

# Power Splitter/Combiner

## ZAPD-4+

2 Way-0° 50Ω 2000 to 4200 MHz

### Maximum Ratings

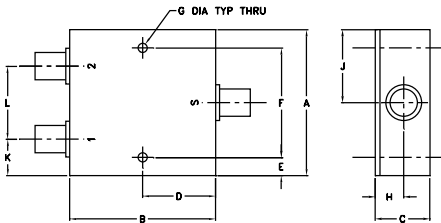
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	10W max.
Internal Dissipation	0.125W max.
DC Current	500 mA (250mA for each port)

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	0.75	1.00	0.25	1.500	0.125
50.80	50.80	19.05	25.40	6.35	38.10	3.18
H	J	K	L	wt		
0.39	1.00	0.50	1.00	grams		
9.91	25.40	12.70	25.40	170.0		

### Features

- wideband, 2000 to 4200 MHz
- low insertion loss, 0.4 dB typ.
- good isolation, 25 dB typ.
- up to 10W power input as splitter
- excellent amplitude unbalance, 0.1 dB typ.
- excellent phase unbalance, 0.5 deg. typ.
- rugged shielded case

### Applications

- MMDS
- ISM
- wireless
- communication systems
- instrumentation

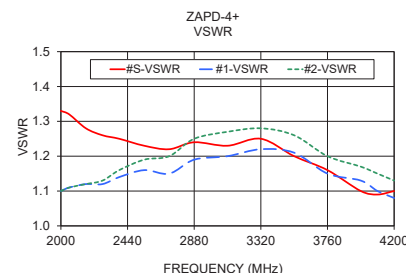
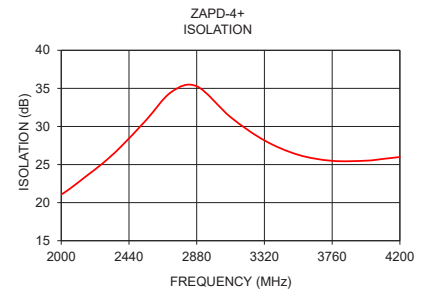
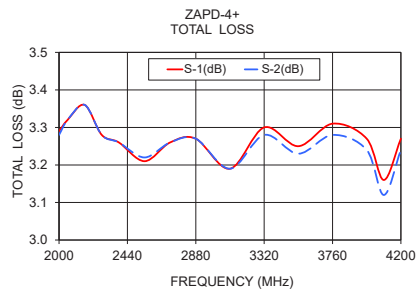
### Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) ABOVE 3.0 dB		PHASE UNBALANCE (Degrees)	AMPLITUDE UNBALANCE (dB)
	Typ.	Min.	Typ.	Max.	Max.	Max.
$f_c - f_u$						
2000-4200	25	19	0.4	0.8	6	0.4

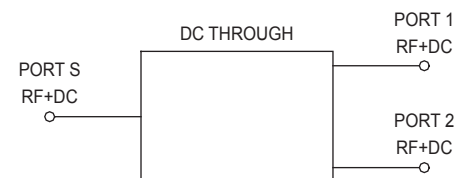
### Typical Performance Data

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
2000.00	3.29	3.28	0.01	21.06	0.12	1.33	1.10	1.10
2055.00	3.32	3.32	0.00	21.81	0.06	1.32	1.11	1.11
2165.00	3.36	3.36	0.00	23.52	0.02	1.28	1.12	1.12
2275.00	3.28	3.28	0.01	25.26	0.06	1.26	1.12	1.13
2385.00	3.26	3.26	0.01	27.29	0.06	1.25	1.14	1.16
2550.00	3.21	3.22	0.01	30.80	0.03	1.23	1.16	1.19
2715.00	3.26	3.26	0.00	34.52	0.07	1.22	1.15	1.20
2880.00	3.27	3.27	0.01	35.28	0.11	1.24	1.19	1.25
3100.00	3.19	3.19	0.01	31.23	0.05	1.23	1.20	1.27
3320.00	3.30	3.28	0.02	28.17	0.13	1.25	1.22	1.28
3540.00	3.25	3.23	0.02	26.28	0.06	1.20	1.21	1.26
3760.00	3.31	3.28	0.02	25.49	0.06	1.16	1.15	1.20
3980.00	3.27	3.24	0.04	25.51	0.02	1.10	1.13	1.17
4090.00	3.16	3.12	0.03	25.74	0.04	1.09	1.10	1.15
4200.00	3.27	3.24	0.04	25.99	0.02	1.10	1.08	1.13

