



DC PASS, HIGH POWER

Power Splitter/Combiner **ZN4PD-4R722+**

4 Way-0° 50Ω 400 to 7200MHz

THE BIG DEAL

- Power handling up to 30 W
- Wide frequency band, 400 to 7200 MHz
- Low insertion loss, 0.9 dB typ.
- Low amplitude unbalance 0.06 dB typ.
- Low phase unbalance 1 deg. typ.
- High isolation, up to 27 dB

APPLICATIONS

- High band PCS
- UNII
- ISM 802.11A
- WiFi
- Bluetooth

PRODUCT OVERVIEW

Mini-Circuits' ZN4PD-4R722+ is a 4-way 0° high-power splitter/combiner providing 30W power handling as a splitter (5W as a combiner) and low insertion loss across the 400 to 7200 MHz frequency range. Its outstanding combination of high power handling and low loss minimize power dissipation and provide excellent signal fidelity from input to output. The ZN4PD-4R722+ comes housed in a rugged aluminum alloy case measuring 3.8 x 3.2 x 0.55" with a common SMA port on one side and four SMA ports on opposite side of the case.



Generic photo used for illustration purposes only

Model No.	ZN4PD-4R722+
Case Style	UU2413-6
Connectors	SMA-Female

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

KEY FEATURES

Feature	Advantages
Wideband, 400 to 7200 MHz	This model supports bandwidth requirements for a wide variety of applications.
High power handling: • 30W as a splitter • 5.0W as a combiner	The ZN4PD-4R722+ is suitable for a wide range of power requirements.
Low insertion loss, 0.9 dB	The combination of 30W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
Low unbalance: • 0.06 dB amplitude unbalance • 1° phase unbalance	Produces nearly equal output signals, ideal for parallel path and multichannel systems.
DC Passing, 0.77A (193mA each port)	Supports applications where DC power is needed through the RF line.

REV. OR
ECO-011123
ZN4PD-4R722+
GY/CP/PS
211216





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Mini-Circuits

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		400		7200	MHz
Insertion Loss (above 6.0 dB)	400-4200	-	0.75	1.5	dB
	4200-7200	-	1.4	2.5	
Isolation	400-700	16	25.8	-	dB
	700-6000	19	29.3	-	
	6000-7200	16	24.4	-	
Phase Unbalance ($\pm$) ¹	400-7200	-	1.3	12	Degree
Amplitude Unbalance ($\pm$) ¹	400-7200	-	0.1	0.5	dB
VSWR (Port S)	400-700	-	1.6	2	:1
	700-6000	-	1.2	1.6	
	6000-7200	-	1.1	1.6	
VSWR (Port 1-4)	400-700	-	1.2	1.35	:1
	700-6000	-	1.1	1.3	
	6000-7200	-	1.1	1.3	
Power Handling ³	As Splitter ¹	400-7200	-	30	W
	As Combiner ²	400-7200	-	5	

1. All outputs must terminate 50 ohm (VSWR 1.5:1 or better)

2. As a combiner of non-coherent signals, max. power per port is 1.25 watt

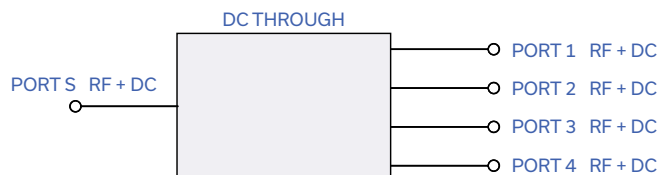
3. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 60°C, in order to ensure proper performance.

MAXIMUM RATINGS

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
DC Current	0.77A (193mA each) port

