

Power Splitter/Combiner

4 Way-0° 50Ω 6000 to 15000 MHz

ZC4PD-153-S+



CASE STYLE: Z184

Connectors Model
SMA ZC4PD-153-S+

+RoHS Compliant

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

Maximum Ratings

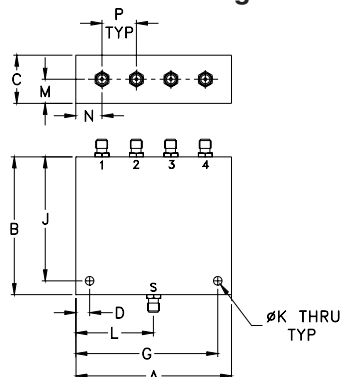
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	10W max.
Internal Dissipation	0.375W max.
DC Current	1.0 A (250mA for each port)

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

Coaxial Connections

SUM PORT	S
PORT 1	1
PORT 2	2
PORT 3	3
PORT 4	4

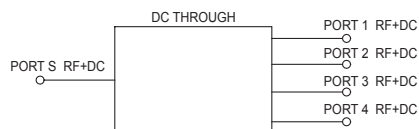
Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	G	J
2.26	2.00	.70	.200	2.060	1.800
57.40	50.80	17.78	5.08	52.32	45.72
K	L	M	N	P	wt
.125	1.13	.35	.38	.500	grams
3.18	28.70	8.89	9.65	12.70	59

Electrical Schematic



Features

- wideband, 6000 to 15000 MHz
- good isolation, 22 dB typ.
- up to 10W power input as splitters
- good amplitude unbalance, 0.4 dB typ.

Applications

- cable TV
- communication systems
- satellite instrumentation
- cellular
- SHF

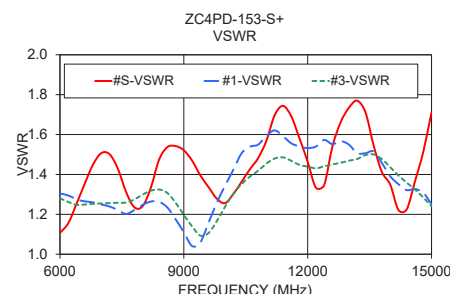
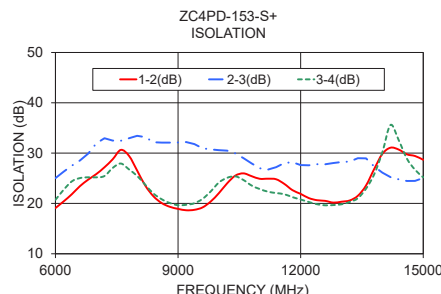
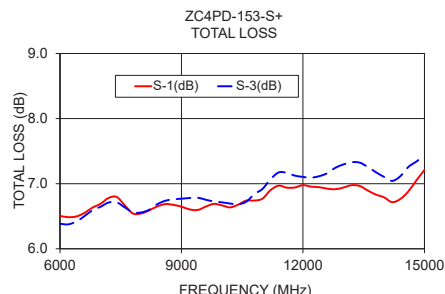
Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		6000		15000	MHz
Insertion Loss (above theoretical 6.0 dB)	6000-12000 12000-15000	—	1.2 1.4	2.0 2.6	dB
Isolation	6000-15000	15.0	22.0	—	dB
Phase Unbalance	6000-15000	—	8.0	15.0	Degree
Amplitude Unbalance	6000-15000	—	0.4	1.1	dB
VSWR (Port S)	6000-12000 12000-15000	—	1.5 1.8	1.9 2.3	:1
VSWR (Port 1-4)	6000-15000	—	1.45	1.90	:1

