COAXIAL

Power Splitter/Combiner ZC4PD-E18673+

50Ω 4 Way-0° 18 to 67 GHz 12W 1.85mm Female

THE BIG DEAL

- Wideband, 18 to 67 GHz
- Low Insertion Loss, 2dB typ.
- 12W Power Handling
- High Isolation, 32dB typ.
- Low Amplitude Unbalance, 0.2dB typ.
- Stripline Design

Generic photo used for illustration purposes only

Model No.	ZC4PD-E18673+
Case Style	UU2413-5
Connectors	1.85mm Female

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

APPLICATIONS

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

PRODUCT OVERVIEW

Mini-Circuits' ZC4PD-E18673+ is a wideband 4-way 0˚ power splitter/combiner. It provides coverage from 18 to 67 GHz, (Ka band & V band) supporting a wide range of spplications 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 ZC4PD-E18673+ comes housed in a case measuring 1.00 x 2.04 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, 2 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, 32 dB typ	Minimizes interference between ports
High power handling: • 12W as a splitter at 25°C • 1.2W as a combiner at 25°C	The ZC4PD-E18673+ is suitable for systems with a wide range of power requirements
Low amplitude unbalance, 0.2 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
ZC4PD-E18673+
MCL NY
221129

COAXIAL

Power Splitter/Combiner ZC4PD-E18673+

50Ω 4 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 6.0dB per port)		18 - 40		1.4	2.4	dB
		40 - 50		2.0	2.9	
		50 - 67		2.7	3.8	
Isolation		18 - 40	16	30		dB
		40 - 50	16	33		
		50 - 67	16	33		
Phase Unbalance (±)[1]		18 - 40		3		Degree
		40 - 50		5		
		50 - 67		6		
Amplitude Unbalance (±)[1]		18 - 40		0.1	0.5	dB
		40 - 50		0.2	0.7	
		50 - 67		0.2	0.9	
VSWR (Port S)		18 - 40		1.20	1.7	:1
		40 - 50		1.17	1.8	
		50 - 67		1.17	1.9	
VSWR (Port 1-4)		18 - 40		1.18	1.7	:1
		40 - 50		1.15	1.8	
		50 - 67		1.11	1.9	
Power Handling	As Splitter[1]				12	W
	As Combiner[2]				1.2	

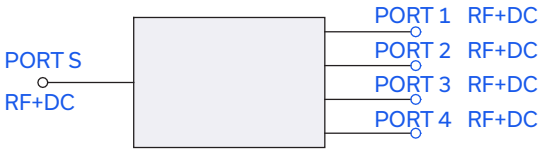
1. All outputs must be terminated with 50 ohm (VSWR 1.5:1 or better)
2. As a combiner of non-coherent signals, max. power per port is 0.3 watt

