



COAXIAL

Power Splitter/Combiner

ZX10-2-20-S+

Mini-Circuits

2 Way-0° 50Ω 200 to 2000 MHz

FEATURES

- Low insertion loss, 0.8 dB typ.
- Excellent amplitude unbalance
- Very good phase unbalance
- Small size
- Low cost
- Protected under U.S. Patent 6,790,049 & 6,963,255

APPLICATIONS

- PCN/PCS
- Cellular/GSM
- VHF/UHF receivers/transmitters



Generic photo used for illustration purposes only

Model No.	ZX10-2-20-S+
Case Style	FL905
Connectors	SMA-Female

+RoHS Compliant

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

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		200		2000	MHz
Insertion Loss Above 3 dB	200-2000	—	0.8	2.2	dB
	800-1000	—	0.5	1.0	
	500-1500	—	0.5	1.5	
	1500-2000	—	1.6	2.2	
Isolation	200-2000	15.0	20	—	dB
	800-1000	16.0	22	—	
	500-1500	15.0	22	—	
	1500-2000	15.0	20	—	
Phase Unbalance	200-2000	—	—	9.0	Degree
	800-1000	—	—	3.0	
	500-1500	—	—	5.0	
	1500-2000	—	—	9.0	
Amplitude Unbalance	200-2000	—	0.4	0.6	dB
	800-1000	—	0.3	0.4	
	500-1500	—	0.4	0.6	
	1500-2000	—	0.4	0.6	

MAXIMUM RATINGS

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation (as a combiner)	0.125W max.

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

ELECTRICAL SCHEMATIC



REV. L
ECO-016902
ZX10-2-20-S+
WP/CP/AM
230221

Mini-Circuits

www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

PAGE 1 OF 3



COAXIAL

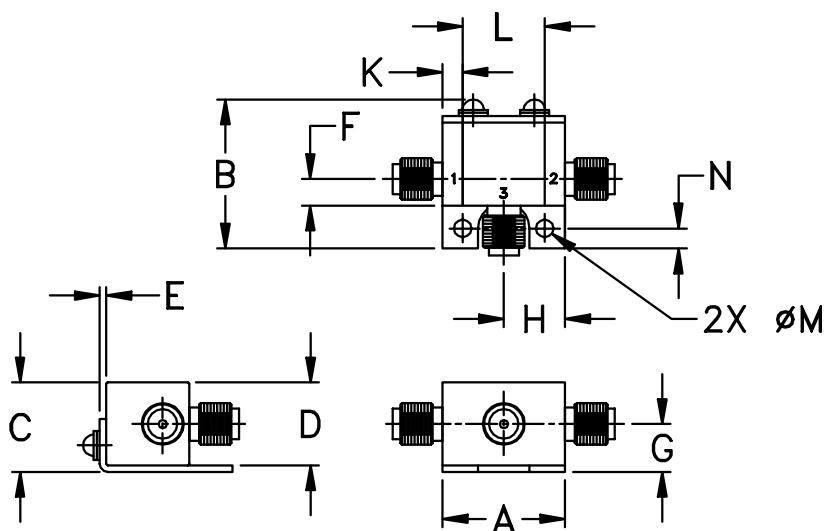
Power Splitter/Combiner

ZX10-2-20-S+

COAXIAL CONNECTIONS

Sum Port	3
Port 1-2	1-2

OUTLINE DRAWING



OUTLINE DIMENSIONS (INCH/MM)

A	B	C	D	E	F	G
.74	.90	.54	.50	.04	.16	.29
18.80	22.86	13.72	12.70	1.02	4.06	7.37
H	J	K	L	M	N	wt
.37	--	.122	.496	.106	.122	grams
9.40	--	3.10	12.60	2.69	3.10	20.0





