High Power, DC Pass

Power Splitter/Combiner ZN6PD-272HP+

6 Way-0° 50Ω Up to 100W 650 to 2750 MHz

The Big Deal

- High power, up to 100W as a splitter
- Low insertion loss, 0.9 dB
- Good isolation, 25 dB

ZN6PD-272HPX-S+

ZN6PD-272HP-S+

Product Overview

Mini-Circuits' ZN6PD-272HP+ is a 6-way 0˚ high-power splitter/combiner providing up to 100W RF input power handling as a splitter and 3.0W as a combiner across the 650 to 2750 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 splitter/combiner comes housed in a rugged aluminum alloy case measuring 8.08 x 3.25 x 2.38" and is available with your choice of SMA or N-Type connectors and optional heat sink.

Key Features

Feature	Advantages
Wideband, 650 to 2750 MHz	This model covers a variety of popular wireless communications bands, making it suitable for a wide range of applications.
High power handling: • 100W as a splitter • 3W as a combiner	Supports a wide range of power requirements.
Low insertion loss, 0.9 dB	The combination of 100W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
Low unbalance: • 0.4 dB amplitude unbalance • 4˚ phase unbalance	Produces nearly equal output signals, ideal for parallel path / multichannel systems.
High isolation, 25 dB	Minimizes interference between input ports.
DC Passing, 1.2A (200mA each port)	Supports applications where DC power is needed at later stages in the system.

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

High Power, DC Pass

Power Splitter/Combiner

ZN6PD-272HP+

6 Way-0° 50Ω Up to 100W 650 to 2750 MHz

ZN6PD-272HPX-S+ ▲

ZN6PD-272HP-S+

Generic photo used for illustration purposes only

CASE STYLE: AW257-2

Connectors	Model
SMA	ZN6PD-272HP-S+
SMA	ZN6PD-272HPX-S+▲
N-TYPE	ZN6PD-272HP-N+
N-TYPE	ZN6PD-272HPX-N+▲

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

Maximum Ratings

Operating Temperature	-55°C to 60°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter[1])	100W max.
Internal Dissipation	3.0W max.
DC Current	1.2A (200mA for each port)

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

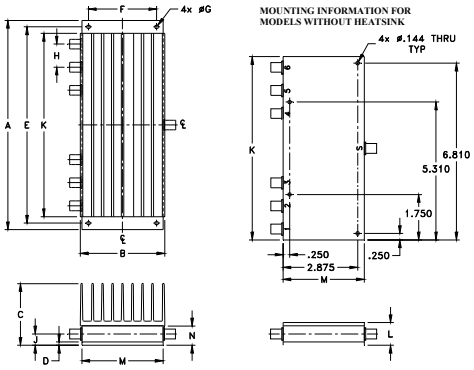
Features

- power handling up to 100W
- wideband, 650 to 2750 MHz
- low insertion loss, 0.9 dB typ.
- good isolation, 25 dB typ.
- rugged shielded case

Applications

- WiMax
- LTE
- WCDMA

Outline Drawing



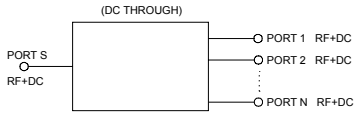
Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
8.06	3.25	2.38	.125	7.560	2.625	.144
204.72	82.55	60.45	3.18	192.02	66.68	3.66

H	J	K	L	M	N	wt
.890	.44	7.06	.88	3.13	.75	grams*
22.61	11.18	179.32	22.35	79.50	19.05	1240

*850 grams without heatsink

Electrical Schematic



Electrical Specifications at 25°C

Parameter		Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range			650		2750	MHz
Insertion Loss (above theoretical 7.8 dB)		650-2750 700-2700	— —	1.0 0.9	1.6 1.4	dB
Isolation		650-2750 700-2700	18 20	23 25	— —	dB
Phase Unbalance		650-2750	—	4	10	Degree
Amplitude Unbalance		650-2750 700-2700	— —	0.4 0.3	0.7 0.6	dB
VSWR (Port S)		650-2750 700-2700	— —	1.35 1.30	1.55 1.5	:1
VSWR (Port 1-8)		650-2750	—	1.15	1.30	:1
Power Handling	**As Splitter[1]**	650-2750	—	—	100	Watt
	As Combiner[2]	650-2750	—	—	3.0	

