

Power Splitter/Combiner

4 Way-0° 50Ω

1675 to 2350 MHz

ZX10-4-24-S+

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	2.5W max.*
Power Input (as a combiner)	0.125W max.

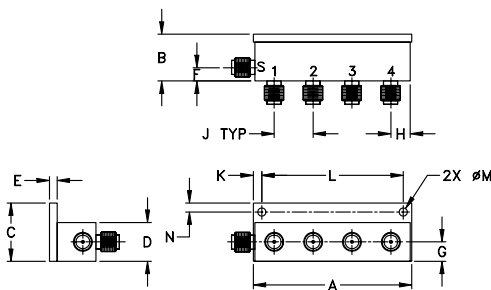
*maximum VSWR at output 1.2:1

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
PORT 4	4

Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H
2.04	.60	.75	.50	.10	.17	.25	.25
51.82	15.24	19.05	12.70	2.54	4.32	6.35	6.35
J	K	L	M	N			wt
.50	.11	1.820	.106	.12			grams
12.70	2.79	46.23	2.69	3.05			60.0

Features

- low insertion loss, 0.9 dB typ.
- high isolation, 20 dB typ.
- rigid unibody construction
- gold plated connectors; nickel plated body
- low cost
- small size
- protected by US patent 6,790,049

Applications

- PCS/DCS
- antenna arrays
- signal distribution
- test bench

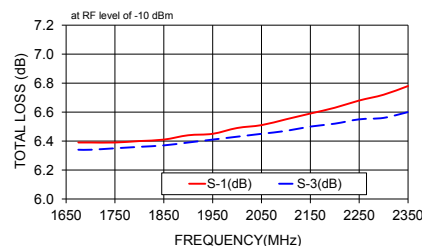
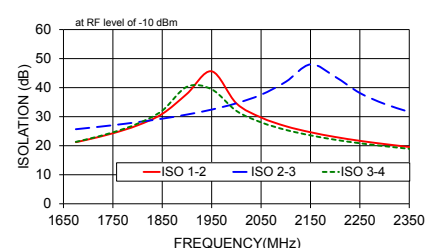
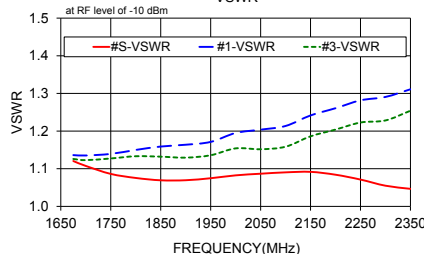
Electrical Specifications (T_{AMB}=25°C)

FREQ. RANGE (MHz)	ISOLATION (dB)	INSERTION LOSS (dB) ABOVE 6 dB	PHASE UNBALANCE (Deg.)	AMPLITUDE UNBALANCE (dB)	INPUT VSWR (:1)	OUTPUT VSWR (:1)
f _L -f _H	Typ. Min.	Typ. Max.	Max.	Max.	Typ.	Typ.
1675-2350	20 17	0.9 1.1	5.0	0.7	1.18	1.3
1775-2200	25 20	0.9 1.1	5.0	0.7	1.18	1.3

