



**THE DATASHEET OF  
SYM-30DLHW+**



# Surface Mount Frequency Mixer

# SYM-30DLHW+ SYM-30DLHW

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



Generic photo used for illustration purposes only

CASE STYLE: TTT167

**+RoHS Compliant**

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

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500

## Maximum Ratings

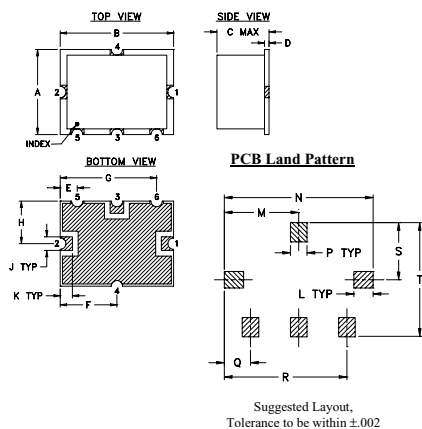
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

Permanent damage may occur if any of these limits are exceeded.

## Pin Connections

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

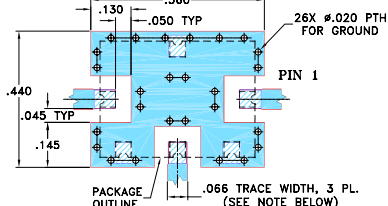
## Outline Drawing



## 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:

- 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.
- THE USE OF SOLDER MASK OVER THE GROUND AREA UNDER THE UNIT AS SHOWN IS RECOMMENDED TO PREVENT POTENTIAL SHORTING. IF USER CHOOSES TO EXPOSE METAL UNDER THE ENTIRE UNIT GROUND PAD FOR IMPROVED GROUNDING, IT IS RECOMMENDED A SOLDER MASK DAM BE APPLIED AROUND EACH GROUND PAD TO ENSURE FILLET AND CONNECTION AT GROUND PADS.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

### Notes

- 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.
- 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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## Features

- wideband, 5 to 3000 MHz
- good L-R isolation, 36 dB typ.
- excellent L-I isolation, 45 dB typ.
- low conversion loss, 6.5 dB typ.

## Applications

- CDMA
- GSM
- DCS
- PCN

## 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							
5-3000	5-1500	36	28	37	29	33	23	41	32	45	37	47	31	19

1 dB COMP: +5 dBm typ.

\*IP3 at 800-900 MHz, and 1800-1900 MHz

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

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

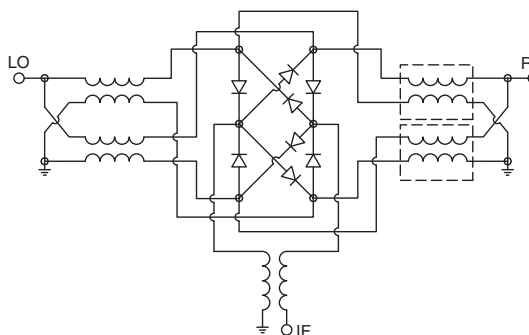
M = mid range [ $10 f_c$  to  $f_c/2$ ]

