Coaxial

Power Splitter/Combiner ZN8PD-K44+

8 Way-0° 50Ω 10 to 40 GHz

The Big Deal

- Ultra-wideband, 10 to 40 GHz
- Low insertion loss, 2.0 dB
- High Isolation, 20 dB
- 20W power handling
- Low unbalance, 0.4 dB, 5°

CASE STYLE: UU2403

Product Overview

Mini-Circuits' ZN8PD-K44+ is an ultra-wideband coaxial 8-way 0˚ splitter/combiner providing coverage from 10 to 40 GHz, supporting a wide range of applications including 5G, Ku-Band, K-Band, and Ka-Band SatCom, microwave point-to-point backhaul, instrumentation and many more. This model provides 20W power handling as a splitter and very low insertion loss across the entire operating frequency range, minimizing power dissipation and delivering excellent signal power transmission from input to output. The ZN8PD-K44+ comes housed in a rugged aluminum alloy case measuring 4.09 x 1.93 x 0.5" with 2.92mm connectors.

Key Features

Feature	Advantages
Ultra-wideband, 10 to 40 GHz	Extremely wide frequency range supports many broadband applications in a single model.
Low insertion loss, 2.0 dB	The combination of 20W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
High isolation, 20 dB	Minimizes interference between ports.
High power handling, 20W as a splitter	The ZN8PD-K44+ is suitable for systems with a wide range of power requirements.
Low unbalance, 0.4 dB, 5°	Produces nearly equal output signals, ideal for parallel path and multichannel systems.

Coaxial

Power Splitter/Combiner

ZN8PD-K44+

8 Way-0° 50Ω 10 to 40 GHz

Generic photo used for illustration purposes only

CASE STYLE: UU2403

Connectors	Model
2.92mm Fem	ZN8PD-K44+

+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)	20W max.
Internal Dissipation	0.875W max.

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

Coaxial Connections

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

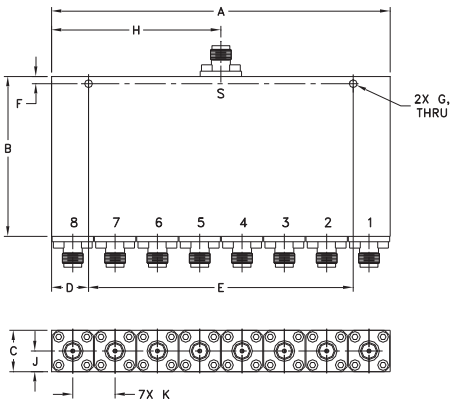
Features

- wideband, 10 to 40 GHz
- low insertion loss, 2 dB typ.
- low amplitude unbalance, 0.4 dB typ.
- low phase unbalance, 5.0 deg. typ.
- high isolation, 20 dB typ.

Applications

- 5G
- test equipment
- test lab
- broadband high power combining

Outline Drawing

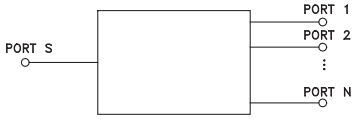


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
4.09	1.93	.50	.45	3.200	.09	.095
103.89	49.02	12.70	11.43	81.28	2.29	2.41

H	J	K	L	M	N	wt
2.05	.25	.512	--	--	--	grams
52.07	6.35	13.00	--	--	--	230

Electrical Schematic



Electrical Specifications at 25°C

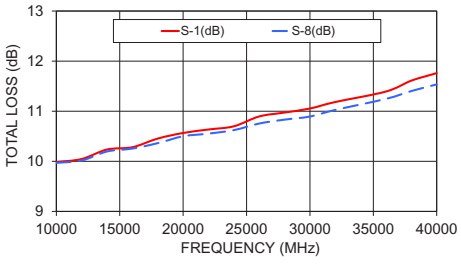
Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		10	—	40	GHz
Insertion Loss (above theoretical 9.0 dB)	10 - 40	—	2.5	3.6	dB
Isolation	10 - 40	15	20	—	dB
Phase Unbalance	10 - 40	—	8	12	Degree
Amplitude Unbalance	10 - 40	—	0.4	1.2	dB
VSWR (Port S)	10 - 40	—	1.43	1.7	:1
VSWR Output (Port 1-8)	10 - 40	—	1.5	1.7	:1