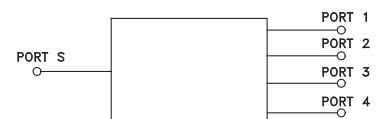
Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)				Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2	VSWR 3	VSWR 4
	S-1	S-2	S-3	S-4		1-2	2-3	3-4						
1675.00	6.39	6.69	6.34	6.28	0.41	21.22	25.68	21.32	0.58	1.12	1.14	1.19	1.13	1.18
1700.00	6.39	6.70	6.34	6.28	0.42	22.15	26.12	22.32	0.45	1.11	1.14	1.19	1.12	1.18
1750.00	6.39	6.71	6.35	6.28	0.44	24.28	27.06	24.59	0.43	1.09	1.14	1.20	1.13	1.18
1800.00	6.40	6.73	6.36	6.28	0.45	27.02	28.12	27.60	0.39	1.08	1.15	1.20	1.13	1.18
1850.00	6.41	6.74	6.37	6.27	0.47	30.96	29.32	32.08	0.63	1.07	1.16	1.20	1.13	1.18
1900.00	6.44	6.75	6.39	6.28	0.47	37.87	30.73	40.30	0.89	1.07	1.16	1.21	1.13	1.19
1950.00	6.45	6.76	6.41	6.27	0.48	45.62	32.44	39.41	1.17	1.07	1.17	1.22	1.14	1.20
2000.00	6.49	6.76	6.43	6.28	0.49	34.59	34.61	32.00	1.51	1.08	1.19	1.23	1.15	1.21
2050.00	6.51	6.77	6.45	6.28	0.49	29.72	37.55	28.05	1.82	1.09	1.20	1.24	1.15	1.22
2100.00	6.55	6.77	6.47	6.29	0.48	26.72	42.00	25.45	1.97	1.09	1.21	1.25	1.16	1.23
2150.00	6.59	6.76	6.50	6.29	0.47	24.64	48.00	23.57	2.21	1.09	1.24	1.26	1.19	1.24
2200.00	6.63	6.76	6.52	6.29	0.46	23.01	43.74	22.06	2.45	1.08	1.26	1.28	1.20	1.26
2250.00	6.68	6.74	6.55	6.30	0.44	21.68	38.14	20.85	2.76	1.07	1.28	1.28	1.22	1.27
2300.00	6.72	6.73	6.56	6.30	0.43	20.57	34.39	19.84	2.93	1.05	1.29	1.30	1.23	1.29
2350.00	6.78	6.72	6.60	6.30	0.48	19.56	31.63	18.93	2.96	1.05	1.31	1.31	1.25	1.30

1. Total Loss = Insertion Loss + 6dB splitter loss.

ZX10-4-24-S+
TOTAL LOSSZX10-4-24-S+
ISOLATIONZX10-4-24-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-Circuits' 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



