



COAXIAL

# Power Splitter/Combiner **ZC8PD-E18673+**

50Ω 8 Way-0° 18 to 67 GHz 12W 1.85mm Female

## THE BIG DEAL

- Wideband, 18 to 67 GHz
- Low Insertion Loss, 3dB typ.
- 12W Power Handling
- High Isolation, 29dB typ.
- Low Amplitude Unbalance, 0.8dB typ.
- Stripline Design



Generic photo used for illustration purposes only

## APPLICATIONS

- 5G MIMO and Back Haul Radio Systems
- LTE & 5G MIMO Infrastructure
- Satellite Communications
- Test & Measurement Equipment
- Radar, EW, and ECM Defense Systems

Model No.	ZC8PD-E18673+
Case Style	UU2415-5
Connectors	1.85mm Female

### +RoHS Compliant

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

## PRODUCT OVERVIEW

Mini-Circuits' ZC8PD-E18673+ is a wideband 8-way 0° power splitter/combiner. It provides coverage from 18 to 67 GHz (Ka band & V band), supporting a wide range of applications including 5G, Defense, Instrumentation and many more. This model provides 12W 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 ZC8PD-E18673+ comes housed in a case measuring 1.18 x 4.08 x 0.5" with 1.85mm female connectors

## KEY FEATURES

Features	Advantages
Wideband, 18 to 67 GHz	Extremely wide frequency range supports many broadband applications in a single model.
Low insertion loss, 3 dB typ.	The combination of 12W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
High isolation, 29 dB typ.	Minimizes interference between ports
High power handling: • 12W as a splitter at 25°C • 3.6W as a combiner at 25°C	The ZC8PD-E18673+ is suitable for systems with a wide range of power requirements.
Low amplitude unbalance, 0.8 dB	Produces nearly equal output signals, ideal for parallel path and multichannel systems.
DC Passing, 350mA as a splitter	Supports applications where DC power is needed through the RF line.

REV. OR  
ECO-015925  
ZC8PD-E18673+  
MCL NY  
221209





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50Ω 8 Way-0° 18 to 67 GHz 12W 1.85mm Female

## ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		18		67	GHz
Insertion Loss (above theoretical 9.0dB per port)	18 - 40 40 - 50 50 - 67		2.2 3.0 3.9	3.5 4.4 5.9	dB
Isolation	18 - 40 40 - 50 50 - 67	16 16 16	28 27 32		dB
Phase Unbalance ( $\pm$ ) <sup>1</sup>	18 - 40 40 - 50 50 - 67		4 6 8		Degree
Amplitude Unbalance ( $\pm$ ) <sup>1</sup>	18 - 40 40 - 50 50 - 67		0.4 0.3 0.3	0.7 0.8 1.0	dB
VSWR (Port S)	18 - 40 40 - 50 50 - 67		1.20 1.16 1.16	1.7 1.8 1.9	:1
VSWR (Port 1-8)	18 - 40 40 - 50 50 - 67		1.18 1.16 1.11	1.7 1.8 1.9	:1
Power Handling	As Splitter <sup>1</sup>			12	W
	As Combiner <sup>2</sup>			3.6	

1. All outputs must be terminated with 50 ohm (VSWR 1.5:1 or better)

2. As a combiner of non-coherent signals, max. power per port is 0.45 watt

## MAXIMUM RATINGS

Parameter	Ratings
Operating Case Temperature	-50 °C to +100 °C
Storage Temperature	-50 °C to +100 °C

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

## FUNCTIONAL DIAGRAM





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Power Splitter/Combiner **ZC8PD-E18673+**