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



Power Splitter/Combiner ZC4PD-E18673+

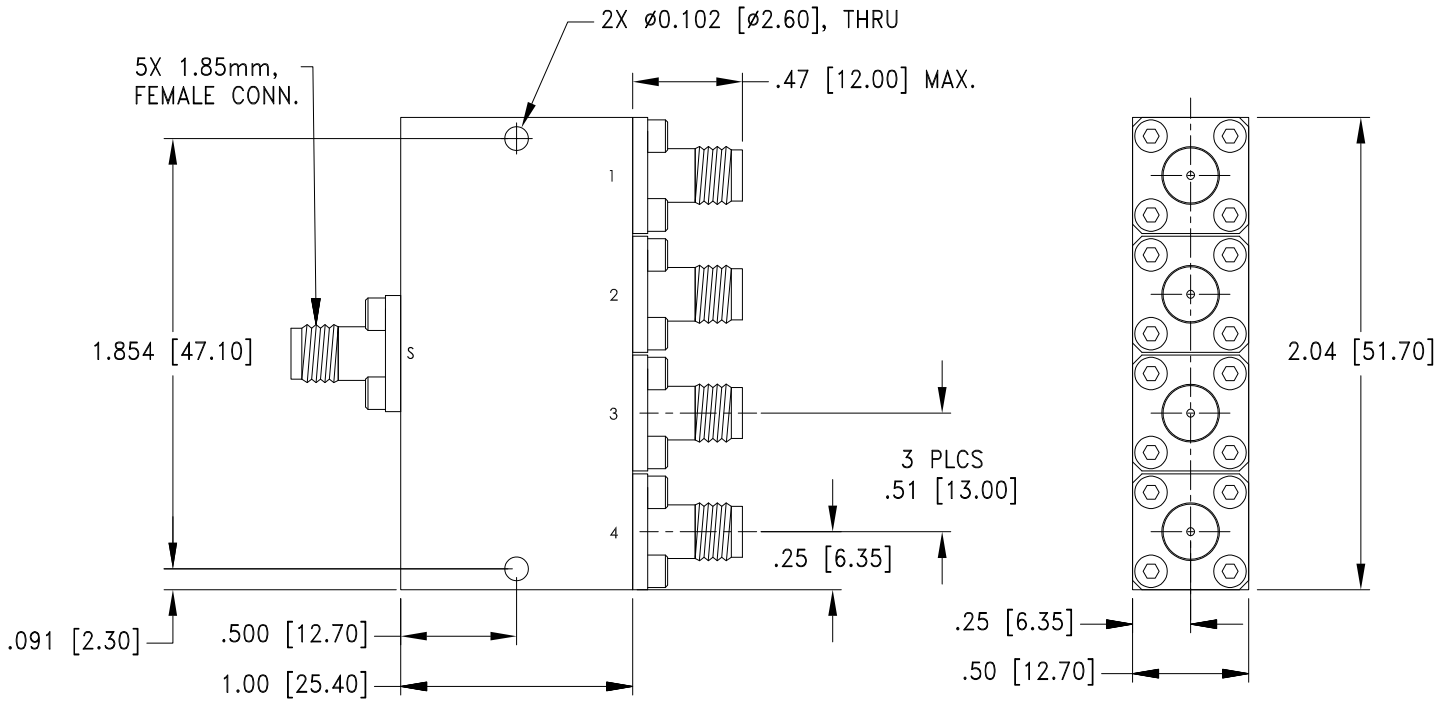
50Ω 4 Way-0° 18 to 67 GHz 12W 1.85mm Female

COAXIAL CONNECTIONS

Input / Output[1]	S
Output / Input [1]	1-4

Note1: Unit is bi-directional design

OUTLINE DRAWING

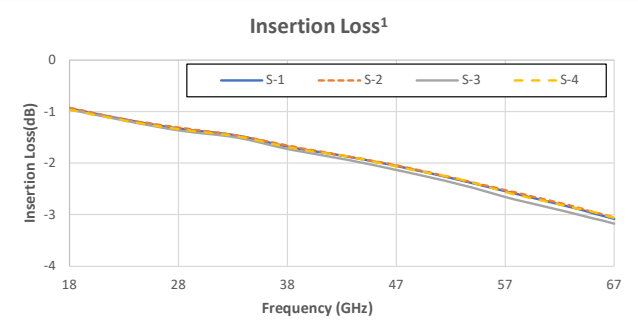


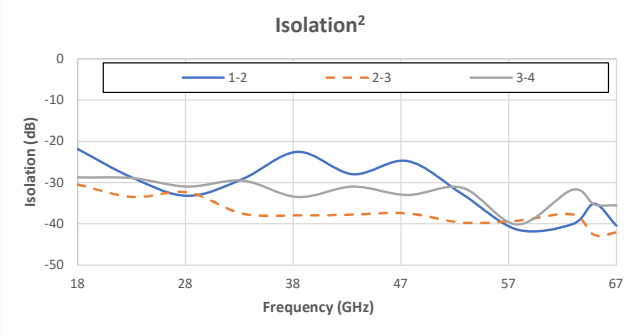
Dimensions are in inches (mm). Tolerances: 2 Pl. + .03; 3 Pl. + .015
Weight: 70 grams

