Surface Mount

Power Splitter/Combiner

SYPS-2-52HP+

2 Way-0° 50Ω 10 to 540 MHz 15 Watt

Generic photo used for illustration purposes only

CASE STYLE: AH1647

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-40°C to 65°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)[1]	15W max.
Internal Dissipation	6W max.

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

Pin Connections

SUM PORT	1
OUTPUT PORT 1	4
OUTPUT PORT 2	5
GROUND	2,3,6,7
ISOLATION (NOT USED)	8

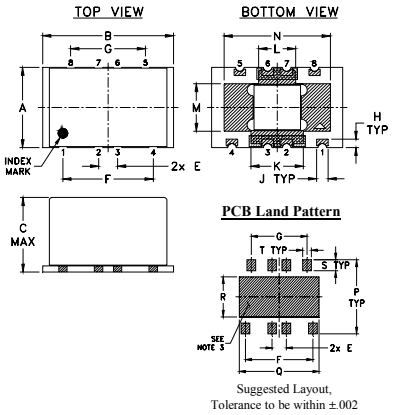
Features

- wideband, 10 to 540 MHz
- low insertion loss, 0.5 dB typ.
- excellent amplitude unbalance, 0.1 dB typ.
- high power input, 15 Watt
- high power combiner, 3 Watt each port
- good isolation, 20 dB typ.

Applications

- VHF/UHF
- communications systems
- receivers & transmitters
- instrumentation
- military mobile

Outline Drawing



Suggested Layout,
Tolerance to be within ±.002

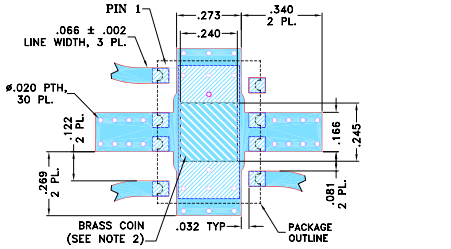
Outline Dimensions (inch / mm)

A	B	C	E	F	G	H	J	K
.433	.690	.415	.100	.476	.394	.045	.060	.276
11.00	17.53	10.54	2.54	12.09	10.01	1.14	1.52	7.01

L	M	N	P	Q	R	S	T	wt
.194	.257	.560	.475	.561	.258	.069	.061	grams
4.93	6.53	14.22	12.07	14.25	6.55	1.75	1.55	2.80

Demo Board MCL P/N: TB-655+
Suggested PCB Layout (PL-359)

Refer to Application Note: AN-00-017



NOTES:
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. SUGGEST TO PROVIDE BRASS COIN FOR BETTER HEAT TRANSFER FROM THE UNIT. OTHERWISE PROVIDE ARRAY OF THERMAL VIAS ADEQUATE TO LIMIT TEMPERATURE OF GROUND CONNECTIONS UNDER THE UNIT TO 65°C.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

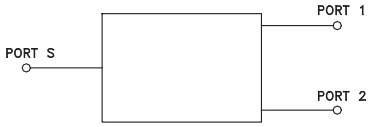
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK
DENOTES BRASS COIN.

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		10		540	MHz
Insertion Loss Above 3.0 dB	10-30	—	0.2	0.5	dB
	30-250	—	0.3	0.7	
	250-540	—	0.5	1.1	
Isolation	10-30	14	19	—	dB
	30-250	18	25	—	
	250-540	15	19	—	
Phase Unbalance	10-30	—	2	5	Degree
	30-250	—	1	4	
	250-540	—	1.5	5	
Amplitude Unbalance	10-30	—	0.15	0.4	dB
	30-250	—	0.1	0.4	
	250-540	—	0.1	0.4	
VSWR (Port S)	10-30	—	1.2	1.4	:1
	30-250	—	1.25	1.45	
	250-540	—	1.35	1.65	
VSWR (Port 1-2)	10-30	—	1.4	1.9	:1
	30-250	—	1.1	1.3	
	250-540	—	1.1	1.3	
IP3	10-30	45	50	—	dBm
	30-540	52	60	—	

1. The user must provide adequate means of heat removal to limit the temperature of ground connections under the PCB to 70°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user 's PC board heat sink to be 8°C/W.

