

Surface Mount

Power Splitter/Combiner SCPS-4-122-75+

4 Way-0° 75Ω 5 to 1250 MHz

The Big Deal

- Excellent matching VSWR, 1.15:1 typ from 50MHz
- Low unbalance, 0.3 dB / 2°
- Good isolation, 23 dB



CASE STYLE: HF1485-1

Product Overview

Mini-Circuits' SCPS-4-122-75+ is a 75 ohm surface-mount 4-way 0° splitter/combiner covering the 5 to 1250 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, 1.5 dB (above 6 dB theoretical loss)	The combination of 0.25W 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, 1.15:1	Provides excellent thru-path transmission with low signal reflection from 50MHz
High isolation, 23 dB typ	Minimizes interference between ports.
Low unbalance, 0.3 dB / 2°	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.

Notes

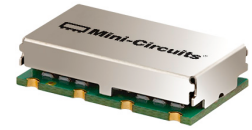
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Surface Mount Power Splitter/Combiner

SCPS-4-122-75+

4 Way-0° 75Ω 5 to 1250 MHz



CASE STYLE: HF1485-1

+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, 5 to 1250 MHz,
- excellent phase unbalance, 2 deg. typ.
- good isolation, 23 dB typ.
- excellent amplitude unbalance, 0.3 dB typ.
- excellent matching VSWR, 1.15:1 typ.
- rugged, shielded case

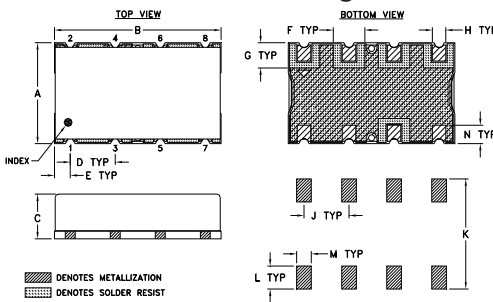
Applications

- communication systems
- instrumentation
- cellular, GPS, PCS
- VHF/UHF/receivers/transmitters
- DOCSIS 3.1
- CBTV

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5	—	1250	MHz
Insertion Loss Above 6.0 dB	5 - 50 50 - 1000 1000 - 1250	— — —	0.6 1.0 1.7	0.8 1.5 2.0	dB
Isolation	5 - 50 50 - 1000 1000 - 1250	15 19 18	20 23 25	— — —	dB
Phase Unbalance	5 - 50 50 - 1000 1000 - 1250	— — —	1 3 4	2 5 7	dB
Amplitude Unbalance	5 - 50 50 - 1000 1000 - 1250	— — —	0.1 0.2 0.4	0.15 0.4 0.6	dB
VSWR (Port S)	5 - 1250	—	1.15	1.36	:1
VSWR (Port 1-4)	5 - 50 50 - 1250	— —	1.6 1.15	1.8 1.45	:1

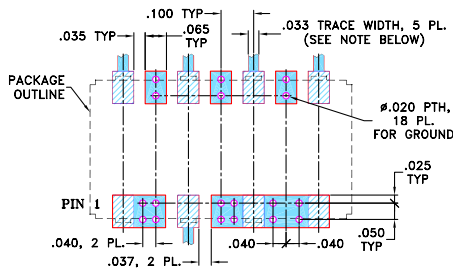
Outline Drawing



Outline Dimensions (inch)

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	

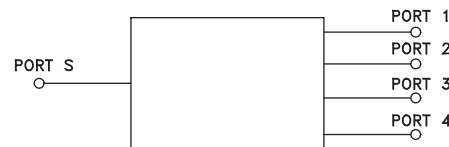
Demo Board MCL P/N: TB-218+ Suggested PCB Layout (PL-149)



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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 WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Schematic



