Surface Mount

Power Splitter/Combiner SXPS-4-13-75+

4 Way-0° 75Ω 5 to 1300 MHz

The Big Deal

- Wideband, 5 to 1300 MHz
- High isolation, 24 dB
- Low insertion loss, 1.5 dB
- Low unbalance, 0.25 dB, 1.0˚

CASE STYLE: HF1485

Product Overview

Mini-Circuits' SXPS-4-15-75+ is a 75Ω 4-way 0˚ surface-mount power splitter/combiner covering the 5 to 1300 MHz frequency range, supporting bandwidth requirements for DOCSIS® 3.1 systems and equipment, as well as other broadband applications. This model can handle up to 0.25W RF input power as a splitter, and provides low insertion loss and low phase and amplitude unbalance. It comes housed in a miniature, shielded package (0.44 x 0.74 x 0.19") with wraparound terminations for excellent solderability.

Key Features

Feature	Advantages
Wideband, 5 to 1300 MHz	Suitable for many broadband applications including DOCSIS® 3.1 systems and equipment, VHF/UHF, CATV, cellular, and more.
Low insertion loss, 1.5 dB	The combination of 0.25W power handling and low insertion loss makes it a suitable candidate for distributing signals while maintaining signal power.
Good isolation, 24 dB	Minimizes interference between ports
Low unbalance: • 0.25 dB amplitude unbalance • 1.0˚ phase unbalance	This model produces nearly equal output signals, making it ideal for use in parallel path /multichannel systems.
Good VSWR, 1.2:1 typ.	Provides excellent thru-path transmission with low signal reflection.

Notes
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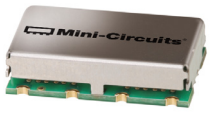
SXPS-4-13-75+

4 Way-0° 75Ω 5 to 1300 MHz



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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)	0.25W max.
Internal Dissipation	0.15W max.

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

Pin Connections

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

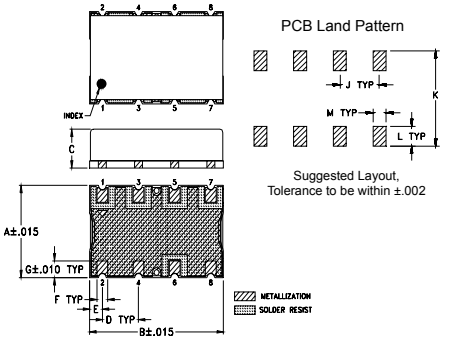
Features

- high isolation, 24 dB typ.
- excellent input matching, VSWR 1.15 typ.
- very good output matching VSWR, 1.20 typ.
- excellent amplitude unbalance, 0.25 dB typ
- aqueous washable
- shielded case

Applications

- DOCSIS 3.1 systems
- catv
- VHF/UHF
- communication systems
- instrumentation

Outline Drawing

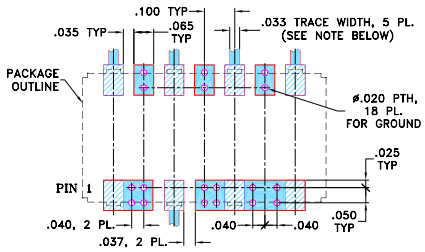


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.440	.740	.19	.200	.07	.060	.080
11.18	18.80	4.83	5.08	1.78	1.52	2.03

H	J	K	L	M		wt
-	.200	.480	.100	.065		grams
-	5.08	12.19	2.54	1.65		2.50

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.

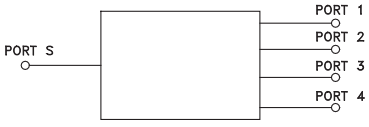
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		1300	MHz
Insertion Loss (above theoretical 6.0 dB)	5 - 1300	—	1.5	2.3	dB
	5 - 1218	—	1.2	2.1	
Isolation	5 - 1300	15	22	—	dB
	50 - 1218	18	24	—	
Phase Unbalance	5 - 1300	—	1.0	6.0	Degree
	5 - 1218	—	1.0	5.0	
Amplitude Unbalance	5 - 1300	—	0.25	0.6	dB
	5 - 1218	—	0.15	0.5	
VSWR (Port S)	5 - 1300	—	1.15	1.3	:1
VSWR (Port 1-4)	5 - 1300	—	1.5	1.95	:1
	50 - 1218	—	1.2	1.45	

