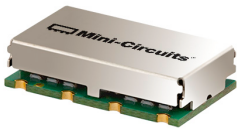
Surface Mount

Power Splitter/Combiner SCPS-4-62+

4 Way-0° 50Ω 1 to 650 MHz

The Big Deal

- Excellent matching VSWR, 1.1:1
- Low unbalance, 0.3 dB / 1°
- Good isolation, 26 dB



CASE STYLE: HF1485-1

Product Overview

Mini-Circuits' SCPS-4-62+ is a surface-mount 4-way 0˚ splitter/combiner covering the 1 to 650 MHz frequency range, supporting bandwidth requirements for a wide range of RF/microwave systems. This model can handle up to 1W RF input power as a splitter and provides high isolation, excellent VSWR, low amplitude unbalance, and low phase unbalance. The unit comes housed in a miniature, shielded, 8-lead package (0.44 x 0.74 x 0.19") with wrap-around terminations for excellent solderability.

Key Features

Feature	Advantages
Low insertion loss, 1.0 dB (above 6 dB theoretical loss)	The combination of 1W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
Excellent matching VSWR, 1.1:1	Provides excellent thru-path transmission with low signal reflection.
High isolation, 26 dB	Minimizes interference between ports.
Low unbalance, 0.3 dB / 1°	Low unbalance provides nearly equal output signals, ideal for parallel path/multichannel systems.
Small size, 0.44 x 0.74 x 0.19"	Saves space in dense PCB layouts.

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Generic photo used for illustration purposes only

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+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.
Internal Dissipation	0.25W max.

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

Pin Connections

SUM PORT	3
PORT 1	2
PORT 2	4
PORT 3	6
PORT 4	8
GROUND	1,5,7

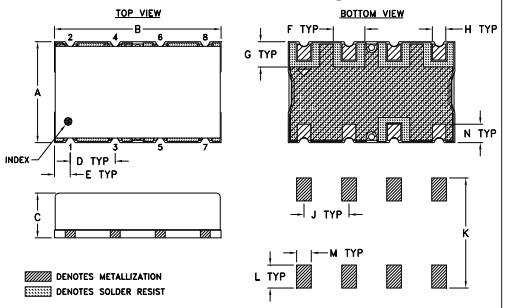
Features

- wideband, 1 to 650 MHz,
- excellent phase unbalance, 1 deg. typ.
- good isolation, 26 dB typ.
- excellent amplitude unbalance, 0.3 dB typ.
- excellent matching VSWR, 1.2:1 typ.
- rugged, shielded case

Applications

- communication systems
- instrumentation
- cellular, GPS, PCS
- VHF/UHF/receivers/transmitters

Outline Drawing

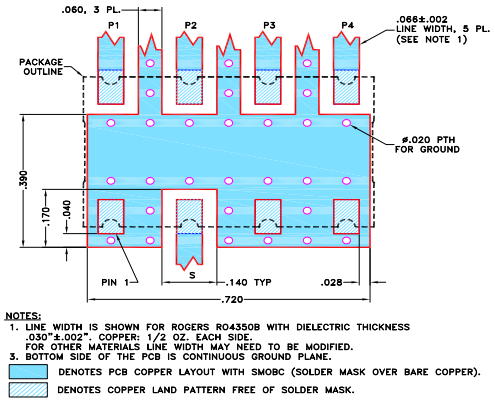


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.440	.740	.19	.200	.07	.140	.110
11.18	18.80	4.83	5.08	1.78	3.56	2.79

H	J	K	L	M	wt
.060	.200	.480	.100	.065	grams
1.52	5.08	12.19	2.54	1.65	3.00

Demo Board MCL P/N: TB-925 + Suggested PCB Layout (PL-492)



NOTES:
1. LINE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030"±.002", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS LINE WIDTH MAY NEED TO BE MODIFIED.
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.

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1	—	650	MHz
Insertion Loss Above 6.0 dB	1 - 280 280 - 600 600 - 650	— — —	0.6 1.0 1.4	0.9 1.5 1.8	dB
Isolation	1 - 280 280 - 600 600 - 650	21 21 18	30 26 24	— — —	dB
Phase Unbalance	1 - 280 280 - 600 600 - 650	— — —	1 2 3	3 4 6	deg.
Amplitude Unbalance	1 - 280 280 - 600 600 - 650	— — —	0.1 0.3 0.4	0.2 0.5 0.7	dB
VSWR (Port S)	1 - 280 280 - 600 600 - 650	— — —	1.2 1.2 1.4	1.3 1.37 1.65	:1
VSWR (Port 1-4)	1 - 280 280 - 600 600 - 650	— — —	1.2 1.1 1.15	1.3 1.28 1.3	:1

