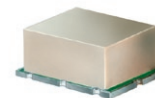


Surface Mount Frequency Mixer

SYM-2+ SYM-2

Level 7 (LO Power +7 dBm) 2 to 1000 MHz



CASE STYLE: TTT166
PRICE: \$11.95 ea. QTY (1-9)

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	2
RF	1
IF	3
GROUND	4,5,6

Features

- low conversion loss, 5.4 dB typ.
- excellent L-R & L-I isolation, 50 dB typ.
- IF response to DC

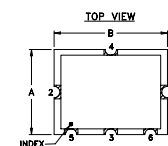
Applications

- VHF TV
- cellular
- GSM/ISM

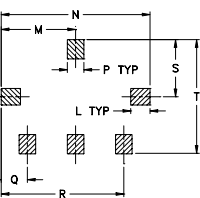
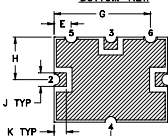
+ RoHS compliant in accordance with EU Directive (2002/95/EC)

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

Outline Drawing



PCB Land Pattern

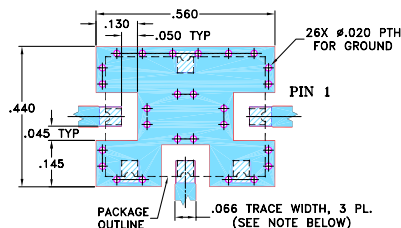


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	
.38	.50	.15	.020	.075	.250	.425	.187	.050	
9.65	12.70	3.81	0.51	1.91	6.35	10.80	4.75	1.27	
K	L	M	N	P	Q	R	S	T	wt.
.050	.070	.270	.540	.060	.095	.445	.208	.415	grams
1.27	1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54	0.8

Demo Board MCL P/N: TB-12
Suggested PCB Layout (PL-079)



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. GROUND PAD SHALL BE FREE OF SOLDER MASK IF REQUIRED FOR SOLDERING.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER), SEE NOTE 2.
 - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

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							
2-1000	DC-1000	70	45	50	30	40	25	63	40	48	24	37	20	17

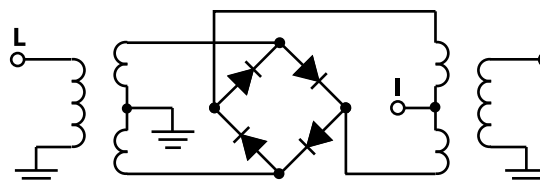
1 dB COMP.: +1 dBm typ.

L = low range [f_1 to $10 f_1$]
M = mid band [$2 f_1$ to $f_1/2$]
U = upper range [$f_1/2$ to f_1]

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	LO +7dBm		
1.00	31.00	7.23	>67.00	>67.00	1.30	2.70				
2.00	32.00	6.50	>67.00	>67.00	1.15	2.63				
5.00	35.00	5.80	>67.00	>67.00	1.07	2.77				
10.00	40.00	5.62	>67.00	>67.00	1.06	2.55				
20.00	50.00	5.68	>67.00	>67.00	1.07	2.41				
50.00	80.00	5.58	61.94	63.74	1.09	2.37				
100.00	70.00	5.53	54.33	54.76	1.11	2.29				
167.34	137.34	5.57	48.65	47.61	1.16	2.20				
233.87	203.87	5.72	45.10	43.03	1.18	2.16				
300.40	270.40	5.45	42.56	40.00	1.20	2.13				
366.94	336.94	5.73	40.45	37.57	1.22	2.06				
466.74	436.74	5.82	38.33	34.32	1.23	2.13				
500.00	470.00	5.72	38.80	34.10	1.26	2.09				
599.81	569.81	6.02	37.43	32.81	1.29	2.09				
666.34	636.34	6.11	37.94	31.57	1.34	2.04				
799.41	769.41	6.27	36.06	29.67	1.40	2.13				
832.68	802.68	6.46	35.22	28.79	1.47	2.19				
899.21	869.21	7.00	33.77	26.14	1.55	2.24				
932.48	902.48	7.37	33.17	25.03	1.66	2.28				
1000.00	969.00	7.63	32.49	23.59	1.72	2.30				

Electrical Schematic



Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

IF/RF MICROWAVE COMPONENTS

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Performance Charts