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

ELECTRICAL SCHEMATIC





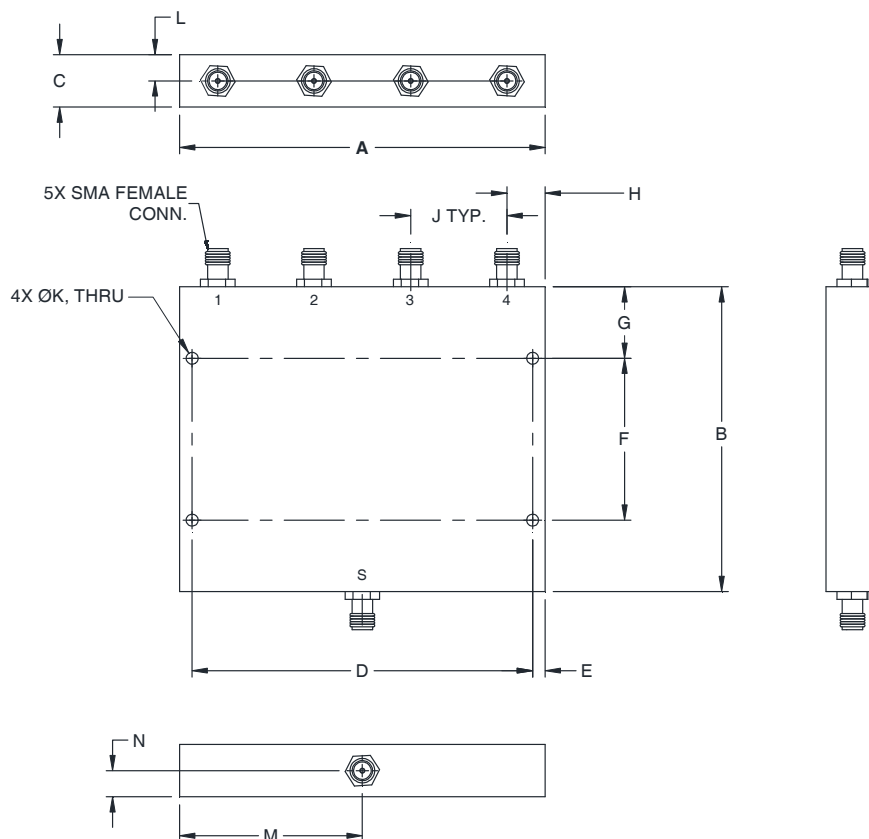
DC PASS, HIGH POWER

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COAXIAL CONNECTIONS

Sum Port	S
Port 1	1
Port 2	2
Port 3	3
Port 4	4

OUTLINE DRAWING



CASE#	A	B	C	D	E	F	G	H	J	K	L
UU2413-6	3.80 (96.5)	3.20 (81.3)	.55 (14.0)	3.540 (89.92)	.130 (3.30)	1.700 (43.18)	.750 (19.05)	.40 (10.1)	1.00 (25.4)	.125 (3.18)	.28 (7.0)

CASE#	M	N	WT, GRAM
UU2413-6	1.90 (48.26)	.28 (7.0)	85

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





DC PASS, HIGH POWER

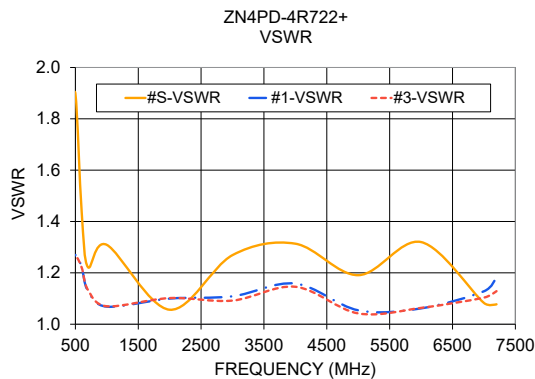
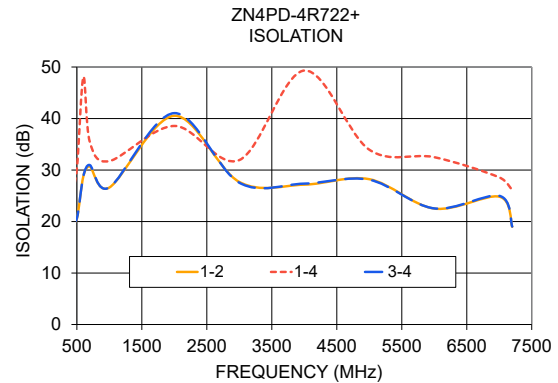
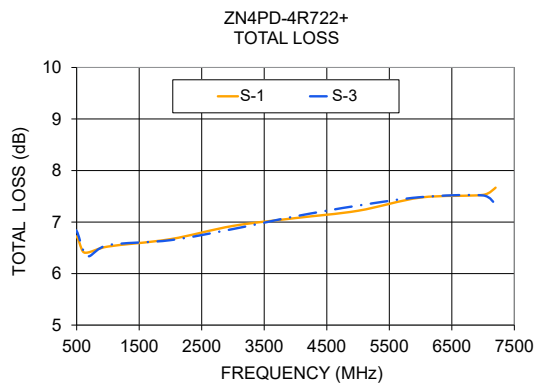
Power Splitter/Combiner ZN4PD-4R722+

