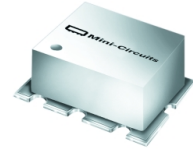


# Surface Mount Frequency Mixer

# SYM-25DHW+ SYM-25DHW

Level 17 (LO Power +17 dBm) 80 to 2500 MHz



CASE STYLE: TTT167  
PRICE: \$9.95 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.

## Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

## Pin Connections

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

## Features

- wide bandwidth, 80 to 2500 MHz
- low conversion loss, 6.4 dB typ.
- high IP3, 30 dBm typ.
- good L-R isolation, 37 dB typ.; & L-I isolation, 36 dB typ.

## Applications

- cellular
- PCN
- ISM/GPS
- satellite distribution

## 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											
80-2500	DC-1000*	6.4	.40	8.0	8.6	46	29	37	25	35	20	38	26	33	24	36	20	30

1 dB COMP.: +14 dBm typ.

\*Conversion loss increases up to 6 dB higher as IF frequency decreases from 5MHz to DC.

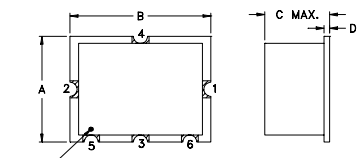
L = low range [ $f_l$  to  $10 f_l$ ]

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

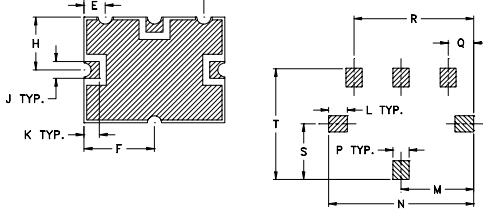
M = mid range [ $10 f_l$  to  $f_u/2$ ]

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

## Outline Drawing



## PCB Land Pattern



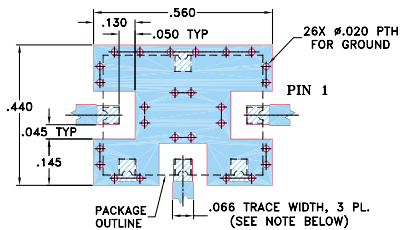
Suggested Layout.  
Tolerance to be within ±.002

## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	
.375	.500	.23	.020	.075	.250	.425	.187	.050	
9.53	12.70	5.84	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)

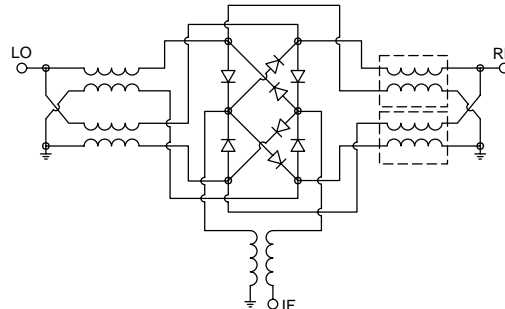


- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. GROUND PAD SHALL BE FREE OF SOLDER MASK IF REQUIRED FOR SOLDERING.  
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.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

## 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 +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
80.10	150.10	6.19	62.25	39.40	1.17	1.51
100.10	170.10	6.03	66.01	39.41	1.17	1.50
200.10	270.10	6.10	72.25	39.13	1.19	1.50
300.10	370.10	6.10	64.46	39.58	1.21	1.51
400.10	470.10	6.06	55.78	40.34	1.27	1.49
500.10	570.10	6.10	53.22	40.62	1.35	1.48
653.04	723.04	6.18	53.66	41.52	1.52	1.36
736.86	806.86	6.23	55.60	41.42	1.62	1.28
820.69	890.69	6.21	51.51	39.18	1.75	1.25
904.51	974.51	6.22	50.02	37.99	1.90	1.23
1000.10	1070.10	6.18	49.68	37.39	2.07	1.21
1239.81	1309.81	6.49	43.82	35.23	2.48	1.10
1407.45	1393.63	6.66	42.30	34.95	2.58	1.07
1500.10	1477.45	6.59	41.52	35.19	2.68	1.06
1742.75	1570.10	6.78	40.80	36.78	2.88	1.10
1826.57	1812.75	7.01	48.77	43.06	3.13	1.26
2000.10	1896.57	7.22	52.54	46.82	2.90	1.32
2329.51	2231.86	7.68	44.22	40.04	2.26	1.56
2413.34	2399.51	7.54	39.54	34.12	1.97	1.70
2500.10	2483.34	7.55	38.42	32.57	1.86	1.74

## Electrical Schematic



## Performance Charts