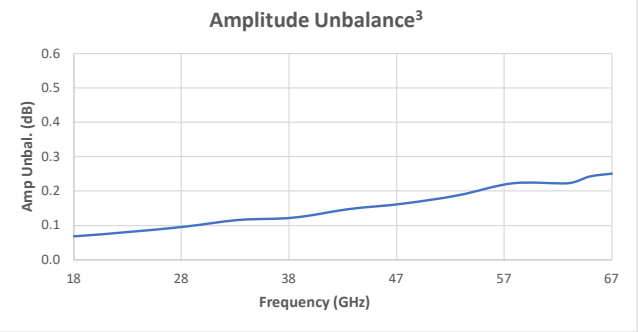
Power Splitter/Combiner ZC4PD-E18673+

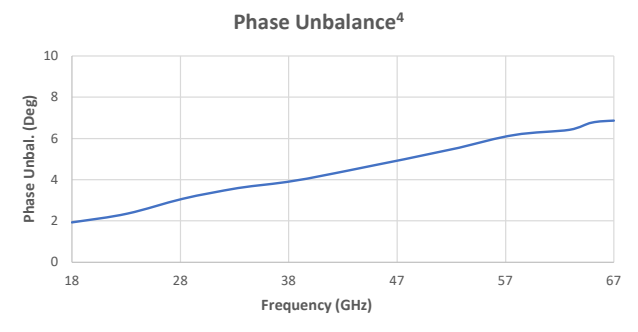
50Ω 4 Way-0° 18 to 67 GHz 12W 1.85mm Female

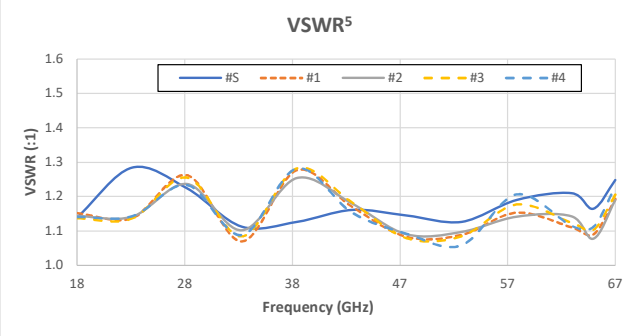
TYPICAL PERFORMANCE CURVES











Note:
1. Insertion loss is loss above theoretical loss (6dB)
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