Typical Performance Data

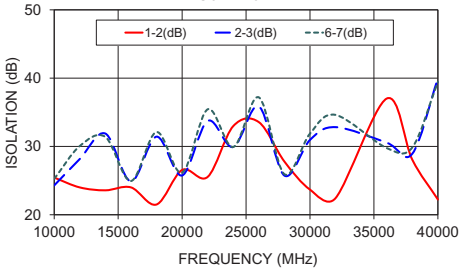
Freq. (MHz)	Total Loss[1] (dB)						Amp. Unb. (dB)	Isolation (dB)				Phase Unb. (deg.)	VSWR S	VSWR 1	VSWR 8
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	2-3	3-4	6-7				
10000	9.98	9.97	10.00	10.00	9.99	9.97	0.05	25.44	24.30	23.53	25.26	3.17	1.08	1.34	1.34
12000	10.05	10.06	10.07	10.05	10.07	10.02	0.06	24.00	28.17	23.13	30.06	3.72	1.07	1.15	1.14
14000	10.24	10.23	10.23	10.26	10.25	10.20	0.07	23.58	31.88	23.60	31.39	4.09	1.28	1.34	1.34
16000	10.28	10.29	10.31	10.29	10.35	10.25	0.09	24.01	24.89	22.84	24.94	4.55	1.09	1.20	1.14
18000	10.45	10.48	10.42	10.42	10.43	10.36	0.11	21.50	31.43	20.41	32.11	5.35	1.13	1.03	1.09
20000	10.57	10.58	10.62	10.59	10.55	10.50	0.12	26.55	25.75	23.90	26.16	5.69	1.24	1.19	1.16
22000	10.63	10.67	10.65	10.60	10.66	10.55	0.11	25.54	33.74	22.82	35.44	6.46	1.21	1.29	1.32
24000	10.70	10.72	10.69	10.74	10.72	10.62	0.14	32.98	29.91	29.48	29.92	6.60	1.12	1.13	1.12
26000	10.90	10.91	10.93	10.88	10.85	10.75	0.17	33.56	35.87	39.01	37.19	7.01	1.23	1.28	1.28
28000	10.97	11.02	10.96	10.94	10.92	10.83	0.18	27.79	25.73	26.84	25.93	7.88	1.17	1.01	1.05
30000	11.05	11.09	11.11	11.06	11.01	10.89	0.21	23.68	30.96	23.23	31.88	8.23	1.05	1.18	1.21
32000	11.18	11.23	11.16	11.13	11.15	11.03	0.20	22.44	32.83	22.01	34.62	8.75	1.10	1.27	1.22
36000	11.39	11.41	11.45	11.33	11.37	11.25	0.20	37.01	30.55	34.21	29.76	9.87	1.10	1.41	1.37
38000	11.61	11.67	11.63	11.58	11.57	11.40	0.27	28.05	28.93	27.73	29.86	10.27	1.27	1.22	1.22
40000	11.76	11.80	11.73	11.70	11.71	11.54	0.26	22.23	39.95	22.75	39.45	11.18	1.33	1.38	1.35

