

Coaxial

Power Splitter/Combiner

4 Way-0° 50Ω 0.1 to 200 MHz

ZMSC-4-1+



Generic photo used for illustration purposes only

CASE STYLE: N24

Connectors Model
SMA ZMSC-4-1+
BRACKET (OPTION "B")
BRACKET (OPTION "BR")

•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	0.250W 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
PORT 4	4

Features

- high isolation, 30 dB typ.
- rugged shielded case

Applications

- HF/VHF
- radio communication
- receivers/transmitters

Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 6.0 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L		M		U	
	Typ.	Min	Typ.	Min	Typ.	Min	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
0.1-200	33	20	30	20	27	20	0.4	0.6	0.5	0.75	0.7	1.0	4	6	8	0.15	0.20	0.25

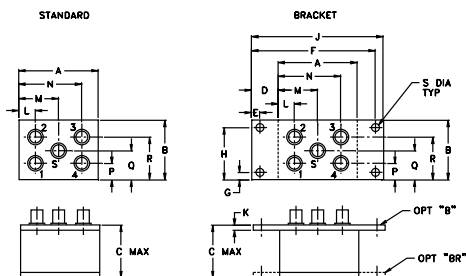
L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

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	VSWR 4
	S-1	S-2	S-3	S-4		1-2	2-3	3-4						
0.10	6.17	6.17	6.17	6.16	0.01	28.93	32.05	29.34	0.07	1.27	1.31	1.31	1.32	1.32
0.50	6.20	6.20	6.20	6.20	0.00	29.03	43.97	29.35	0.05	1.24	1.18	1.18	1.19	1.19
1.00	6.19	6.19	6.19	6.18	0.01	28.87	45.99	29.14	0.05	1.25	1.17	1.17	1.17	1.17
10.00	6.20	6.21	6.21	6.21	0.01	29.26	46.44	29.47	0.06	1.27	1.15	1.15	1.15	1.15
31.00	6.29	6.29	6.29	6.29	0.01	29.41	45.20	29.56	0.04	1.28	1.14	1.14	1.14	1.14
52.00	6.34	6.34	6.34	6.35	0.01	29.05	43.18	29.13	0.05	1.28	1.13	1.13	1.13	1.13
80.00	6.35	6.35	6.36	6.36	0.02	28.55	41.17	28.52	0.07	1.26	1.11	1.10	1.10	1.11
100.00	6.40	6.40	6.43	6.43	0.02	28.45	40.30	28.37	0.06	1.24	1.09	1.09	1.09	1.09
118.00	6.40	6.41	6.43	6.44	0.04	28.68	39.86	28.52	0.07	1.21	1.08	1.08	1.07	1.07
130.00	6.40	6.40	6.44	6.44	0.05	29.03	39.76	28.83	0.09	1.19	1.07	1.07	1.06	1.07
154.00	6.45	6.45	6.50	6.51	0.06	30.28	40.30	30.13	0.10	1.14	1.07	1.07	1.06	1.06
176.00	6.49	6.48	6.55	6.57	0.09	32.10	41.55	32.45	0.19	1.09	1.09	1.09	1.08	1.07
184.00	6.50	6.49	6.57	6.59	0.10	32.76	42.38	33.67	0.19	1.08	1.10	1.10	1.09	1.08
192.00	6.51	6.51	6.59	6.62	0.11	33.28	43.49	35.26	0.22	1.07	1.11	1.11	1.10	1.09
200.00	6.52	6.51	6.60	6.63	0.12	33.46	44.99	37.10	0.25	1.06	1.12	1.12	1.11	1.10