4 Way-0° Power Splitter/Combiner ZC4PD-E18673+

Typical Performance Data

Data tested at 25DegC

FREQ. (GHz)	INSERTION LOSS[1] (dB)				AMP. UNBAL.[2] (dB)	ISOLATION[3] (dB)			PHASE UNBAL.[4] (deg.)	VSWR[5] (:1)				
	S-1	S-2	S-3	S-4		1-2	2-3	3-4		S	1	2	3	4
18	0.9	0.9	1.0	1.0	0.1	30	30	29	2	1.14	1.15	1.14	1.14	1.14
19	1.0	1.0	1.0	1.0	0.1	29	31	30	2	1.13	1.16	1.15	1.16	1.16
20	1.0	1.0	1.1	1.1	0.1	32	32	31	2	1.22	1.19	1.18	1.18	1.18
21	1.1	1.0	1.1	1.1	0.1	23	32	23	2	1.19	1.08	1.08	1.09	1.08
22	1.1	1.1	1.2	1.2	0.1	25	33	25	2	1.28	1.10	1.10	1.10	1.10
23	1.2	1.2	1.2	1.2	0.1	29	33	29	2	1.28	1.14	1.14	1.14	1.14
24	1.1	1.1	1.2	1.1	0.1	25	33	25	3	1.11	1.14	1.14	1.13	1.13
25	1.2	1.2	1.3	1.3	0.1	30	32	30	3	1.26	1.28	1.27	1.26	1.25
26	1.3	1.3	1.3	1.3	0.1	33	31	34	3	1.20	1.30	1.29	1.28	1.27
27	1.3	1.3	1.4	1.4	0.1	31	31	31	3	1.30	1.29	1.27	1.27	1.25
28	1.3	1.3	1.4	1.3	0.1	30	32	31	3	1.22	1.26	1.24	1.26	1.23
29	1.4	1.3	1.4	1.3	0.1	32	33	32	3	1.21	1.17	1.15	1.17	1.17
30	1.4	1.4	1.4	1.4	0.1	28	35	28	3	1.22	1.08	1.07	1.09	1.09
31	1.4	1.4	1.4	1.4	0.1	34	37	33	3	1.13	1.06	1.07	1.06	1.08
32	1.4	1.4	1.5	1.4	0.1	28	41	29	3	1.20	1.08	1.09	1.07	1.06
33	1.5	1.5	1.5	1.5	0.1	29	38	30	4	1.11	1.07	1.10	1.08	1.09
34	1.5	1.5	1.6	1.5	0.1	31	35	31	4	1.14	1.15	1.14	1.14	1.12
35	1.6	1.6	1.7	1.6	0.1	33	35	35	4	1.24	1.24	1.23	1.25	1.23
36	1.6	1.6	1.7	1.6	0.1	31	35	31	4	1.16	1.30	1.27	1.29	1.27
37	1.7	1.7	1.8	1.7	0.1	36	36	33	4	1.32	1.35	1.33	1.35	1.34
38	1.7	1.7	1.7	1.7	0.1	32	38	34	4	1.13	1.28	1.25	1.28	1.28
39	1.7	1.7	1.8	1.7	0.1	33	38	32	4	1.19	1.20	1.19	1.21	1.21
40	1.8	1.8	1.8	1.8	0.1	31	37	32	4	1.21	1.16	1.15	1.16	1.15
41	1.8	1.8	1.8	1.8	0.1	34	37	37	4	1.12	1.09	1.11	1.08	1.08
42	1.9	1.9	1.9	1.9	0.1	29	36	29	4	1.25	1.14	1.16	1.14	1.13
43	1.9	1.9	1.9	1.9	0.1	30	38	31	4	1.16	1.17	1.18	1.18	1.15
44	1.9	1.9	2.0	1.9	0.1	33	39	32	5	1.12	1.23	1.23	1.25	1.21
45	2.0	2.0	2.1	2.0	0.1	33	40	34	5	1.28	1.27	1.25	1.27	1.23
46	2.0	2.0	2.1	2.0	0.2	31	38	32	5	1.18	1.22	1.20	1.22	1.19
47	2.0	2.0	2.1	2.0	0.2	36	38	37	5	1.17	1.14	1.13	1.14	1.12
48	2.1	2.1	2.2	2.1	0.2	32	37	33	5	1.14	1.08	1.09	1.08	1.09
49	2.1	2.1	2.2	2.1	0.2	35	37	36	5	1.14	1.08	1.10	1.09	1.11
50	2.2	2.2	2.2	2.2	0.2	33	37	32	5	1.12	1.08	1.11	1.08	1.11
51	2.2	2.2	2.3	2.3	0.2	30	38	30	5	1.14	1.09	1.10	1.10	1.10
52	2.3	2.3	2.4	2.3	0.2	31	39	31	5	1.14	1.06	1.09	1.08	1.10
53	2.3	2.3	2.4	2.3	0.2	31	40	31	6	1.13	1.09	1.10	1.08	1.06
54	2.4	2.4	2.5	2.4	0.2	32	38	32	6	1.11	1.10	1.11	1.11	1.10
55	2.4	2.4	2.5	2.4	0.2	29	38	30	6	1.15	1.15	1.16	1.17	1.15
56	2.5	2.5	2.6	2.5	0.2	39	38	39	6	1.31	1.20	1.22	1.22	1.24
57	2.5	2.5	2.6	2.5	0.2	31	38	31	6	1.13	1.11	1.13	1.17	1.17
58	2.6	2.6	2.7	2.6	0.2	38	39	40	6	1.19	1.15	1.14	1.18	1.21
59	2.6	2.6	2.8	2.7	0.2	30	38	30	6	1.21	1.09	1.09	1.11	1.13
60	2.7	2.7	2.8	2.7	0.2	36	38	35	6	1.16	1.10	1.11	1.15	1.15
61	2.7	2.7	2.8	2.7	0.2	30	36	29	6	1.20	1.11	1.13	1.14	1.14
62	2.8	2.8	2.9	2.8	0.2	37	36	35	6	1.20	1.11	1.13	1.15	1.13
63	2.8	2.8	3.0	2.8	0.2	31	38	32	6	1.21	1.11	1.14	1.12	1.11
64	2.9	2.9	3.0	2.9	0.2	37	41	37	7	1.16	1.10	1.11	1.09	1.08
65	3.0	2.9	3.1	2.9	0.2	35	43	35	7	1.16	1.09	1.08	1.10	1.11
66	3.0	3.0	3.1	3.0	0.2	37	44	36	7	1.18	1.12	1.12	1.16	1.18
67	3.1	3.0	3.2	3.1	0.3	34	42	36	7	1.25	1.19	1.19	1.21	1.23