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



### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



Generic photo used for illustration purposes only  
N-Type version shown

CASE STYLE: F14

Connectors	Model
N-TYPE	ZAPD-4-N+
SMA	ZAPD-4-S+

### +RoHS Compliant

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

# 2 Way-0° Power Splitter/Combiner

# ZAPD-4+

## Typical Performance Data

FREQ. (MHz)	TOTAL LOSS <sup>1</sup> (dB)		AMP. UNBAL. (dB)	ISOLATION (dB) 1-2	PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
2000.0	3.29	3.28	0.01	21.06	0.12	2000.0	1.33	1.10	1.10
2055.0	3.32	3.32	0.00	21.81	0.06	2055.0	1.32	1.11	1.11
2110.0	3.27	3.27	0.00	22.62	0.04	2110.0	1.30	1.12	1.11
2165.0	3.36	3.36	0.00	23.52	0.02	2165.0	1.28	1.12	1.12
2220.0	3.27	3.28	0.01	24.38	0.12	2220.0	1.27	1.12	1.12
2275.0	3.28	3.28	0.01	25.26	0.06	2275.0	1.26	1.12	1.13
2330.0	3.36	3.36	0.00	26.33	0.05	2330.0	1.26	1.13	1.15
2385.0	3.26	3.26	0.01	27.29	0.06	2385.0	1.25	1.14	1.16
2440.0	3.30	3.28	0.01	28.41	0.06	2440.0	1.24	1.15	1.17
2495.0	3.33	3.33	0.01	29.75	0.04	2495.0	1.23	1.15	1.18
2550.0	3.21	3.22	0.01	30.80	0.03	2550.0	1.23	1.16	1.19
2605.0	3.39	3.39	0.01	32.24	0.04	2605.0	1.23	1.16	1.20
2660.0	3.10	3.10	0.01	33.31	0.13	2660.0	1.22	1.16	1.20
2715.0	3.26	3.26	0.00	34.52	0.07	2715.0	1.22	1.15	1.20
2770.0	3.27	3.27	0.00	35.51	0.06	2770.0	1.22	1.16	1.21
2825.0	3.21	3.21	0.00	35.60	0.03	2825.0	1.23	1.18	1.23
2880.0	3.27	3.27	0.01	35.28	0.11	2880.0	1.24	1.19	1.25
2935.0	3.27	3.26	0.01	34.49	0.00	2935.0	1.24	1.20	1.26
2990.0	3.20	3.19	0.01	33.35	0.10	2990.0	1.24	1.21	1.27
3045.0	3.32	3.31	0.01	32.42	0.10	3045.0	1.24	1.22	1.28
3100.0	3.19	3.19	0.01	31.23	0.05	3100.0	1.23	1.20	1.27
3155.0	3.25	3.26	0.01	30.39	0.23	3155.0	1.23	1.19	1.27
3210.0	3.27	3.25	0.02	29.51	0.01	3210.0	1.24	1.20	1.27
3265.0	3.25	3.25	0.00	28.85	0.12	3265.0	1.24	1.21	1.27
3320.0	3.30	3.28	0.02	28.17	0.13	3320.0	1.25	1.22	1.28
3375.0	3.32	3.31	0.01	27.66	0.05	3375.0	1.24	1.22	1.29
3430.0	3.26	3.23	0.03	27.09	0.18	3430.0	1.24	1.23	1.29
3485.0	3.41	3.38	0.03	26.78	0.20	3485.0	1.22	1.23	1.28
3540.0	3.25	3.23	0.02	26.28	0.06	3540.0	1.20	1.21	1.26
3595.0	3.37	3.35	0.02	26.11	0.27	3595.0	1.18	1.18	1.25
3650.0	3.30	3.25	0.05	25.81	0.11	3650.0	1.17	1.17	1.23
3705.0	3.29	3.26	0.02	25.63	0.14	3705.0	1.17	1.16	1.21
3760.0	3.31	3.28	0.02	25.49	0.06	3760.0	1.16	1.15	1.20
3815.0	3.16	3.13	0.03	25.40	0.18	3815.0	1.15	1.15	1.19
3870.0	3.26	3.23	0.03	25.39	0.02	3870.0	1.13	1.15	1.20
3925.0	3.18	3.15	0.03	25.48	0.25	3925.0	1.12	1.15	1.19
3980.0	3.27	3.24	0.04	25.51	0.02	3980.0	1.10	1.13	1.17
4035.0	3.22	3.21	0.01	25.69	0.04	4035.0	1.09	1.12	1.16
4090.0	3.16	3.12	0.03	25.74	0.04	4090.0	1.09	1.10	1.15
4145.0	3.21	3.17	0.03	25.92	0.06	4145.0	1.10	1.09	1.14
4200.0	3.27	3.24	0.04	25.99	0.02	4200.0	1.10	1.08	1.13