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TYPICAL PERFORMANCE DATA

Freq. (MHz)	Total Loss ¹ (dB)				Amp Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR		VSWR	VSWR	VSWR
	S-1	S-2	S-3	S-4		1-2	2-3	3-4		S	1	2	3	4
400	6.64	6.59	6.84	6.63	0.25	19.11	23.75	19.16	0.21	1.84	1.21	1.22	1.20	1.21
500	6.71	6.67	6.82	6.70	0.15	20.56	30.27	20.60	0.25	1.90	1.27	1.28	1.26	1.27
600	6.43	6.36	6.46	6.41	0.10	28.80	48.07	28.83	0.41	1.44	1.22	1.24	1.22	1.22
700	6.41	6.34	6.34	6.40	0.08	30.69	35.41	30.95	0.45	1.22	1.13	1.14	1.13	1.13
1000	6.52	6.47	6.55	6.51	0.08	26.60	31.74	26.61	0.33	1.31	1.07	1.07	1.07	1.07
2000	6.67	6.61	6.65	6.65	0.05	40.54	38.55	41.05	0.69	1.06	1.10	1.10	1.10	1.10
3000	6.92	6.89	6.86	6.90	0.06	27.68	31.93	27.53	0.96	1.27	1.11	1.10	1.09	1.10
4000	7.08	7.06	7.11	7.03	0.09	27.16	49.32	27.36	1.23	1.31	1.16	1.15	1.15	1.14
5000	7.22	7.22	7.32	7.17	0.15	28.22	33.95	28.11	1.71	1.19	1.05	1.04	1.04	1.04
6000	7.48	7.53	7.48	7.42	0.12	22.51	32.49	22.54	2.08	1.32	1.06	1.06	1.06	1.05
7000	7.53	7.59	7.52	7.48	0.13	24.82	28.57	24.99	2.31	1.08	1.13	1.11	1.10	1.14
7200	7.67	7.68	7.34	7.61	0.36	18.97	26.05	19.02	2.43	1.08	1.18	1.14	1.13	1.18

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-Circuit's 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