1. Insertion loss is loss above theoretical loss (6dB)

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

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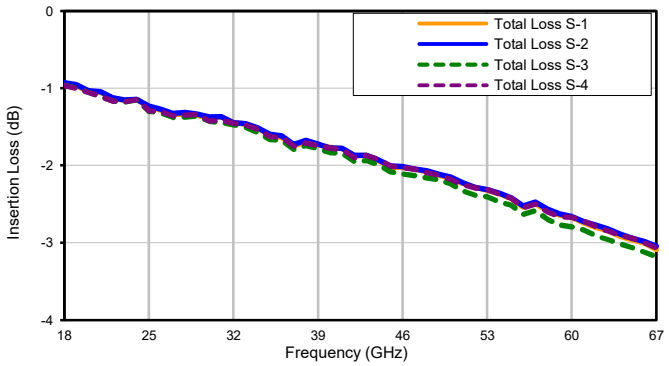
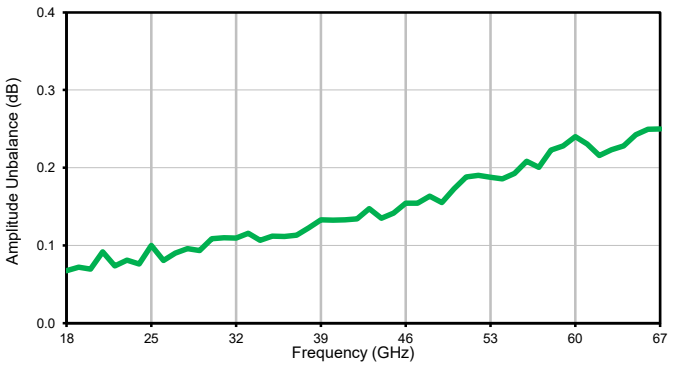
4 Way-0° Power Splitter/Combiner ZC4PD-E18673+

Typical Performance Curves

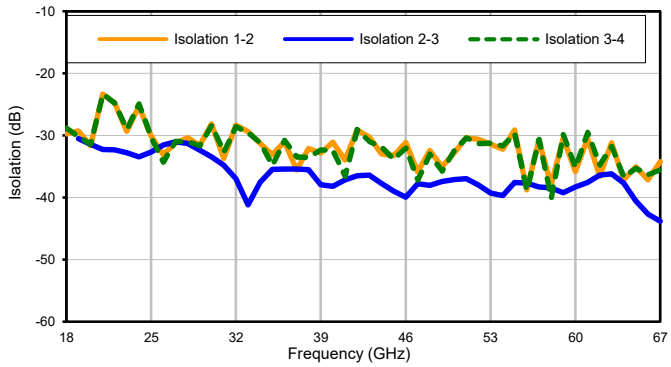
Insertion Loss[1]



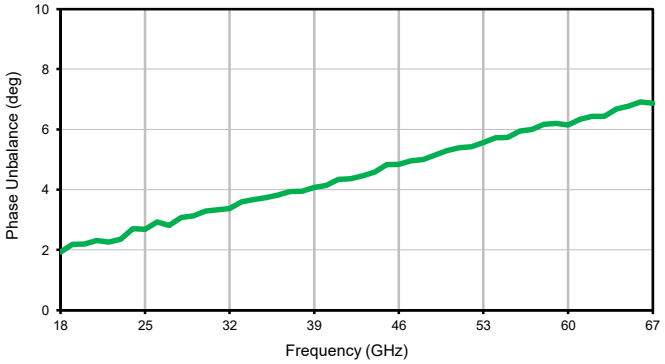
Amplitude Unbalance[2]



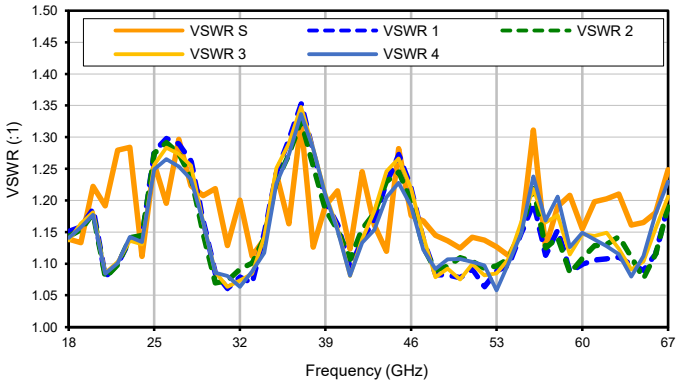
Isolation[3]



