Ceramic

Frequency Mixer WIDE BAND

MCA1-85L+

Level 4 (LO Power+4 dBm) 2800 to 8500 MHz

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

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

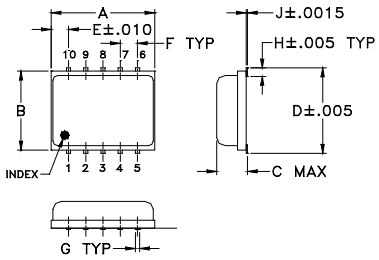
Features

- wide bandwidth, 2800 to 8500 MHz
- high L-R isolation, 35 dB typ.
- IF, DC to 1200 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.08”
- protected by US Patent 7,027,795

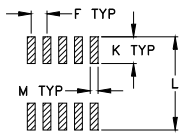
Applications

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

Outline Drawing



PCB Land Pattern



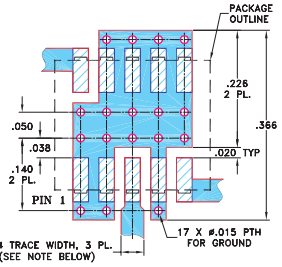
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

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

Electrical Specifications (T_{AMB}=-55°C to 100°C)

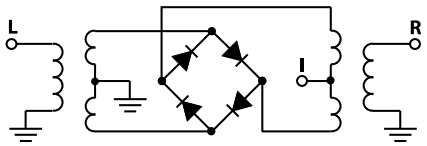
FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF f_L-f_U	IF	$\overline{X}$	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
2800-8500	**DC-1200**								
2800-5000	DC-1200	5.7	0.2	8.4*	35	20	13	7	11
5000-7500	DC-1200	6.0	0.3	8.4*	35	20	38	20	7
7500-8500	DC-1200	7.0	0.3	—	31	—	32	—	8

1 dB COMPR. 0 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)
RF	LO	LO +4dBm	LO +4dBm	LO +4dBm	LO +4dBm	LO +4dBm
2800.10	2770.10	6.06	39.50	11.58	2.48	1.91
3000.10	2970.10	5.85	44.16	13.00	2.48	1.84
3500.10	3470.10	5.47	39.32	13.49	2.00	1.86
4000.10	3970.10	6.67	35.79	12.28	2.46	2.08
4500.10	4470.10	6.70	28.08	16.04	2.01	2.43
5000.10	4970.10	6.55	35.79	27.00	2.60	2.28
5500.10	5470.10	6.27	42.78	33.73	2.22	3.31
6000.10	5970.10	6.26	36.23	37.80	2.15	4.41
6500.10	6470.10	5.90	36.41	47.06	2.10	3.13
6700.10	6670.10	5.84	33.42	50.18	2.18	3.06
6800.10	6770.10	5.84	33.65	46.65	2.00	3.62
6900.10	6870.10	5.88	33.84	43.73	2.07	3.35
7000.10	6970.10	5.98	33.85	41.08	2.07	3.19
7500.10	7470.10	6.80	39.32	33.99	1.83	3.16
7600.10	7570.10	7.17	39.67	33.16	1.68	3.99
7700.10	7670.10	7.41	40.86	32.27	1.63	4.00
7800.10	7770.10	7.48	40.67	31.25	1.68	3.52
7900.10	7870.10	7.28	37.86	30.76	1.70	3.52
8000.10	7970.10	7.02	35.05	30.85	1.77	3.68
8500.10	8470.10	6.93	32.51	33.93	2.22	4.99

Electrical Schematic



Notes
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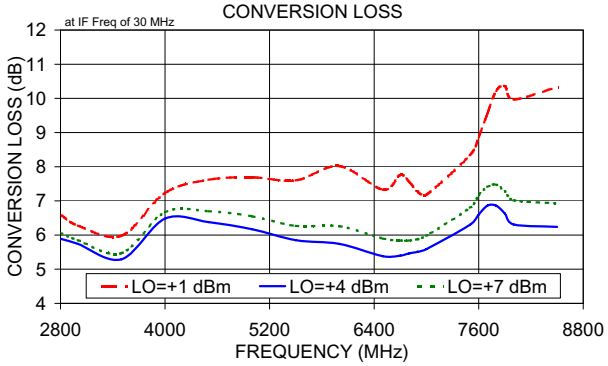
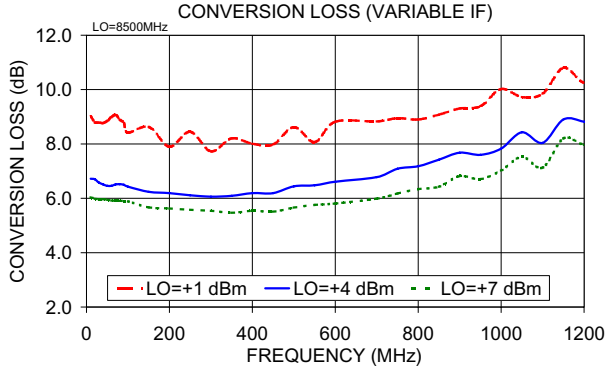
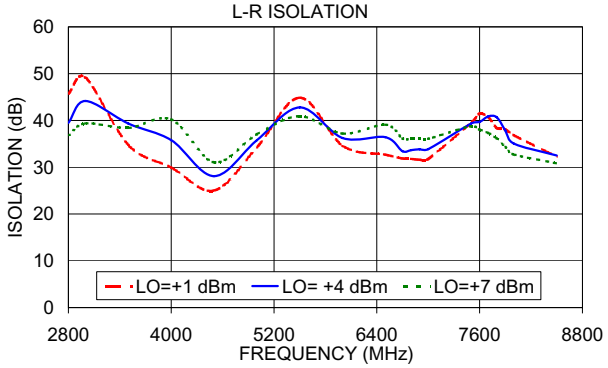
MCA1-85L+
CONVERSION LOSS