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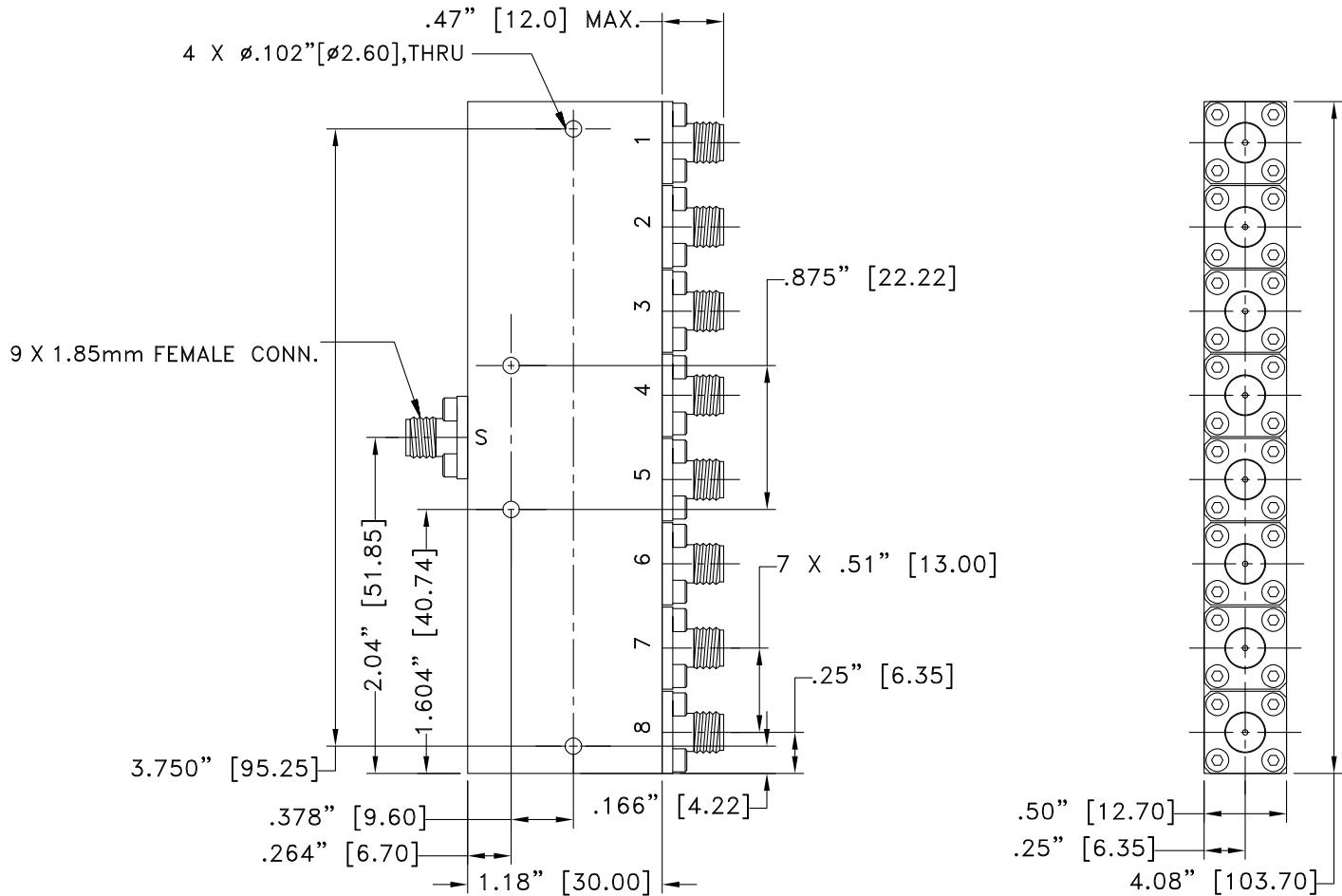
50Ω 8 Way-0° 18 to 67 GHz 12W 1.85mm Female

## COAXIAL CONNECTIONS

Input / Output <sup>1</sup>	S
Output / Input <sup>1</sup>	1-8

Note 1 : Unit is bi-directional design

## OUTLINE DRAWING



Weight: 150 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl.±.03; 3 Pl. ± .015

