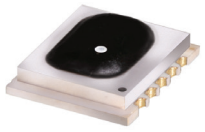
Ceramic

Frequency Mixer WIDE BAND

MCA1T-60+

Level 7 (LO Power+7 dBm) 1600 to 6000 MHz



CASE STYLE: DZ885-2

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°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, 1600 to 6000 MHz
- useable to 8000 MHz
- IF, DC to 2000 MHz
- LTCC double balanced mixer
- aqueous washable
- low cost
- low profile, 0.095"
- protected by US Patent 7,027,795 & 8,749,989

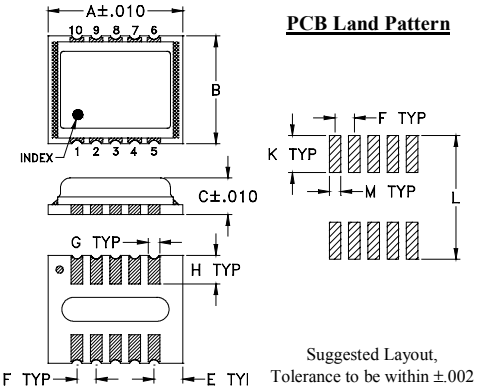
+RoHS Compliant

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

Applications

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

Outline Drawing

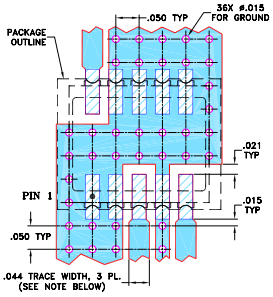


Outline Dimensions (inch / mm)

A	B	C	E	F	G
.350	.280	.095	.075	.050	.030
8.89	7.11	2.41	1.91	1.27	0.76

H	K	L	M	wt
.074	.096	.321	.030	grams
1.88	2.44	8.15	0.76	0.21

Demo Board MCL P/N: TB-493+
Suggested PCB Layout (PL-288)



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}=-40°C to 85°C)

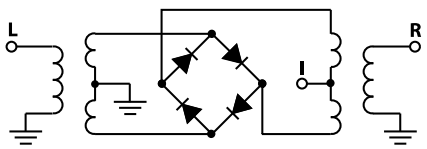
FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF f_L-f_U	IF	$\overline{X}$	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
1600-4400	DC-2000	6.3	0.2	8.3*	32	20	17	—	9
4400-6000	DC-2000	6.2	0.3	8.5*	23	17	18	—	8

1 dB COMPR. +1 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 +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
1600.00	1630.00	5.85	33.44	18.92	3.21	2.77
1800.00	1830.00	5.57	43.23	20.13	2.72	3.06
2000.00	2030.00	5.67	35.50	19.59	1.52	3.18
2300.00	2330.00	5.57	30.85	17.13	2.55	2.32
2500.00	2530.00	5.67	31.53	16.64	3.70	1.12
3000.00	3030.00	6.65	33.86	17.37	6.40	4.50
3300.00	3330.00	6.51	33.27	17.79	2.35	4.42
3500.00	3530.00	6.26	32.26	16.02	2.17	2.74
3800.00	3830.00	5.85	33.61	14.80	2.21	4.29
4000.00	4030.00	6.13	34.90	16.01	2.03	3.49
4300.00	4330.00	6.05	33.36	17.95	1.97	3.60
4500.00	4530.00	5.95	29.83	18.64	2.31	2.60
4700.00	4730.00	6.02	28.69	19.14	1.78	2.51
4900.00	4930.00	6.11	25.78	19.89	1.91	2.02
5000.00	5030.00	5.99	24.51	20.40	1.50	1.54
5200.00	5230.00	5.88	23.40	21.37	1.53	1.71
5300.00	5330.00	6.06	22.68	21.68	2.25	2.45
5500.00	5530.00	6.00	22.63	19.20	3.70	3.96
5700.00	5730.00	6.14	23.13	15.10	5.34	6.43
6000.00	6030.00	6.61	24.37	13.33	1.73	2.81