4 Way-0° Power Splitter/Combiner

ZX10-4-24+

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-3	S-4		1-2	2-3	3-4			S	1	2	3	4
1675	6.40	6.69	6.35	6.33	0.36	19.72	23.64	20.21	0.97	1675	1.06	1.11	1.15	1.11	1.14
1685	6.40	6.69	6.35	6.33	0.36	20.02	23.76	20.53	0.96	1685	1.05	1.11	1.15	1.11	1.14
1695	6.40	6.69	6.36	6.33	0.36	20.32	23.90	20.86	0.96	1695	1.05	1.12	1.15	1.11	1.14
1705	6.40	6.69	6.36	6.33	0.37	20.63	24.03	21.21	0.98	1705	1.04	1.12	1.16	1.11	1.15
1715	6.40	6.70	6.36	6.32	0.37	20.95	24.17	21.56	0.98	1715	1.03	1.12	1.16	1.11	1.15
1725	6.40	6.70	6.36	6.32	0.38	21.27	24.32	21.92	0.96	1725	1.03	1.12	1.16	1.11	1.15
1735	6.40	6.70	6.36	6.32	0.38	21.60	24.47	22.28	0.95	1735	1.02	1.12	1.16	1.11	1.15
1745	6.40	6.71	6.37	6.32	0.38	21.94	24.62	22.67	0.95	1745	1.02	1.12	1.16	1.11	1.15
1755	6.40	6.71	6.37	6.32	0.39	22.29	24.78	23.07	0.94	1755	1.02	1.12	1.16	1.11	1.15
1765	6.40	6.71	6.37	6.32	0.39	22.66	24.93	23.49	0.94	1765	1.03	1.12	1.16	1.11	1.15
1775	6.41	6.72	6.38	6.32	0.39	23.03	25.09	23.92	0.91	1775	1.03	1.12	1.16	1.11	1.15
1780	6.41	6.72	6.38	6.33	0.39	23.22	25.17	24.15	0.91	1780	1.04	1.12	1.17	1.11	1.15
1785	6.41	6.72	6.38	6.32	0.40	23.42	25.26	24.37	0.90	1785	1.04	1.13	1.17	1.11	1.15
1790	6.41	6.72	6.38	6.32	0.40	23.62	25.35	24.60	0.88	1790	1.04	1.13	1.17	1.11	1.15
1795	6.41	6.72	6.38	6.33	0.40	23.82	25.43	24.84	0.87	1795	1.04	1.13	1.17	1.11	1.16
1800	6.41	6.72	6.39	6.32	0.40	24.02	25.52	25.08	0.88	1800	1.05	1.13	1.17	1.11	1.16
1820	6.42	6.73	6.39	6.33	0.40	24.88	25.88	26.10	0.83	1820	1.06	1.13	1.17	1.11	1.16
1840	6.42	6.74	6.40	6.33	0.41	25.79	26.25	27.23	0.78	1840	1.07	1.13	1.17	1.12	1.16
1860	6.43	6.75	6.41	6.33	0.42	26.78	26.65	28.47	0.79	1860	1.09	1.14	1.17	1.12	1.16
1880	6.44	6.75	6.42	6.34	0.42	27.84	27.08	29.82	0.83	1880	1.10	1.14	1.18	1.12	1.16
1900	6.44	6.76	6.43	6.34	0.42	28.95	27.53	31.31	0.95	1900	1.11	1.15	1.18	1.13	1.17
1930	6.46	6.77	6.44	6.34	0.43	30.81	28.20	33.83	1.07	1930	1.13	1.15	1.19	1.13	1.18
1960	6.47	6.78	6.45	6.34	0.43	32.54	28.98	35.88	1.21	1960	1.15	1.16	1.20	1.14	1.18
1990	6.49	6.78	6.47	6.35	0.44	33.85	29.89	36.30	1.34	1990	1.16	1.17	1.21	1.15	1.19
2020	6.51	6.79	6.48	6.35	0.44	34.09	30.85	34.66	1.51	2020	1.17	1.18	1.21	1.16	1.20
2050	6.52	6.79	6.50	6.35	0.44	33.19	32.00	32.53	1.65	2050	1.18	1.19	1.22	1.17	1.21
2080	6.54	6.80	6.51	6.36	0.44	31.86	33.35	30.65	1.79	2080	1.19	1.20	1.23	1.18	1.22
2110	6.56	6.80	6.53	6.36	0.44	30.36	34.85	29.00	1.97	2110	1.20	1.21	1.24	1.20	1.23
2140	6.58	6.80	6.54	6.36	0.44	29.07	36.87	27.70	2.14	2140	1.21	1.23	1.25	1.21	1.24
2170	6.60	6.81	6.56	6.37	0.44	27.92	39.52	26.60	2.28	2170	1.21	1.24	1.26	1.22	1.25
2200	6.62	6.80	6.57	6.37	0.44	26.89	43.01	25.64	2.40	2200	1.21	1.25	1.26	1.23	1.26
2215	6.64	6.80	6.58	6.37	0.43	26.43	45.02	25.22	2.48	2215	1.21	1.26	1.26	1.24	1.26
2230	6.65	6.80	6.59	6.37	0.43	26.00	46.90	24.83	2.55	2230	1.20	1.26	1.27	1.25	1.27
2245	6.66	6.80	6.59	6.37	0.43	25.57	47.58	24.44	2.61	2245	1.20	1.27	1.28	1.26	1.28
2260	6.67	6.80	6.60	6.37	0.43	25.14	46.41	24.06	2.71	2260	1.20	1.28	1.28	1.26	1.28
2275	6.68	6.79	6.61	6.37	0.42	24.73	44.28	23.70	2.77	2275	1.19	1.28	1.28	1.27	1.29
2290	6.69	6.79	6.61	6.37	0.42	24.36	42.10	23.38	2.83	2290	1.18	1.28	1.28	1.27	1.29
2305	6.70	6.78	6.62	6.37	0.42	24.00	40.21	23.07	2.90	2305	1.18	1.29	1.29	1.28	1.29
2320	6.71	6.78	6.62	6.37	0.41	23.64	38.59	22.76	2.92	2320	1.17	1.29	1.30	1.28	1.30
2335	6.72	6.78	6.63	6.37	0.41	23.30	37.15	22.47	2.95	2335	1.17	1.30	1.30	1.29	1.31
2350	6.73	6.77	6.63	6.37	0.40	22.96	35.89	22.19	3.00	2350	1.16	1.31	1.30	1.30	1.31