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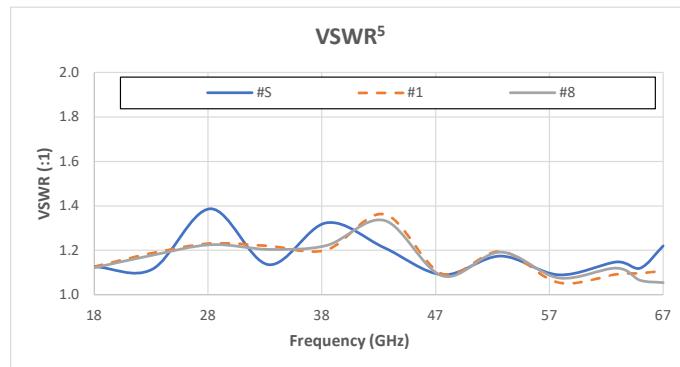
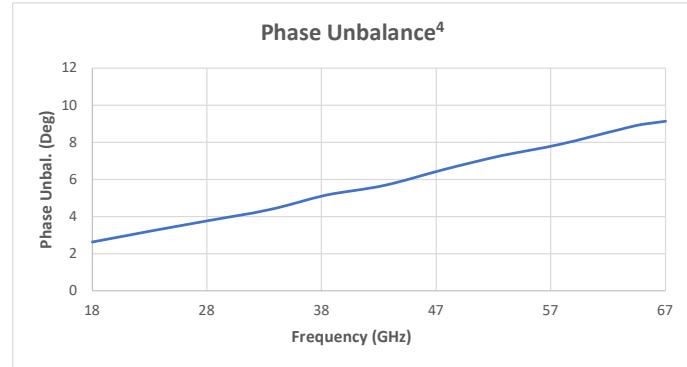
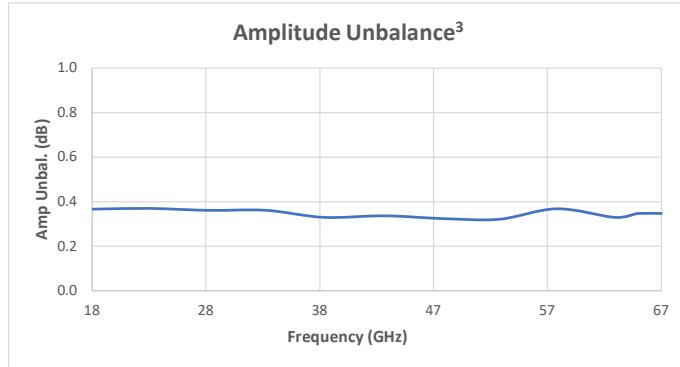
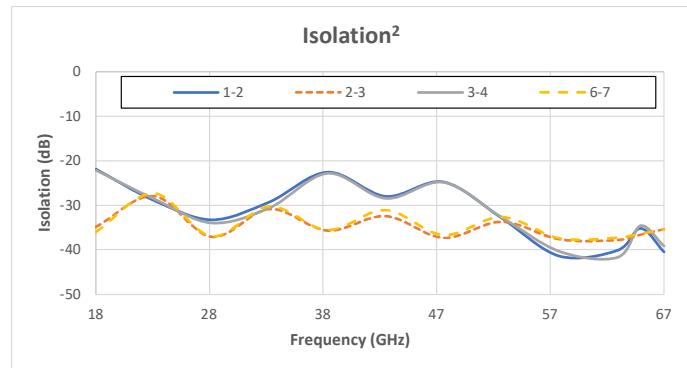
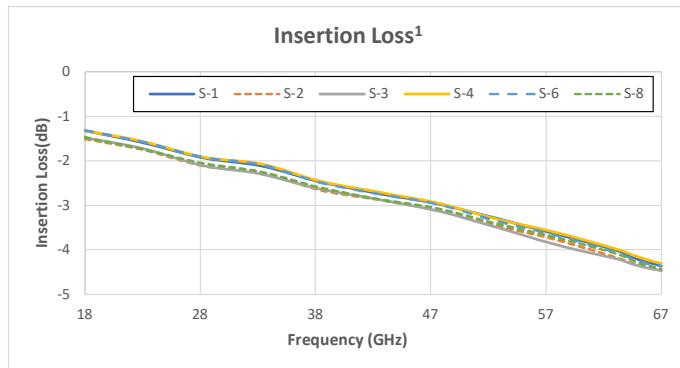