1. Total Loss = Insertion Loss + 9dB splitter loss.

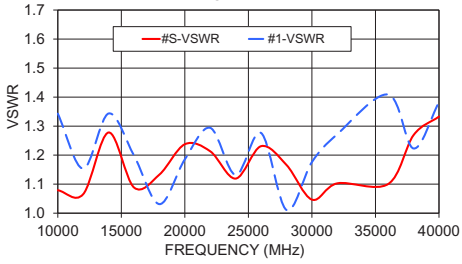
ZN8PD-K44+
TOTAL LOSS



ZN8PD-K44+
ISOLATION



ZN8PD-K44+
VSWR



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

8 Way-0° Power Splitter/Combiner ZN8PD-K44+

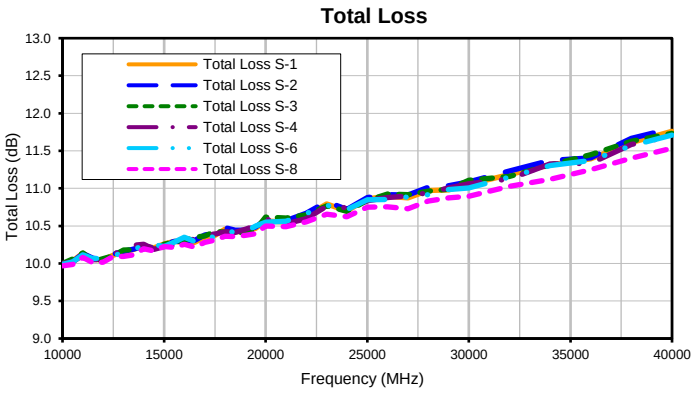
Typical Performance Data

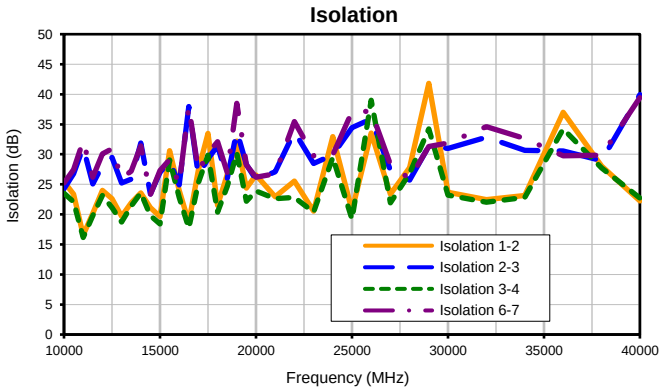
FREQ. (MHz)	TOTAL LOSS[1] (dB)						AMP. UNBAL. (dB)	ISOLATION (dB)				PHASE UNBAL. (deg.)
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	2-3	3-4	6-7	
10000	9.98	9.97	10.00	10.00	9.99	9.97	0.05	25.44	24.30	23.53	25.26	3.17
10500	10.03	10.02	10.06	10.02	10.02	9.99	0.08	23.34	26.75	22.07	27.47	3.13
11000	10.13	10.13	10.14	10.11	10.12	10.08	0.07	16.56	31.21	16.16	32.28	3.27
11500	10.05	10.07	10.02	10.05	10.07	10.01	0.06	20.19	25.05	19.78	26.17	3.52
12000	10.05	10.06	10.07	10.05	10.07	10.02	0.06	24.00	28.17	23.13	30.06	3.72
12500	10.11	10.12	10.10	10.13	10.12	10.10	0.06	22.61	29.51	21.14	30.95	3.71
13000	10.15	10.16	10.18	10.17	10.13	10.09	0.09	19.71	25.21	18.74	26.05	3.94
13500	10.19	10.19	10.18	10.24	10.18	10.11	0.13	21.91	25.85	21.38	27.19	3.85
14000	10.24	10.23	10.23	10.26	10.25	10.20	0.07	23.58	31.88	23.60	31.39	4.09
14500	10.21	10.20	10.17	10.19	10.25	10.16	0.09	21.11	23.41	19.77	23.29	4.12
15000	10.26	10.26	10.26	10.23	10.22	10.23	0.10	19.64	26.99	18.41	27.29	4.29
15500	10.29	10.30	10.29	10.24	10.29	10.21	0.08	30.60	28.91	29.06	29.10	4.76
16000	10.28	10.29	10.31	10.29	10.35	10.25	0.09	24.01	24.89	22.84	24.94	4.55
16500	10.28	10.31	10.35	10.33	10.29	10.22	0.13	18.67	37.97	17.73	37.99	4.84
17000	10.35	10.38	10.36	10.38	10.38	10.28	0.10	27.41	26.44	25.29	27.21	4.88
17500	10.38	10.40	10.42	10.39	10.34	10.31	0.11	33.48	29.29	29.87	30.20	5.11
18000	10.45	10.48	10.42	10.42	10.43	10.36	0.11	21.50	31.43	20.41	32.11	5.35
18500	10.42	10.44	10.40	10.41	10.42	10.36	0.09	26.63	25.91	24.65	26.99	5.14
19000	10.42	10.44	10.42	10.46	10.43	10.37	0.10	32.22	33.86	30.19	38.48	5.40
19500	10.47	10.49	10.45	10.50	10.50	10.40	0.10	24.38	28.29	22.21	28.19	5.50
20000	10.57	10.58	10.62	10.59	10.55	10.50	0.12	26.55	25.75	23.90	26.16	5.69
21000	10.55	10.57	10.61	10.53	10.56	10.49	0.11	22.93	27.11	22.64	26.77	5.84
22000	10.63	10.67	10.65	10.60	10.66	10.55	0.11	25.54	33.74	22.82	35.44	6.46
23000	10.79	10.82	10.77	10.76	10.78	10.66	0.17	20.54	28.50	20.39	29.74	6.62
24000	10.70	10.72	10.69	10.74	10.72	10.62	0.14	32.98	29.91	29.48	29.92	6.60
25000	10.86	10.88	10.84	10.84	10.85	10.75	0.14	20.67	34.47	19.21	37.09	6.86
26000	10.90	10.91	10.93	10.88	10.85	10.75	0.17	33.56	35.87	39.01	37.19	7.01
27000	10.87	10.91	10.92	10.90	10.89	10.73	0.19	23.36	27.35	21.92	28.31	7.60
28000	10.97	11.02	10.96	10.94	10.92	10.83	0.18	27.79	25.73	26.84	25.93	7.88
29000	10.98	11.03	10.99	11.01	10.99	10.87	0.18	41.82	31.35	34.25	31.32	7.86
30000	11.05	11.09	11.11	11.06	11.01	10.89	0.21	23.68	30.96	23.23	31.88	8.23
32000	11.18	11.23	11.16	11.13	11.15	11.03	0.20	22.44	32.83	22.01	34.62	8.75
34000	11.31	11.37	11.31	11.33	11.31	11.12	0.25	23.16	30.68	22.82	32.62	9.25
36000	11.39	11.41	11.45	11.33	11.37	11.25	0.20	37.01	30.55	34.21	29.76	9.87
38000	11.61	11.67	11.63	11.58	11.57	11.40	0.27	28.05	28.93	27.73	29.86	10.27
40000	11.76	11.80	11.73	11.70	11.71	11.54	0.26	22.23	39.95	22.75	39.45	11.18

