

DC Pass High Power Combiner

ZAPD-2-21-3W+

2 Way-0° 50Ω 700 to 2100 MHz

Maximum Ratings

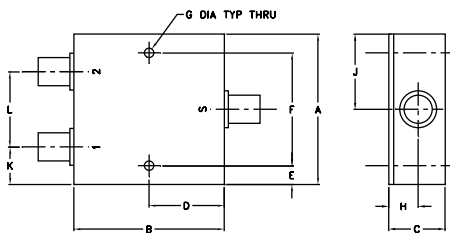
Operating Temperature	-55°C to 90°C
Storage Temperature	-55°C to 100°C
DC Current	500 mA (250mA for each port)

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

Coaxial Connections

SUM PORT	S
PORT 1	1
PORT 2	2

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G			
2.00	2.00	.75	1.00	.13	1.750	.125			
50.80	50.80	19.05	25.40	3.30	44.45	3.18			
H	J	K	L				wt		
.39	1.00	.50	1.00				grams		
9.91	25.40	12.70	25.40				170.0		

Features

- wideband, 700-2100 MHz
- low insertion loss, 0.4 dB typ.
- good isolation, 25 dB typ.
- good amplitude unbalance, 0.05 dB typ. and phase unbalance, 0.7 deg. typ.

Applications

- LMDS • UHF
- VSAT • PCS
- GPS • cellular



Generic photo used for illustration purposes only

CASE STYLE: F53

Connectors	Model
N-TYPE	ZAPD-2-21-3W-N+
SMA	ZAPD-2-21-3W-S+

+RoHS Compliant

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

High Power Combiner Electrical Specifications

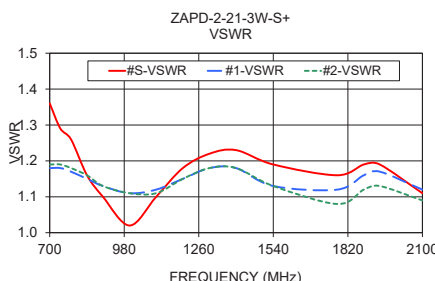
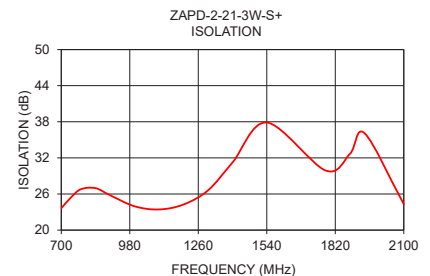
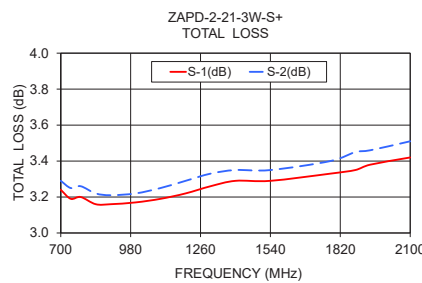
FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) ABOVE 3.0 dB		PHASE UNBALANCE (Degrees)		AMPLITUDE UNBALANCE (dB)		POWER INPUT ¹ (W)	
	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	as combiner ² Max.	as splitter Max.
700-2100	25	20	0.4	1.2	0.7	3.0	0.05	0.3	2.5	10

