Coaxial

Power Splitter/Combiner

ZFSC-3-1+

3 Way-0° 50Ω 1 to 500 MHz

Generic photo used for illustration purposes only

CASE STYLE: J17

Connectors	Model
BNC	ZFSC-3-1+
SMA	ZFSC-3-1-S+
N-TYPE	ZFSC-3-1-N+
BRACKET (OPTION "B")	

+RoHS Compliant

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

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

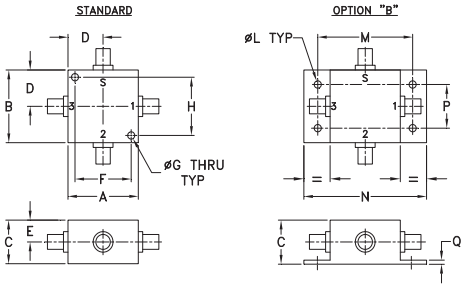
Features

- 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

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.

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

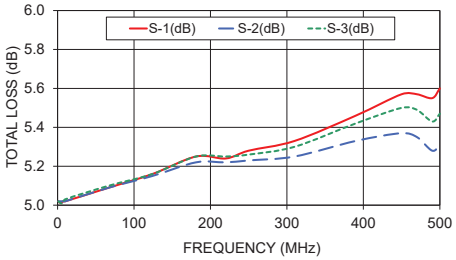
L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U= upper range [f_U/2 to f_U]

Typical Performance Data

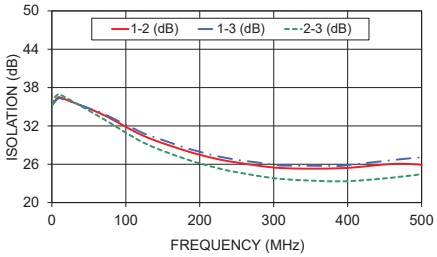
Freq. (MHz)	Total Loss[1] (dB)			Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3
	S-1	S-2	S-3		1-2	1-3	2-3					
1.00	5.02	5.02	5.02	0.00	35.42	35.35	35.32	0.03	1.11	1.15	1.15	1.15
4.20	5.01	5.02	5.01	0.01	35.93	35.81	36.47	0.03	1.06	1.07	1.07	1.07
7.00	5.02	5.02	5.01	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

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

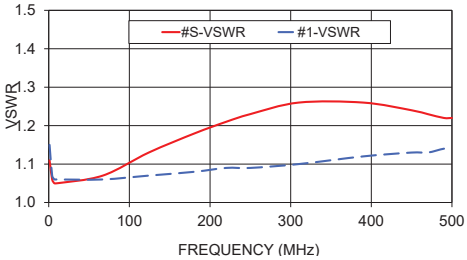
ZFSC-3-1-S+
TOTAL LOSS



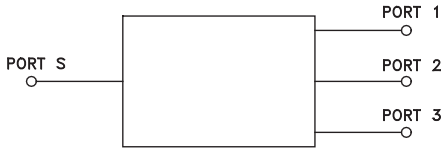
ZFSC-3-1-S+
ISOLATION



ZFSC-3-1-S+
VSWR



electrical schematic



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/MCLStore/terms.jsp

3 Way-0° Power Splitter/Combiner ZFSC-3-1+

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

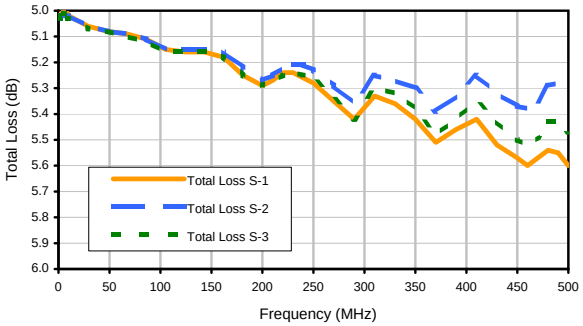
FREQ. (MHz)	VSWR (:1)			
	S	1	2	3
1.0	1.11	1.15	1.15	1.15
1.8	1.09	1.10	1.10	1.10
2.6	1.08	1.08	1.08	1.08
3.4	1.07	1.07	1.07	1.07
4.2	1.06	1.07	1.07	1.07
5.0	1.06	1.06	1.06	1.07
6.0	1.06	1.06	1.06	1.06
7.0	1.05	1.06	1.06	1.06
8.0	1.05	1.06	1.06	1.06
9.0	1.05	1.06	1.06	1.06
10.0	1.05	1.06	1.06	1.06
29.0	1.05	1.06	1.06	1.06
48.0	1.06	1.06	1.06	1.06
67.0	1.07	1.06	1.06	1.07
86.0	1.09	1.06	1.07	1.07
105.0	1.11	1.07	1.07	1.08
124.0	1.13	1.07	1.08	1.08
143.0	1.14	1.07	1.08	1.09
162.0	1.16	1.08	1.09	1.09
181.0	1.18	1.08	1.09	1.10
200.0	1.19	1.08	1.10	1.11
210.0	1.20	1.08	1.10	1.11
220.0	1.21	1.09	1.10	1.11
230.0	1.21	1.09	1.10	1.12
240.0	1.22	1.09	1.11	1.12
250.0	1.23	1.09	1.11	1.12
270.0	1.24	1.10	1.11	1.13
290.0	1.25	1.10	1.12	1.14
310.0	1.26	1.10	1.12	1.15
330.0	1.26	1.11	1.12	1.15
350.0	1.26	1.11	1.13	1.16
370.0	1.26	1.12	1.13	1.17
390.0	1.26	1.12	1.13	1.17
410.0	1.25	1.12	1.13	1.18
430.0	1.25	1.13	1.13	1.18
450.0	1.24	1.13	1.12	1.19
460.0	1.23	1.13	1.12	1.19
470.0	1.23	1.13	1.12	1.19
480.0	1.22	1.13	1.12	1.19
490.0	1.22	1.14	1.12	1.19
500.0	1.22	1.14	1.12	1.19