COAXIAL

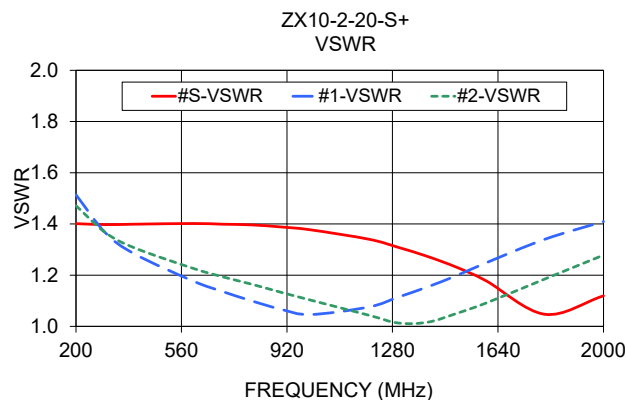
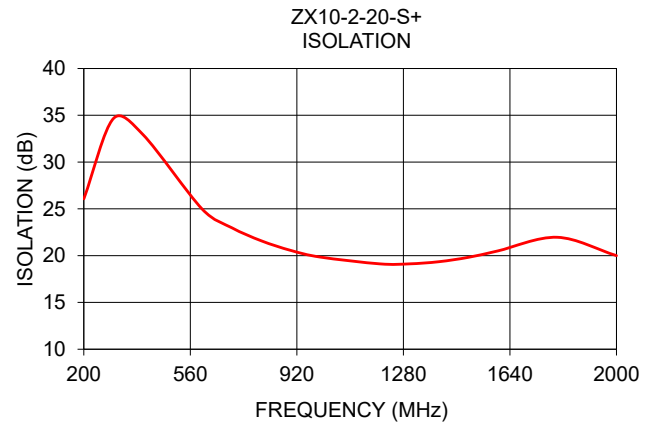
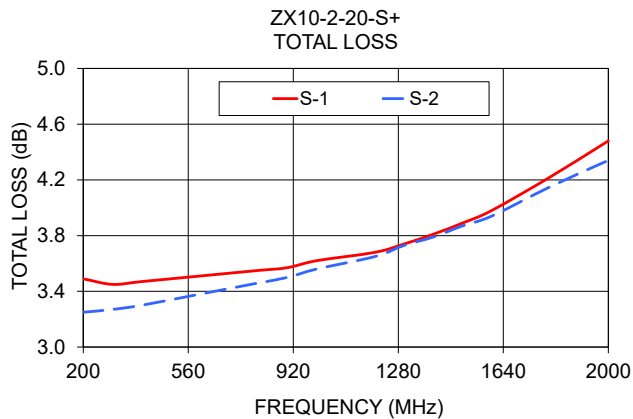
Power Splitter/Combiner

ZX10-2-20-S+

TYPICAL PERFORMANCE DATA

Freq. (MHz)	Insertion Loss ¹ (dB)		Ampl. Unbal. (dB)	Isolation (dB)	Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
200.00	3.49	3.25	0.25	26.07	1.50	1.40	1.51	1.47
300.00	3.45	3.27	0.19	34.65	0.82	1.40	1.37	1.37
400.00	3.47	3.30	0.17	32.93	0.41	1.40	1.28	1.31
600.00	3.51	3.38	0.14	24.97	0.06	1.40	1.18	1.23
700.00	3.53	3.42	0.11	22.98	0.20	1.40	1.14	1.19
800.00	3.55	3.46	0.10	21.58	0.31	1.40	1.10	1.16
900.00	3.57	3.50	0.07	20.55	0.37	1.39	1.07	1.13
1000.00	3.62	3.56	0.06	19.84	0.41	1.38	1.05	1.10
1200.00	3.68	3.65	0.03	19.12	0.51	1.34	1.08	1.04
1300.00	3.74	3.73	0.01	19.12	0.56	1.31	1.11	1.01
1400.00	3.81	3.79	0.01	19.35	0.38	1.27	1.15	1.02
1500.00	3.89	3.87	0.02	19.82	0.11	1.23	1.20	1.05
1600.00	3.98	3.94	0.02	20.51	0.14	1.18	1.25	1.09
1800.00	4.22	4.15	0.07	21.96	0.89	1.05	1.34	1.19
2000.00	4.48	4.34	0.14	20.00	2.24	1.12	1.41	1.28