electrical schematic



Notes

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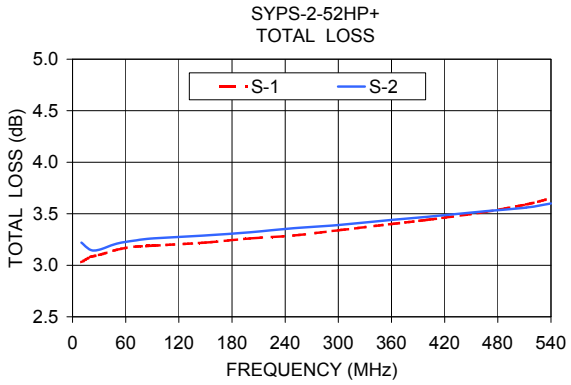
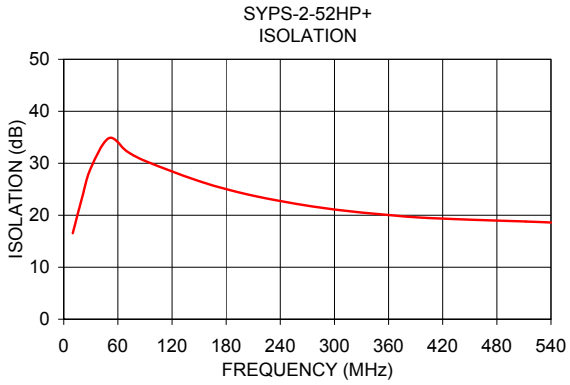
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty 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

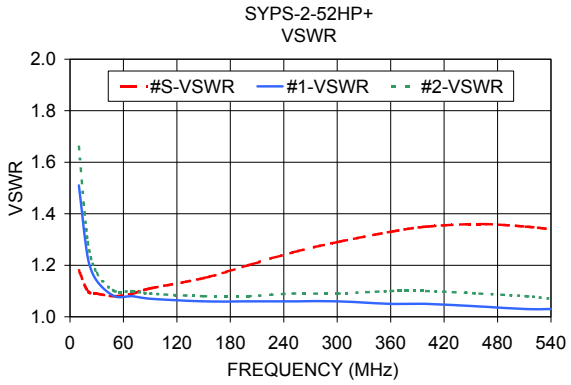
Typical Performance Data

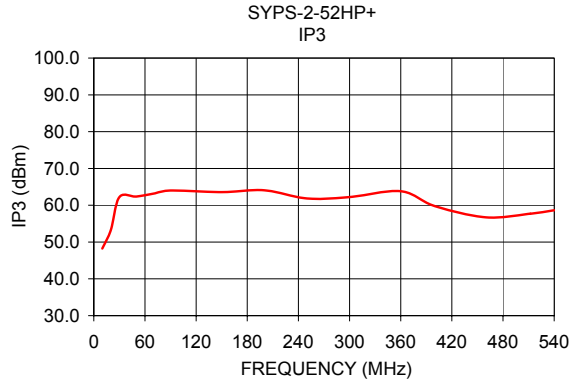
Frequency (MHz)	Total Loss[1] (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
10.00	3.03	3.22	0.19	16.55	2.42	1.18	1.51	1.66
20.00	3.08	3.15	0.07	23.20	1.28	1.10	1.23	1.29
30.00	3.10	3.15	0.05	29.09	0.74	1.09	1.14	1.17
50.00	3.15	3.21	0.05	34.84	0.20	1.08	1.08	1.10
70.00	3.18	3.24	0.07	32.29	0.03	1.09	1.08	1.10
90.00	3.19	3.26	0.06	30.46	0.09	1.11	1.07	1.09
150.00	3.22	3.29	0.06	26.57	0.36	1.15	1.06	1.08
200.00	3.26	3.32	0.06	24.16	0.49	1.20	1.06	1.08
250.00	3.29	3.36	0.06	22.43	0.64	1.25	1.06	1.09
300.00	3.34	3.39	0.05	21.11	0.76	1.29	1.06	1.09
360.00	3.40	3.44	0.04	20.03	0.87	1.33	1.05	1.10
400.00	3.44	3.47	0.03	19.52	0.96	1.35	1.05	1.10
460.00	3.51	3.52	0.01	19.08	1.07	1.36	1.04	1.09
512.00	3.59	3.56	0.02	18.80	1.16	1.35	1.03	1.08
540.00	3.65	3.60	0.05	18.61	1.22	1.34	1.03	1.07

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









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