

# Frequency Mixer

## SYM-30DLHW

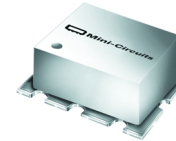
Level 10 (LO Power +10dBm) 5 to 3000 MHz

### Features

- wideband, 5 to 3000 MHz
- excellent L-I isolation, 45 dB typ.
- low conversion loss, 6.5 dB typ.

### Applications

- CDMA
- GSM
- DCS
- PCN



CASE STYLE: TTT167  
PRICE: \$8.95 ea. QTY (10-49)

### Mixer Electrical Specifications

MODEL NO.	FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)				LO-IF ISOLATION (dB)				IP3@ center band Typ. (dBm)	E FACTOR				
	LO/RF $f_L - f_U$	IF	Mid-Band $\bar{x}$	m	σ	Total Range Max.	L Typ.	M Typ.	U Typ.	L Typ.	M Typ.	U Typ.	L Typ.	M Typ.			U Typ.			
SYM-30DLHW	5-3000	5-1500	6.5	.15	8.4	9.2	36	28	27	29	33	23	41	32	45	37	47	31	19	0.9

1 dB COMP.: +5 dBm typ.  
E= (IP3(dBm)-LO Power(dBm))/10

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

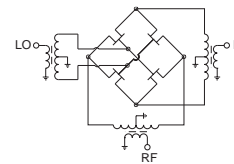
### Pin Connections

PORT	X
LO	2
RF	1
IF	3
GROUND EXT.	4,5,6

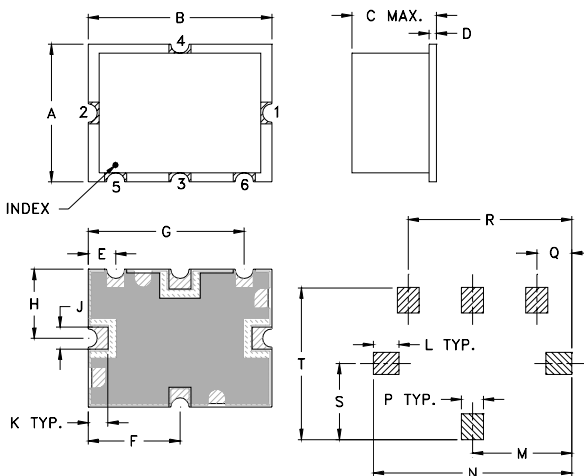
### Maximum Ratings

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

### electrical schematic



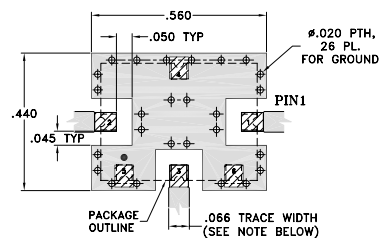
### Outline Drawing



### Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt.
.375	.500	.23	.020	.075	.250	.425	.187	.050	.050	.070	.270	.540	.060	.095	.445	.208	.415	grams
9.53	12.70	5.84	0.51	1.91	6.35	10.80	4.75	1.27	1.27	1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54	.8

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



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350 WITH DIELECTRIC THICKNESS 0.030" ± 0.002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. IF YOUR PCB DESIGN RULES ALLOW, GROUND VIAS SHOULD BE PLACED UNDER THE LAND PATTERN FOR BETTER RF PERFORMANCE. OTHERWISE GROUND VIAS SHOULD BE PLACED AS CLOSE TO LAND PATTERN AS POSSIBLE.  
3. GROUND PAD SHALL BE FREE OF SOLDERMASK IF REQUIRED FOR SOLDERING.

■ DENOTES PCB COPPER LAYOUT  
■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Typical Performance Data

Frequency		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF port (:1)	VSWR LO port (:1)
RF MHz	LO MHz	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm
5.10	35.11	6.58	35.88	38.87	1.13	1.62
100.10	130.11	6.53	36.17	43.33	1.08	1.61
221.15	251.16	6.50	36.39	43.27	1.13	1.60
434.31	464.32	6.51	36.54	43.55	1.26	1.57
647.47	677.48	6.40	36.89	43.37	1.43	1.53
860.63	890.64	6.55	37.21	44.80	1.62	1.50
1073.78	1103.79	6.73	38.11	47.46	1.76	1.46
1215.89	1245.90	6.36	38.74	50.49	1.80	1.44
1429.05	1459.06	6.22	38.31	55.18	1.69	1.37
1600.10	1630.11	6.19	37.88	58.14	1.50	1.33
1815.49	1845.50	6.36	35.43	54.55	1.29	1.22
2030.87	2060.88	6.80	32.79	49.03	1.27	1.13
2246.25	2276.26	7.17	31.15	51.13	1.32	1.04
2353.95	2383.96	7.26	30.54	54.00	1.27	1.01
2461.64	2491.65	7.28	30.28	53.61	1.17	1.07
2569.33	2599.34	7.27	30.13	51.62	1.03	1.15
2677.02	2707.03	7.33	30.10	48.05	1.13	1.24
2784.72	2814.73	7.43	30.14	46.47	1.29	1.33
2892.41	2922.42	7.53	30.39	43.08	1.45	1.43
3000.10	3030.11	7.67	32.41	40.55	1.57	1.51

## Performance Charts

