

Surface Mount Phase Detector

50Ω High Output 10 to 200 MHz

**SYPD-2+
SYPD-2**



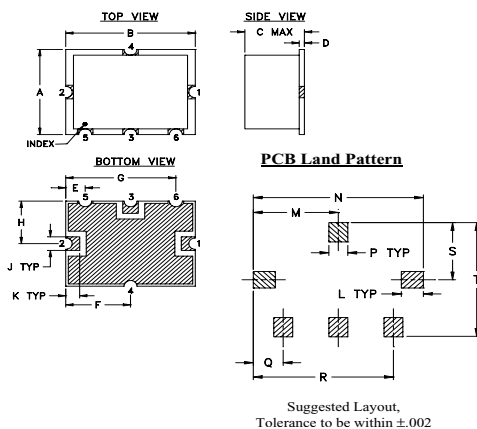
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Input Power	50mW
Peak IF current	20mA
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

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

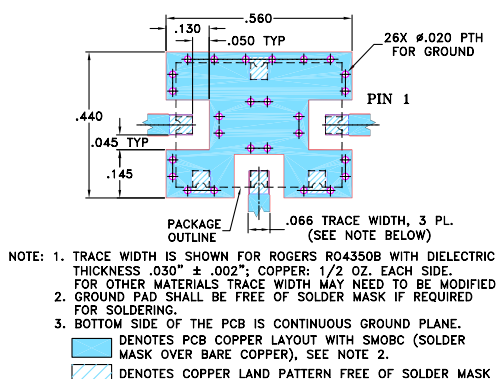
Outline Drawing



Outline Dimensions (inches)

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)



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

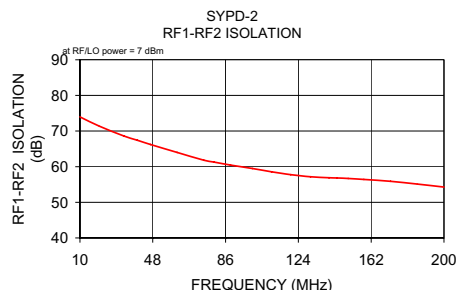
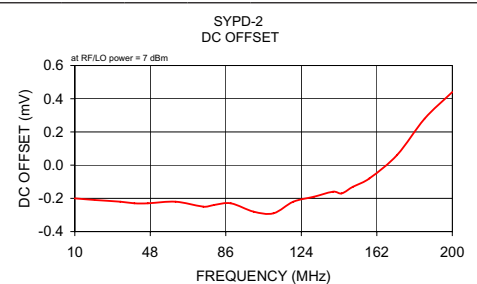
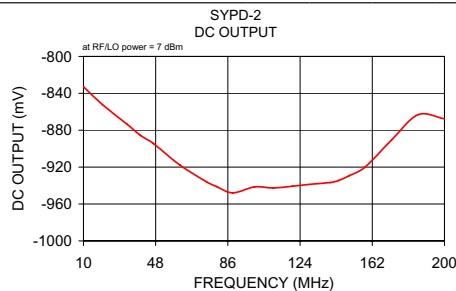
- monitoring circuits
- leveling circuits
- PLL

Phase Detector Electrical Specifications

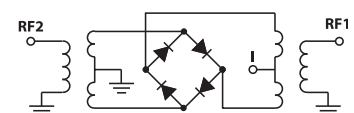
FREQUENCY (MHz)		POWER IN	SCALE FACTOR	IMPEDANCE (ohms) Output Load I	ISOLATION (dB)	OUTPUT POLARITY	DC OUTPUT (mV)				FIGURE OF MERIT
RF1	I	RF1					Max.		Offset		
RF2		RF2 (dBm)	mV/deg.		RF1/RF2 Min.	RF1/RF2 In-Phase	Typ.	Min.	Typ.	Max.	Typ.
10-200	DC-50	7	8	500	40	neg.	1000	700	0.3	1	143

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 AS 9100 CERTIFIED
The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com
IFIRF MICROWAVE COMPONENTS

For detailed performance specs
& shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

REV. C
M112207
SYPD-2
DJ/TD/AM
091112