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



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/terms/viewterm.html



2 Way-0° Power Splitter/Combiner

ZX10-2-20+

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)		AMP. UNBAL. (dB)	ISOLATION (dB)	PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
200.0	3.50	3.25	0.25	25.09	1.69	200.0	1.37	1.60	1.52
260.0	3.51	3.31	0.21	30.35	1.38	260.0	1.37	1.49	1.44
320.0	3.48	3.29	0.19	37.46	1.07	320.0	1.37	1.42	1.38
380.0	3.48	3.31	0.16	37.74	0.89	380.0	1.37	1.37	1.34
440.0	3.51	3.35	0.16	32.15	0.79	440.0	1.38	1.33	1.31
500.0	3.49	3.35	0.14	28.64	0.65	500.0	1.38	1.29	1.29
560.0	3.49	3.37	0.13	26.28	0.54	560.0	1.38	1.26	1.26
620.0	3.53	3.40	0.12	24.59	0.44	620.0	1.39	1.23	1.24
680.0	3.52	3.41	0.11	23.24	0.42	680.0	1.39	1.20	1.22
740.0	3.54	3.44	0.10	22.18	0.42	740.0	1.40	1.18	1.20
800.0	3.54	3.45	0.10	21.29	0.38	800.0	1.41	1.16	1.18
840.0	3.58	3.51	0.07	20.83	0.42	840.0	1.41	1.15	1.16
880.0	3.55	3.47	0.08	20.34	0.30	880.0	1.41	1.14	1.15
920.0	3.60	3.53	0.07	19.99	0.44	920.0	1.41	1.13	1.14
960.0	3.59	3.54	0.05	19.65	0.44	960.0	1.42	1.13	1.13
1000.0	3.61	3.54	0.07	19.34	0.39	1000.0	1.42	1.12	1.12
1100.0	3.67	3.62	0.04	18.79	0.56	1100.0	1.42	1.13	1.09
1200.0	3.70	3.68	0.02	18.46	0.64	1200.0	1.42	1.15	1.08
1300.0	3.73	3.73	0.00	18.38	0.77	1300.0	1.42	1.20	1.09
1400.0	3.79	3.80	0.01	18.57	0.95	1400.0	1.42	1.25	1.11
1500.0	3.91	3.89	0.02	19.12	1.19	1500.0	1.41	1.31	1.14
1530.0	3.90	3.90	0.00	19.34	1.55	1530.0	1.41	1.33	1.16
1560.0	3.88	3.90	0.02	19.61	1.41	1560.0	1.41	1.35	1.17
1590.0	4.02	3.98	0.04	20.00	1.48	1590.0	1.41	1.38	1.18
1620.0	4.01	3.98	0.04	20.37	1.95	1620.0	1.40	1.40	1.20
1650.0	3.94	3.96	0.02	20.82	1.79	1650.0	1.40	1.42	1.21
1680.0	4.11	4.08	0.03	21.45	1.61	1680.0	1.40	1.44	1.23
1710.0	4.16	4.08	0.08	22.09	2.16	1710.0	1.40	1.46	1.25
1740.0	4.08	4.05	0.02	22.79	2.27	1740.0	1.40	1.49	1.26
1770.0	4.15	4.12	0.03	23.77	2.13	1770.0	1.41	1.51	1.28
1800.0	4.25	4.18	0.07	24.92	2.23	1800.0	1.41	1.54	1.30
1820.0	4.29	4.20	0.09	25.79	2.47	1820.0	1.42	1.55	1.31
1840.0	4.24	4.18	0.07	26.79	2.75	1840.0	1.42	1.57	1.32
1860.0	4.19	4.17	0.02	27.97	2.73	1860.0	1.43	1.59	1.33
1880.0	4.30	4.27	0.03	29.43	2.29	1880.0	1.44	1.61	1.34
1900.0	4.48	4.38	0.10	31.08	2.16	1900.0	1.44	1.62	1.36
1920.0	4.56	4.41	0.15	32.65	2.42	1920.0	1.46	1.64	1.37
1940.0	4.51	4.38	0.14	33.74	2.80	1940.0	1.47	1.65	1.38
1960.0	4.47	4.38	0.10	33.63	2.91	1960.0	1.48	1.67	1.40
1980.0	4.58	4.48	0.10	32.30	2.42	1980.0	1.50	1.68	1.41
2000.0	4.78	4.61	0.17	30.40	2.16	2000.0	1.52	1.70	1.42