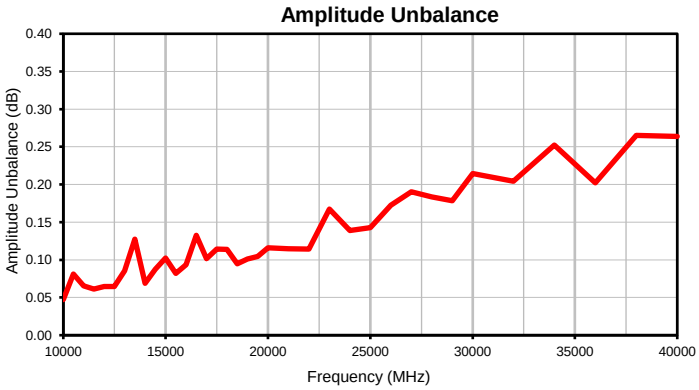
FREQ. (MHz)	VSWR (:1)		
	S	1	8
10000	1.08	1.34	1.34
10500	1.12	1.29	1.32
11000	1.31	1.08	1.15
11500	1.09	1.12	1.12
12000	1.07	1.15	1.14
12500	1.05	1.20	1.22
13000	1.14	1.05	1.10
13500	1.14	1.13	1.14
14000	1.28	1.34	1.34
14500	1.06	1.11	1.09
15000	1.05	1.10	1.15
15500	1.11	1.30	1.23
16000	1.09	1.20	1.14
16500	1.02	1.05	1.03
17000	1.11	1.17	1.16
17500	1.06	1.19	1.22
18000	1.13	1.03	1.09
18500	1.03	1.10	1.12
19000	1.06	1.23	1.23
19500	1.04	1.13	1.10
20000	1.24	1.19	1.16
21000	1.07	1.17	1.13
22000	1.21	1.29	1.32
23000	1.32	1.12	1.09
24000	1.12	1.13	1.12
25000	1.30	1.09	1.07
26000	1.23	1.28	1.28
27000	1.13	1.10	1.12
28000	1.17	1.01	1.05
29000	1.16	1.15	1.22
30000	1.05	1.18	1.21
32000	1.10	1.27	1.22
34000	1.23	1.12	1.13
36000	1.10	1.41	1.37
38000	1.27	1.22	1.22
40000	1.33	1.38	1.35

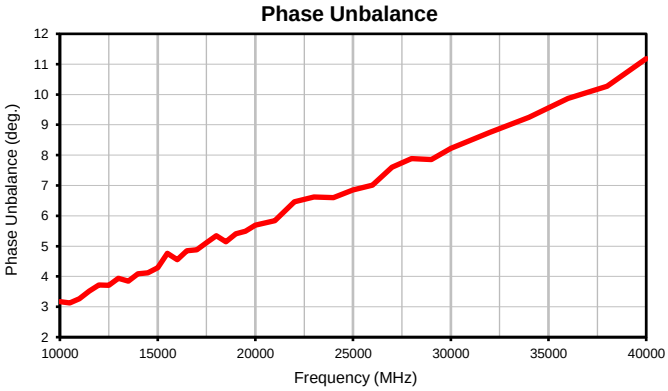
8 Way-0° Power Splitter/Combiner ZN8PD-K44+