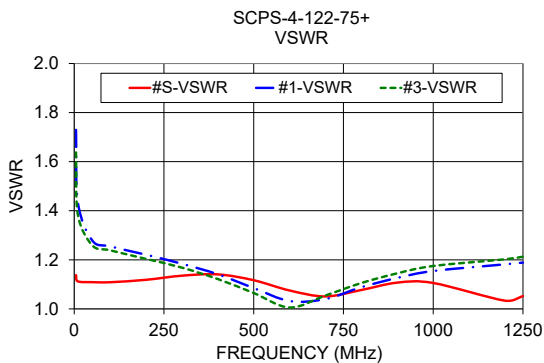
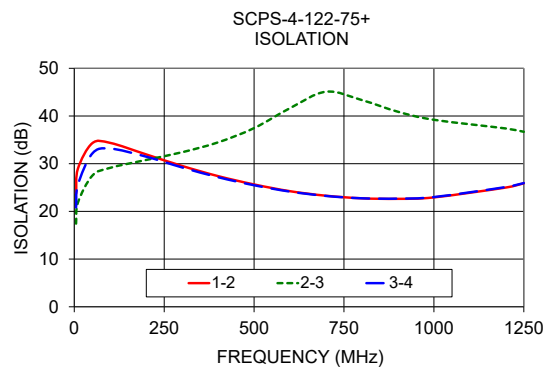
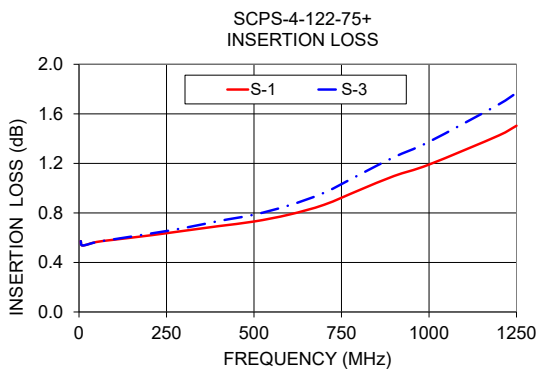
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Typical Performance Data

Freq. (MHz)	Insertion Loss (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						
5	0.57	0.54	0.57	0.53	0.04	23.68	17.43	20.83	0.14	1.14	1.73	1.73	1.64	1.64
10	0.54	0.50	0.54	0.50	0.04	28.93	21.81	25.54	0.13	1.11	1.44	1.44	1.39	1.39
50	0.57	0.53	0.56	0.53	0.04	34.29	27.48	32.13	0.16	1.11	1.28	1.28	1.26	1.26
100	0.58	0.55	0.59	0.55	0.04	34.36	29.13	33.17	0.21	1.11	1.25	1.26	1.24	1.24
200	0.62	0.59	0.63	0.59	0.04	31.95	30.79	31.47	0.34	1.12	1.22	1.22	1.20	1.20
300	0.66	0.63	0.68	0.63	0.05	29.52	32.41	29.21	0.48	1.14	1.18	1.18	1.17	1.17
400	0.69	0.67	0.73	0.68	0.06	27.39	34.48	27.16	0.62	1.14	1.14	1.14	1.12	1.13
500	0.73	0.72	0.79	0.73	0.07	25.65	37.46	25.48	0.75	1.12	1.08	1.09	1.06	1.08
600	0.79	0.78	0.86	0.79	0.08	24.23	41.65	24.15	0.91	1.07	1.03	1.03	1.01	1.03
700	0.87	0.87	0.96	0.87	0.10	23.29	45.09	23.24	1.06	1.05	1.04	1.03	1.05	1.03
800	0.98	0.98	1.11	0.99	0.12	22.74	43.33	22.75	1.21	1.08	1.09	1.08	1.11	1.08
900	1.10	1.11	1.25	1.10	0.15	22.63	40.89	22.68	1.35	1.11	1.13	1.13	1.15	1.12
1000	1.19	1.23	1.37	1.21	0.18	22.93	39.21	23.01	1.52	1.11	1.15	1.16	1.17	1.15
1200	1.43	1.49	1.68	1.45	0.25	25.00	37.38	25.11	1.87	1.03	1.18	1.16	1.20	1.14
1250	1.50	1.59	1.77	1.54	0.27	25.88	36.68	25.94	1.97	1.05	1.19	1.18	1.21	1.15



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