



COAXIAL

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

Mini-Circuits

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

APPLICATIONS

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



Generic photo used for illustration purposes only

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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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		2.2	3.5	dB
	40 - 50		3.0	4.4	
	50 - 67		3.9	5.9	
Isolation	18 - 40	16	28		dB
	40 - 50	16	27		
	50 - 67	16	32		
Phase Unbalance ($\pm$) ¹	18 - 40		4		Degree
	40 - 50		6		
	50 - 67		8		
Amplitude Unbalance ($\pm$) ¹	18 - 40		0.4	0.7	dB
	40 - 50		0.3	0.8	
	50 - 67		0.3	1.0	
VSWR (Port S)	18 - 40		1.20	1.7	:1
	40 - 50		1.16	1.8	
	50 - 67		1.16	1.9	
VSWR (Port 1-8)	18 - 40		1.18	1.7	:1
	40 - 50		1.16	1.8	
	50 - 67		1.11	1.9	
Power Handling	As Splitter ¹			12	W
	As Combiner ²			3.6	

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

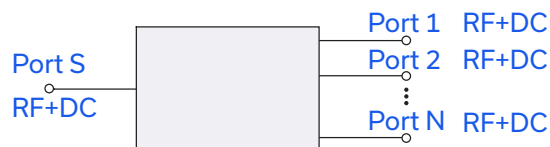
2. As a combiner of non-coherent signals, max. power per port is 0.45 watt

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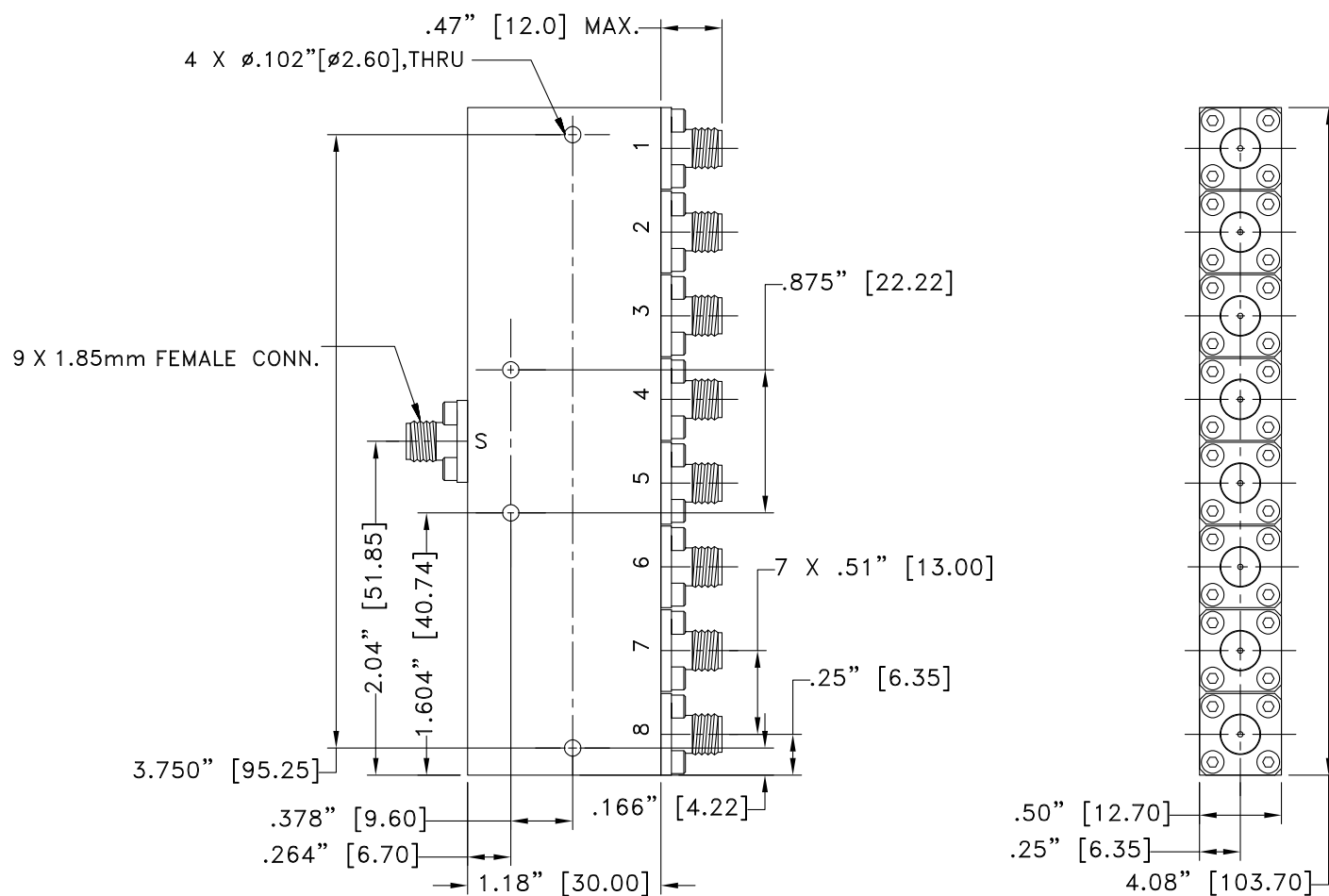
50Ω 8 Way-0° 18 to 67 GHz 12W 1.85mm Female