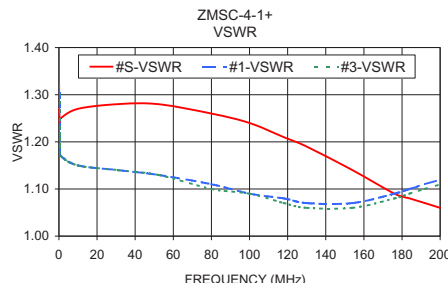
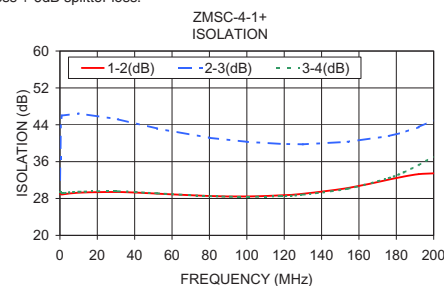
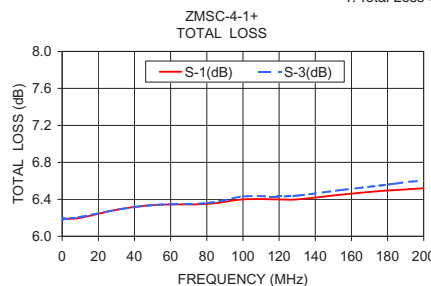
1. Total Loss = Insertion Loss + 6dB splitter loss.

Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	J
1.50	1.13	1.00	.50	.155	2.345	.138	.987	2.50
38.10	28.70	25.40	12.70	3.94	59.56	3.51	25.07	63.50
K	L	M	N	P	Q	R	S	wt
.10	.32	.75	1.18	.31	.56	.81	.150	grams
2.54	8.13	19.05	29.97	7.87	14.22	20.57	3.81	45.0