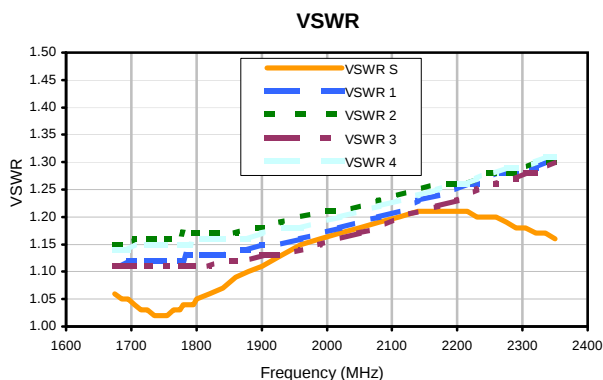
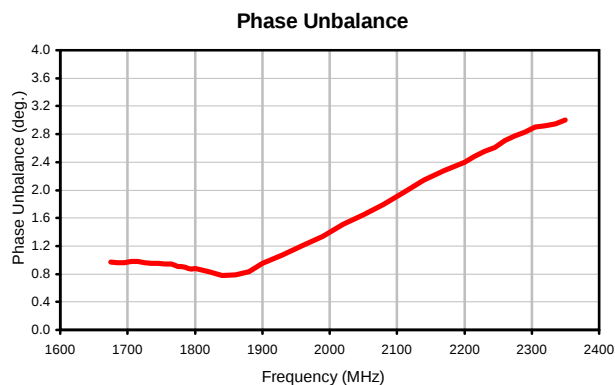
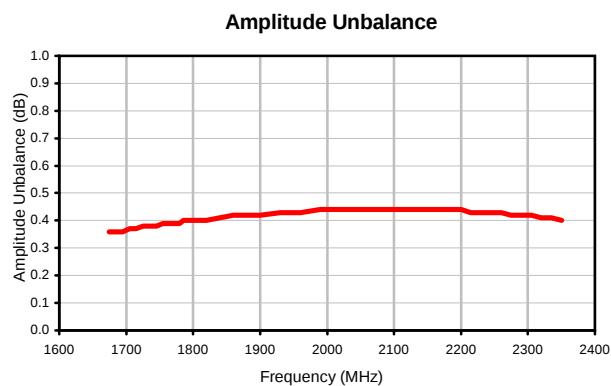
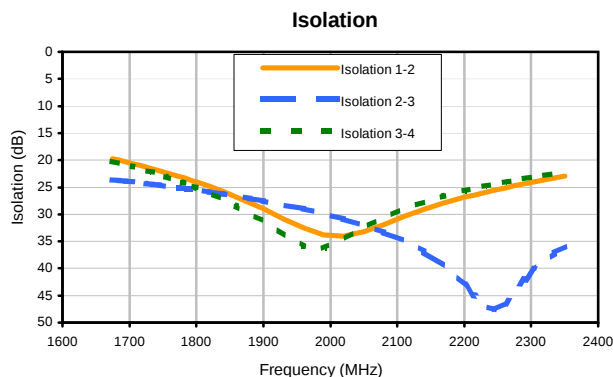
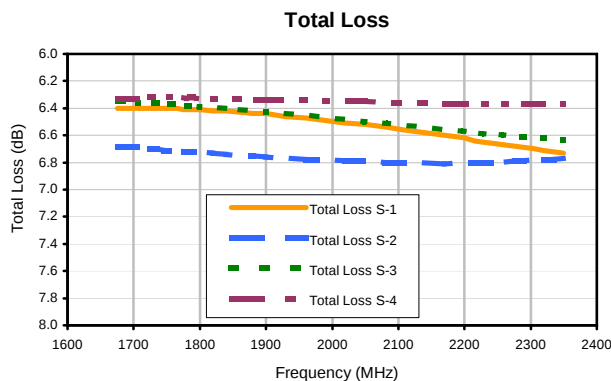
¹ Total Loss = Insertion Loss+ 6dB Splitter Loss