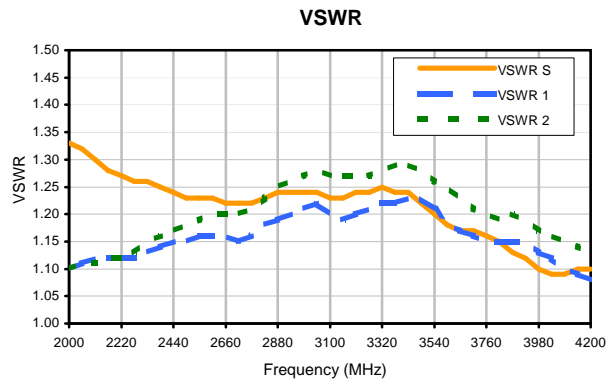
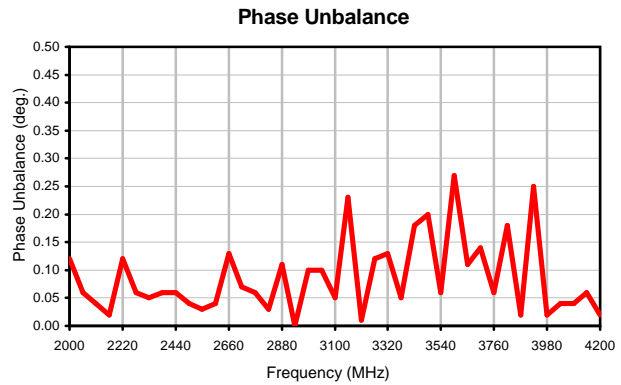
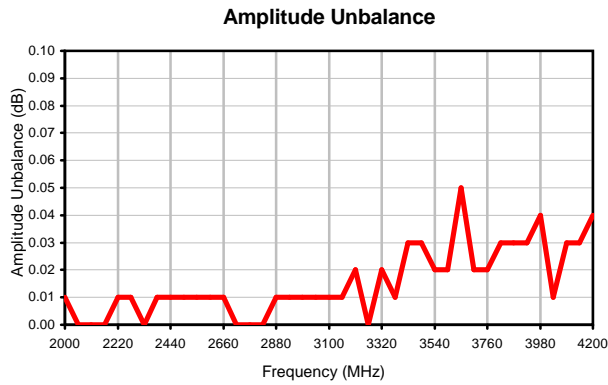
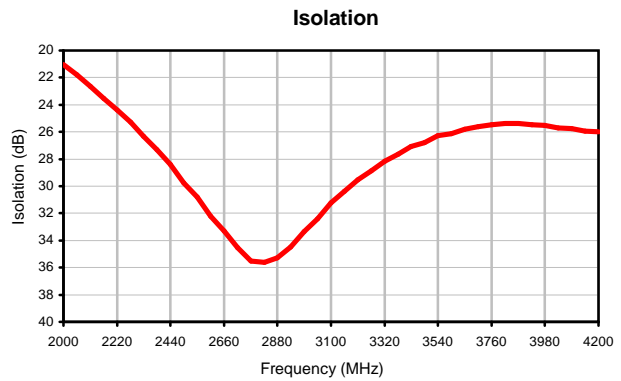
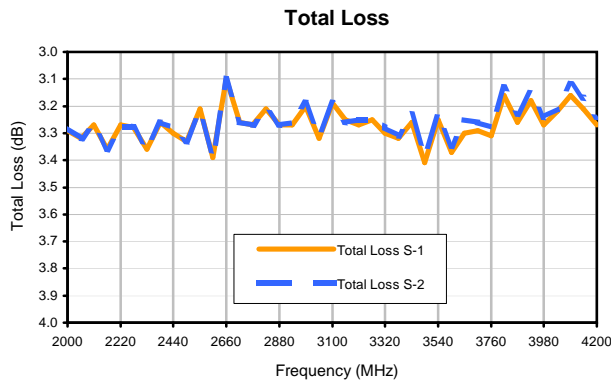
<sup>1</sup> Total Loss = Insertion Loss+ 3dB Splitter Loss



