

Coaxial

Power Splitter/Combiner

4 Way-0° 50Ω 0.25 to 250 MHz

ZMSC-4-3+ ZMSC-4-3



CASE STYLE: N24

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

- wideband, 0.25 to 250 MHz
- high isolation, 30 dB typ.
- good VSWR, 1.15:1 typ.

Applications

- HF/VHF
- radio communication
- receivers/transmitters

Connectors	Model	Price	Qty.
SMA	ZMSC-4-3(+)	\$64.95	(1-9)
BRACKET (OPTION "B")		\$5.00	(1+)
BRACKET (OPTION "BR")		\$1.50	(1+)

+ RoHS compliant in accordance
with EU Directive (2002/95/EC)

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

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.
0.25-250	33	20	30	20	27	20	0.4	0.7	0.5	0.75	0.7	1.2	4	6	10	0.15	0.20	0.25

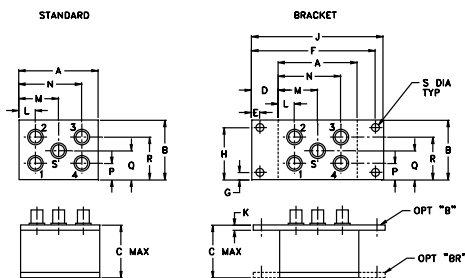
L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

Typical Performance Data

Freq. (MHz)	Total Loss ¹ (dB)				Amp. Unbal. (dB)	Isolation (dB)			Phase Unbal. (deg.)	VSWR	VSWR	VSWR	VSWR	VSWR
	S-1	S-2	S-3	S-4		1-2	2-3	3-4		S	1	2	3	4
0.25	6.20	6.20	6.20	6.19	0.01	28.97	54.63	29.13	0.06	1.11	1.19	1.19	1.18	1.19
0.50	6.21	6.20	6.20	6.21	0.01	31.12	54.58	31.26	0.09	1.07	1.12	1.12	1.11	1.12
1.00	6.20	6.20	6.20	6.21	0.01	31.99	55.08	32.12	0.10	1.05	1.09	1.09	1.09	1.09
2.50	6.18	6.17	6.17	6.17	0.01	32.86	55.05	33.09	0.10	1.04	1.07	1.07	1.07	1.07
3.00	6.17	6.16	6.16	6.17	0.01	33.09	54.93	33.26	0.11	1.03	1.07	1.07	1.06	1.06
10.00	6.17	6.17	6.16	6.16	0.01	33.40	52.68	33.34	0.07	1.03	1.05	1.05	1.05	1.05
55.00	6.26	6.27	6.27	6.26	0.01	29.06	42.32	28.92	0.12	1.07	1.03	1.03	1.03	1.03
100.00	6.33	6.33	6.34	6.33	0.02	26.26	38.85	26.11	0.15	1.11	1.01	1.01	1.01	1.01
130.00	6.38	6.38	6.38	6.39	0.02	25.25	37.66	25.12	0.26	1.12	1.04	1.04	1.03	1.03
150.00	6.40	6.40	6.40	6.41	0.01	24.95	37.30	24.83	0.22	1.13	1.06	1.06	1.05	1.05
180.00	6.44	6.43	6.44	6.44	0.01	25.03	37.10	24.89	0.30	1.14	1.10	1.10	1.09	1.08
200.00	6.49	6.47	6.48	6.49	0.02	25.40	37.03	25.29	0.37	1.14	1.12	1.12	1.11	1.11
220.00	6.49	6.48	6.49	6.50	0.02	26.14	36.72	26.05	0.41	1.14	1.15	1.15	1.13	1.13
240.00	6.54	6.54	6.53	6.56	0.02	27.54	35.94	27.44	0.34	1.15	1.17	1.17	1.16	1.15
250.00	6.55	6.55	6.53	6.57	0.04	28.48	35.32	28.41	0.38	1.15	1.19	1.19	1.17	1.16