¹ Total Loss = Insertion Loss + 3dB Splitter Loss

REV. X2
ZX10-2-20+
100627
Page 1 of 1



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



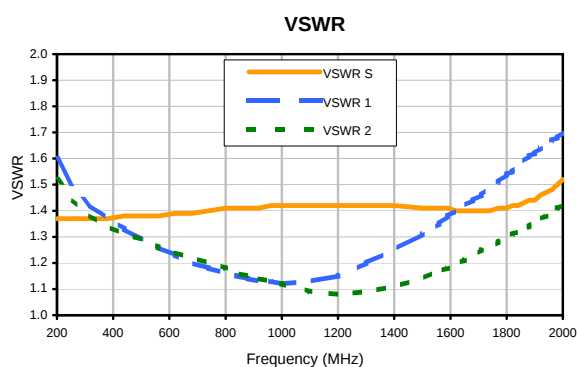
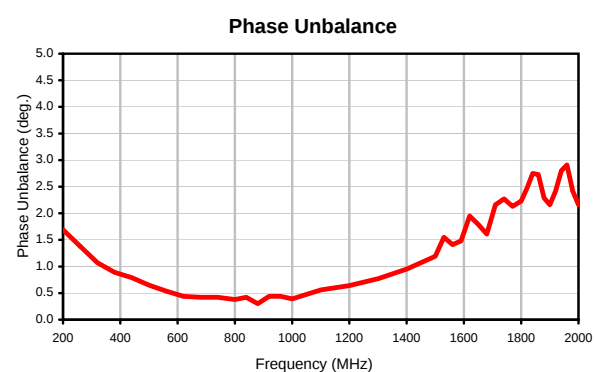
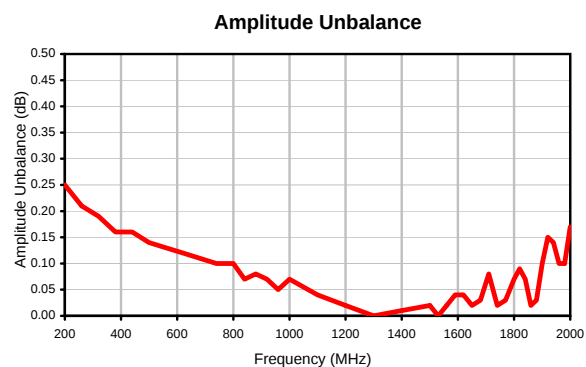
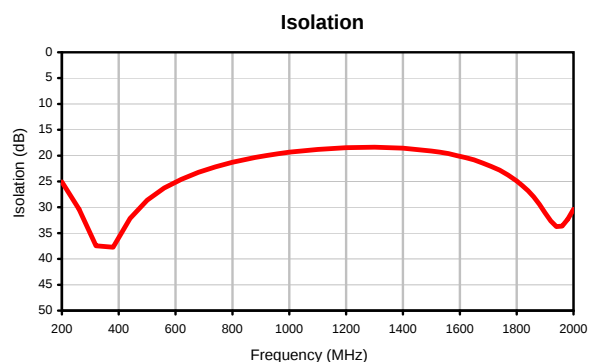
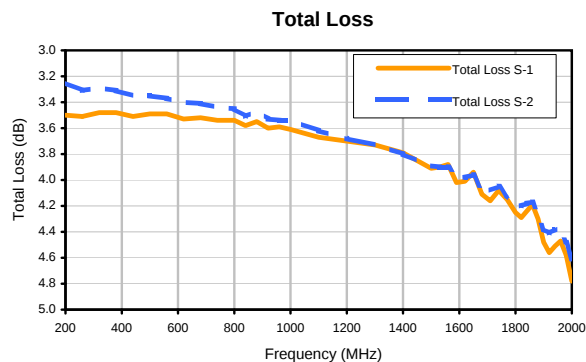
The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