COAXIAL CONNECTIONS

Input / Output ¹	S
Output / Input ¹	1-8

Note 1 : Unit is bi-directional design

OUTLINE DRAWING



Weight: 150 grams

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



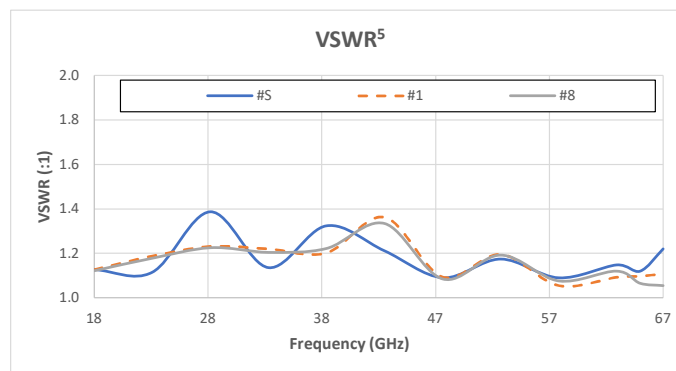
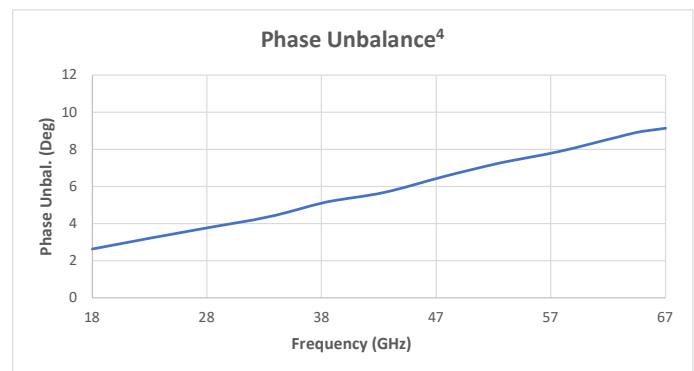
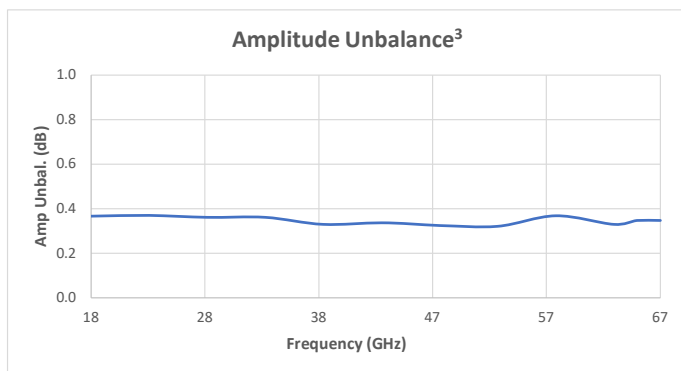
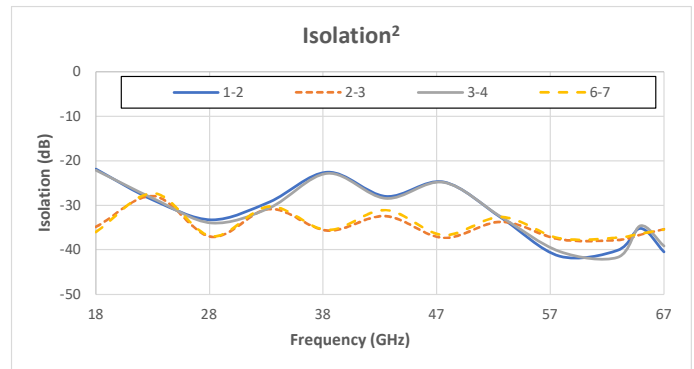
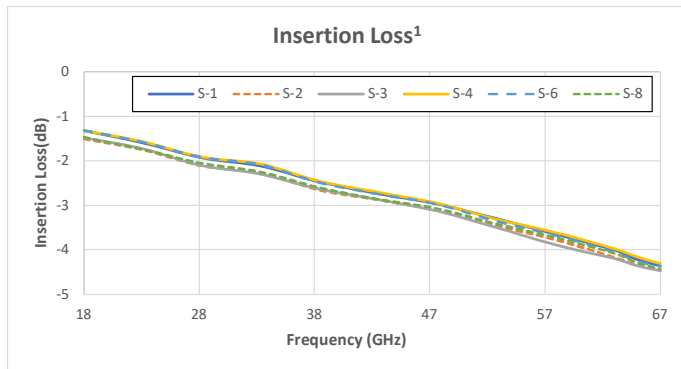
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50Ω 8 Way-0° 18 to 67 GHz 12W 1.85mm Female