4 Way-0° Power Splitter/Combiner

ZN4PD-4R722+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)				AMP UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (Deg)	FREQ. (MHz)	VSWR (:1)				
	S1	S2	S3	S4		1-2	2-3	3-4			S	1	2	3	4
400	6.64	6.59	6.84	6.63	0.25	19.11	23.75	19.16	0.21	400	1.84	1.21	1.22	1.20	1.21
600	6.43	6.36	6.46	6.41	0.10	28.80	48.07	28.83	0.41	600	1.44	1.22	1.24	1.22	1.22
800	6.36	6.30	6.42	6.35	0.12	25.41	30.92	25.55	1.08	800	1.15	1.10	1.10	1.10	1.10
1000	6.52	6.47	6.55	6.51	0.08	26.60	31.74	26.61	0.33	1000	1.31	1.07	1.07	1.07	1.07
1200	6.49	6.41	6.53	6.47	0.12	29.87	46.06	29.90	0.40	1200	1.17	1.04	1.03	1.03	1.04
1400	6.50	6.44	6.56	6.48	0.12	33.87	33.16	33.77	0.45	1400	1.05	1.06	1.05	1.06	1.06
1600	6.68	6.62	6.73	6.66	0.11	26.18	31.43	26.23	0.50	1600	1.39	1.07	1.06	1.06	1.07
1800	6.63	6.56	6.66	6.60	0.10	30.14	38.46	30.22	0.69	1800	1.17	1.09	1.07	1.08	1.08
2000	6.67	6.61	6.65	6.65	0.05	40.54	38.55	41.05	0.69	2000	1.06	1.10	1.10	1.10	1.10
2200	6.69	6.63	6.76	6.67	0.13	27.12	31.54	27.40	0.78	2200	1.21	1.06	1.06	1.06	1.06
2400	6.80	6.74	6.73	6.77	0.07	28.02	33.04	28.05	0.97	2400	1.23	1.09	1.07	1.08	1.09
2600	6.82	6.79	6.82	6.79	0.05	42.41	52.63	42.67	0.87	2600	1.02	1.08	1.06	1.07	1.07
2800	6.84	6.81	6.82	6.82	0.05	29.02	33.70	29.18	1.11	2800	1.08	1.10	1.10	1.10	1.09
3000	6.92	6.89	6.86	6.90	0.06	27.68	31.93	27.53	0.96	3000	1.27	1.11	1.10	1.09	1.10
3200	6.91	6.87	6.84	6.88	0.09	33.26	37.14	33.74	1.03	3200	1.10	1.12	1.11	1.10	1.11
3400	6.95	6.91	6.86	6.92	0.09	30.71	41.13	30.40	1.08	3400	1.16	1.13	1.14	1.13	1.13
3600	6.95	6.90	6.91	6.91	0.06	30.30	32.30	30.17	1.16	3600	1.13	1.06	1.06	1.05	1.05
3800	7.05	7.01	6.91	7.01	0.14	26.74	33.81	26.49	1.18	3800	1.04	1.15	1.13	1.12	1.14
4000	7.08	7.06	7.11	7.03	0.09	27.16	49.32	27.36	1.23	4000	1.31	1.16	1.15	1.15	1.14
4200	7.08	7.07	7.01	7.04	0.09	30.30	34.54	29.60	1.32	4200	1.11	1.05	1.06	1.04	1.05
4400	7.14	7.11	7.15	7.09	0.08	24.31	31.50	24.23	1.61	4400	1.15	1.14	1.13	1.11	1.13
4600	7.29	7.27	7.33	7.24	0.10	27.15	37.19	27.27	1.51	4600	1.39	1.10	1.08	1.08	1.09
4800	7.24	7.25	7.26	7.19	0.09	28.96	43.22	28.52	1.58	4800	1.17	1.08	1.07	1.07	1.08
5000	7.22	7.22	7.32	7.17	0.15	28.22	33.95	28.11	1.71	5000	1.19	1.05	1.04	1.04	1.04
5200	7.25	7.22	7.26	7.20	0.09	31.60	32.85	32.27	1.65	5200	1.14	1.06	1.04	1.05	1.06
5400	7.29	7.26	7.39	7.23	0.17	23.91	37.32	23.70	1.83	5400	1.30	1.12	1.10	1.09	1.11
5600	7.32	7.32	7.30	7.27	0.08	32.32	33.76	32.44	1.74	5600	1.18	1.02	1.04	1.03	1.03
5800	7.27	7.30	7.42	7.21	0.22	25.53	31.26	25.87	2.00	5800	1.17	1.09	1.07	1.07	1.09
6000	7.48	7.53	7.48	7.42	0.12	22.51	32.49	22.54	2.08	6000	1.32	1.06	1.06	1.06	1.05
6200	7.37	7.38	7.38	7.31	0.10	27.36	34.47	27.56	2.16	6200	1.07	1.04	1.02	1.03	1.04
6400	7.48	7.45	7.32	7.42	0.17	28.59	32.50	28.56	2.11	6400	1.14	1.07	1.06	1.06	1.06
6600	7.46	7.49	7.51	7.39	0.14	24.62	32.19	24.75	2.37	6600	1.21	1.14	1.11	1.12	1.14
6800	7.58	7.68	7.42	7.53	0.26	19.66	31.66	19.55	2.42	6800	1.07	1.08	1.07	1.08	1.07
7000	7.53	7.59	7.52	7.48	0.13	24.82	28.57	24.99	2.31	7000	1.08	1.13	1.11	1.10	1.14
7200	7.67	7.68	7.34	7.61	0.36	18.97	26.05	19.02	2.43	7200	1.08	1.18	1.14	1.13	1.18