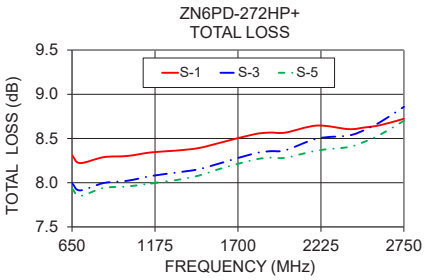
1. All outputs must terminate 50 ohm (VSWR 1.5:1 or better)
2. As a combiner of non-coherent signals, max. power per port is 3.0 watt power rating divided by number of ports.

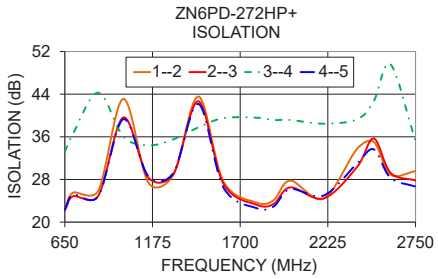
▲ Heat sink and fan not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 60°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 1.2°C/W max.

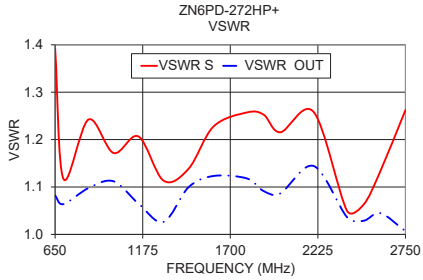
Typical Performance Data

Frequency (MHz)	Total Loss[1] (dB)			Amplitude Unbalance (dB)	Isolation (dB)		Phase Unbal. (deg.)	VSWR S	VSWR OUTPUTS
	S-1	S-3	S-5		Adjacent	Opposite			
650	8.31	8.21	7.93	0.38	22.50	22.35	0.62	1.39	1.08
700	8.22	8.13	7.85	0.37	25.54	25.14	0.68	1.12	1.06
850	8.29	8.20	7.94	0.35	25.88	24.86	0.96	1.24	1.10
1000	8.30	8.21	7.96	0.35	43.12	39.30	1.00	1.17	1.11
1150	8.34	8.25	7.99	0.35	27.41	28.62	1.19	1.21	1.06
1300	8.36	8.28	8.03	0.33	28.87	29.24	1.31	1.11	1.03
1450	8.39	8.32	8.08	0.31	43.55	42.17	1.40	1.14	1.10
1600	8.46	8.40	8.16	0.29	27.59	26.48	1.48	1.23	1.12
1800	8.55	8.49	8.26	0.29	23.65	22.60	1.70	1.26	1.12
1900	8.57	8.51	8.28	0.28	24.11	22.93	1.84	1.25	1.09
2000	8.57	8.50	8.28	0.28	27.79	26.20	1.82	1.22	1.09
2200	8.65	8.59	8.36	0.28	24.43	24.99	1.61	1.26	1.14
2400	8.61	8.56	8.40	0.20	33.75	31.00	1.39	1.05	1.04
2500	8.62	8.60	8.46	0.16	35.06	33.65	1.44	1.06	1.03
2600	8.65	8.66	8.54	0.16	28.92	28.30	1.39	1.13	1.04
2750	8.72	8.77	8.70	0.26	29.56	26.67	1.21	1.26	1.01