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# Power Splitter/Combiner ZC8PD-E18673+

50Ω 8 Way-0° 18 to 67 GHz 12W 1.85mm Female

## TYPICAL PERFORMANCE CURVES



### Note:

1. Insertion loss is loss above theoretical loss (9dB)
2. Isolations are representative of all combination of ports
3. Amplitude unbalance is average unbalance between any ports
4. Phase unbalance is average unbalance between any ports
5. VSWR is typical representation of all ports

### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

# 8 Way-0° Power Splitter/Combiner

ZC8PD-E18673+

## Typical Performance Data

Data tested at 25DegC

FREQ. (GHz)	INSERTION LOSS <sup>1</sup> (dB)						AMP. UNBAL. <sup>2</sup> (dB)	ISOLATION <sup>3</sup> (dB)				PHASE UNBAL. <sup>4</sup> (deg.)	VSWR <sup>5</sup> (:1)		
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	3-4	5-6	7-8		S	1	8
18	1.3	1.5	1.5	1.3	1.3	1.5	0.37	22	22	22	22	2.6	1.13	1.13	1.12
19	1.4	1.6	1.6	1.4	1.4	1.6	0.35	29	30	30	30	2.8	1.28	1.29	1.26
20	1.4	1.6	1.6	1.4	1.4	1.6	0.36	27	27	27	27	3.0	1.14	1.21	1.19
21	1.5	1.7	1.7	1.5	1.5	1.6	0.38	23	23	23	23	2.9	1.20	1.08	1.07
22	1.5	1.7	1.7	1.5	1.5	1.7	0.36	24	24	24	24	3.1	1.15	1.09	1.07
23	1.6	1.8	1.7	1.6	1.6	1.7	0.37	29	28	29	29	3.2	1.11	1.19	1.18
24	1.6	1.8	1.8	1.6	1.6	1.8	0.39	24	25	24	24	3.5	1.11	1.16	1.15
25	1.9	2.1	2.0	1.9	1.9	2.0	0.35	41	38	38	37	3.6	1.43	1.43	1.40
26	1.9	2.0	2.1	1.8	1.8	2.0	0.40	27	27	27	26	3.6	1.35	1.34	1.31
27	1.9	2.0	2.0	1.9	1.9	2.0	0.34	26	26	26	27	3.6	1.32	1.30	1.29
28	1.9	2.1	2.1	1.9	1.9	2.1	0.36	33	34	35	35	3.8	1.39	1.23	1.23
29	1.9	2.1	2.1	1.9	1.9	2.1	0.37	25	25	25	25	4.0	1.29	1.07	1.08
30	2.0	2.1	2.1	1.9	2.0	2.1	0.39	24	25	24	24	4.0	1.24	1.08	1.08
31	2.0	2.2	2.2	2.0	2.0	2.1	0.37	30	30	31	31	4.0	1.18	1.08	1.07
32	2.0	2.2	2.2	2.0	2.0	2.2	0.33	25	25	25	25	4.2	1.07	1.10	1.10
33	2.1	2.3	2.3	2.1	2.1	2.2	0.36	29	31	29	31	4.3	1.14	1.22	1.20
34	2.2	2.4	2.4	2.2	2.2	2.3	0.35	33	33	35	33	4.5	1.14	1.31	1.30
35	2.2	2.4	2.4	2.2	2.2	2.4	0.37	27	27	27	27	4.6	1.10	1.29	1.29
