

# Coaxial Power Splitter/Combiner

## ZFSC-3-1+

3 Way-0° 50Ω 1 to 500 MHz



Generic photo used for illustration purposes only

### Maximum Ratings

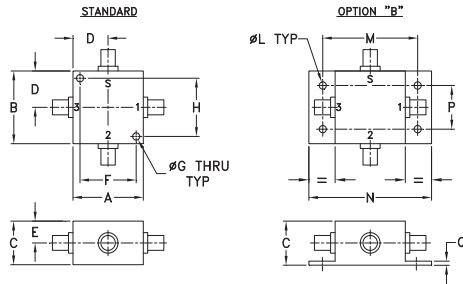
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	1W max.
Internal Dissipation	0.375W max.

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

### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	
1.25	1.25	.75	.63	.38	1.000	.125	1.000	
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40	
J	K	L	M	N	P	Q	wt	
--	--	.125	1.688	2.18	.75	.07	grams	
--	--	3.18	42.88	55.37	19.05	1.78	75.0	

For option B with N-Type connectors, dimension "C" increases to 0.94 inches.

### Features

- wideband, 1 to 500 MHz
- low insertion loss, 0.5 dB typ.
- high isolation, 30 dB typ.
- rugged, shielded case

### Applications

- VHF/UHF
- instrumentation
- communication system

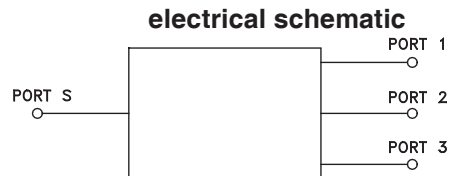
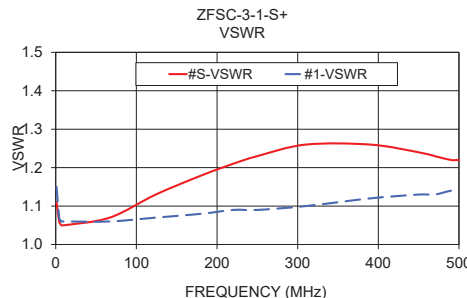
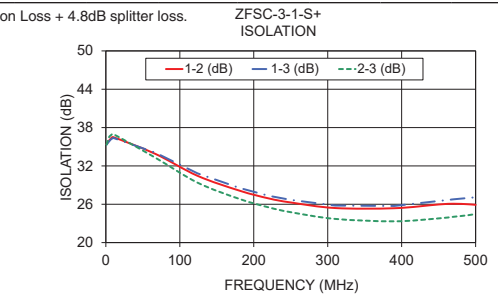
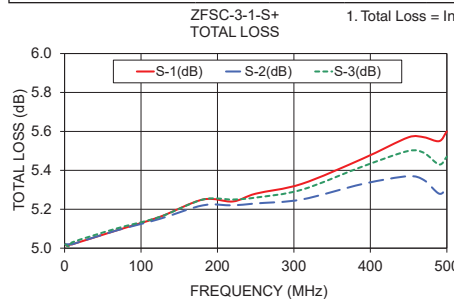
### Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 4.8 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L	M	U	L	M	U
$f_L$ - $f_U$	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
1-500	30	20	30	20	25	18	0.4	0.75	0.5	0.9	0.8	1.2	2.0	3.0	4.0	0.2	0.3	0.4

L = low range [ $f_L$  to 10  $f_L$ ] M = mid range [10  $f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]

### Typical Performance Data

Freq. (MHz)	Total Loss <sup>1</sup> (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					
1.00	5.02	5.02	5.02	0.00	35.42	35.35	35.32	0.03	1.11	1.15	1.15	1.15
4.20	5.01	5.02	5.01	0.01	35.93	35.81	36.47	0.03	1.06	1.07	1.07	1.07
7.00	5.02	5.02	5.01	0.00	36.31	36.18	36.81	0.07	1.05	1.06	1.06	1.06
10.00	5.02	5.02	5.03	0.01	36.50	36.38	36.98	0.10	1.05	1.06	1.06	1.06
67.00	5.09	5.09	5.10	0.01	33.88	34.07	33.28	0.56	1.07	1.06	1.06	1.07
124.00	5.16	5.15	5.16	0.01	30.45	30.83	29.38	1.09	1.13	1.07	1.08	1.08
181.00	5.25	5.22	5.25	0.02	28.12	28.54	26.82	1.49	1.18	1.08	1.09	1.10
220.00	5.24	5.22	5.25	0.03	26.92	27.33	25.52	1.71	1.21	1.09	1.10	1.11
250.00	5.28	5.23	5.26	0.06	26.28	26.69	24.76	1.91	1.23	1.09	1.11	1.12
310.00	5.33	5.25	5.30	0.08	25.41	25.80	23.71	2.16	1.26	1.10	1.12	1.15
390.00	5.46	5.33	5.42	0.14	25.38	25.74	23.33	2.50	1.26	1.12	1.13	1.17
450.00	5.57	5.37	5.50	0.20	25.97	26.51	23.79	2.80	1.24	1.13	1.12	1.19
470.00	5.57	5.35	5.49	0.22	26.08	26.78	24.04	3.14	1.23	1.13	1.12	1.19
490.00	5.55	5.28	5.43	0.27	26.00	26.98	24.29	3.41	1.22	1.14	1.12	1.19
500.00	5.60	5.31	5.47	0.29	25.91	27.09	24.49	3.49	1.22	1.14	1.12	1.19



### Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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/WCLStore/terms.jsp](http://www.minicircuits.com/WCLStore/terms.jsp)



# 3 Way-0° Power Splitter/Combiner

# ZFSC-3-1+

## Typical Performance Data

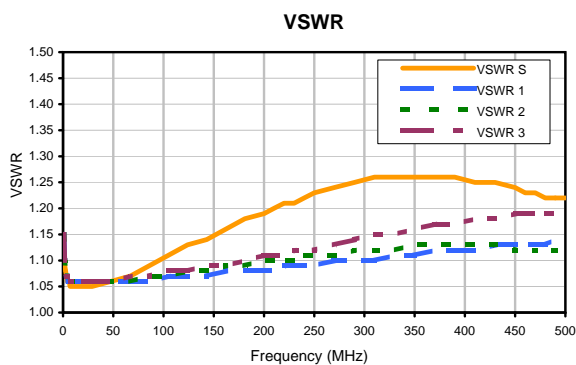
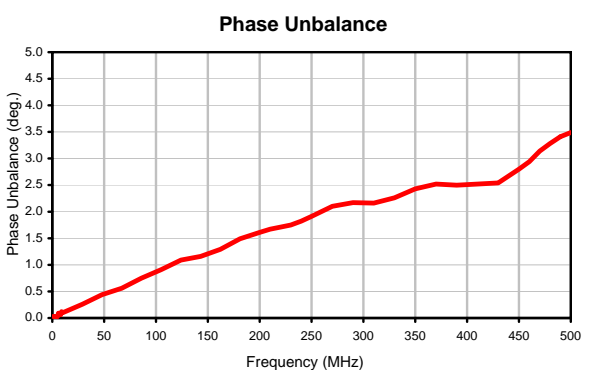
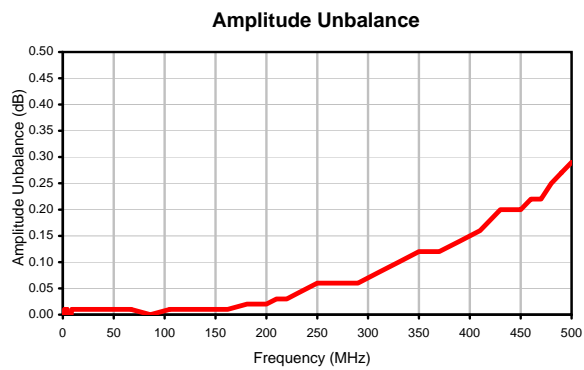
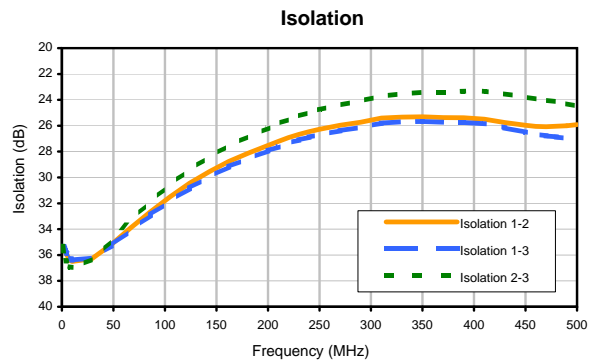
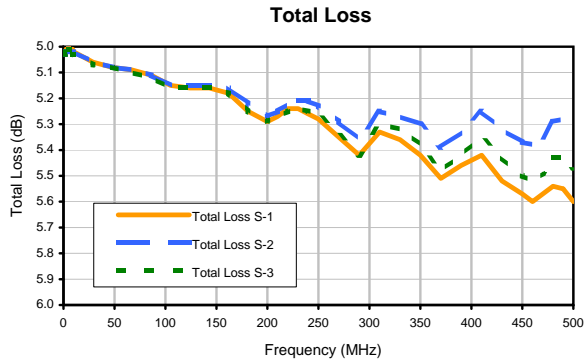
FREQ. (MHz)	TOTAL LOSS <sup>1</sup> (dB)			AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)			
	S-1	S-2	S-3		1-2	1-3	2-3			S	1	2	3
1.0	5.02	5.02	5.02	0.00	35.42	35.35	35.32	0.03	1.0	1.11	1.15	1.15	1.15
1.8	5.02	5.03	5.03	0.01	35.45	35.33	35.82	0.03	1.8	1.09	1.10	1.10	1.10
2.6	5.01	5.02	5.02	0.01	35.57	35.46	36.10	0.01	2.6	1.08	1.08	1.08	1.08
3.4	5.01	5.02	5.01	0.00	35.75	35.63	36.28	0.00	3.4	1.07	1.07	1.07	1.07
4.2	5.01	5.02	5.01	0.01	35.93	35.81	36.47	0.03	4.2	1.06	1.07	1.07	1.07
5.0	5.00	5.01	5.01	0.00	36.01	35.89	36.56	0.03	5.0	1.06	1.06	1.06	1.07
6.0	5.01	5.01	5.01	0.00	36.18	36.06	36.72	0.09	6.0	1.06	1.06	1.06	1.06
7.0	5.02	5.02	5.01	0.00	36.31	36.18	36.81	0.07	7.0	1.05	1.06	1.06	1.06
8.0	5.02	5.02	5.02	0.00	36.43	36.27	36.90	0.06	8.0	1.05	1.06	1.06	1.06
9.0	5.01	5.03	5.03	0.01	36.46	36.31	36.96	0.12	9.0	1.05	1.06	1.06	1.06
10.0	5.02	5.02	5.03	0.01	36.50	36.38	36.98	0.10	10.0	1.05	1.06	1.06	1.06
29.0	5.06	5.06	5.07	0.01	36.29	36.24	36.32	0.26	29.0	1.05	1.06	1.06	1.06
48.0	5.08	5.08	5.08	0.01	35.19	35.26	34.86	0.44	48.0	1.06	1.06	1.06	1.06
67.0	5.09	5.09	5.10	0.01	33.88	34.07	33.28	0.56	67.0	1.07	1.06	1.06	1.07
86.0	5.11	5.11	5.12	0.00	32.65	32.90	31.84	0.75	86.0	1.09	1.06	1.07	1.07
105.0	5.15	5.15	5.16	0.01	31.50	31.82	30.55	0.91	105.0	1.11	1.07	1.07	1.08
124.0	5.16	5.15	5.16	0.01	30.45	30.83	29.38	1.09	124.0	1.13	1.07	1.08	1.08