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						
6000.00	6.51	6.39	6.38	6.41	0.12	19.08	25.03	20.72	1.58	1.11	1.30	1.34	1.28	1.24
6400.00	6.50	6.45	6.42	6.43	0.08	21.83	27.51	24.38	1.61	1.25	1.28	1.31	1.25	1.22
7000.00	6.69	6.69	6.64	6.61	0.08	25.84	31.94	25.18	1.81	1.51	1.25	1.29	1.25	1.23
7400.00	6.80	6.73	6.71	6.73	0.08	28.77	32.48	27.05	1.65	1.43	1.22	1.28	1.26	1.21
8000.00	6.54	6.57	6.56	6.59	0.04	26.52	33.44	25.46	1.92	1.24	1.25	1.28	1.30	1.25
8400.00	6.65	6.67	6.68	6.70	0.05	21.41	32.16	21.95	1.81	1.47	1.26	1.29	1.32	1.28
9000.00	6.65	6.70	6.77	6.69	0.12	18.92	32.12	19.65	2.22	1.52	1.11	1.13	1.20	1.18
9400.00	6.60	6.73	6.79	6.61	0.19	18.73	31.79	20.03	2.74	1.40	1.06	1.08	1.09	1.05
10000.00	6.67	6.76	6.71	6.66	0.10	22.05	30.59	24.16	3.16	1.26	1.34	1.32	1.24	1.23
10400.00	6.68	6.81	6.68	6.65	0.16	25.52	29.95	25.39	2.75	1.36	1.51	1.45	1.35	1.38
11000.00	6.77	7.01	6.92	6.71	0.29	24.89	26.99	22.86	2.60	1.57	1.59	1.53	1.45	1.48
12000.00	6.98	7.19	7.10	6.88	0.31	21.90	27.62	20.78	3.19	1.46	1.53	1.48	1.44	1.45
13000.00	6.94	7.35	7.30	6.94	0.41	20.34	28.23	19.83	3.67	1.73	1.55	1.47	1.47	1.56
14000.00	6.79	7.20	7.11	6.86	0.41	29.84	26.12	30.17	4.17	1.35	1.39	1.37	1.44	1.56
15000.00	7.21	7.67	7.43	7.17	0.50	28.67	25.05	25.18	4.38	1.71	1.25	1.19	1.24	1.41

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



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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



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ZC4PD-153-S+
JC/CP/AM
190109