36	2.3	2.5	2.5	2.3	2.3	2.4	0.34	31	32	31	32	4.7	1.13	1.33	1.33
37	2.3	2.5	2.5	2.3	2.3	2.5	0.32	26	26	26	26	5.0	1.13	1.16	1.16
38	2.5	2.7	2.6	2.5	2.5	2.6	0.33	23	23	22	23	5.1	1.32	1.20	1.22
39	2.5	2.7	2.7	2.5	2.5	2.6	0.35	28	29	28	29	5.3	1.33	1.07	1.10
40	2.5	2.7	2.7	2.5	2.5	2.7	0.37	24	24	24	24	5.4	1.30	1.17	1.19
41	2.6	2.7	2.7	2.5	2.6	2.7	0.35	27	28	27	28	5.5	1.17	1.26	1.23
42	2.6	2.8	2.8	2.6	2.6	2.7	0.34	31	32	32	33	5.6	1.10	1.38	1.35
43	2.7	2.9	2.9	2.7	2.7	2.9	0.34	28	28	28	28	5.7	1.21	1.36	1.33
44	2.7	2.9	2.9	2.7	2.7	2.9	0.33	29	30	29	30	6.0	1.11	1.31	1.31
45	2.8	3.0	2.9	2.8	2.8	2.9	0.32	27	27	28	27	6.1	1.14	1.14	1.15
46	2.8	3.0	3.0	2.8	2.9	2.9	0.34	24	25	24	25	6.2	1.09	1.10	1.11
47	2.9	3.0	3.1	2.9	2.9	3.0	0.32	33	34	33	34	6.4	1.08	1.09	1.07
48	3.0	3.1	3.1	3.0	3.0	3.1	0.32	25	25	25	24	6.5	1.09	1.09	1.08
49	3.0	3.2	3.2	3.0	3.1	3.1	0.31	25	25	24	25	6.6	1.18	1.13	1.10
50	3.1	3.2	3.3	3.1	3.1	3.2	0.32	33	34	33	34	6.8	1.11	1.12	1.12
51	3.1	3.3	3.3	3.1	3.2	3.2	0.33	25	25	26	25	6.8	1.07	1.08	1.08
52	3.3	3.4	3.4	3.3	3.3	3.4	0.32	29	29	29	29	7.1	1.18	1.19	1.16
53	3.3	3.5	3.5	3.3	3.4	3.4	0.32	33	33	32	32	7.3	1.17	1.20	1.19
54	3.4	3.5	3.6	3.4	3.4	3.5	0.31	27	27	27	26	7.4	1.20	1.12	1.15
55	3.4	3.6	3.7	3.4	3.5	3.5	0.33	35	36	37	36	7.5	1.19	1.14	1.16
56	3.5	3.7	3.7	3.5	3.5	3.6	0.35	31	30	30	29	7.7	1.15	1.06	1.08
57	3.6	3.7	3.9	3.6	3.6	3.7	0.37	27	28	27	27	7.6	1.17	1.13	1.12
58	3.6	3.8	3.9	3.6	3.7	3.7	0.37	41	40	38	38	7.9	1.09	1.06	1.08
59	3.8	3.9	3.9	3.7	3.8	3.8	0.29	27	28	27	27	7.9	1.08	1.11	1.08
60	3.8	3.9	4.0	3.7	3.8	3.9	0.36	28	29	29	29	8.3	1.09	1.04	1.07
61	3.9	4.0	4.1	3.9	3.9	4.0	0.30	41	38	39	41	8.2	1.19	1.09	1.08
62	3.9	4.1	4.1	3.9	3.9	4.0	0.34	36	35	34	35	8.3	1.13	1.06	1.09
63	4.0	4.2	4.2	4.0	4.0	4.1	0.33	40	42	43	44	8.7	1.15	1.09	1.12
64	4.2	4.3	4.3	4.1	4.2	4.2	0.32	34	34	35	33	8.7	1.24	1.13	1.10
65	4.2	4.3	4.4	4.2	4.3	4.3	0.35	35	35	34	34	9.0	1.12	1.10	1.07
66	4.3	4.4	4.4	4.2	4.3	4.3	0.35	38	36	34	36	8.9	1.11	1.14	1.08
67	4.4	4.5	4.5	4.3	4.4	4.4	0.35	41	39	37	40	9.1	1.22	1.11	1.05

