Coaxial

High Power Combiner

ZA3CS-400-3W+
ZA3CS-400-3W

3 Way-0° 50Ω 2 to 400 MHz

SMA version shown

CASE STYLE: CC51

Connectors	Model
BNC	ZA3CS-400-3W(+)
N-TYPE	ZA3CS-400-3W-N(+)
SMA	ZA3CS-400-3W-S+

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-55°C to 90°C
Storage Temperature	-55°C to 100°C

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

Coaxial Connections

SUM PORT	S
PORT 1	1
PORT 2	2
PORT 3	3

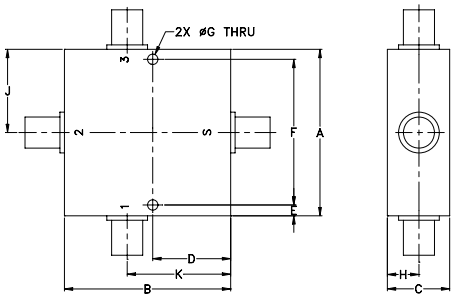
Features

- wideband, 2 to 400 MHz
- low insertion loss, 0.5 dB typ.
- good isolation, 25 dB typ.
- very low amplitude, 0.15 dB typ. and phase unbalance, 0.2 deg. typ.

Applications

- VHF/UHF
- communication receivers & transmitters

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F
2.00	2.00	.75	.938	.13	1.750
50.80	50.80	19.05	23.83	3.30	44.45

G	H	J	K	wt
.125	.38	1.00	1.25	grams
3.18	9.65	25.40	31.75	200.0

High Power Combiner Electrical Specifications

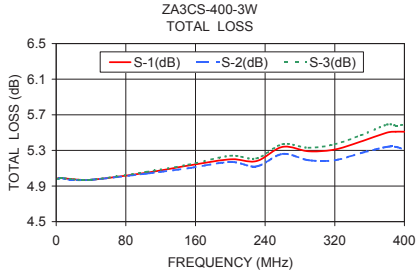
FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) ABOVE 4.8 dB		PHASE UNBALANCE (Degrees)		AMPLITUDE UNBALANCE (dB)		POWER INPUT[1] (W)	
									as combiner[2]	as splitter
f_L-f_U	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.
2-400	25	17	0.5	1.2	0.2	3.0	0.15	0.5	3	10

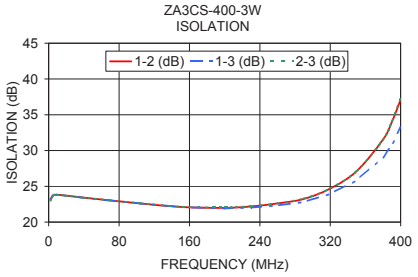
1. Over -55°C to +55°C. Derate linearly to 20% of rating at 90°C
2. As a combiner of non-coherent signals, max. power per port is power rating divided by number of ports.

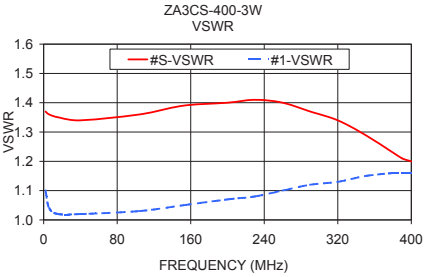
Typical Performance Data

Freq. (MHz)	Total Loss[1] (dB)			Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3
	S-1	S-2	S-3		1-2	1-3	2-3					
2.00	4.99	4.98	4.98	0.01	23.18	23.18	23.02	0.06	1.37	1.10	1.10	1.11
6.00	4.99	4.99	4.99	0.00	23.80	23.80	23.77	0.11	1.36	1.04	1.04	1.04
16.00	4.98	4.97	4.98	0.01	23.75	23.73	23.74	0.05	1.35	1.02	1.02	1.02
40.00	4.97	4.97	4.97	0.01	23.42	23.38	23.41	0.19	1.34	1.02	1.01	1.01
104.00	5.05	5.04	5.06	0.02	22.61	22.61	22.63	0.50	1.36	1.03	1.03	1.03
152.00	5.13	5.10	5.14	0.05	22.10	22.09	22.13	0.72	1.39	1.05	1.05	1.05
200.00	5.20	5.17	5.24	0.07	21.99	21.91	22.04	0.85	1.40	1.07	1.08	1.08
230.00	5.18	5.12	5.21	0.09	22.19	22.03	22.22	0.98	1.41	1.08	1.10	1.10
260.00	5.34	5.26	5.37	0.11	22.61	22.32	22.62	1.18	1.40	1.10	1.12	1.12
290.00	5.29	5.19	5.33	0.14	23.24	22.81	23.29	1.13	1.37	1.12	1.14	1.14
320.00	5.31	5.19	5.37	0.18	24.69	23.95	24.71	1.21	1.34	1.13	1.17	1.16
350.00	5.40	5.27	5.47	0.20	27.12	25.85	27.11	1.31	1.29	1.15	1.19	1.17
380.00	5.50	5.34	5.59	0.25	31.55	29.07	31.52	1.52	1.23	1.16	1.21	1.19
390.00	5.51	5.34	5.58	0.24	34.00	30.80	34.05	1.50	1.21	1.16	1.22	1.19
400.00	5.51	5.31	5.59	0.28	37.10	33.25	37.43	1.53	1.20	1.16	1.23	1.20

