	2.32				
7000.10	6970.10	5.59	36.07	42.59	1.80	2.29				
7500.10	7470.10	6.30	38.79	35.25	1.65	2.25				
7600.10	7570.10	6.60	38.05	34.31	1.53	2.67				
7700.10	7670.10	6.86	37.33	33.25	1.48	2.70				
7800.10	7770.10	6.86	36.19	31.74	1.50	2.50				
7900.10	7870.10	6.63	34.32	30.19	1.51	2.44				
8000.10	7970.10	6.31	32.74	29.14	1.56	2.47				
8500.10	8470.10	6.24	30.84	33.04	1.87	3.03				

Electrical Schematic





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