¹ Total Loss = Insertion Loss + 6dB Splitter Loss

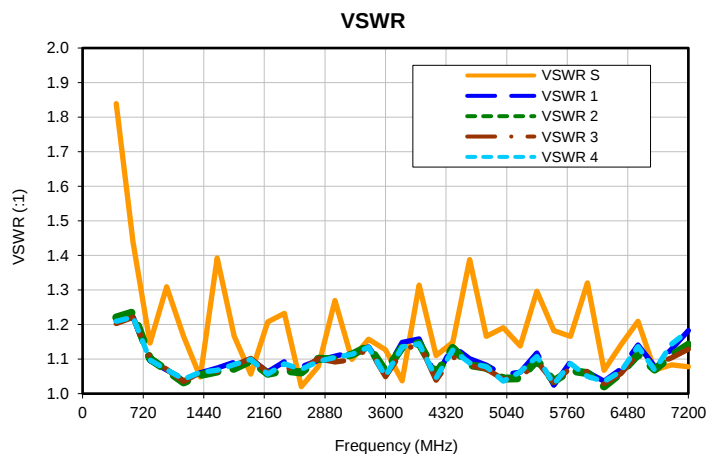
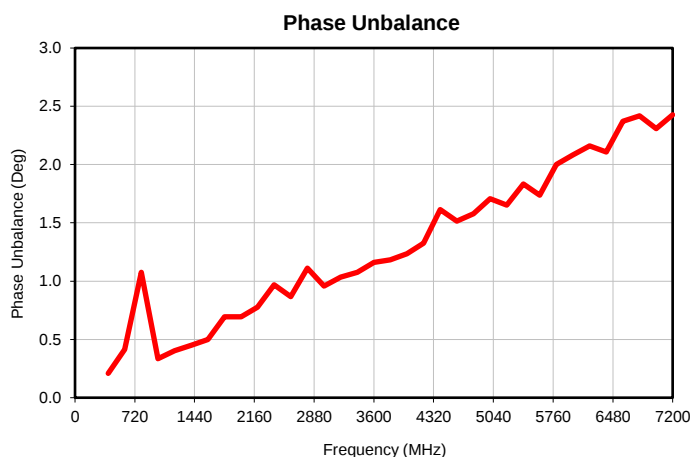
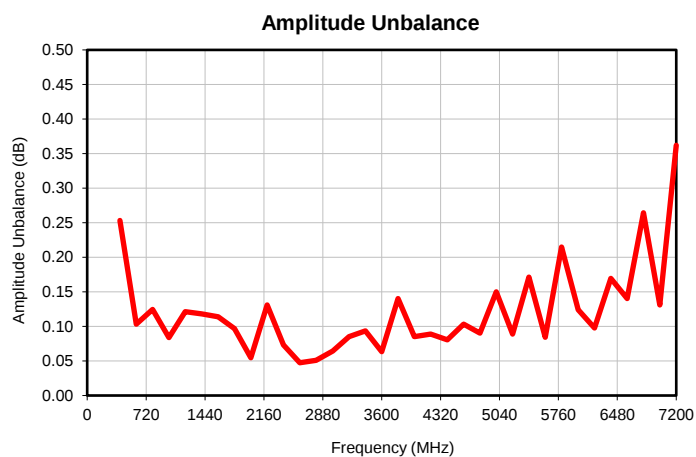
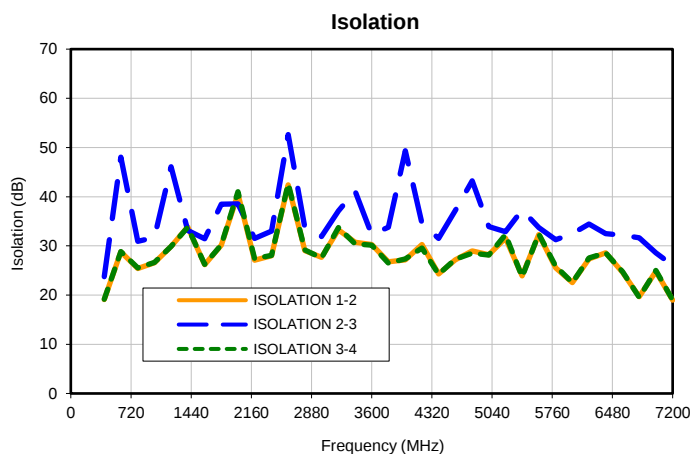
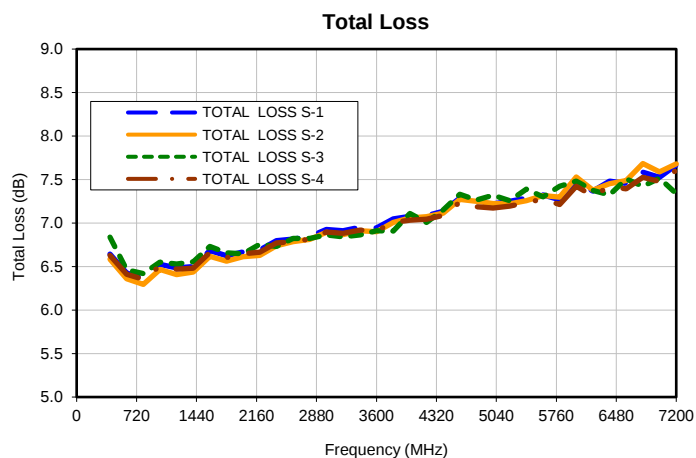