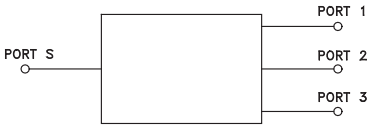
1. Total Loss = Insertion Loss + 4.8dB splitter loss.







electrical schematic



Notes

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3 Way-0° Power Splitter/Combiner ZA3CS-400-3W+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS[1] (dB)			AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)
	S-1	S-2	S-3		1-2	1-3	2-3	
2.0	4.99	4.98	4.98	0.01	23.18	23.18	23.02	0.06
4.0	5.00	4.99	5.00	0.01	23.68	23.69	23.62	0.10
6.0	4.99	4.99	4.99	0.00	23.80	23.80	23.77	0.11
8.0	5.00	5.00	4.99	0.01	23.83	23.82	23.82	0.11
10.0	5.00	4.99	4.99	0.01	23.83	23.81	23.81	0.02
12.0	4.98	4.99	4.98	0.00	23.81	23.79	23.80	0.09
14.0	4.99	4.97	4.98	0.02	23.78	23.76	23.77	0.06
16.0	4.98	4.97	4.98	0.01	23.75	23.73	23.74	0.05
18.0	4.96	4.97	4.97	0.00	23.73	23.68	23.72	0.09
20.0	4.97	4.97	4.97	0.00	23.69	23.67	23.69	0.10
40.0	4.97	4.97	4.97	0.01	23.42	23.38	23.41	0.19
56.0	4.99	4.98	4.98	0.00	23.19	23.19	23.19	0.31
72.0	5.03	5.02	5.03	0.01	23.00	22.99	22.99	0.35
88.0	5.04	5.04	5.06	0.02	22.79	22.81	22.81	0.43
104.0	5.05	5.04	5.06	0.02	22.61	22.61	22.63	0.50
120.0	5.08	5.06	5.08	0.02	22.44	22.45	22.46	0.61
136.0	5.11	5.09	5.10	0.02	22.26	22.26	22.27	0.67
152.0	5.13	5.10	5.14	0.05	22.10	22.09	22.13	0.72
168.0	5.17	5.13	5.18	0.06	21.99	21.96	22.04	0.69
184.0	5.20	5.15	5.22	0.07	21.95	21.90	21.99	0.79
200.0	5.20	5.17	5.24	0.07	21.99	21.91	22.04	0.85
210.0	5.19	5.15	5.22	0.07	22.04	21.92	22.07	0.88
220.0	5.18	5.12	5.20	0.08	22.10	21.98	22.14	0.96
230.0	5.18	5.12	5.21	0.09	22.19	22.03	22.22	0.98
240.0	5.24	5.16	5.26	0.10	22.31	22.12	22.35	1.08
250.0	5.28	5.21	5.32	0.10	22.43	22.21	22.48	1.07
260.0	5.34	5.26	5.37	0.11	22.61	22.32	22.62	1.18
270.0	5.35	5.26	5.39	0.14	22.76	22.46	22.78	1.12
280.0	5.33	5.22	5.36	0.14	22.97	22.60	23.00	1.07
290.0	5.29	5.19	5.33	0.14	23.24	22.81	23.29	1.13
300.0	5.27	5.17	5.32	0.15	23.62	23.09	23.64	1.23
310.0	5.30	5.18	5.34	0.17	24.11	23.47	24.13	1.23
320.0	5.31	5.19	5.37	0.18	24.69	23.95	24.71	1.21
330.0	5.34	5.22	5.40	0.18	25.39	24.49	25.40	1.25
340.0	5.39	5.25	5.44	0.19	26.18	25.11	26.19	1.35
350.0	5.40	5.27	5.47	0.20	27.12	25.85	27.11	1.31
360.0	5.44	5.29	5.52	0.23	28.26	26.69	28.23	1.38
370.0	5.48	5.34	5.56	0.22	29.70	27.73	29.67	1.52
380.0	5.50	5.34	5.59	0.25	31.55	29.07	31.52	1.52
390.0	5.51	5.34	5.58	0.24	34.00	30.80	34.05	1.50
400.0	5.51	5.31	5.59	0.28	37.10	33.25	37.43	1.53