4 Way-0° Power Splitter/Combiner

ZC4PD-153+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)				AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)				
	S-1	S-2	S-3	S-4		1-2	2-3	3-4			S	1	2	3	4
6000.0	6.51	6.39	6.38	6.41	0.12	19.08	25.03	20.72	1.58	6000.0	1.11	1.30	1.34	1.28	1.24
6200.0	6.49	6.40	6.38	6.41	0.11	20.40	26.31	22.71	1.56	6200.0	1.15	1.29	1.32	1.26	1.24
6400.0	6.50	6.45	6.42	6.43	0.08	21.83	27.51	24.38	1.61	6400.0	1.25	1.28	1.31	1.25	1.22
6600.0	6.55	6.53	6.50	6.48	0.07	23.44	28.53	25.04	1.75	6600.0	1.35	1.27	1.31	1.25	1.22
6800.0	6.63	6.63	6.59	6.56	0.07	24.72	29.90	25.20	1.75	6800.0	1.45	1.26	1.31	1.25	1.23
7000.0	6.69	6.69	6.64	6.61	0.08	25.84	31.94	25.18	1.81	7000.0	1.51	1.25	1.29	1.25	1.23
7200.0	6.78	6.74	6.71	6.69	0.09	27.19	32.95	25.45	1.71	7200.0	1.50	1.24	1.28	1.26	1.22
7400.0	6.80	6.73	6.71	6.73	0.08	28.77	32.48	27.05	1.65	7400.0	1.43	1.22	1.28	1.26	1.21
7600.0	6.67	6.64	6.64	6.68	0.04	30.64	32.46	27.93	1.58	7600.0	1.31	1.20	1.27	1.26	1.18
7800.0	6.54	6.57	6.56	6.59	0.05	29.45	32.95	26.76	1.85	7800.0	1.24	1.22	1.28	1.27	1.20
8000.0	6.54	6.57	6.56	6.59	0.04	26.52	33.44	25.46	1.92	8000.0	1.24	1.25	1.28	1.30	1.25
8200.0	6.59	6.61	6.60	6.64	0.05	23.52	33.18	23.69	1.94	8200.0	1.33	1.26	1.29	1.32	1.27
8400.0	6.65	6.67	6.68	6.70	0.05	21.41	32.16	21.95	1.81	8400.0	1.47	1.26	1.29	1.32	1.28
8600.0	6.69	6.71	6.74	6.74	0.06	20.07	32.08	20.83	1.82	8600.0	1.54	1.23	1.25	1.31	1.27
8800.0	6.68	6.70	6.76	6.74	0.08	19.33	32.09	20.08	1.99	8800.0	1.54	1.18	1.20	1.26	1.23
9000.0	6.65	6.70	6.77	6.69	0.12	18.92	32.12	19.65	2.22	9000.0	1.52	1.11	1.13	1.20	1.18
9200.0	6.61	6.70	6.78	6.63	0.17	18.64	32.19	19.73	2.55	9200.0	1.47	1.04	1.07	1.14	1.11
9400.0	6.60	6.73	6.79	6.61	0.19	18.73	31.79	20.03	2.74	9400.0	1.40	1.06	1.08	1.09	1.05
9600.0	6.65	6.77	6.75	6.63	0.14	19.21	30.96	20.91	2.89	9600.0	1.34	1.16	1.15	1.11	1.09
9800.0	6.69	6.77	6.73	6.67	0.10	20.38	30.74	22.39	3.06	9800.0	1.28	1.26	1.24	1.17	1.16
10000.0	6.67	6.76	6.71	6.66	0.10	22.05	30.59	24.16	3.16	10000.0	1.26	1.34	1.32	1.24	1.23
10200.0	6.64	6.77	6.70	6.63	0.14	23.98	30.49	25.09	2.93	10200.0	1.30	1.42	1.39	1.30	1.31
10400.0	6.68	6.81	6.68	6.65	0.16	25.52	29.95	25.39	2.75	10400.0	1.36	1.51	1.45	1.35	1.38
10600.0	6.74	6.86	6.72	6.71	0.16	25.97	29.01	24.66	3.19	10600.0	1.43	1.54	1.48	1.39	1.42
10800.0	6.74	6.89	6.84	6.69	0.20	25.42	27.96	23.56	3.04	10800.0	1.48	1.55	1.50	1.42	1.44
11000.0	6.77	7.01	6.92	6.71	0.29	24.89	26.99	22.86	2.60	11000.0	1.57	1.59	1.53	1.45	1.48
11200.0	6.90	7.20	7.07	6.85	0.35	24.91	26.72	22.33	3.01	11200.0	1.70	1.62	1.56	1.48	1.50
11400.0	6.97	7.26	7.17	6.91	0.35	24.80	27.21	22.07	3.04	11400.0	1.74	1.59	1.56	1.49	1.49
11600.0	6.94	7.27	7.17	6.87	0.41	23.88	28.02	21.83	2.86	11600.0	1.69	1.56	1.52	1.47	1.47
11800.0	6.94	7.26	7.12	6.87	0.39	22.64	28.20	21.25	3.05	11800.0	1.58	1.54	1.49	1.45	1.46
12000.0	6.98	7.19	7.10	6.88	0.31	21.90	27.62	20.78	3.19	12000.0	1.46	1.53	1.48	1.44	1.45
12200.0	6.95	7.11	7.09	6.82	0.29	21.06	27.58	20.29	2.92	12200.0	1.33	1.54	1.46	1.43	1.48
12400.0	6.95	7.15	7.12	6.82	0.32	20.64	27.80	19.84	2.84	12400.0	1.35	1.57	1.46	1.44	1.53
12600.0	6.92	7.18	7.16	6.87	0.31	20.51	27.77	19.63	3.29	12600.0	1.54	1.55	1.47	1.45	1.53
12800.0	6.92	7.25	7.24	6.89	0.36	20.17	28.03	19.68	3.45	12800.0	1.66	1.57	1.49	1.46	1.56
13000.0	6.94	7.35	7.30	6.94	0.41	20.34	28.23	19.83	3.67	13000.0	1.73	1.55	1.47	1.47	1.56
13200.0	6.98	7.40	7.33	7.00	0.43	20.59	28.32	20.29	3.88	13200.0	1.77	1.51	1.45	1.48	1.54
13400.0	6.97	7.42	7.32	7.00	0.45	21.52	28.98	21.03	4.10	13400.0	1.71	1.51	1.47	1.50	1.58
13600.0	6.90	7.38	7.26	6.91	0.49	23.56	28.96	22.92	4.15	13600.0	1.54	1.52	1.46	1.50	1.62
13800.0	6.83	7.28	7.18	6.85	0.44	26.83	27.35	25.78	4.21	13800.0	1.41	1.46	1.41	1.48	1.60
14000.0	6.79	7.20	7.11	6.86	0.41	29.84	26.12	30.17	4.17	14000.0	1.35	1.39	1.37	1.44	1.56
14200.0	6.72	7.16	7.04	6.78	0.44	31.08	25.23	35.60	3.94	14200.0	1.22	1.35	1.33	1.39	1.53
14400.0	6.76	7.21	7.11	6.79	0.45	30.70	24.79	32.57	4.26	14400.0	1.23	1.32	1.29	1.36	1.50
14600.0	6.88	7.35	7.26	6.89	0.47	29.76	24.46	28.90	4.38	14600.0	1.37	1.33	1.27	1.32	1.50
14800.0	7.05	7.50	7.34	7.04	0.46	29.42	24.48	26.69	4.31	14800.0	1.51	1.31	1.23	1.28	1.48
15000.0	7.21	7.67	7.43	7.17	0.50	28.67	25.05	25.18	4.38	15000.0	1.71	1.25	1.19	1.24	1.41