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

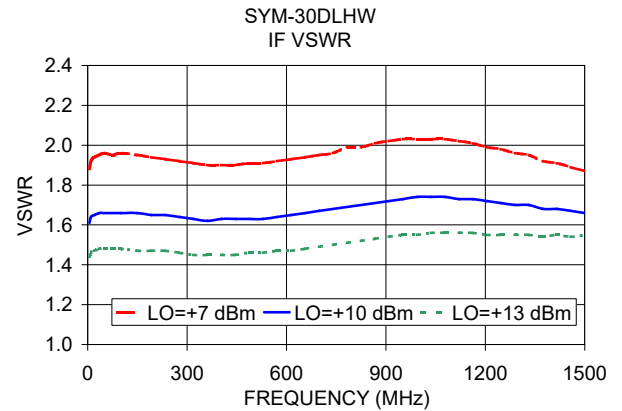
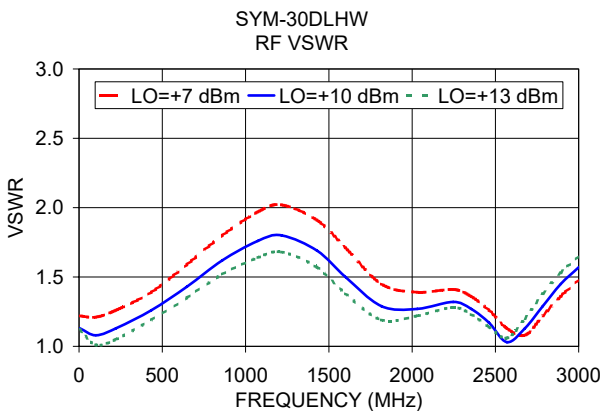
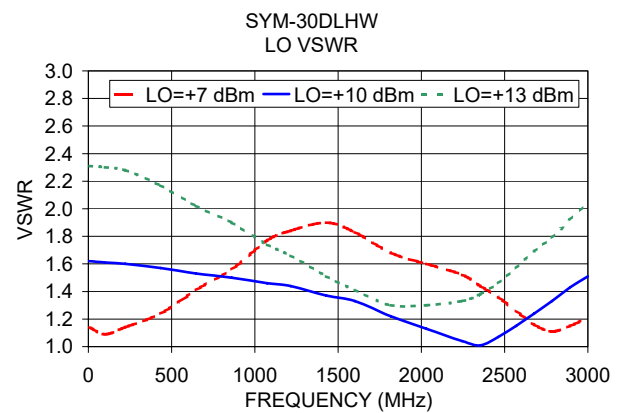
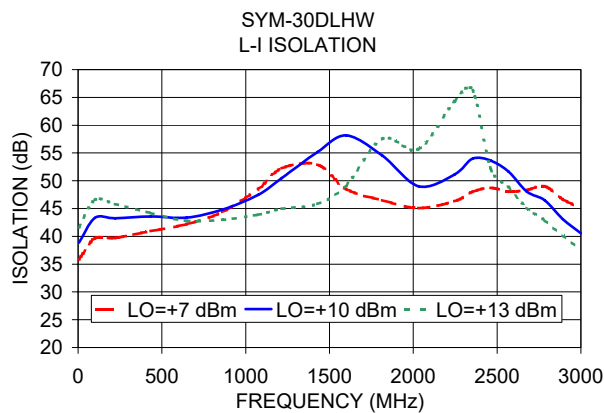
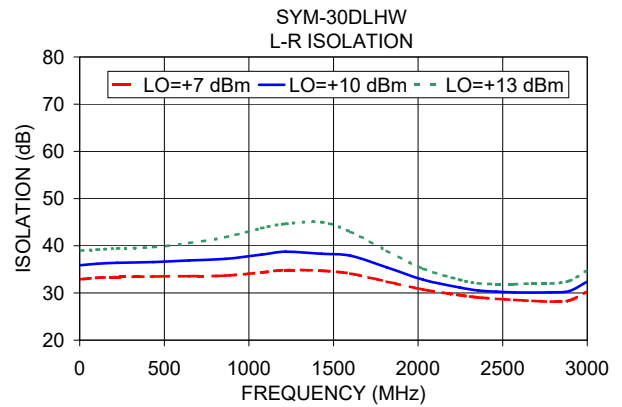
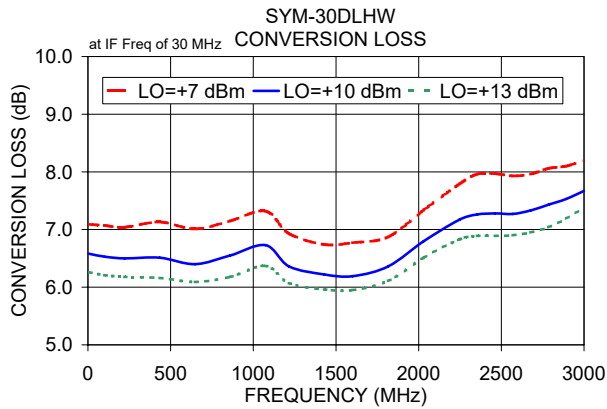
## Typical Performance Data

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

## Electrical Schematic



## Performance Charts





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