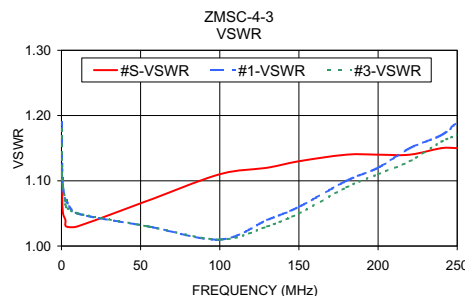
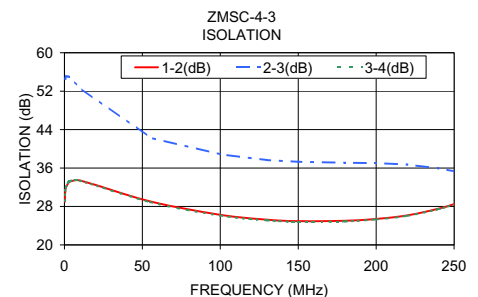
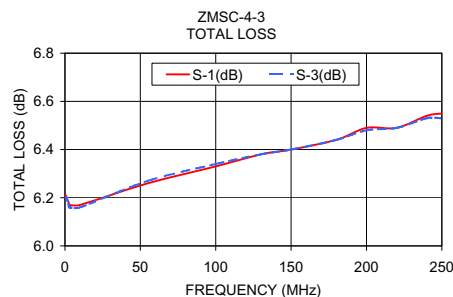
1. Total Loss = Insertion Loss + 6dB splitter loss.

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



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Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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.