143.0	5.16	5.15	5.16	0.01	29.55	29.96	28.40	1.16	143.0	1.14	1.07	1.08	1.09
162.0	5.18	5.16	5.18	0.01	28.76	29.17	27.53	1.29	162.0	1.16	1.08	1.09	1.09
181.0	5.25	5.22	5.25	0.02	28.12	28.54	26.82	1.49	181.0	1.18	1.08	1.09	1.10
200.0	5.29	5.27	5.29	0.02	27.53	27.93	26.18	1.61	200.0	1.19	1.08	1.10	1.11
210.0	5.27	5.25	5.27	0.03	27.21	27.63	25.83	1.67	210.0	1.20	1.08	1.10	1.11
220.0	5.24	5.22	5.25	0.03	26.92	27.33	25.52	1.71	220.0	1.21	1.09	1.10	1.11
230.0	5.24	5.21	5.24	0.04	26.67	27.10	25.25	1.75	230.0	1.21	1.09	1.10	1.12
240.0	5.26	5.21	5.25	0.05	26.46	26.88	24.98	1.82	240.0	1.22	1.09	1.11	1.12
250.0	5.28	5.23	5.26	0.06	26.28	26.69	24.76	1.91	250.0	1.23	1.09	1.11	1.12
270.0	5.35	5.29	5.34	0.06	25.97	26.38	24.40	2.10	270.0	1.24	1.10	1.11	1.13
290.0	5.42	5.36	5.42	0.06	25.73	26.12	24.09	2.17	290.0	1.25	1.10	1.12	1.14
310.0	5.33	5.25	5.30	0.08	25.41	25.80	23.71	2.16	310.0	1.26	1.10	1.12	1.15
330.0	5.36	5.27	5.32	0.10	25.34	25.69	23.53	2.26	330.0	1.26	1.11	1.12	1.15
350.0	5.42	5.30	5.38	0.12	25.31	25.67	23.41	2.43	350.0	1.26	1.11	1.13	1.16
370.0	5.51	5.39	5.48	0.12	25.37	25.73	23.40	2.52	370.0	1.26	1.12	1.13	1.17
390.0	5.46	5.33	5.42	0.14	25.38	25.74	23.33	2.50	390.0	1.26	1.12	1.13	1.17
410.0	5.42	5.25	5.35	0.16	25.49	25.85	23.33	2.52	410.0	1.25	1.12	1.13	1.18
430.0	5.52	5.32	5.43	0.20	25.75	26.16	23.53	2.54	430.0	1.25	1.13	1.13	1.18
450.0	5.57	5.37	5.50	0.20	25.97	26.51	23.79	2.80	450.0	1.24	1.13	1.12	1.19
460.0	5.60	5.38	5.52	0.22	26.05	26.65	23.93	2.94	460.0	1.23	1.13	1.12	1.19
470.0	5.57	5.35	5.49	0.22	26.08	26.78	24.04	3.14	470.0	1.23	1.13	1.12	1.19
480.0	5.54	5.29	5.43	0.25	26.04	26.87	24.15	3.28	480.0	1.22	1.13	1.12	1.19
490.0	5.55	5.28	5.43	0.27	26.00	26.98	24.29	3.41	490.0	1.22	1.14	1.12	1.19
500.0	5.60	5.31	5.47	0.29	25.91	27.09	24.49	3.49	500.0	1.22	1.14	1.12	1.19