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



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

REV. D
M167949
ZMSC-4-1+
HY/TD/CP/AM
200817

4 Way-0° Power Splitter/Combiner

ZMSC-4-1

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
0.1	6.17	6.17	6.17	6.16	0.01	28.93	32.05	29.34	0.07	0.1	1.27	1.31	1.31	1.32	1.32
0.2	6.19	6.19	6.19	6.19	0.00	29.00	37.80	29.39	0.06	0.2	1.25	1.22	1.22	1.22	1.22
0.3	6.20	6.20	6.20	6.20	0.00	29.06	40.92	29.41	0.02	0.3	1.25	1.20	1.20	1.20	1.20
0.4	6.19	6.20	6.20	6.20	0.01	29.05	42.78	29.38	0.02	0.4	1.24	1.19	1.19	1.19	1.19
0.5	6.20	6.20	6.20	6.20	0.00	29.03	43.97	29.35	0.05	0.5	1.24	1.18	1.18	1.19	1.19
0.6	6.19	6.19	6.19	6.20	0.01	29.00	44.82	29.31	0.04	0.6	1.25	1.18	1.18	1.18	1.18
0.7	6.20	6.20	6.20	6.19	0.01	28.96	45.31	29.26	0.04	0.7	1.25	1.18	1.18	1.18	1.18
0.8	6.19	6.19	6.19	6.19	0.00	28.93	45.61	29.21	0.02	0.8	1.25	1.17	1.17	1.18	1.18
0.9	6.19	6.19	6.19	6.19	0.00	28.91	45.85	29.18	0.03	0.9	1.25	1.17	1.17	1.18	1.17
1.0	6.19	6.19	6.19	6.18	0.01	28.87	45.99	29.14	0.05	1.0	1.25	1.17	1.17	1.17	1.17
10.0	6.20	6.21	6.21	6.21	0.01	29.26	46.44	29.47	0.06	10.0	1.27	1.15	1.15	1.15	1.15
17.0	6.24	6.24	6.24	6.25	0.01	29.39	46.26	29.60	0.03	17.0	1.27	1.15	1.14	1.15	1.15
24.0	6.27	6.27	6.27	6.27	0.01	29.44	45.78	29.63	0.05	24.0	1.28	1.14	1.14	1.14	1.14
31.0	6.29	6.29	6.29	6.29	0.01	29.41	45.20	29.56	0.04	31.0	1.28	1.14	1.14	1.14	1.14
38.0	6.32	6.32	6.33	6.32	0.01	29.31	44.42	29.43	0.04	38.0	1.28	1.13	1.13	1.14	1.14
45.0	6.33	6.33	6.33	6.33	0.01	29.18	43.76	29.28	0.05	45.0	1.28	1.13	1.13	1.13	1.13
52.0	6.34	6.34	6.34	6.35	0.01	29.05	43.18	29.13	0.05	52.0	1.28	1.13	1.13	1.13	1.13
59.0	6.33	6.34	6.34	6.34	0.02	28.90	42.54	28.96	0.06	59.0	1.28	1.12	1.12	1.12	1.12
66.0	6.34	6.33	6.35	6.35	0.01	28.79	42.06	28.79	0.04	66.0	1.27	1.12	1.12	1.12	1.12
73.0	6.33	6.34	6.35	6.35	0.02	28.64	41.55	28.65	0.06	73.0	1.27	1.11	1.11	1.11	1.11
80.0	6.35	6.35	6.36	6.36	0.02	28.55	41.17	28.52	0.07	80.0	1.26	1.11	1.10	1.10	1.11
84.0	6.36	6.36	6.37	6.38	0.02	28.48	40.94	28.48	0.04	84.0	1.26	1.10	1.10	1.10	1.10
88.0	6.37	6.37	6.38	6.39	0.02	28.48	40.73	28.42	0.04	88.0	1.25	1.10	1.10	1.10	1.10
92.0	6.38	6.38	6.40	6.40	0.02	28.46	40.57	28.39	0.07	92.0	1.25	1.10	1.10	1.09	1.10
96.0	6.39	6.39	6.41	6.42	0.03	28.44	40.42	28.36	0.05	96.0	1.24	1.09	1.09	1.09	1.09
100.0	6.40	6.40	6.43	6.43	0.02	28.45	40.30	28.37	0.06	100.0	1.24	1.09	1.09	1.09	1.09
106.0	6.41	6.41	6.43	6.44	0.03	28.50	40.12	28.38	0.05	106.0	1.23	1.09	1.08	1.08	1.08
112.0	6.41	6.41	6.44	6.44	0.04	28.56	39.98	28.42	0.10	112.0	1.22	1.08	1.08	1.08	1.08
118.0	6.40	6.41	6.43	6.44	0.04	28.68	39.86	28.52	0.07	118.0	1.21	1.08	1.08	1.07	1.07
124.0	6.40	6.40	6.43	6.44	0.04	28.83	39.81	28.67	0.04	124.0	1.20	1.08	1.07	1.07	1.07
130.0	6.40	6.40	6.44	6.44	0.05	29.03	39.76	28.83	0.09	130.0	1.19	1.07	1.07	1.06	1.07
136.0	6.41	6.41	6.44	6.46	0.05	29.26	39.87	29.07	0.11	136.0	1.18	1.07	1.07	1.06	1.06
142.0	6.42	6.42	6.46	6.47	0.05	29.57	39.90	29.36	0.11	142.0	1.17	1.07	1.07	1.06	1.06
148.0	6.44	6.43	6.48	6.49	0.06	29.90	40.06	29.70	0.09	148.0	1.15	1.07	1.07	1.06	1.06
154.0	6.45	6.45	6.50	6.51	0.06	30.28	40.30	30.13	0.10	154.0	1.14	1.07	1.07	1.06	1.06
160.0	6.47	6.46	6.51	6.53	0.07	30.74	40.54	30.63	0.11	160.0	1.13	1.08	1.08	1.06	1.06
168.0	6.48	6.47	6.53	6.55	0.08	31.38	40.98	31.42	0.14	168.0	1.11	1.08	1.08	1.07	1.07
176.0	6.49	6.48	6.55	6.57	0.09	32.10	41.55	32.45	0.19	176.0	1.09	1.09	1.09	1.08	1.07
184.0	6.50	6.49	6.57	6.59	0.10	32.76	42.38	33.67	0.19	184.0	1.08	1.10	1.10	1.09	1.08
192.0	6.51	6.51	6.59	6.62	0.11	33.28	43.49	35.26	0.22	192.0	1.07	1.11	1.11	1.10	1.09
200.0	6.52	6.51	6.60	6.63	0.12	33.46	44.99	37.10	0.25	200.0	1.06	1.12	1.12	1.11	1.10