REV. B
M129855
ZMSC-4-3
HY/TD/CP
110105

4 Way-0° Power Splitter/Combiner

ZMSC-4-3+

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
0.3	6.20	6.20	6.20	6.19	0.01	28.97	54.63	29.13	0.06	0.3	1.11	1.19	1.19	1.18	1.19
0.5	6.21	6.20	6.20	6.21	0.01	31.12	54.58	31.26	0.09	0.5	1.07	1.12	1.12	1.11	1.12
0.8	6.21	6.22	6.21	6.21	0.01	31.73	54.90	31.84	0.10	0.8	1.05	1.10	1.10	1.10	1.10
1.0	6.20	6.20	6.20	6.21	0.01	31.99	55.08	32.12	0.10	1.0	1.05	1.09	1.09	1.09	1.09
2.0	6.19	6.17	6.18	6.18	0.01	32.62	54.67	32.83	0.04	2.0	1.04	1.08	1.07	1.07	1.07
2.5	6.18	6.17	6.17	6.17	0.01	32.86	55.05	33.09	0.10	2.5	1.04	1.07	1.07	1.07	1.07
2.7	6.18	6.17	6.17	6.17	0.01	32.94	55.10	33.13	0.02	2.7	1.03	1.07	1.07	1.07	1.07
2.8	6.18	6.17	6.17	6.18	0.00	33.00	55.18	33.20	0.13	2.8	1.03	1.07	1.07	1.06	1.07
3.0	6.17	6.16	6.16	6.17	0.01	33.09	54.93	33.26	0.11	3.0	1.03	1.07	1.07	1.06	1.06
8.0	6.17	6.16	6.15	6.17	0.01	33.53	53.38	33.51	0.04	8.0	1.03	1.05	1.05	1.05	1.05
10.0	6.17	6.17	6.16	6.16	0.01	33.40	52.68	33.34	0.07	10.0	1.03	1.05	1.05	1.05	1.05
19.0	6.19	6.19	6.20	6.20	0.01	32.55	49.12	32.46	0.07	19.0	1.04	1.04	1.04	1.04	1.04
28.0	6.22	6.21	6.21	6.22	0.01	31.62	46.74	31.50	0.08	28.0	1.05	1.04	1.04	1.04	1.04
37.0	6.23	6.22	6.23	6.23	0.01	30.65	44.92	30.56	0.09	37.0	1.05	1.04	1.04	1.04	1.04
46.0	6.25	6.25	6.25	6.24	0.01	29.84	43.54	29.69	0.17	46.0	1.06	1.03	1.03	1.03	1.03
55.0	6.26	6.27	6.27	6.26	0.01	29.06	42.32	28.92	0.12	55.0	1.07	1.03	1.03	1.03	1.03
64.0	6.28	6.28	6.28	6.28	0.01	28.35	41.32	28.24	0.15	64.0	1.08	1.02	1.02	1.02	1.02
73.0	6.29	6.29	6.28	6.29	0.01	27.73	40.53	27.59	0.20	73.0	1.09	1.02	1.02	1.02	1.02
82.0	6.30	6.30	6.31	6.30	0.01	27.16	39.86	27.03	0.09	82.0	1.09	1.01	1.01	1.01	1.01
91.0	6.31	6.31	6.30	6.30	0.01	26.68	39.35	26.54	0.18	91.0	1.10	1.01	1.01	1.01	1.01
100.0	6.33	6.33	6.34	6.33	0.02	26.26	38.85	26.11	0.15	100.0	1.11	1.01	1.01	1.01	1.01
110.0	6.35	6.36	6.36	6.35	0.01	25.85	38.32	25.73	0.26	110.0	1.11	1.02	1.02	1.01	1.01
120.0	6.37	6.36	6.36	6.36	0.02	25.51	37.95	25.38	0.21	120.0	1.12	1.03	1.03	1.02	1.02
130.0	6.38	6.38	6.38	6.39	0.02	25.25	37.66	25.12	0.26	130.0	1.12	1.04	1.04	1.03	1.03
140.0	6.39	6.38	6.39	6.41	0.03	25.07	37.52	24.97	0.24	140.0	1.13	1.05	1.05	1.04	1.04
150.0	6.40	6.40	6.40	6.41	0.01	24.95	37.30	24.83	0.22	150.0	1.13	1.06	1.06	1.05	1.05
160.0	6.40	6.39	6.40	6.42	0.02	24.90	37.24	24.76	0.32	160.0	1.13	1.07	1.07	1.06	1.06
170.0	6.41	6.41	6.42	6.41	0.01	24.91	37.18	24.80	0.30	170.0	1.13	1.08	1.08	1.07	1.07
180.0	6.44	6.43	6.44	6.44	0.01	25.03	37.10	24.89	0.30	180.0	1.14	1.10	1.10	1.09	1.08
190.0	6.47	6.46	6.47	6.47	0.01	25.19	37.16	25.06	0.33	190.0	1.14	1.11	1.11	1.10	1.09
200.0	6.49	6.47	6.48	6.49	0.02	25.40	37.03	25.29	0.37	200.0	1.14	1.12	1.12	1.11	1.11
205.0	6.49	6.48	6.48	6.51	0.03	25.55	36.99	25.44	0.40	205.0	1.14	1.13	1.13	1.11	1.11
210.0	6.49	6.49	6.49	6.50	0.02	25.73	36.87	25.60	0.39	210.0	1.14	1.14	1.13	1.12	1.12
215.0	6.48	6.46	6.48	6.49	0.02	25.91	36.82	25.79	0.40	215.0	1.14	1.14	1.14	1.13	1.12
220.0	6.49	6.48	6.49	6.50	0.02	26.14	36.72	26.05	0.41	220.0	1.14	1.15	1.15	1.13	1.13
225.0	6.49	6.50	6.50	6.52	0.03	26.41	36.56	26.33	0.33	225.0	1.14	1.15	1.15	1.14	1.14
230.0	6.50	6.50	6.50	6.52	0.02	26.75	36.32	26.65	0.44	230.0	1.15	1.16	1.16	1.14	1.14
235.0	6.53	6.53	6.53	6.55	0.02	27.10	36.21	27.01	0.30	235.0	1.15	1.17	1.17	1.15	1.15
240.0	6.54	6.54	6.53	6.56	0.02	27.54	35.94	27.44	0.34	240.0	1.15	1.17	1.17	1.16	1.15
245.0	6.54	6.54	6.53	6.57	0.03	27.98	35.71	27.90	0.43	245.0	1.15	1.18	1.18	1.16	1.16
250.0	6.55	6.55	6.53	6.57	0.04	28.48	35.32	28.41	0.38	250.0	1.15	1.19	1.19	1.17	1.16