<sup>1</sup> Total Loss = Insertion Loss+ 4.8dB Splitter Loss

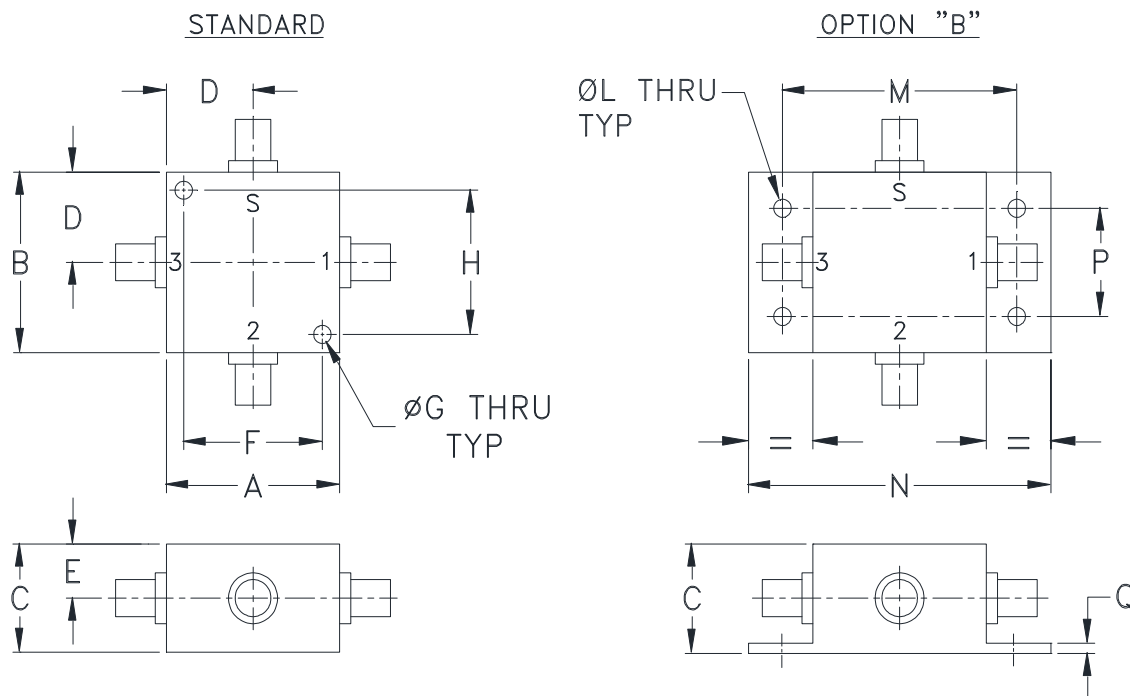
# 3 Way-0° Power Splitter/Combiner

# ZFSC-3-1+

## Typical Performance Curves



### Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
J17	1.25 (31.75)	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	--	--	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT. GRAMS
J17	.75 (19.05)	.07 (1.78)	75.0

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

#### Notes:

1. Case material: Aluminum alloy.
2. Case finish:  
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number
4. For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS



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.

<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
Operating Temperature	-55° to 100°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