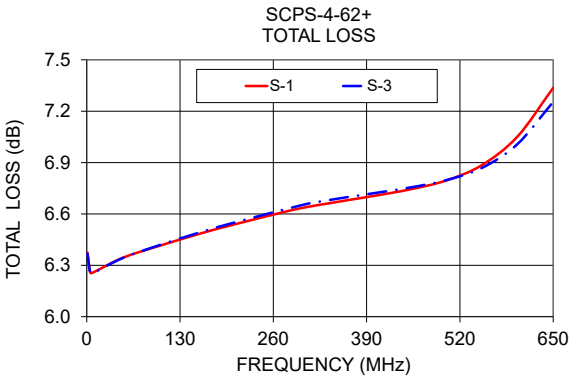
Electrical Schematic

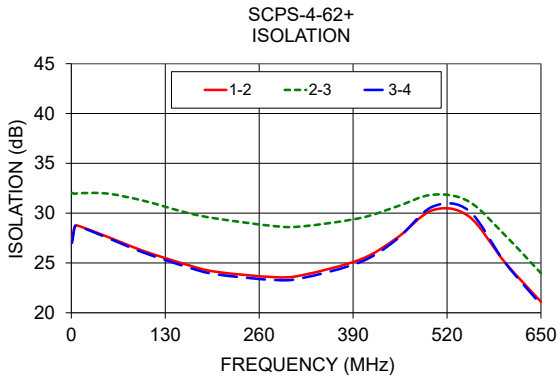
Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

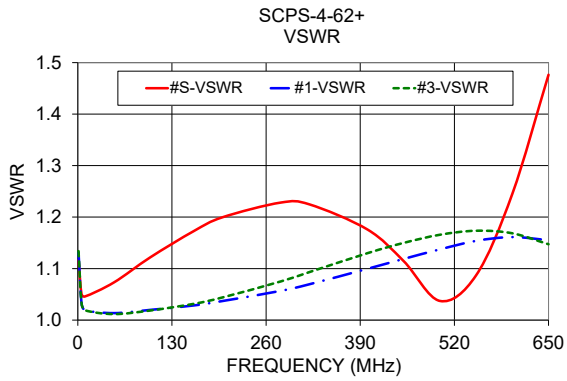
Typical Performance Data

Freq. (MHz)	Total Loss[1] (dB)				Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3	VSWR 4
	S-1	S-2	S-3	S-4		1-2	2-3	3-4						
1	6.37	6.36	6.37	6.38	0.01	27.24	32.03	27.02	0.04	1.12	1.13	1.13	1.13	1.13
5	6.26	6.25	6.25	6.26	0.01	28.71	31.94	28.67	0.02	1.05	1.03	1.03	1.03	1.04
10	6.26	6.26	6.26	6.26	0.00	28.72	32.00	28.69	0.04	1.05	1.02	1.02	1.02	1.02
50	6.34	6.34	6.34	6.34	0.00	27.62	31.96	27.52	0.08	1.07	1.01	1.01	1.01	1.01
100	6.41	6.41	6.42	6.41	0.01	26.21	31.24	26.04	0.19	1.12	1.02	1.02	1.02	1.02
160	6.49	6.49	6.50	6.48	0.02	24.83	30.04	24.60	0.33	1.17	1.03	1.03	1.03	1.03
200	6.53	6.53	6.54	6.52	0.02	24.12	29.47	23.87	0.40	1.20	1.04	1.04	1.04	1.04
280	6.62	6.62	6.63	6.59	0.04	23.58	28.71	23.30	0.55	1.23	1.06	1.07	1.07	1.07
320	6.65	6.66	6.67	6.62	0.05	23.78	28.67	23.49	0.66	1.22	1.07	1.09	1.09	1.08
400	6.71	6.71	6.72	6.65	0.07	25.35	29.51	25.09	0.86	1.18	1.10	1.13	1.13	1.12
450	6.74	6.76	6.75	6.67	0.09	27.48	30.65	27.34	0.97	1.11	1.12	1.15	1.15	1.14
500	6.79	6.81	6.80	6.69	0.12	30.30	31.85	30.65	1.11	1.04	1.14	1.17	1.17	1.16
550	6.88	6.91	6.87	6.75	0.16	29.69	31.17	30.25	1.29	1.09	1.15	1.18	1.17	1.18
600	7.05	7.08	7.01	6.87	0.21	25.07	27.80	25.06	1.47	1.25	1.16	1.18	1.17	1.18
650	7.34	7.37	7.25	7.09	0.27	21.11	23.98	20.83	1.67	1.48	1.16	1.15	1.15	1.17

1. Total Loss = Insertion Loss + 6dB splitter loss.







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