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-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/terms/viewterm.html



8 Way-0° Power Splitter/Combiner

ZC8PD-E18673+

Typical Performance Data

Data tested at 25DegC

FREQ. (GHz)	INSERTION LOSS ¹						AMP. UNBAL. ² (dB)	ISOLATION ³				PHASE UNBAL. ⁴ (deg.)	VSWR ⁵		
	S-1	S-2	S-3	S-4	S-5	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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IF/RF MICROWAVE COMPONENTS

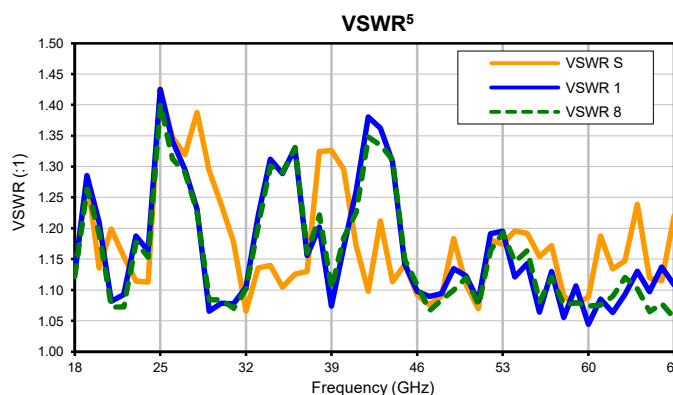
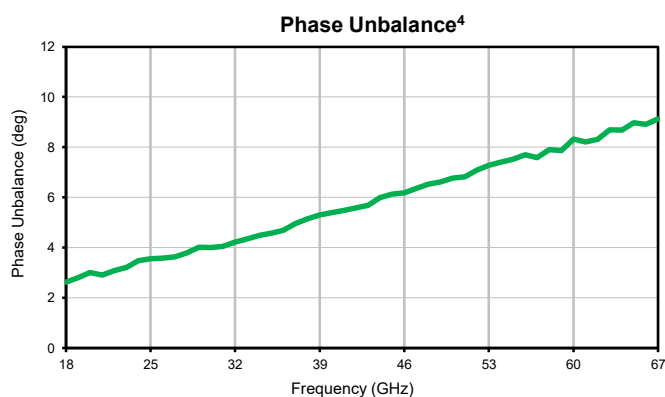
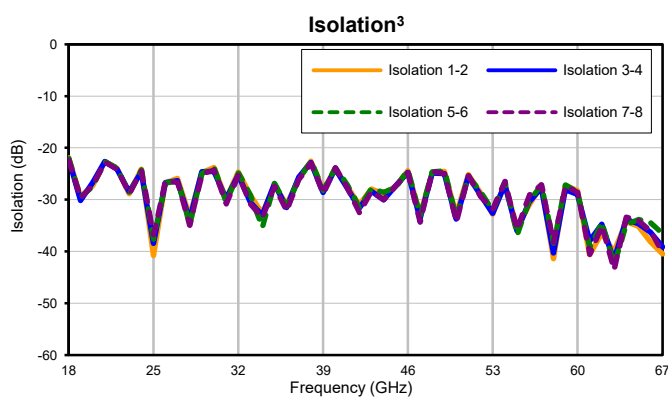
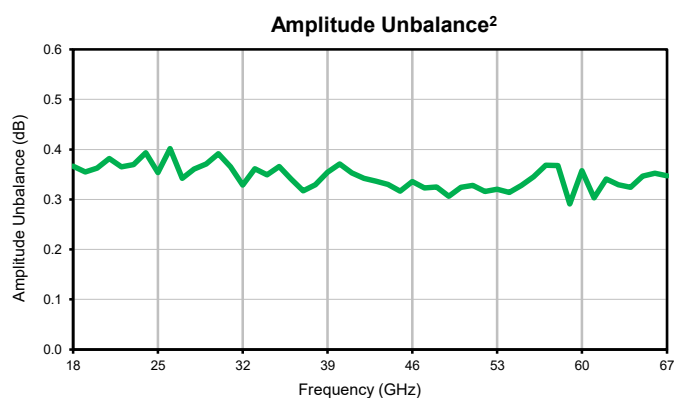
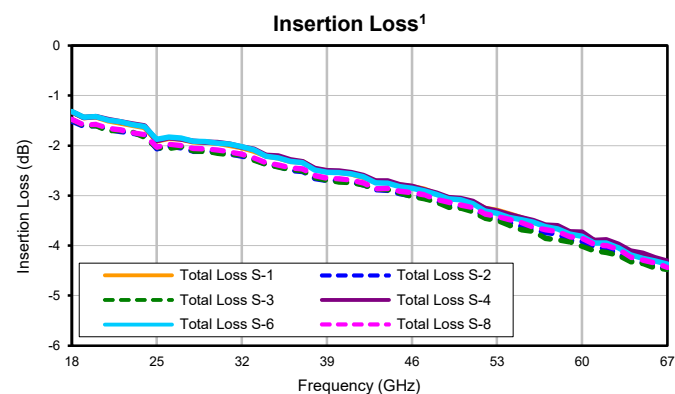
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Typical Performance Curves