1. Insertion loss is loss above theoretical loss (9dB)

2. Amplitude unbalance is average unbalance between any ports

3. Isolations are representative of all combination of ports

4. Phase unbalance is average unbalance between any ports

5. VSWR is typical representation of all ports



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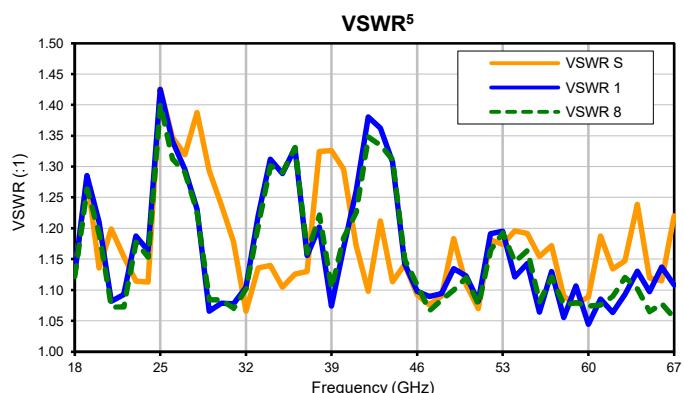
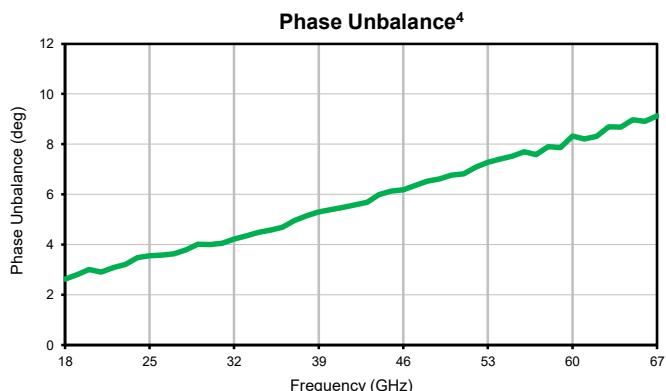
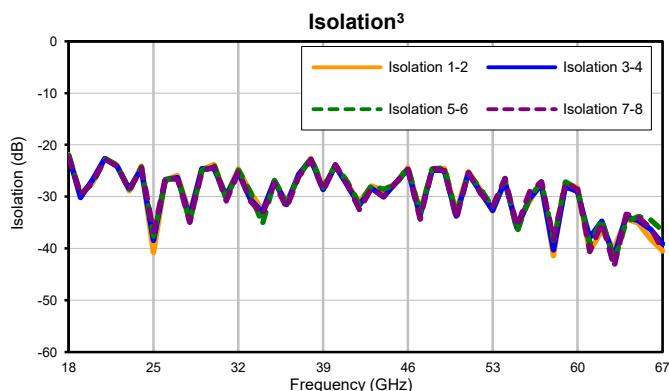
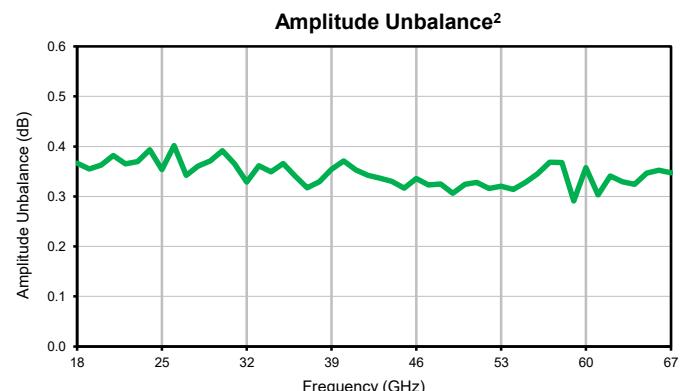
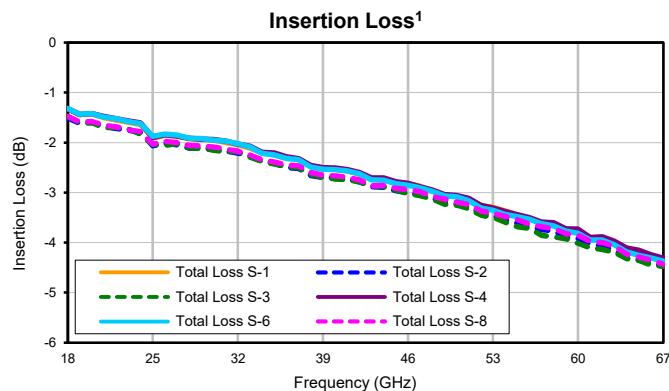
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[www.minicircuits.com](http://www.minicircuits.com)