1. Total Loss = Insertion Loss + 7.8dB theoretical splitter loss.







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6 Way-0° Power Splitter/Combiner ZN6PD-272HP+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS[1] (dB)			AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)
	S-1	S-3	S-5		1-2	1-3	4-5	
500	9.05	8.93	8.67	0.38	15.52	17.67	15.54	0.53
550	8.81	8.70	8.43	0.38	16.96	18.15	16.94	0.53
600	8.53	8.42	8.15	0.38	19.25	18.88	19.18	0.57
650	8.31	8.21	7.93	0.38	22.50	20.20	22.35	0.62
700	8.22	8.13	7.85	0.37	25.54	22.26	25.14	0.68
750	8.22	8.13	7.86	0.36	26.01	25.18	25.31	0.75
800	8.26	8.17	7.91	0.36	25.49	28.89	24.65	0.83
850	8.29	8.20	7.94	0.35	25.88	33.05	24.86	0.96
900	8.29	8.20	7.95	0.34	27.91	34.47	26.52	1.00
950	8.29	8.20	7.95	0.34	32.50	32.78	30.25	1.00
1000	8.30	8.21	7.96	0.35	43.12	31.32	39.30	1.00
1050	8.32	8.23	7.97	0.35	35.28	30.49	41.04	1.07
1100	8.34	8.24	7.98	0.35	29.81	30.00	31.90	1.12
1150	8.34	8.25	7.99	0.35	27.41	29.55	28.62	1.19
1200	8.35	8.26	8.00	0.35	26.67	29.13	27.45	1.22
1250	8.36	8.27	8.01	0.35	27.13	28.75	27.68	1.26
1300	8.36	8.28	8.03	0.33	28.87	28.35	29.24	1.31
1350	8.37	8.29	8.04	0.33	32.51	28.02	32.77	1.35
1400	8.38	8.31	8.06	0.32	41.12	27.70	41.65	1.35
1450	8.39	8.32	8.08	0.31	43.55	27.53	42.17	1.40
1500	8.41	8.35	8.11	0.31	33.65	27.51	32.73	1.41
1550	8.44	8.38	8.13	0.30	29.74	27.62	28.76	1.43
1600	8.46	8.40	8.16	0.29	27.59	27.79	26.48	1.48
1700	8.49	8.43	8.20	0.29	25.19	27.69	24.02	1.64
1800	8.55	8.49	8.26	0.29	23.65	27.10	22.60	1.70
1900	8.57	8.51	8.28	0.28	24.11	27.63	22.93	1.84
2000	8.57	8.50	8.28	0.28	27.79	30.88	26.20	1.82
2100	8.60	8.53	8.30	0.29	27.75	39.58	28.60	1.79
2200	8.65	8.59	8.36	0.28	24.43	32.66	24.99	1.61
2300	8.63	8.58	8.38	0.26	25.65	28.49	25.32	1.42
2400	8.61	8.56	8.40	0.20	33.75	28.35	31.00	1.39
2500	8.62	8.60	8.46	0.16	35.06	31.14	33.65	1.44
2600	8.65	8.66	8.54	0.16	28.92	37.95	28.30	1.39
2650	8.67	8.70	8.60	0.19	27.76	47.04	26.63	1.35
2700	8.70	8.74	8.65	0.22	27.65	38.05	25.84	1.29
2750	8.72	8.77	8.70	0.26	29.56	30.05	26.67	1.21
2800	8.79	8.85	8.80	0.31	36.28	25.00	30.84	1.25
2850	9.00	9.08	9.04	0.37	30.62	21.41	36.59	1.22
2900	9.44	9.51	9.51	0.43	22.48	18.93	24.46	1.26