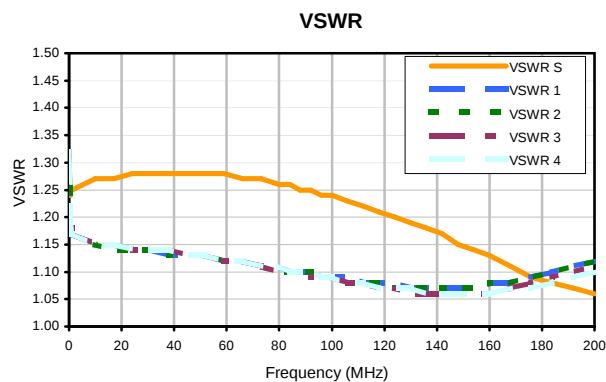
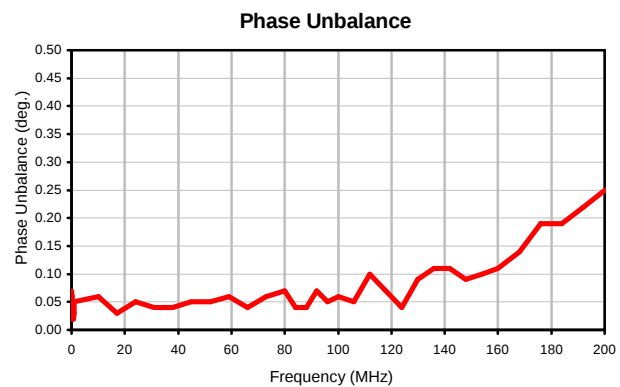
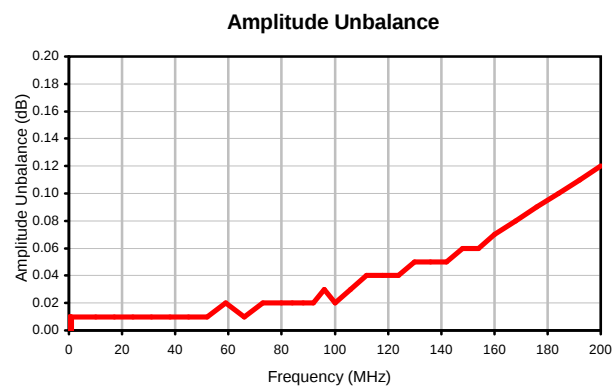
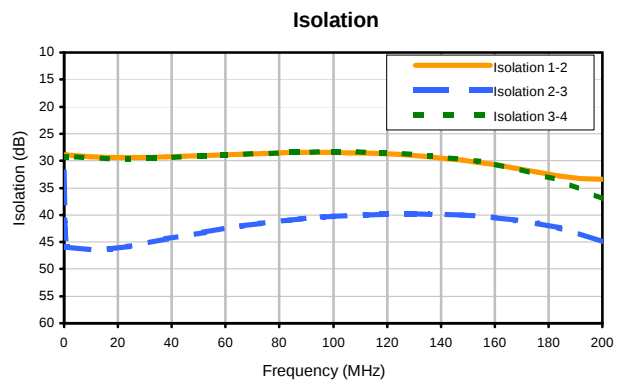
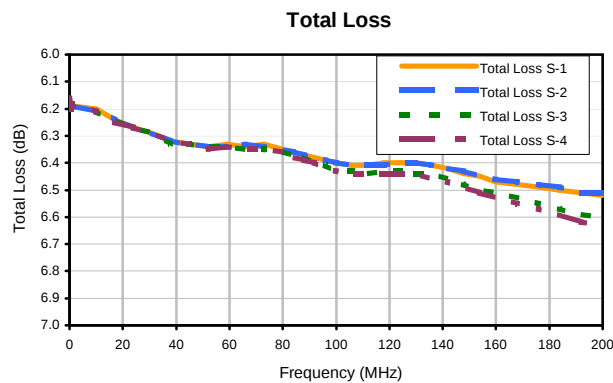
¹ Total Loss = Insertion Loss+ 6dB Splitter Loss