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

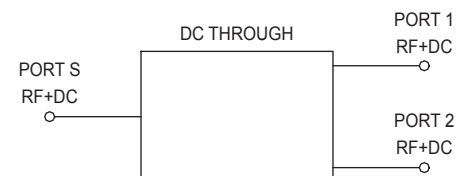
Typical Performance Data

Frequency (MHz)	Total Loss ¹ (dB)		Amp. Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
700.00	3.24	3.29	0.05	23.63	0.45	1.36	1.18	1.19
740.00	3.19	3.25	0.06	25.44	0.45	1.29	1.18	1.19
780.00	3.20	3.26	0.05	26.79	0.48	1.26	1.17	1.18
840.00	3.16	3.22	0.05	26.97	0.51	1.16	1.15	1.16
900.00	3.16	3.21	0.05	25.78	0.56	1.10	1.13	1.13
1000.00	3.17	3.22	0.05	23.95	0.64	1.02	1.11	1.11
1100.00	3.19	3.25	0.06	23.43	0.61	1.10	1.12	1.11
1200.00	3.22	3.29	0.06	24.26	0.75	1.18	1.15	1.15
1300.00	3.26	3.33	0.06	26.61	0.81	1.22	1.18	1.18
1400.00	3.29	3.35	0.06	31.24	0.86	1.23	1.18	1.18
1540.00	3.29	3.35	0.06	37.88	0.94	1.19	1.13	1.13
1780.00	3.33	3.40	0.08	29.91	1.10	1.16	1.12	1.08
1880.00	3.35	3.45	0.09	32.67	1.15	1.19	1.16	1.12
1940.00	3.38	3.46	0.09	36.09	1.16	1.19	1.17	1.13
2100.00	3.42	3.51	0.09	24.32	1.31	1.11	1.12	1.09

1. Total Loss = Insertion Loss + 3dB splitter loss.



electrical schematic



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/MCLStore/terms.jsp



2 Way-0° Power Splitter/Combiner

ZAPD-2-21-3W+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)		AMP. UNBAL. (dB)	ISOLATION (dB) 1-2	PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
700.0	3.24	3.29	0.05	23.63	0.45	700.0	1.36	1.18	1.19
740.0	3.19	3.25	0.06	25.44	0.45	740.0	1.29	1.18	1.19
780.0	3.20	3.26	0.05	26.79	0.48	780.0	1.26	1.17	1.18
800.0	3.19	3.24	0.05	27.11	0.47	800.0	1.22	1.16	1.17
840.0	3.16	3.22	0.05	26.97	0.51	840.0	1.16	1.15	1.16
880.0	3.18	3.23	0.05	26.24	0.55	880.0	1.13	1.14	1.15
900.0	3.16	3.21	0.05	25.78	0.56	900.0	1.10	1.13	1.13
940.0	3.16	3.21	0.05	24.90	0.56	940.0	1.06	1.13	1.13
980.0	3.17	3.22	0.05	24.22	0.59	980.0	1.03	1.12	1.12
1000.0	3.17	3.22	0.05	23.95	0.64	1000.0	1.02	1.11	1.11
1040.0	3.17	3.23	0.06	23.58	0.63	1040.0	1.06	1.12	1.12
1080.0	3.19	3.24	0.05	23.43	0.66	1080.0	1.08	1.11	1.11
1100.0	3.19	3.25	0.06	23.43	0.61	1100.0	1.10	1.12	1.11
1140.0	3.21	3.27	0.06	23.59	0.67	1140.0	1.14	1.14	1.14
1180.0	3.22	3.27	0.06	23.98	0.74	1180.0	1.16	1.14	1.14
1200.0	3.22	3.29	0.06	24.26	0.75	1200.0	1.18	1.15	1.15
1240.0	3.24	3.29	0.06	24.98	0.75	1240.0	1.20	1.17	1.16
1280.0	3.25	3.31	0.06	25.99	0.76	1280.0	1.22	1.17	1.16
1300.0	3.26	3.33	0.06	26.61	0.81	1300.0	1.22	1.18	1.18
1340.0	3.26	3.33	0.07	28.11	0.82	1340.0	1.23	1.18	1.17
1380.0	3.28	3.34	0.06	30.06	0.84	1380.0	1.24	1.17	1.17
1400.0	3.29	3.35	0.06	31.24	0.86	1400.0	1.23	1.18	1.18
1450.0	3.29	3.36	0.07	34.93	0.87	1450.0	1.22	1.16	1.16
1500.0	3.29	3.36	0.07	38.47	0.91	1500.0	1.20	1.16	1.16
1540.0	3.29	3.35	0.06	37.88	0.94	1540.0	1.19	1.13	1.13
1580.0	3.29	3.36	0.07	35.24	0.97	1580.0	1.17	1.13	1.12
1600.0	3.29	3.36	0.07	34.02	0.97	1600.0	1.15	1.13	1.12
1640.0	3.30	3.37	0.07	32.06	0.96	1640.0	1.16	1.10	1.08
1680.0	3.30	3.37	0.07	30.76	1.00	1680.0	1.15	1.10	1.08
1700.0	3.32	3.39	0.07	30.34	1.03	1700.0	1.14	1.12	1.09
1740.0	3.32	3.39	0.07	29.87	1.06	1740.0	1.18	1.11	1.07
1780.0	3.33	3.40	0.08	29.91	1.10	1780.0	1.16	1.12	1.08
1800.0	3.35	3.42	0.07	30.14	1.15	1800.0	1.18	1.14	1.10
1840.0	3.35	3.43	0.08	31.05	1.16	1840.0	1.20	1.14	1.10
1880.0	3.35	3.45	0.09	32.67	1.15	1880.0	1.19	1.16	1.12
1900.0	3.37	3.45	0.09	33.80	1.14	1900.0	1.19	1.18	1.14
1940.0	3.38	3.46	0.09	36.09	1.16	1940.0	1.19	1.17	1.13
1980.0	3.37	3.45	0.09	35.20	1.19	1980.0	1.15	1.17	1.13
2000.0	3.42	3.50	0.09	33.35	1.24	2000.0	1.15	1.17	1.14
2100.0	3.42	3.51	0.09	24.32	1.31	2100.0	1.11	1.12	1.09