¹Total Loss = Insertion Loss+ 6dB Splitter Loss



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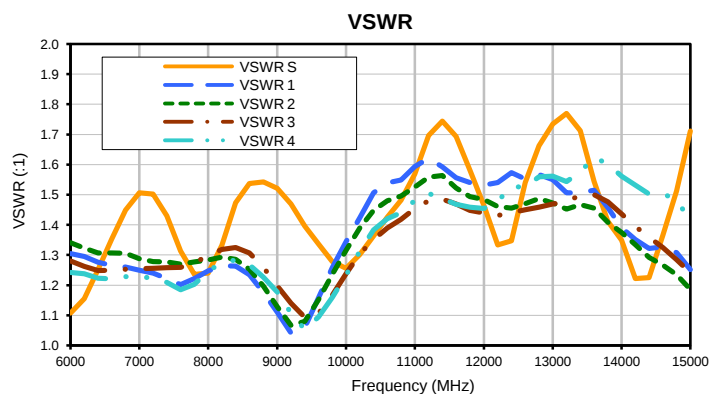
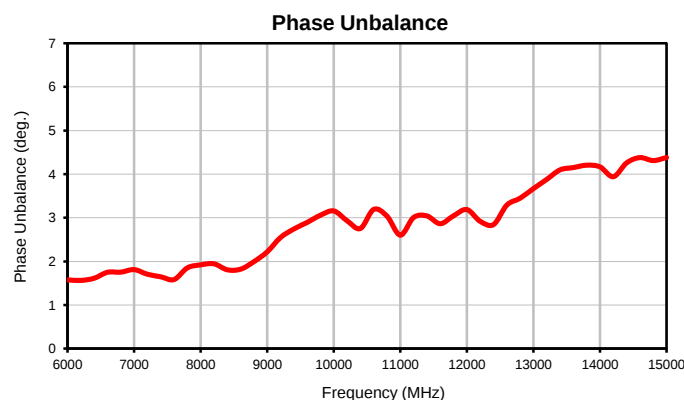
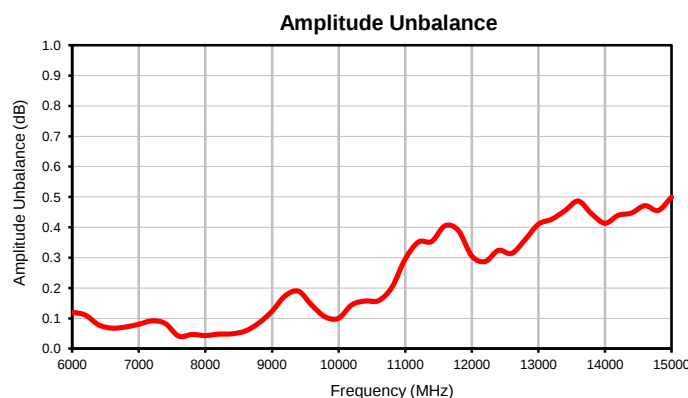
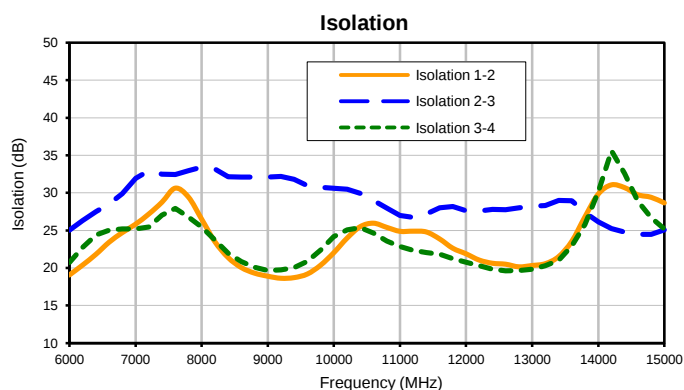
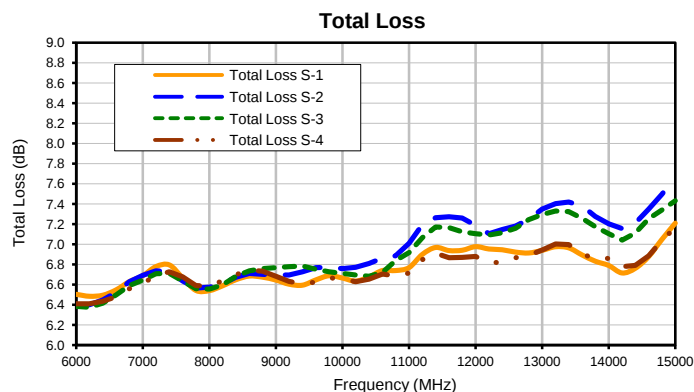
IF/RF MICROWAVE COMPONENTS

