

Surface Mount Frequency Mixer

SYM-12+ SYM-12

Level 7 (LO Power +7 dBm) 5 to 1200 MHz



Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

Pin Connections

LO	2
RF	1
IF	3
GROUND	4,5,6

Features

- low conversion loss, 6.5 dB typ.
- excellent L-R isolation, 50 dB typ.; L-I, 46 dB typ.
- IF response to DC

Applications

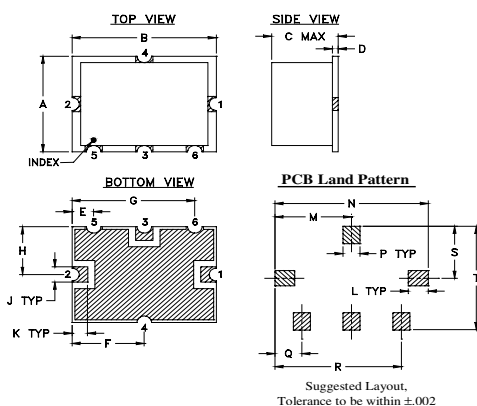
- cellular
- UHF TV
- ISM/GPS

CASE STYLE: TTT167
PRICE: \$9.45 ea. QTY (1-9)

+ 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.

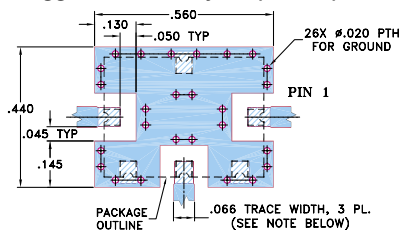
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K
.38	.50	.23	.020	.075	.250	.425	.187	.050	.050
9.65	12.70	5.84	0.51	1.91	6.35	10.80	4.75	1.27	1.27
L	M	N	P	Q	R	S	T	wt.	
.070	.270	.540	.060	.095	.445	.208	.415	grams	
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

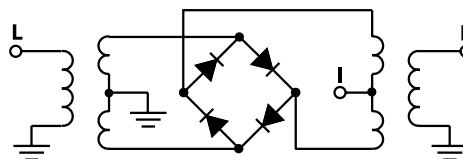
FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)						
LO/RF	IF	Mid-Band		Total Range	L	M	U	L	M	U								
$f_L - f_U$		\bar{X}	σ	Max.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.						
5-1200	DC-1000	6.5	.30	8.0	9.0	68	45	50	30	37	25	56	40	46	25	29	18	16

1 dB COMP.: +1 dBm typ.

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
5.00	35.00	6.57	72.28	69.79	1.43	3.00
10.10	40.10	6.37	71.75	68.24	1.19	2.56
50.00	80.00	6.49	63.00	60.09	1.07	2.42
102.45	72.45	6.54	68.06	64.89	1.01	2.36
143.30	113.30	6.62	59.96	55.79	1.01	2.32
224.15	194.15	6.70	55.72	50.78	1.03	2.25
280.35	250.35	6.74	53.25	48.69	1.02	2.36
350.63	320.63	6.80	51.05	46.92	1.04	2.32
438.53	408.53	7.05	47.81	45.14	1.11	2.33
548.47	518.47	6.96	46.31	42.00	1.20	2.34
600.00	570.00	7.01	45.68	39.34	1.27	2.33
685.97	655.97	7.10	43.02	37.59	1.45	2.37
767.15	737.15	7.00	40.88	35.91	1.64	2.38
857.93	827.93	7.07	40.26	34.32	1.87	2.41
900.00	870.00	7.11	40.45	33.02	2.16	2.37
1000.00	970.00	7.29	40.41	30.95	2.48	2.34
1100.00	1070.00	7.71	40.52	29.45	2.78	2.31
1150.00	1120.00	8.07	40.56	28.53	3.06	2.35
1170.00	1140.00	8.18	40.56	28.47	3.35	2.38
1200.00	1170.00	8.39	40.43	28.40	3.50	2.39

Electrical Schematic



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RF/IF MICROWAVE COMPONENTS

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