REV. X2
ZMSC-4-1
100627
Page 1 of 1

4 Way-0° Power Splitter/Combiner

ZMSC-4-1

Typical Performance Curves



REV. X2

ZMSC-4-1

100627

Page 1 of 1

Mini-Circuits®

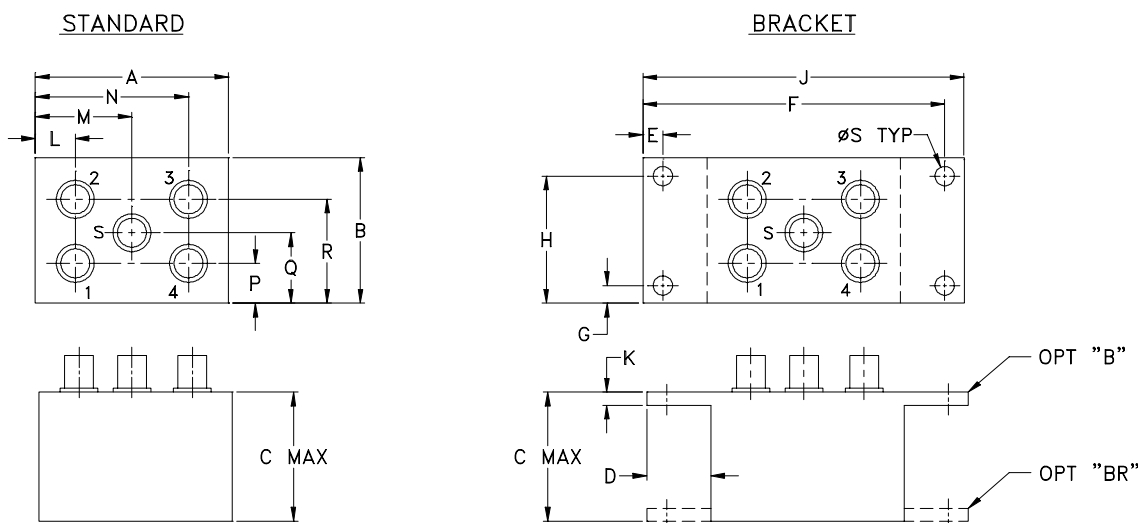
RF/MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED RoHS compliant
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



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
N24	1.50 (38.10)	1.13 (28.70)	1.00 (25.40)	.50 (12.70)	.155 (3.94)	2.345 (59.56)	.138 (3.51)	.987 (25.07)	2.50 (63.50)	.10 (2.54)	.32 (8.13)	.75 (19.05)	1.18 (29.97)
N27	2.25 (57.15)	1.38 (35.05)	1.24 (31.50)		.150 (3.81)	3.100 (78.74)		1.238 (31.45)	3.25 (82.55)		.48 (12.19)	1.13 (28.70)	1.78 (45.21)

CASE#	P	Q	R	S	WT. GRAMS
N24	.31 (7.87)	.56 (14.22)	.81 (20.57)	.150 (3.81)	45.0
N27	.36 (9.14)	.69 (17.53)	1.01 (25.65)		92.0

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
 - For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
 - For Non-RoHS Case Styles: Yellow hexavalent chrome based conversion coating. Due to transition from non-RoHS to RoHS, models will be supplied with either case style finish until the non-RoHS case inventory is depleted.
- Mounting bracket available on request. For bracket mounted on connector end add suffix B to part number and add \$5.00 to unit cost. For bracket mounted on the rear, add suffix BR to part number and add \$1.50 to unit cost.



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	-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