Surface Mount

Phase Detector

SYPD-52W+

50Ω High Output 300 to 650 MHz

CASE STYLE: TTT167
PRICE: $16.95 ea. QTY (1-9)

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

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Maximum Ratings

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

Pin Connections

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

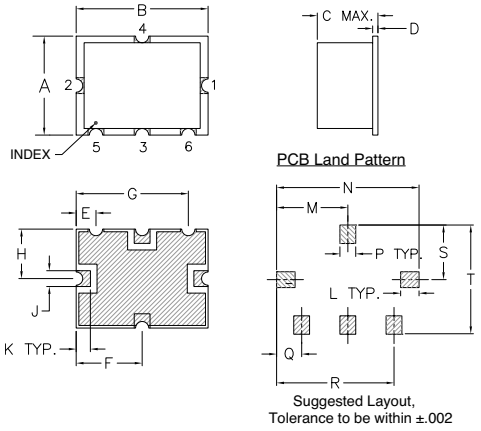
Features

- frequency range, 300 to 650 MHz
- high DC output, 900 mV typ.

Applications

- monitoring circuits
- leveling circuits
- PLL

Outline Drawing



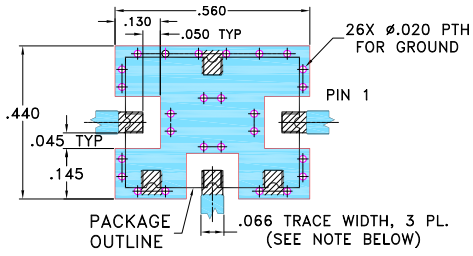
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K
.38	.50	.23	.020	.075	.250	.425	.187	.050	.050
9.60	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

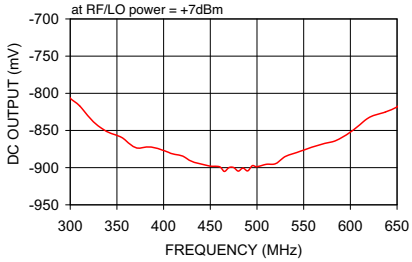
Phase Detector Electrical Specifications

FREQUENCY (MHz) RF1 / RF2	I	POWER IN RF1 / RF2 (dBm)	SCALE FACTOR mV/deg.	IMPEDANCE (ohms) Output Load I	ISOLATION (dB) RF1/RF2 Min.	OUTPUT POLARITY RF1/RF2 In - Phase	DC OUTPUT (mV) Max. Typ.	DC OUTPUT (mV) Max. Min.	DC OUTPUT (mV) Offset Typ.	DC OUTPUT (mV) Offset Max.	FIGURE OF MERIT Typ.
300-400	DC-50	+7	8	500	34	neg.	850	700	0.9	4.0	129
400-500	DC-50	+7	8	500	30	neg.	900	750	0.7	1.2	129
500-650	DC-50	+7	8	500	28	neg.	850	700	1.0	5.0	129

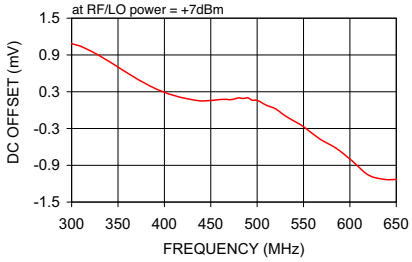
Typical Performance Data

Frequency (MHz)	DC Output mV X̄	DC Output mV σ	DC Offset mV X̄	DC Offset mV σ	RF1-RF2 Isolation (dB) X̄
300.0	-806.7	10.04	1.09	0.52	49.54
325.0	-838.5	9.84	0.93	0.46	48.86
340.0	-852.0	9.52	0.80	0.42	48.41
355.0	-859.3	9.22	0.65	0.37	47.98
385.0	-872.0	8.24	0.39	0.32	47.04
400.0	-877.0	7.60	0.29	0.35	46.44
430.0	-891.6	7.18	0.17	0.45	45.36
450.0	-897.9	6.93	0.16	0.54	44.73
485.0	-900.5	6.57	0.19	0.70	43.64
500.0	-898.7	6.49	0.16	0.77	43.23
550.0	-876.4	6.16	-0.27	1.04	41.80
585.0	-863.3	6.63	-0.62	1.20	41.11
602.5	-850.1	6.95	-0.83	1.26	40.74
620.0	-832.6	7.64	-1.06	1.37	40.47
650.0	-818.3	8.97	-1.13	1.60	40.13

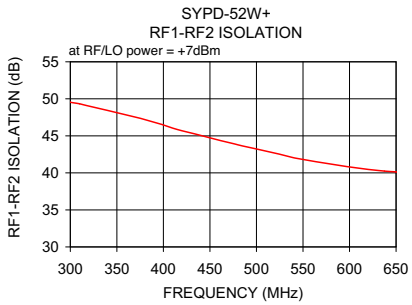
SYPD-52W+
DC OUTPUT



SYPD-52W+
DC OFFSET



SYPD-52W+
RF1-RF2 ISOLATION



electrical schematic