

# Frequency Mixer

SCM-1



CASE STYLE:YY109

Level 7 (LO Power +7 dBm) 1 to 500 MHz

## Maximum Ratings

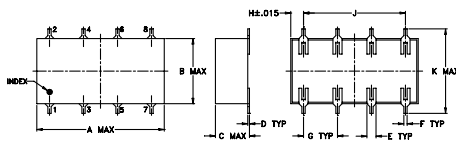
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

## Pin Connections

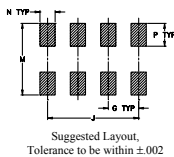
LO	8
RF	1
IF	3,4 <sup>^</sup>
GROUND	2,5,6,7

<sup>^</sup> pins must be connected together externally

## Outline Drawing



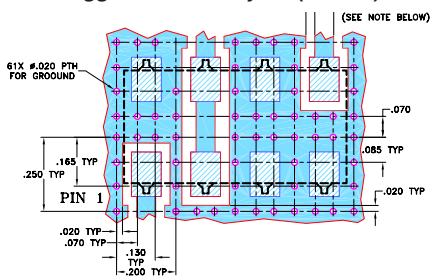
### PCB Land Pattern



## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.75	.38	.20	.010	.050	.020	.200
19.05	9.65	5.08	0.25	1.27	0.51	5.08
H	J	K	M	N	P	wt
.075	.600	.720	.740	.100	.150	grams
1.91	15.24	18.29	18.80	2.54	3.81	1.6

## Demo Board MCL P/N: TB-170 Suggested PCB Layout (PL-084)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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

## Features

- low conversion loss, 5.72 dB typ.
- excellent L-R & L-I isolation, 45 dB typ.
- IF response to DC

## Applications

- VHF/UHF
- defense-federal communications
- instrumentation

## Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)										
		L	M	U	L	M	U											
1-500	DC-500	5.72	0.10	7.0	8.0	60	40	45	35	40	30	50	40	45	35	40	25	10

1 dB COMP.: +1 dBm typ.

L = low range [ $f_l$  to  $10 f_l$ ]

m = mid band [ $2 f_l$  to  $f_l/2$ ]

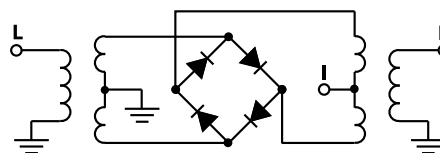
M = mid range [ $10 f_l$  to  $f_l/2$ ]

U = upper range [ $f_l/2$  to  $f_u$ ]

## Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
1.00	31.00	6.20	72.88	1.23	2.68
2.00	32.00	6.16	72.45	1.14	2.55
5.00	35.00	5.16	72.07	1.11	2.69
10.00	40.00	5.46	70.97	1.12	2.66
20.00	50.00	5.51	68.99	1.13	2.52
32.19	62.19	5.48	65.97	1.13	2.50
50.00	80.00	5.52	62.51	1.15	2.48
78.97	48.97	5.53	59.28	1.15	2.49
100.00	70.00	5.46	57.50	1.16	2.50
125.75	95.75	5.33	56.16	1.17	2.52
156.94	126.94	5.36	54.05	1.19	2.54
188.13	158.13	5.50	51.97	1.22	2.54
219.31	189.31	5.56	50.13	1.27	2.53
250.00	220.00	5.61	50.85	1.30	2.50
281.69	251.69	5.72	48.93	1.36	2.56
328.47	298.47	5.69	46.10	1.47	2.61
375.25	345.25	5.80	43.70	1.67	2.59
422.03	392.03	6.12	45.26	1.76	2.72
453.22	423.22	6.26	45.18	1.84	2.87
500.00	470.00	6.56	43.13	1.92	3.00