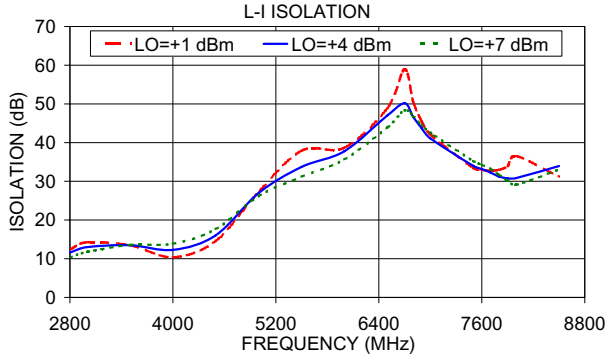
MCA1-85L+
CONVERSION LOSS (VARIABLE IF)



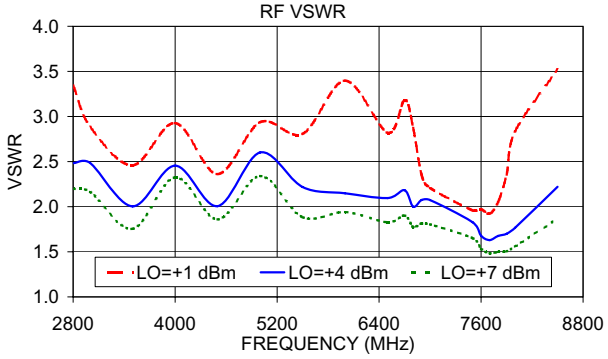
MCA1-85L+
L-R ISOLATION



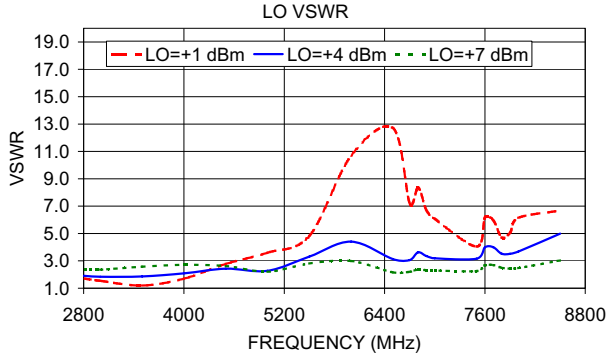
MCA1-85L+
L-I ISOLATION



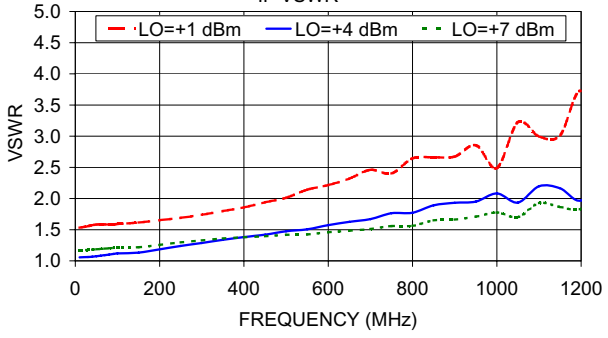
MCA1-85+L
RF VSWR



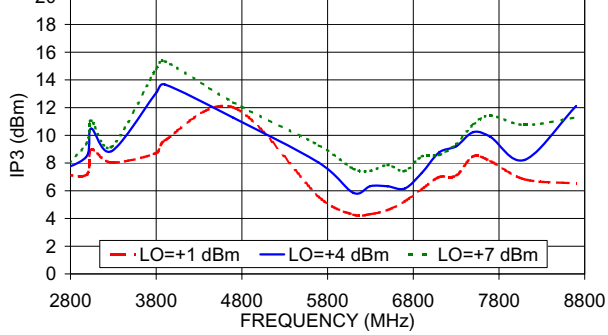
MCA1-85L+
LO VSWR



MCA1-85L+
IF VSWR



MCA1-85+L
IP3



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