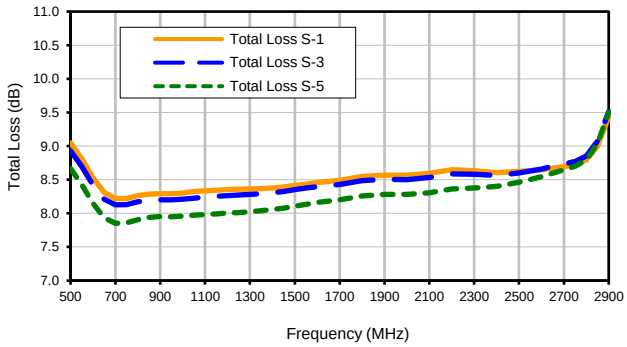
FREQ. (MHz)	VSWR (:1)		
	S	1	6
500	2.45	1.21	1.21
550	2.15	1.17	1.17
600	1.76	1.12	1.12
650	1.39	1.09	1.08
700	1.12	1.07	1.06
750	1.07	1.08	1.07
800	1.19	1.10	1.08
850	1.24	1.11	1.10
900	1.23	1.13	1.11
950	1.19	1.14	1.11
1000	1.17	1.13	1.11
1050	1.19	1.12	1.10
1100	1.21	1.10	1.09
1150	1.21	1.07	1.06
1200	1.18	1.04	1.04
1250	1.15	1.02	1.02
1300	1.11	1.03	1.03
1350	1.10	1.06	1.05
1400	1.11	1.08	1.08
1450	1.14	1.09	1.10
1500	1.17	1.10	1.11
1550	1.20	1.10	1.12
1600	1.23	1.10	1.12
1700	1.25	1.10	1.12
1800	1.26	1.11	1.12
1900	1.25	1.09	1.09
2000	1.22	1.09	1.09
2100	1.22	1.14	1.13
2200	1.26	1.15	1.14
2300	1.19	1.11	1.10
2400	1.05	1.05	1.04
2500	1.06	1.04	1.03
2600	1.13	1.05	1.04
2650	1.19	1.05	1.04
2700	1.23	1.05	1.03
2750	1.26	1.03	1.01
2800	1.35	1.05	1.06
2850	1.62	1.11	1.13
2900	2.10	1.17	1.22

[1]Total Loss = Insertion Loss + 7.8dB Splitter Loss

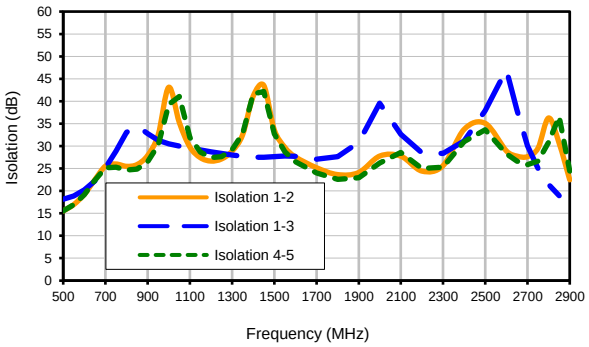
6 Way-0° Power Splitter/Combiner ZN6PD-272HP+