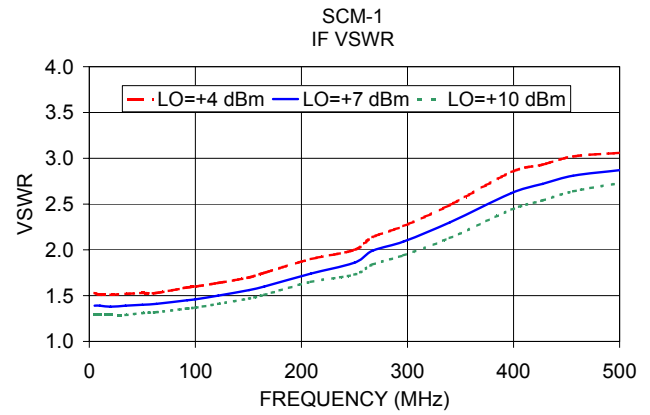
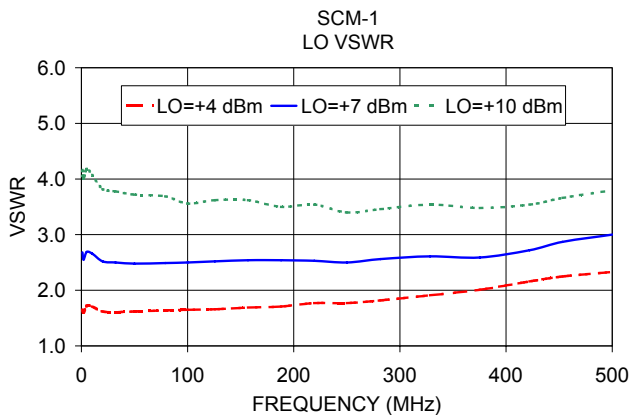
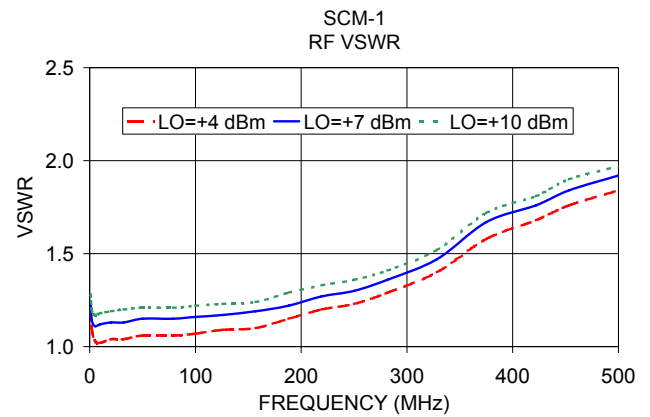
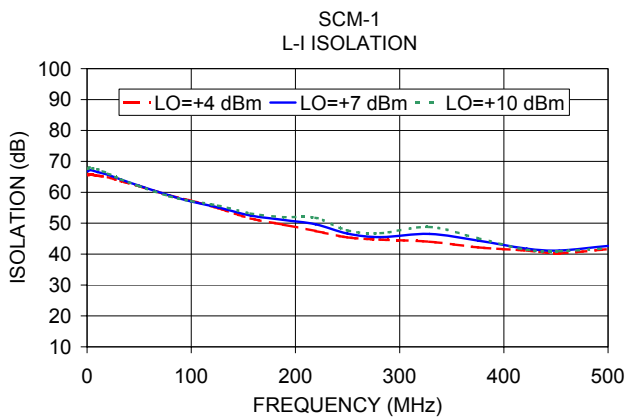
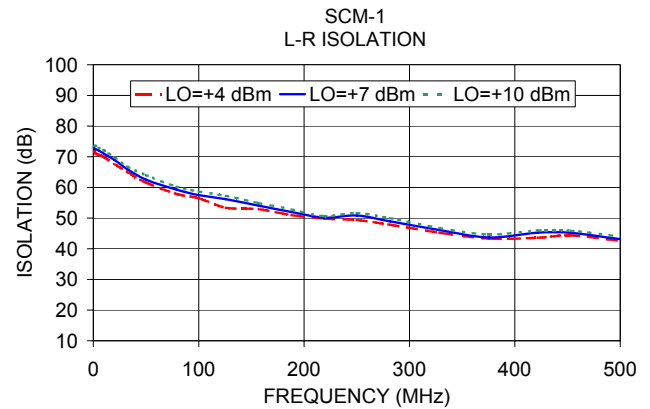
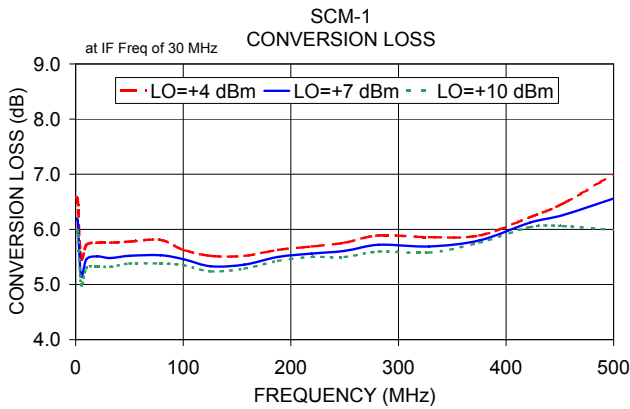
## Electrical Schematic



## 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.  
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