REV. X2
ZX10-4-24+
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Page 1 of 1

4 Way-0° Power Splitter/Combiner

ZX10-4-24+

Typical Performance Curves



REV. X2
ZX10-4-24+
100627
Page 1 of 1



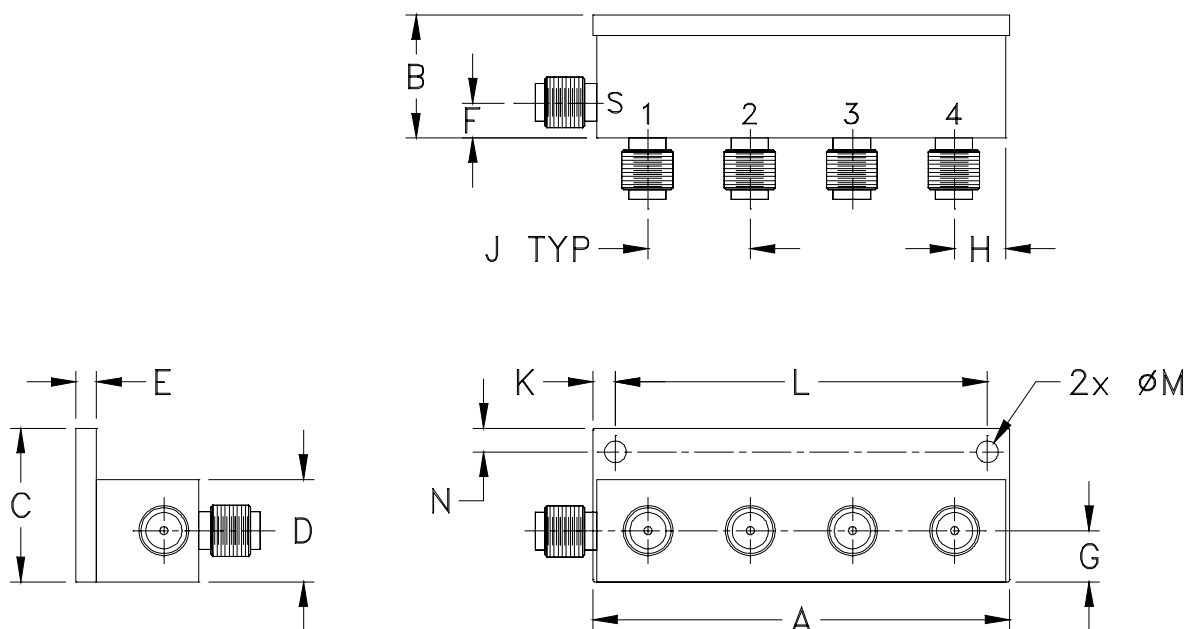
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Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	WT. GRAM
GR1026	2.04 (51.82)	.60 (15.24)	.75 (19.05)	.50 (12.70)	.10 (2.54)	.17 (4.32)	.25 (6.35)	.25 (6.35)	.50 (12.70)	.11 (2.79)	1.820 (46.23)	.106 (2.69)	.12 (3.05)	60.0

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.



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