Electrical Schematic



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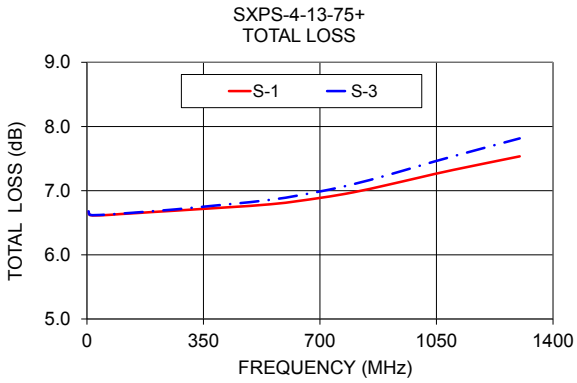
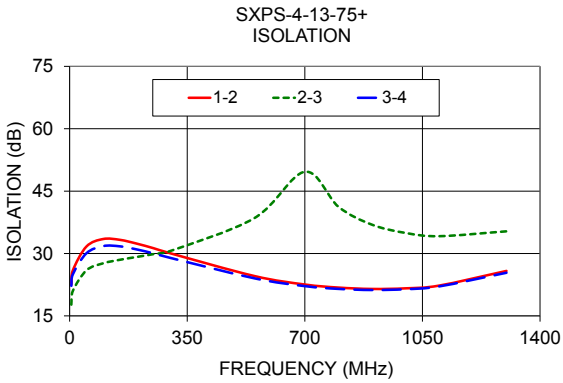
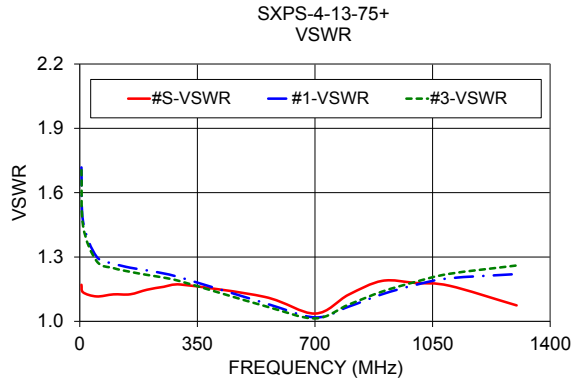
Typical Performance Data

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						
5.0	6.67	6.68	6.68	6.68	0.01	22.52	17.71	22.23	0.01	1.17	1.72	1.72	1.71	1.70
10.0	6.62	6.62	6.62	6.63	0.01	26.03	21.09	25.07	0.03	1.13	1.46	1.46	1.44	1.44
50.0	6.62	6.63	6.62	6.63	0.01	31.68	25.95	30.06	0.04	1.12	1.30	1.30	1.28	1.28
100.0	6.63	6.65	6.64	6.65	0.01	33.49	27.65	31.79	0.09	1.13	1.27	1.27	1.25	1.25
150.0	6.65	6.66	6.66	6.67	0.02	33.28	28.50	31.72	0.14	1.13	1.25	1.25	1.23	1.23
200.0	6.67	6.68	6.68	6.68	0.01	32.37	29.18	30.98	0.20	1.15	1.24	1.24	1.22	1.22
250.0	6.68	6.70	6.70	6.70	0.02	31.27	29.86	30.02	0.25	1.16	1.22	1.22	1.20	1.20
300.0	6.70	6.72	6.72	6.72	0.03	30.05	30.62	28.94	0.31	1.17	1.20	1.20	1.19	1.19
550.0	6.79	6.82	6.86	6.83	0.07	24.58	38.52	24.03	0.56	1.11	1.09	1.09	1.07	1.08
700.0	6.89	6.93	6.99	6.93	0.10	22.54	49.66	22.16	0.73	1.04	1.02	1.00	1.01	1.01
800.0	6.97	7.03	7.10	7.02	0.13	21.81	41.23	21.49	0.78	1.12	1.07	1.06	1.08	1.05
900.0	7.09	7.15	7.24	7.13	0.15	21.48	36.92	21.22	0.84	1.19	1.13	1.12	1.14	1.10
1000.0	7.21	7.29	7.39	7.25	0.18	21.63	34.94	21.41	0.93	1.18	1.17	1.17	1.18	1.14
1100.0	7.32	7.41	7.54	7.37	0.21	22.29	34.17	22.10	1.00	1.17	1.20	1.22	1.22	1.19
1300.0	7.53	7.66	7.81	7.58	0.28	25.81	35.33	25.37	1.28	1.07	1.22	1.25	1.26	1.21

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







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