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4 Way-0° Power Splitter/Combiner

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Typical Performance Curves



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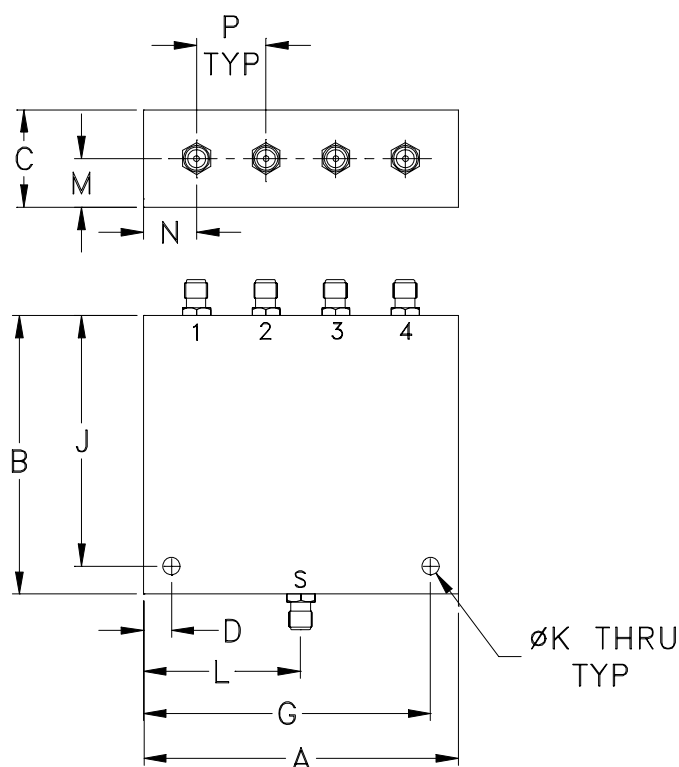


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Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
Z184	2.26 (57.40)	2.00 (50.80)	.70 (17.78)	.200 (5.08)	--	--	2.060 (52.32)	--	1.800 (45.72)	.125 (3.17)	1.13 (28.70)	.35 (8.89)	.38 (9.65)

CASE#	P	WT.GRAMS
Z184	.500 (12.70)	59

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.



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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I