FREQ. (MHz)	VSWR (:1)			
	S	1	2	3
2.0	1.37	1.10	1.10	1.11
4.0	1.36	1.06	1.06	1.06
6.0	1.36	1.04	1.04	1.04
8.0	1.36	1.03	1.03	1.03
10.0	1.35	1.03	1.03	1.03
12.0	1.35	1.02	1.02	1.02
14.0	1.35	1.02	1.02	1.02
16.0	1.35	1.02	1.02	1.02
18.0	1.35	1.02	1.02	1.02
20.0	1.35	1.02	1.02	1.02
40.0	1.34	1.02	1.01	1.01
56.0	1.35	1.02	1.02	1.02
72.0	1.35	1.02	1.02	1.02
88.0	1.36	1.02	1.02	1.02
104.0	1.36	1.03	1.03	1.03
120.0	1.37	1.03	1.04	1.04
136.0	1.38	1.04	1.04	1.04
152.0	1.39	1.05	1.05	1.05
168.0	1.40	1.05	1.06	1.06
184.0	1.40	1.06	1.07	1.07
200.0	1.40	1.07	1.08	1.08
210.0	1.41	1.07	1.09	1.08
220.0	1.41	1.08	1.09	1.09
230.0	1.41	1.08	1.10	1.10
240.0	1.40	1.09	1.11	1.10
250.0	1.40	1.09	1.11	1.11
260.0	1.40	1.10	1.12	1.12
270.0	1.39	1.11	1.13	1.12
280.0	1.38	1.11	1.14	1.13
290.0	1.37	1.12	1.14	1.14
300.0	1.36	1.12	1.15	1.14
310.0	1.35	1.13	1.16	1.15
320.0	1.34	1.13	1.17	1.16
330.0	1.32	1.14	1.18	1.16
340.0	1.30	1.14	1.18	1.17
350.0	1.29	1.15	1.19	1.17
360.0	1.27	1.15	1.20	1.18
370.0	1.25	1.15	1.21	1.19
380.0	1.23	1.16	1.21	1.19
390.0	1.21	1.16	1.22	1.19
400.0	1.20	1.16	1.23	1.20

[1] Total Loss = Insertion Loss+ 4.8dB Splitter Loss

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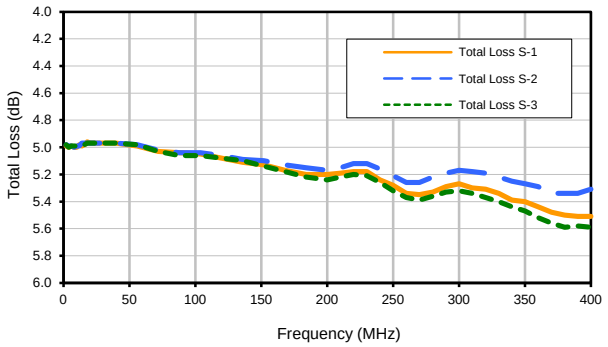
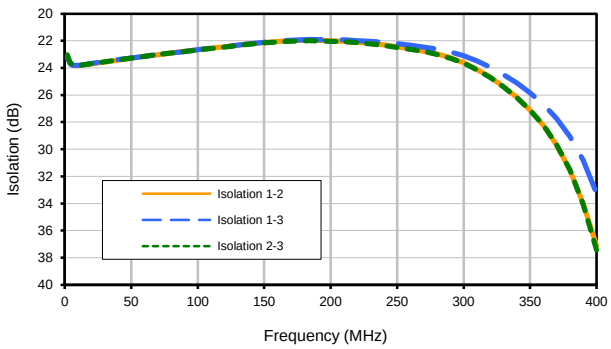
3 Way-0° Power Splitter/Combiner ZA3CS-400-3W+

