Surface Mount

Power Splitter/Combiner

SYPQ-181+

2 Way-90° 50Ω 120 to 180 MHz

Generic photo used for illustration purposes only

CASE STYLE: AH1415

+RoHS Compliant

The +Suffix identifies 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
Power Input (as a splitter)	1W max.

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

Pin Connections

SUM PORT	1
PORT 1 (0°)	5
PORT 2 (+90°)	8
GROUND	2,3,6,7
50 OHM TERM EXTERNAL	4

Features

- good phase unbalance, 3.0 deg. max.
- good amplitude balance, 0.5 dB max.
- low height, 0.16" max.
- low cost

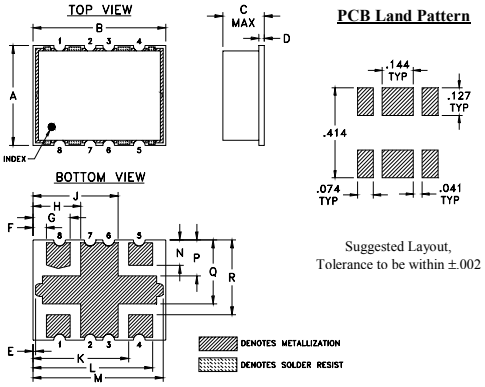
Applications

- VHF
- balanced amplifiers
- I&Q modulators

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		120		180	MHz
Insertion Loss Above (Avg. of Coupled Output less 3 dB)	120-180	—	0.3	0.6	dB
Isolation	120-180	16	20	—	dB
Phase Unbalance	120-180	—	1.8	3.0	Degree
Amplitude Unbalance	120-180	—	0.3	0.8	dB
VSWR (Port S)	120-180	—	1.2	1.4	:1
VSWR (Port 1-2)	120-180	—	1.2	1.4	:1

Outline Drawing



PCB Land Pattern

Suggested Layout, Tolerance to be within ±.002

Outline Dimensions (inch / mm)

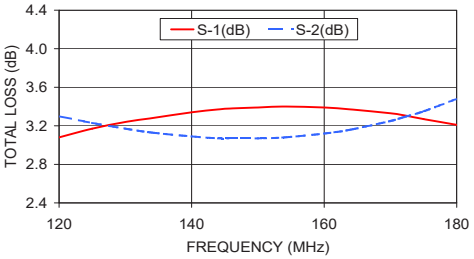
A	B	C	D	E	F	G	H	
.375	.500	.156	.020	.010	.050	.140	.180	
9.53	12.70	3.96	0.51	0.25	1.27	3.56	4.57	
J	K	L	M	N	P	Q	R	wt
.320	.360	.450	.490	.095	.135	.240	.280	grams
8.13	9.14	11.43	12.45	2.41	3.43	6.10	7.11	0.80

Typical Performance Data

Frequency (MHz)	Total Loss[1] (dB) S-1	Total Loss[1] (dB) S-2	Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
120.0	3.08	3.30	0.22	28.76	89.75	1.10	1.11	1.10
125.0	3.17	3.23	0.06	28.39	89.80	1.11	1.12	1.11
130.0	3.24	3.17	0.07	27.91	89.86	1.11	1.12	1.11
134.0	3.28	3.13	0.16	27.47	89.91	1.11	1.13	1.12
140.0	3.34	3.09	0.25	26.67	90.00	1.12	1.13	1.13
144.0	3.37	3.07	0.29	26.05	90.07	1.12	1.14	1.13
146.0	3.38	3.07	0.31	25.76	90.10	1.13	1.14	1.14
150.0	3.39	3.07	0.32	25.10	90.19	1.13	1.15	1.15
154.0	3.40	3.08	0.31	24.43	90.29	1.14	1.16	1.16
160.0	3.39	3.12	0.27	23.34	90.47	1.15	1.17	1.17
164.0	3.37	3.16	0.21	22.60	90.61	1.16	1.18	1.19
170.0	3.33	3.25	0.08	21.44	90.88	1.18	1.20	1.21
172.0	3.31	3.29	0.02	21.05	90.99	1.19	1.21	1.22
175.0	3.27	3.35	0.07	20.45	91.17	1.20	1.22	1.23
180.0	3.21	3.48	0.27	19.44	91.54	1.22	1.24	1.26

1. Total Loss = Insertion Loss + 3dB splitter theoretical loss.

SYPQ-181+
TOTAL LOSS



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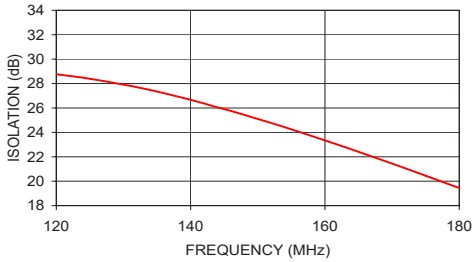
ISOLATION



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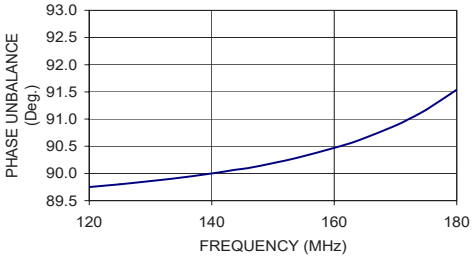
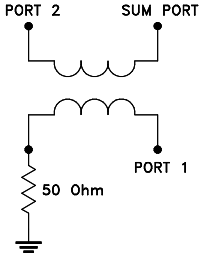
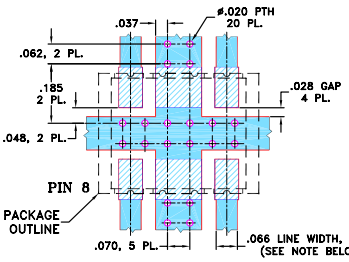
PHASE UNBALANCE



Electrical Schematic



Demo Board MCL P/N: TB-265
Suggested PCB Layout (PL-138)



NOTE:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS .030 ± .002. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Notes

A. 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.
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