

Surface Mount Phase Detector

50Ω High Output 10 to 200 MHz

**SYPD-2+
SYPD-2**



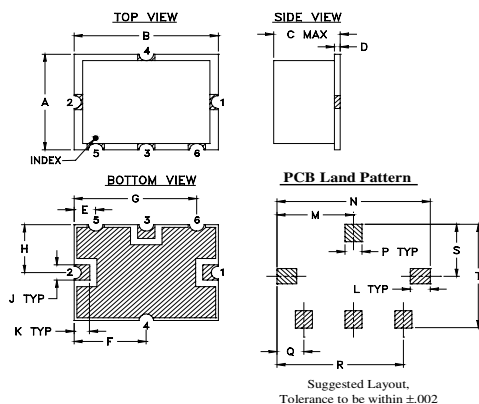
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Input Power	50mW
Peak IF current	20mA

Pin Connections

RF REF (RF2)	2
RF IN (RF1)	1
DC OUT (I)	3
GROUND	4,5,6

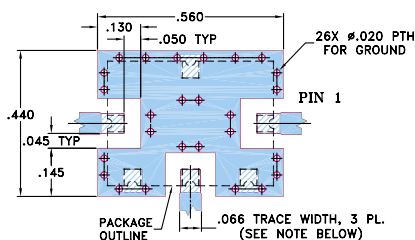
Outline Drawing



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: 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

Features

- wideband, 10 to 200 MHz
- low DC offset, 0.3 mV typ.
- high DC output, 1000 mV typ.
- high isolation, 40 dB min.

Applications

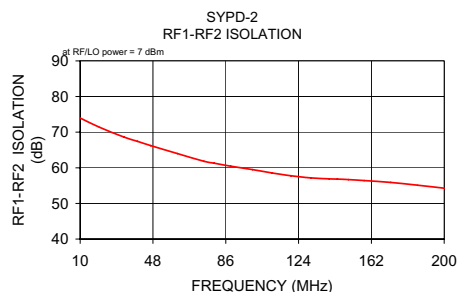
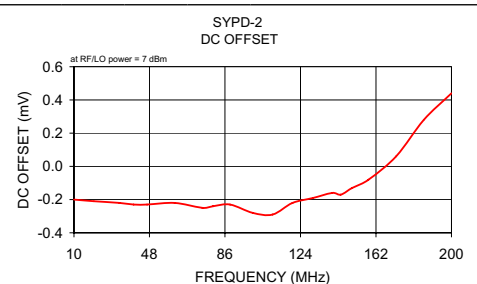
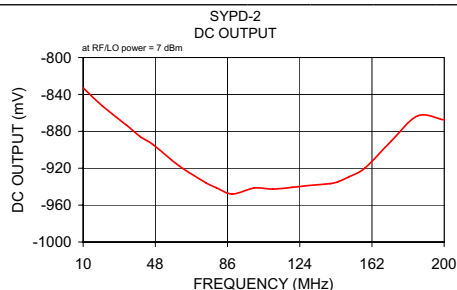
- monitoring circuits
- leveling circuits
- PLL

Phase Detector Electrical Specifications

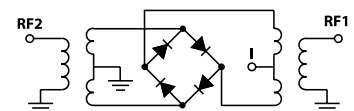
FREQUENCY (MHz)	POWER IN	SCALE FACTOR	IMPEDANCE (ohms)	ISOLATION (dB)	OUTPUT POLARITY	DC OUTPUT (mV)	FIGURE OF MERIT
RF1	RF1						
RF2	RF2						
RF2	(dBm)	mV/deg.	Output Load I	RF1/RF2 Min.	RF1/RF2 In-Phase	Max. Offset Typ. Min. Typ. Max.	Typ.
10-200	DC-50	7	8	500	40	neg.	100 700 0.3 1 143

Typical Performance Data

Frequency (MHz)	DC Output mV	DC Offset mV	RF1-RF2 Isolation (dB)
	$\bar{X}$ σ	$\bar{X}$ σ	$\bar{X}$
10.00	-832.85 8.84	-0.20 0.31	73.96
20.00	-852.33 8.56	-0.21 0.32	71.39
32.86	-873.37 8.31	-0.22 0.33	68.61
40.00	-885.64 8.09	-0.23 0.33	67.41
46.79	-894.39 7.95	-0.23 0.33	66.22
60.71	-917.70 7.62	-0.22 0.35	64.00
74.64	-935.82 7.73	-0.25 0.37	61.81
80.00	-941.09 7.83	-0.24 0.37	61.28
88.57	-947.91 8.28	-0.23 0.38	60.45
100.00	-941.46 8.44	-0.28 0.40	59.49
110.00	-942.62 8.94	-0.29 0.41	58.55
120.00	-940.69 9.51	-0.22 0.40	57.75
130.36	-938.41 10.59	-0.19 0.39	57.17
140.00	-936.70 11.75	-0.16 0.37	56.90
144.29	-934.52 12.34	-0.17 0.36	56.82
150.00	-929.14 12.91	-0.13 0.38	56.68
158.21	-919.94 13.74	-0.08 0.40	56.42
172.14	-890.67 15.14	0.06 0.41	55.90
186.07	-863.24 17.28	0.28 0.31	55.11
200.00	-867.58 20.41	0.44 0.24	54.28



electrical schematic



Mini-Circuits®
ISO 9001 ISO 14001 CERTIFIED

ALL NEW
minicircuits.com

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

REV. C
M112207
SYPD-2
DJ/TD/AM
070810

Free Datasheet <http://www.datasheet4u.com/>