Typical Performance Curves

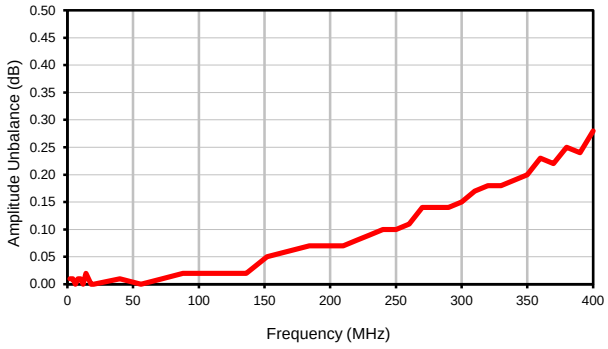
Total Loss



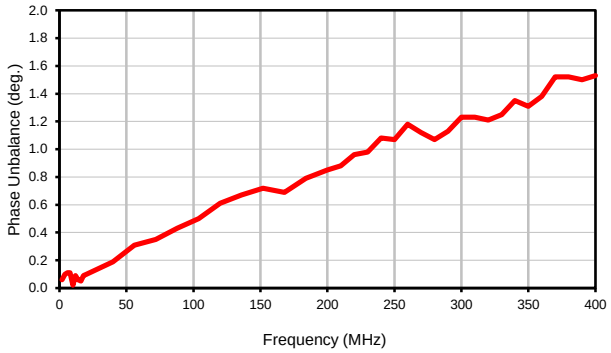
Isolation



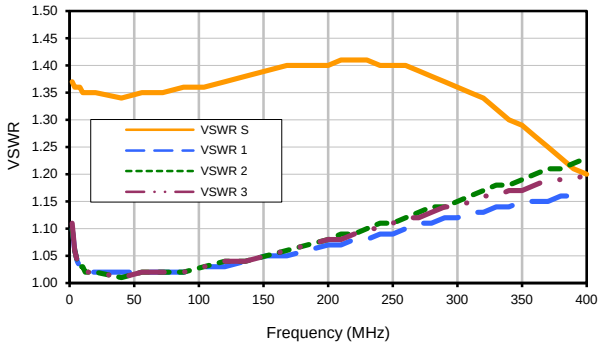
Amplitude Unbalance



Phase Unbalance



VSWR



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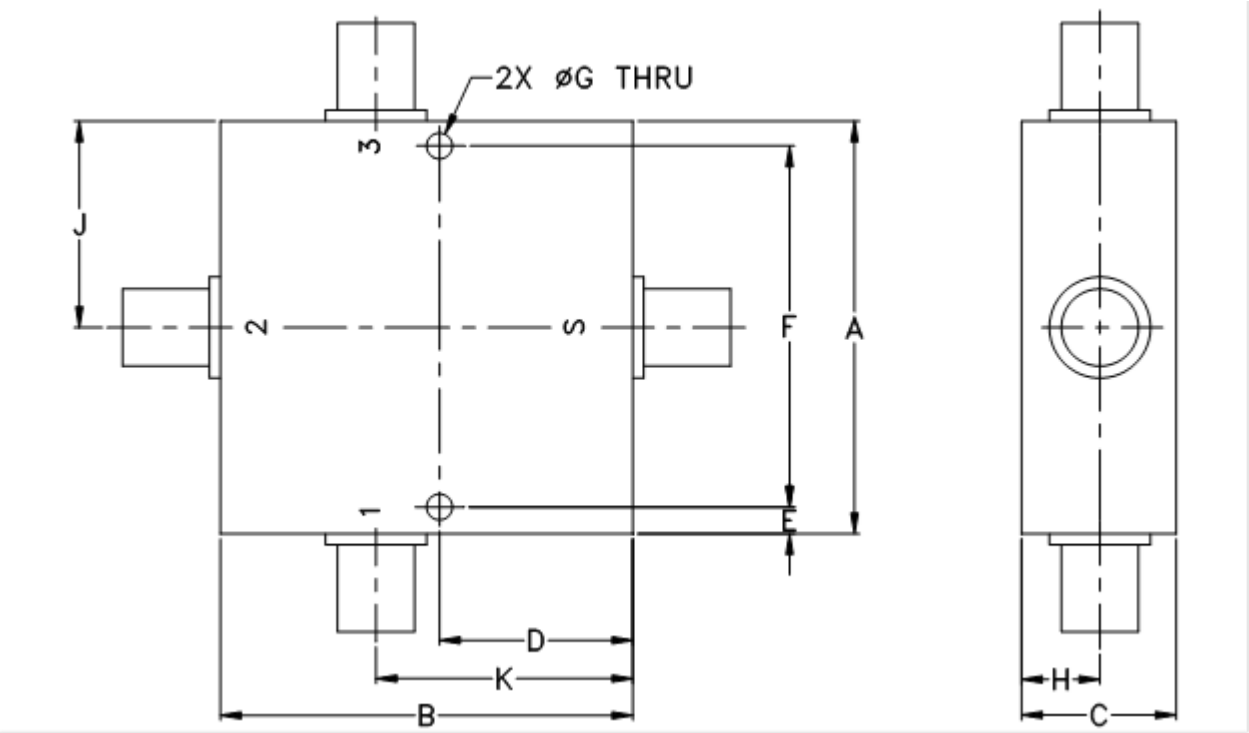
Case Style CC

Outline Dimensions

CC51



CASE#	A	B	C	D	E	F	G	H	J	K	WT. GRAMS
CC51	2.00 (50.80)	2.00 (50.80)	.75 (19.05)	.938 (23.83)	.13 (3.30)	1.750 (44.45)	.125 (3.17)	.38 (9.65)	1.00 (25.40)	1.25 (31.75)	200

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: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Refer to the individual model data sheet for the type of connectors available.

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Environmental Specifications **ENV28T9**

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 90° 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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