Electrical Schematic



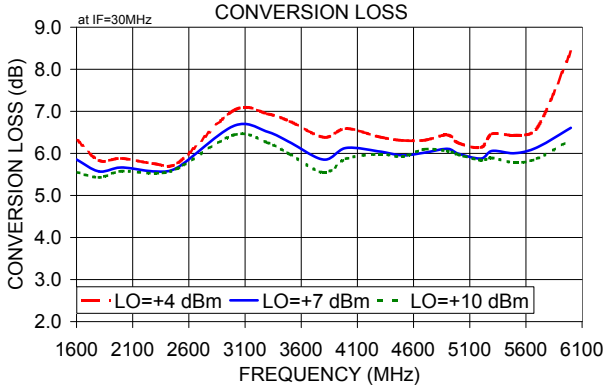
Notes

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/MCLStore/terms.jsp

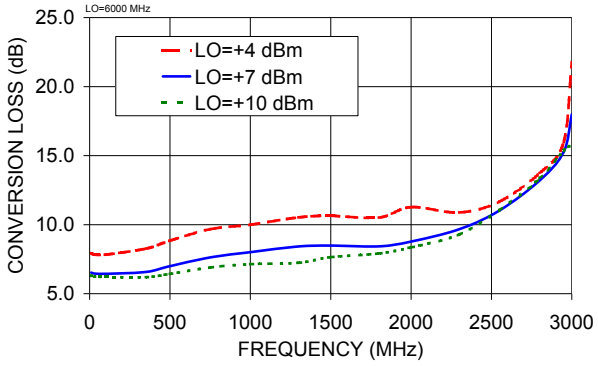
Performance Charts

MCA1T-60+

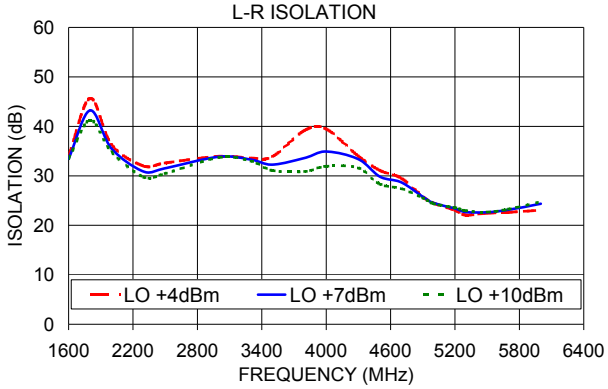
MCA1T-60+
CONVERSION LOSS



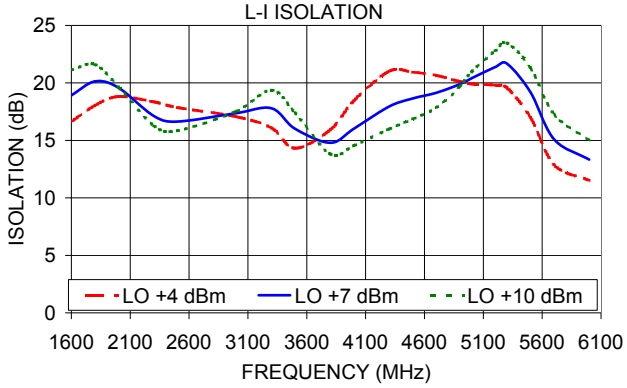
MCA1T-60+
CONVERSION LOSS (VAR. IF)



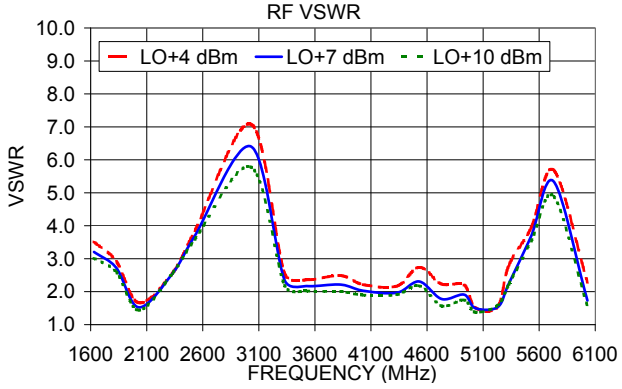
MCA1T-60+
L-R ISOLATION



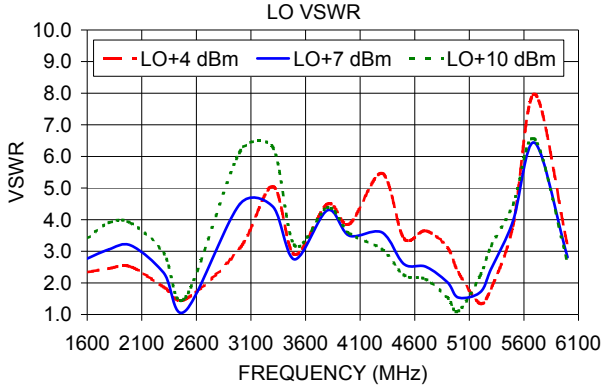
MCA1T-60+
L-I ISOLATION



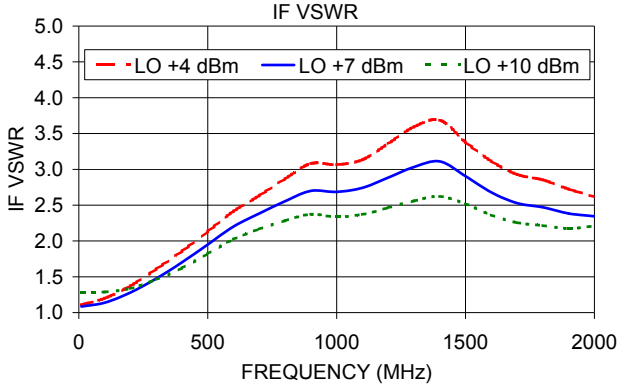
MCA1T-60+
RF VSWR



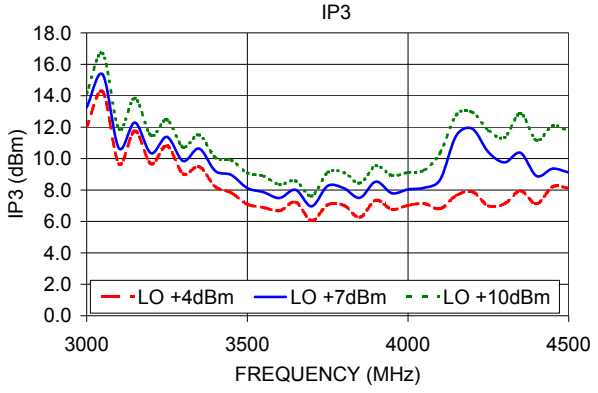
MCA1T-60+
LO VSWR



MCA1T-60+
IF VSWR



MCA1T-60+
IP3



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/MCLStore/terms.jsp