

Frequency Mixer

SYM-30DHW+ SYM-30DHW

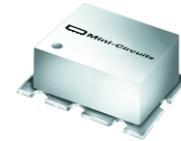
Level 17 (LO Power +17dBm) 5 to 3000 MHz

Features

- wide bandwidth, 5-3000 MHz
- good L-R isolation, 40 dB typ.
- excellent L-I isolation, 44 dB typ.
- wide IF bandwidth, useable to 3 GHz
- high IP3, 29 dBm typ.

Applications

- CDMA
- GSM
- DCS
- PCN



CASE STYLE: TTT167
PRICE: \$10.95 ea. QTY (10-49)

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

See our web site for RoHS Compliance methodologies and qualifications.

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-30DHW	5-3000	5-1500	6.5	.10	8.3	9.1	36	24	40	30	40	25	42	28	44	36	48	33	29	1.2

1 dB COMP.: +14 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 $f_U/2$]

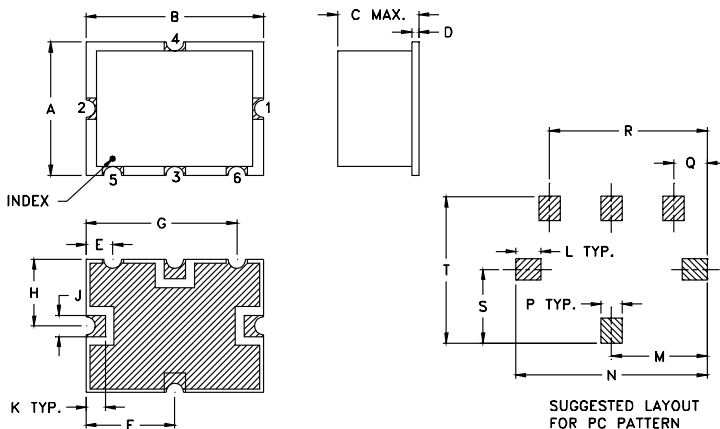
Pin Connections

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

Maximum Ratings

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

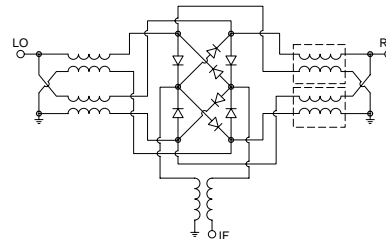
Outline Drawing



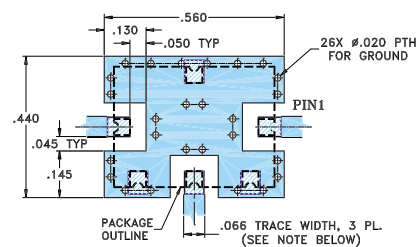
Outline Dimensions (inch/mm)

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

electrical schematic



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



1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS $0.030" \pm 0.002"$, 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

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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 +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
5.10	35.11	6.52	35.53	39.27	1.13	1.62
10.10	40.11	6.37	36.08	42.21	1.08	1.61
50.10	80.11	6.32	35.81	44.46	1.13	1.60
150.10	180.11	6.35	36.19	44.52	1.26	1.57
292.21	322.22	6.54	36.11	44.86	1.43	1.53
434.31	464.32	6.48	36.06	44.17	1.62	1.50
576.42	606.43	6.51	36.15	43.45	1.76	1.46
718.52	748.53	6.35	36.82	43.17	1.80	1.44
860.63	890.64	6.48	37.89	43.23	1.69	1.37
1002.73	1032.74	6.61	38.92	43.28	1.50	1.33
1144.84	1174.85	6.51	40.92	43.96	1.29	1.22
1286.94	1316.95	6.34	42.38	45.03	1.27	1.13
1429.05	1459.06	6.15	42.75	45.18	1.32	1.04
1600.10	1630.11	6.10	42.06	45.85	1.27	1.01
1815.49	1845.50	6.32	40.35	45.85	1.17	1.07
2030.87	2060.88	6.91	37.09	44.23	1.03	1.15
2246.25	2276.26	7.53	34.69	43.76	1.13	1.24
2461.64	2491.65	7.53	34.48	46.04	1.29	1.33
2677.02	2707.03	7.31	36.24	45.72	1.45	1.43
3000.10	3030.11	7.24	39.16	41.54	1.57	1.51

Performance Charts