Typical Performance Curves

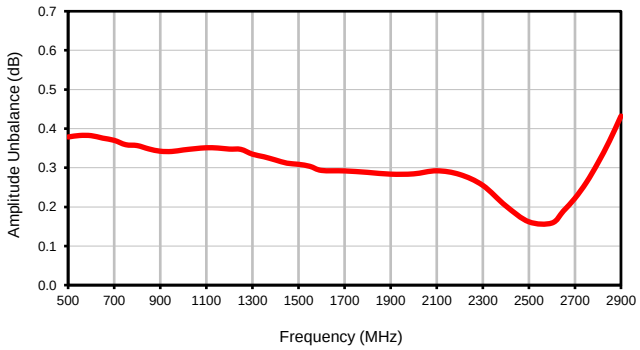
Total Loss



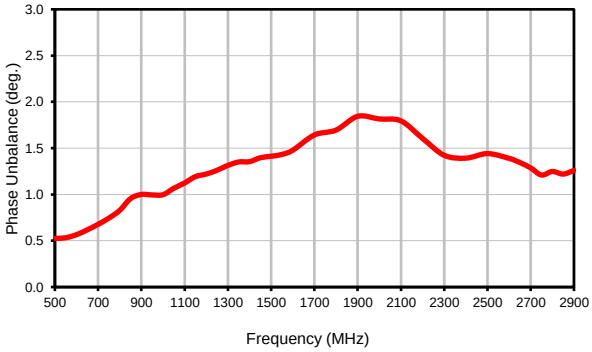
Isolation



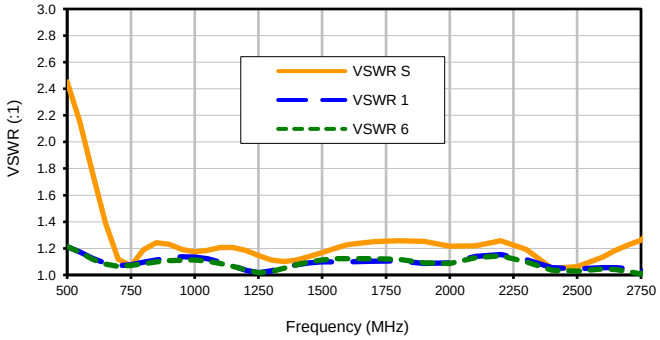
Amplitude Unbalance



Phase Unbalance



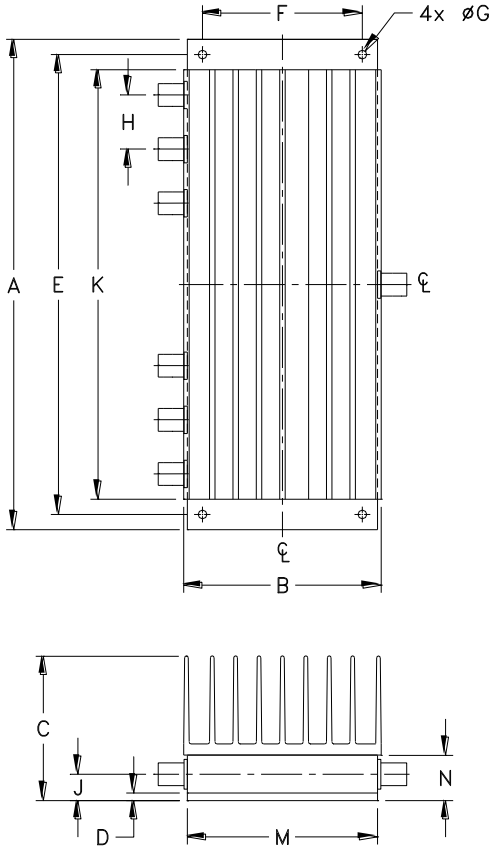
VSWR



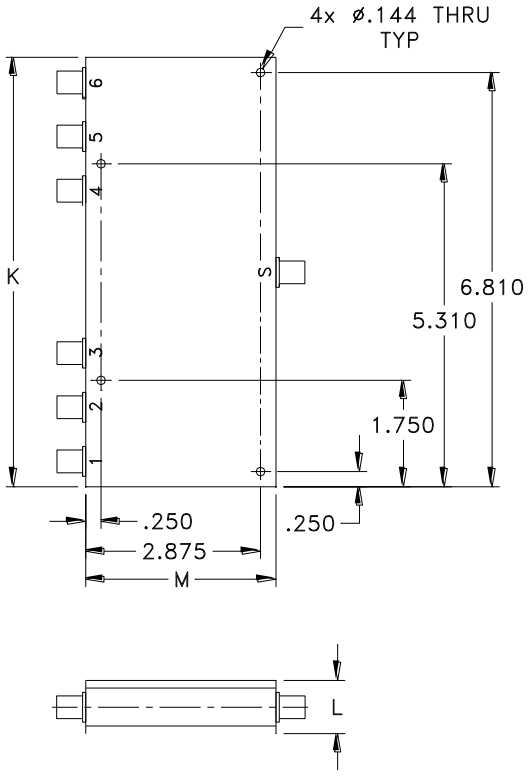
Case Style AW

Outline Dimensions

AW257-2



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



CASE #	A	B	C	D	E	F	G	H	J	K	L
AW257-2	8.06 (204.72)	3.25 (82.55)	2.38 (60.45)	.125 (3.18)	7.560 (192.02)	2.625 (66.68)	.144 (3.66)	.890 (22.61)	.44 (11.18)	7.06 (179.32)	.88 (22.35)

CASE #	M	N	WT, GRAMS	WT WITHOUT HEATSINK, GRAMS
AW257-2	3.13 (79.50)	.75 (19.05)	1240	850

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015
Mounting hole locations ∀.005

Notes:

1. Case material: Aluminum alloy.
2. Case Finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Heat sink finish: Black anodize.

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Mini-Circuits

Environmental Specifications **ENV28T12**

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 60°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

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