P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS

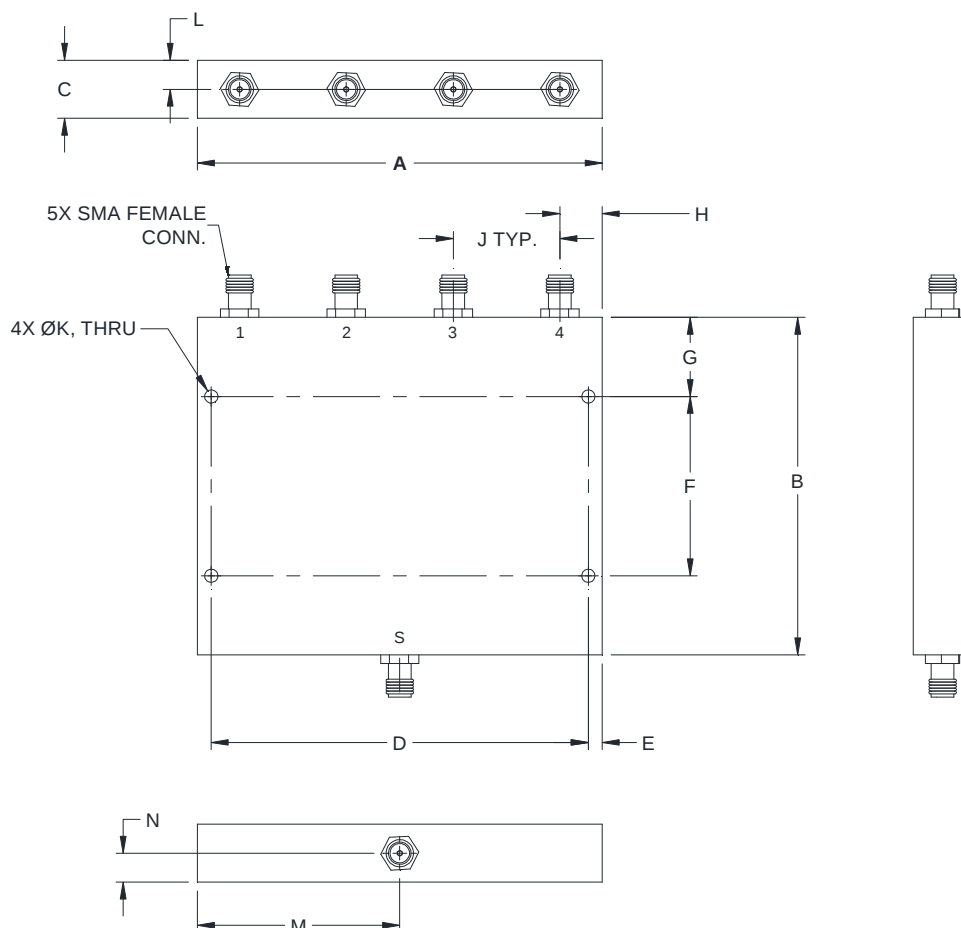
REV. OR
ZN4PD-4R722+
10/29/2021
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Typical Performance Curves



Outline Dimensions

UU2413-6



CASE#	A	B	C	D	E	F	G	H	J	K	L
UU2413-6	3.80 (96.5)	3.20 (81.3)	.55 (14.0)	3.540 (89.92)	.130 (3.30)	1.700 (43.18)	.750 (19.05)	.40 (10.1)	1.00 (25.4)	.125 (3.18)	.28 (7.0)

CASE#	M	N	WT, GRAM
UU2413-6	1.90 (48.26)	.28 (7.0)	85

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

Notes:

- Case material: Aluminum Alloy 5052-H32 or 6061-T6 or equivalent
- Case finish:
For RoHS Case Styles: Clear Chemical Conversion Coating.



INTERNET <http://www.minicircuits.com>

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Mini-Circuits ISO 9001 & ISO 14001 Certified



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 85°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