# 8 Way-0° Power Splitter/Combiner

ZC8PD-E18673+

## Typical Performance Curves



### Note:

1. Insertion loss is loss above theoretical loss (9dB)
2. Amplitude unbalance is average unbalance between any ports
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 **The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)**

IF/RF MICROWAVE COMPONENTS

  
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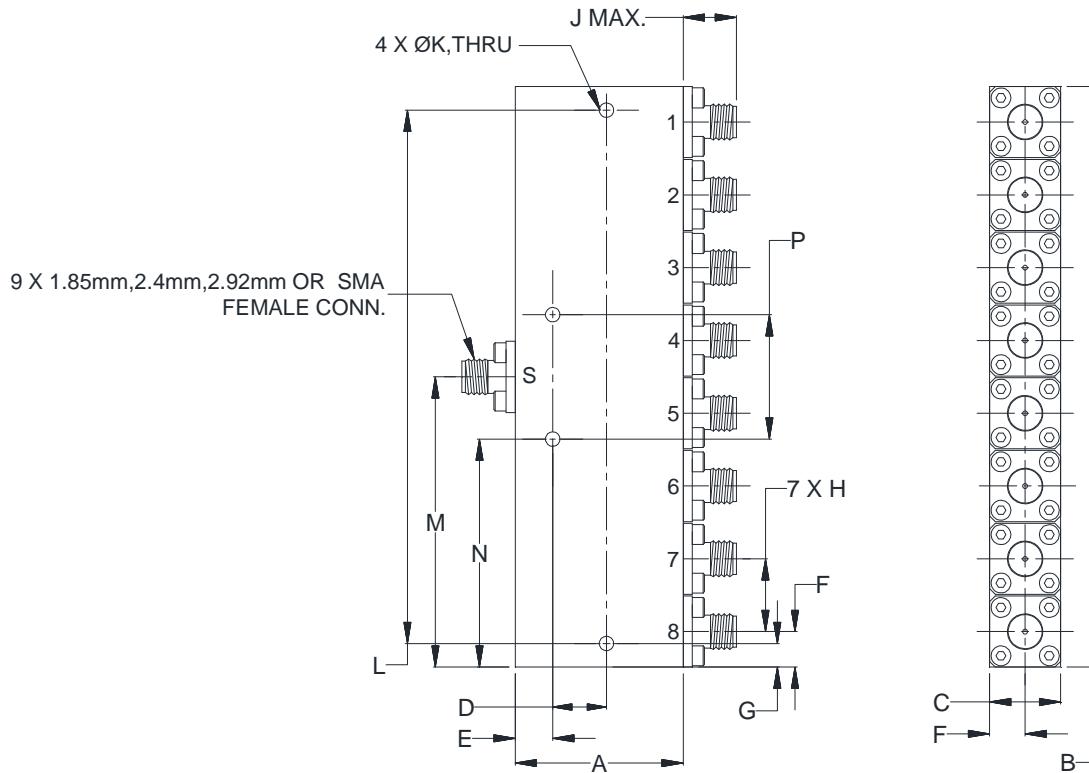
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12/8/2022  
Page 1 of 1

# Case Style

UU

## Outline Dimensions

UU2415-5



CASE#	A	B	C	D	E	F	G	H	J	K	L	M
UU2415-5	1.18 (30.00)	4.08 (103.70)	.50 (12.70)	.378 (9.60)	.264 (6.70)	.25 (6.35)	.166 (4.22)	.51 (13.00)	.47 (12.0)	.102 (2.60)	3.750 (95.25)	2.04 (51.85)

CASE#	N	P	WT. GRAMS
UU2415-5	1.604 (40.74)	.875 (22.22)	150

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

### Notes:

1. Case material: Aluminum alloy.
2. Case finish: Painting Color: Blue.
3. Refer to the individual model data sheet for the type of connectors available.



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Sheet 1 of 1

**Environmental Specifications****ENV103**

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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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