# 2 Way-0° Power Splitter/Combiner

# ZAPD-4+

## Typical Performance Curves



REV. X2  
ZAPD-4+  
100627  
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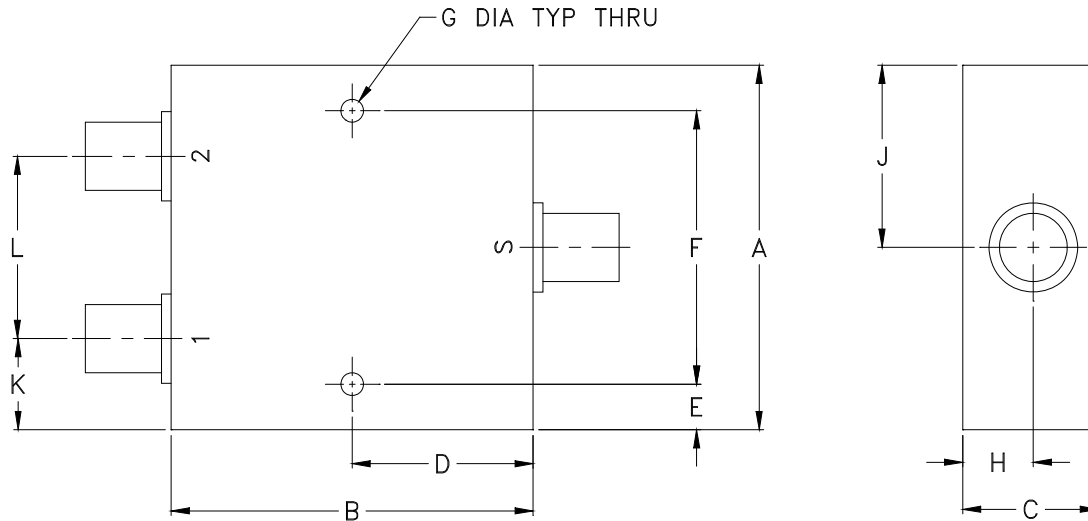


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### Outline Dimensions



CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAM
F14	2.00 (50.80)	2.00 (50.80)	.75 (19.05)	1.00 (25.40)	.25 (6.35)	1.500 (38.10)	.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.



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