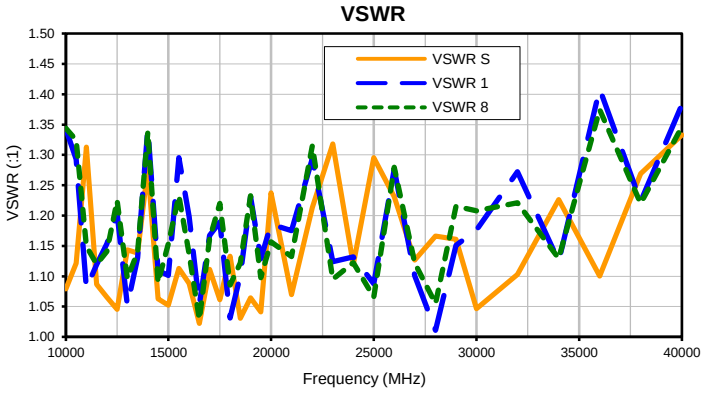
Typical Performance Curves







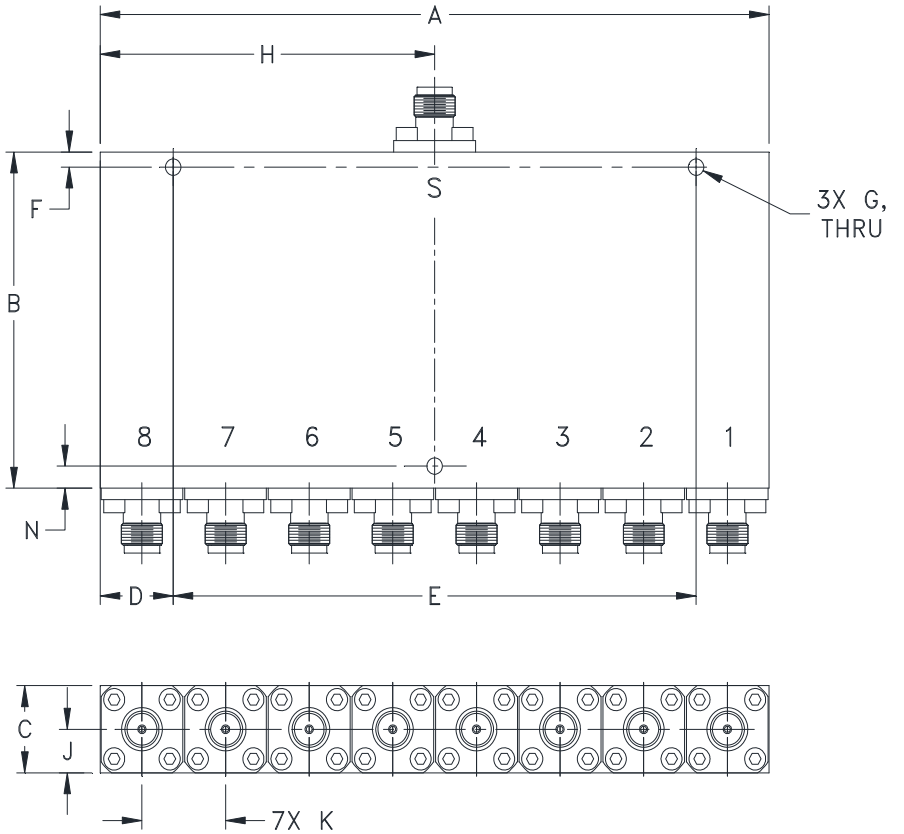




Case Style UU

Outline Dimensions

UU2403



CASE#	A	B	C	D	E	F	G	H	J	K	L	M
UU2403	4.09 (103.89)	1.93 (49.02)	.50 (12.70)	.45 (11.43)	3.200 (81.28)	.09 (2.29)	.095 (2.41)	2.05 (52.07)	.25 (6.35)	.512 (13.00)	-- --	-- --

CASE#	N	WT. GRAMS
UU2403	.13 3.30	230

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Blue Pantone 286U coating, non-chrome or trivalent chrome based.
3. Refer to the individual model data sheet for the type of connectors available.

Mini-Circuits

Environmental Specifications ENV28

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