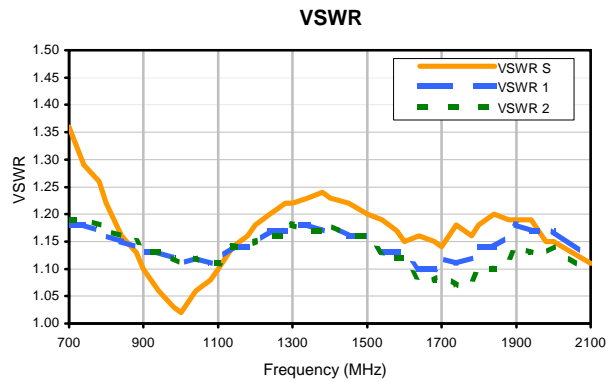
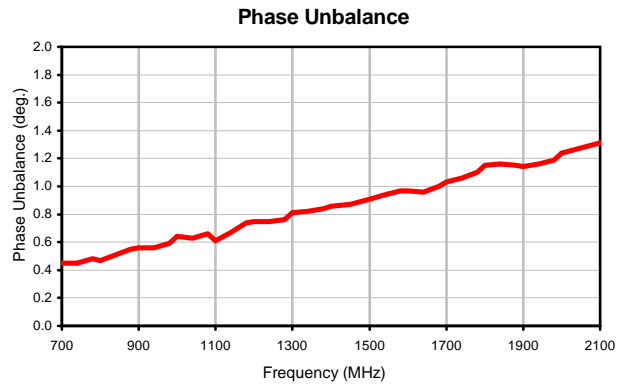
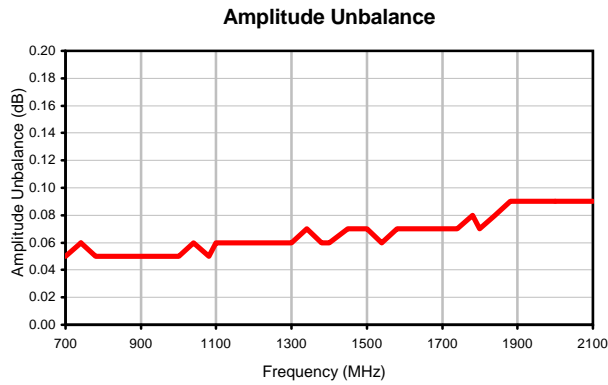
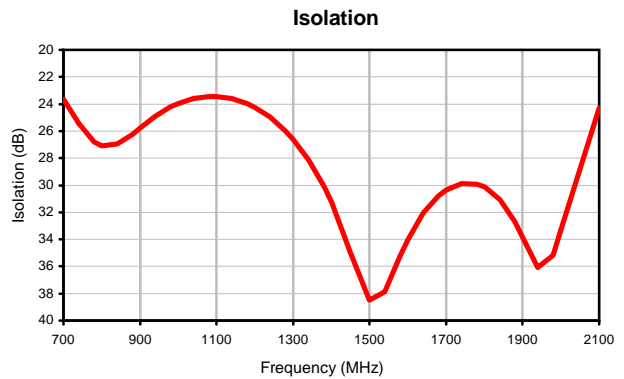
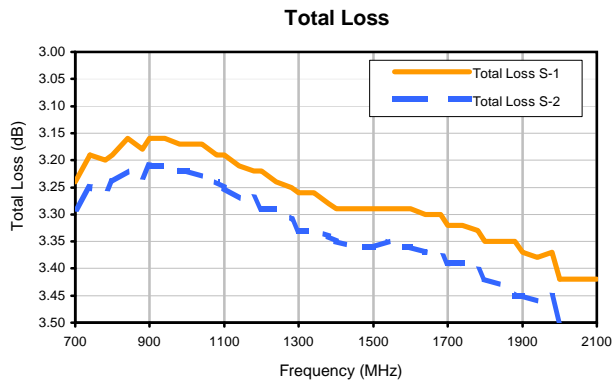
¹ Total Loss = Insertion Loss+ 3dB Splitter Loss