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

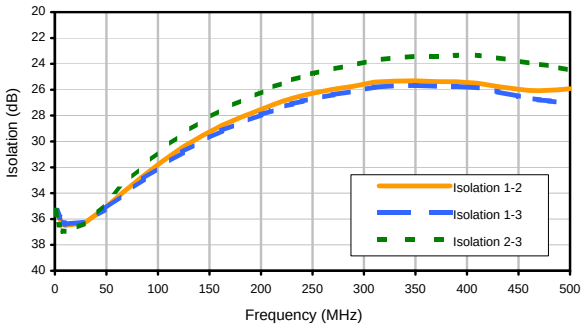
3 Way-0° Power Splitter/Combiner ZFSC-3-1+

Typical Performance Curves

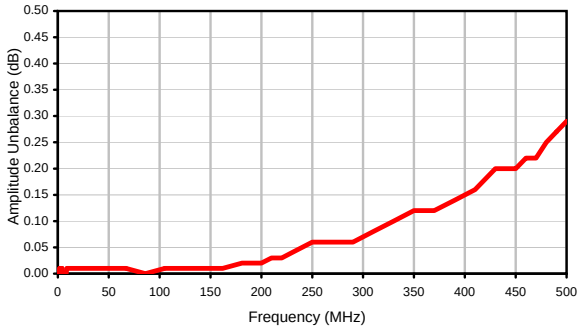
Total Loss



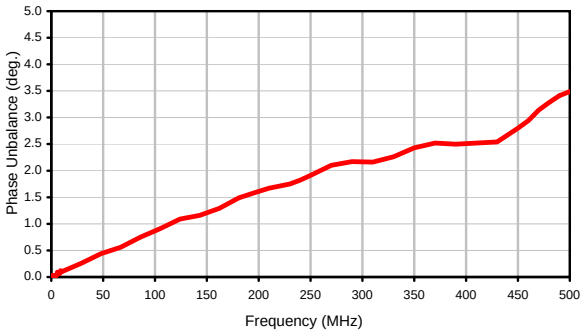
Isolation



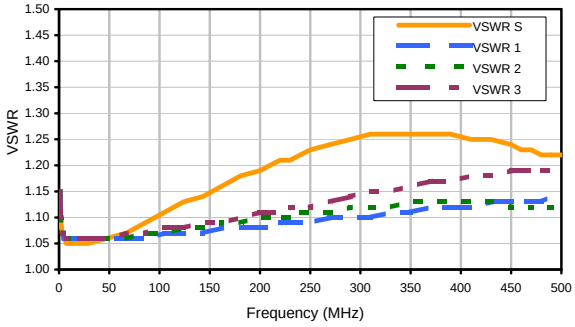
Amplitude Unbalance



Phase Unbalance



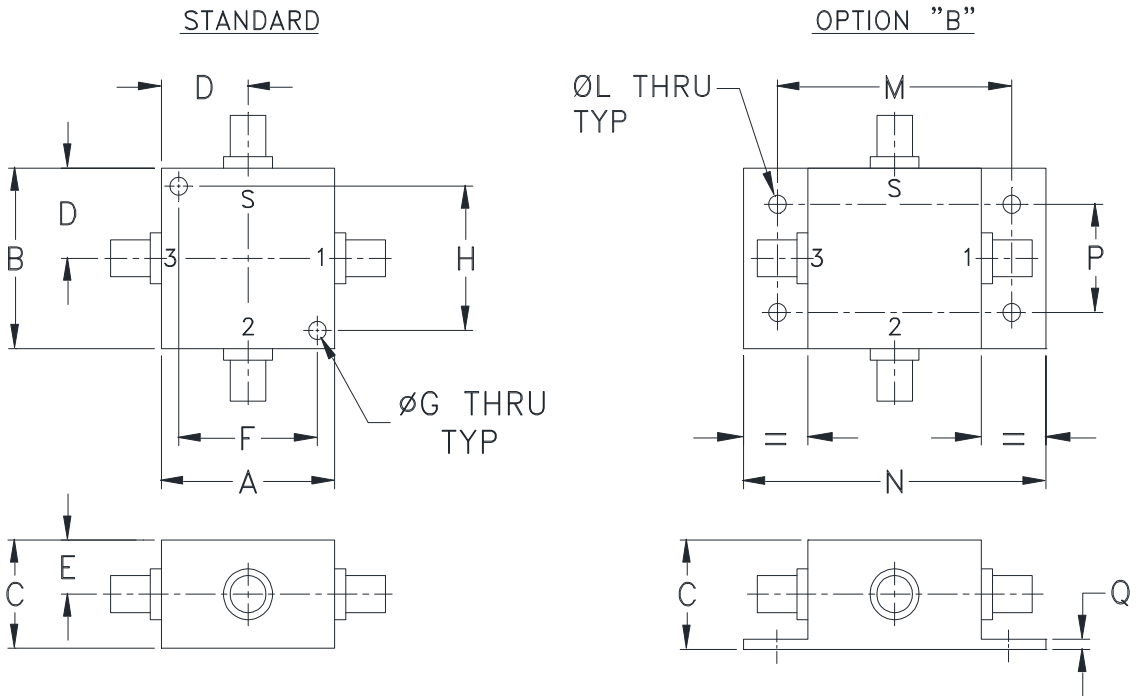
VSWR



Case Style J

J17

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. ± .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. 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.

Mini-Circuits

Environmental Specifications ENV28

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
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