Phase Unbalance[4]



VSWR[5]



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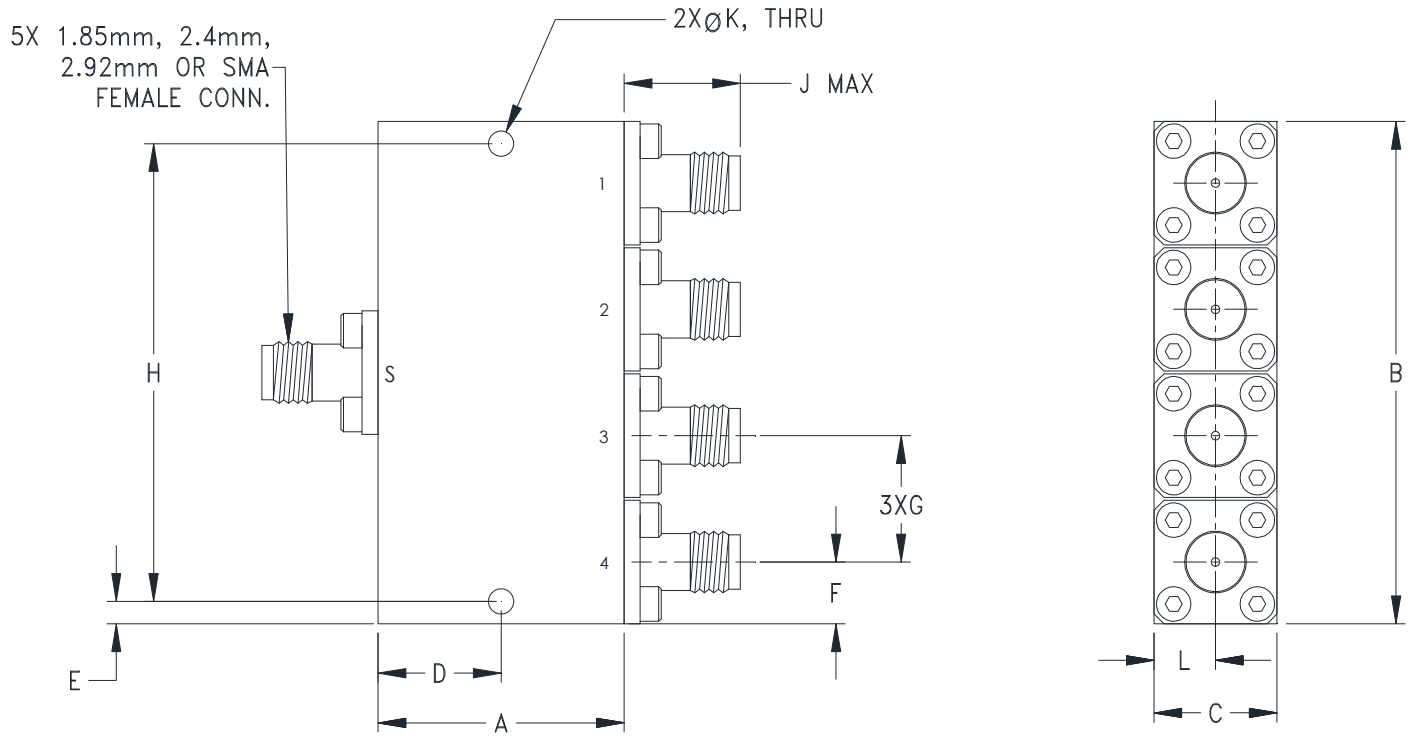
Case Style UU

Outline Dimension

UU2413-5



CASE#	A	B	C	D	E	F	G	H	J	K	L
UU2413-5	1.00 (25.40)	2.04 (51.70)	.50 (12.70)	.500 (12.70)	.091 (2.30)	.25 (6.35)	.51 (13.0)	1.854 (47.10)	.47 (12.0)	.102 (2.60)	.25 (6.35)

CASE#	WT. GRAMS
UU2413-5	70

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 : Nickel Plating.

Mini-Circuits

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