2 Way-0° Power Splitter/Combiner

ZAPD-2-21-3W+

Typical Performance Curves

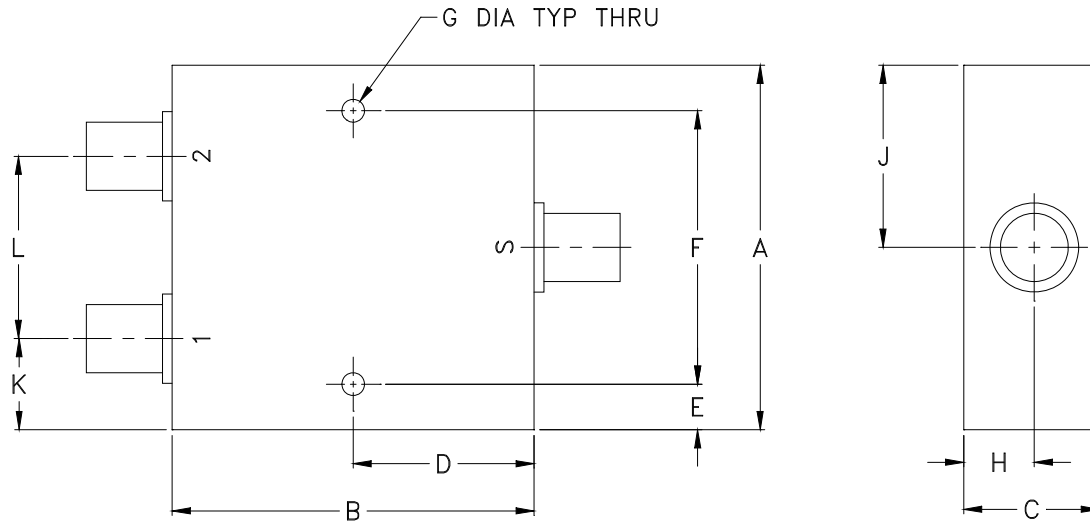


Case Style

F

Outline Dimensions

F53



CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAM
F53	2.00 (50.80)	2.00 (50.80)	.75 (19.05)	1.00 (25.40)	.13 (3.30)	1.750 (44.45)	.125 (3.18)	.39 (9.91)	1.00 (25.40)	.50 (12.70)	1.00 (25.40)	170.0

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Refer to the individual model data sheet for the type of connectors available.

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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
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