2 Way-0° Power Splitter/Combiner

ZX10-2-20+

Typical Performance Curves



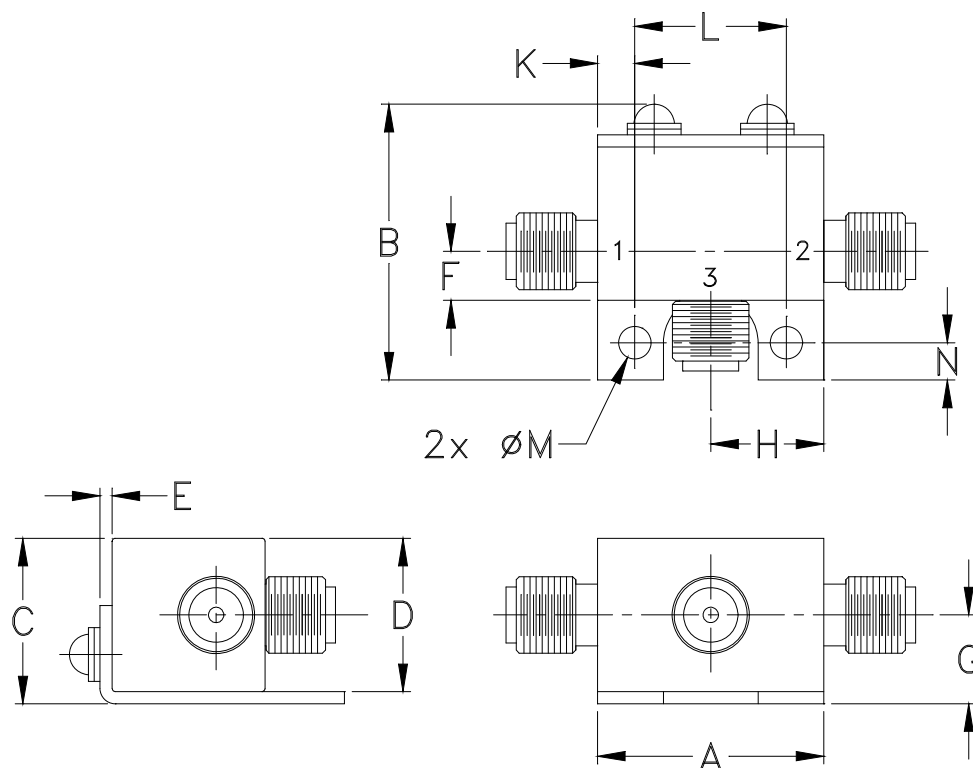
REV. X2
ZX10-2-20+
100627
Page 1 of 1



Mini-Circuits®
IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
The Design Engineers Search Engine finds the model you need, instantly • For detailed performance specs & shopping online see



Outline Dimensions



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N	WT, GRAM
FL905	.74 (18.80)	.90 (22.86)	.54 (13.72)	.50 (12.70)	.04 (1.02)	.16 (4.06)	.29 (7.37)	.37 (9.40)	- -	.122 (3.10)	.496 (12.60)	.106 (2.69)	.122 (3.10)	20.0

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

Tolerance on hole size and interaxes dimensions to be $\pm .005$.

Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.



INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified



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	-40° to 85°C	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