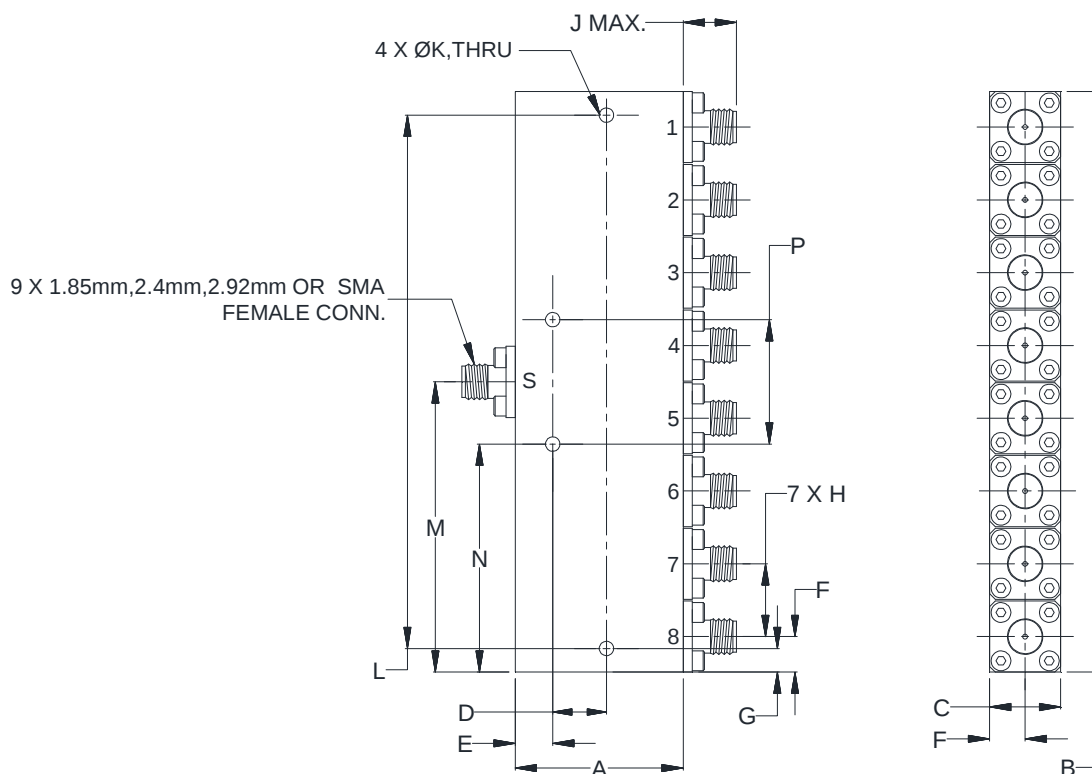


Note:

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3. Isolations are representative of all combination of ports
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5. VSWR is typical representation of all ports

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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RF/IF MICROWAVE COMPONENTS

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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
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