¹ Total Loss = Insertion Loss+ 6dB Splitter Loss



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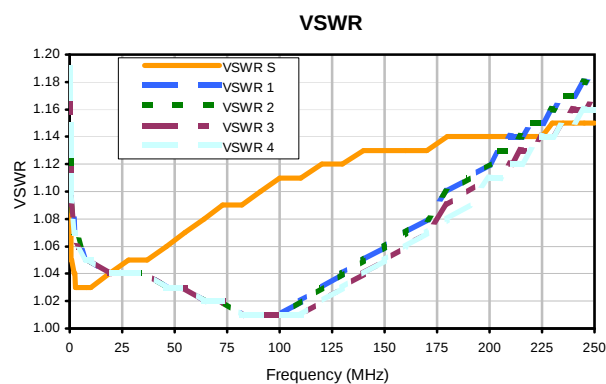
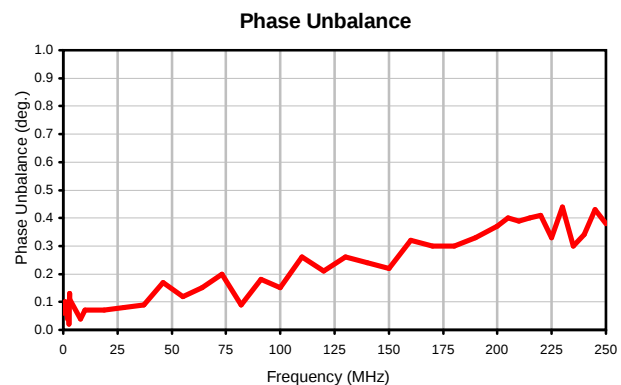
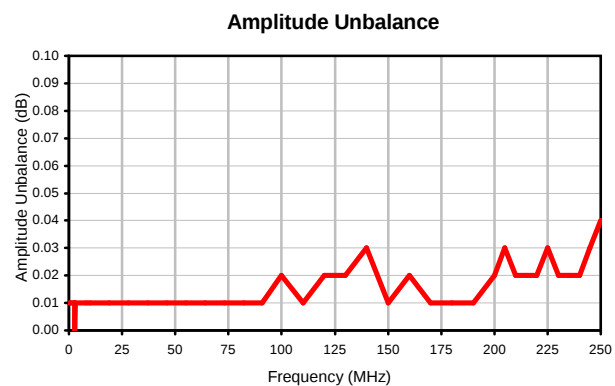
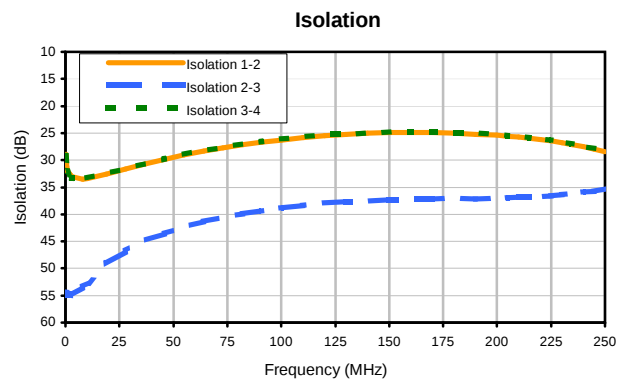
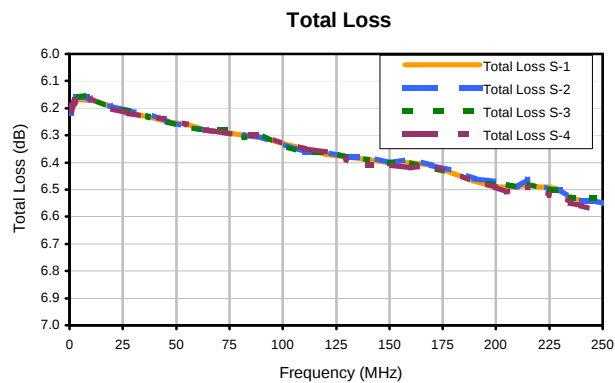
REV. X2
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4 Way-0° Power Splitter/Combiner

ZMSC-4-3+

Typical Performance Curves



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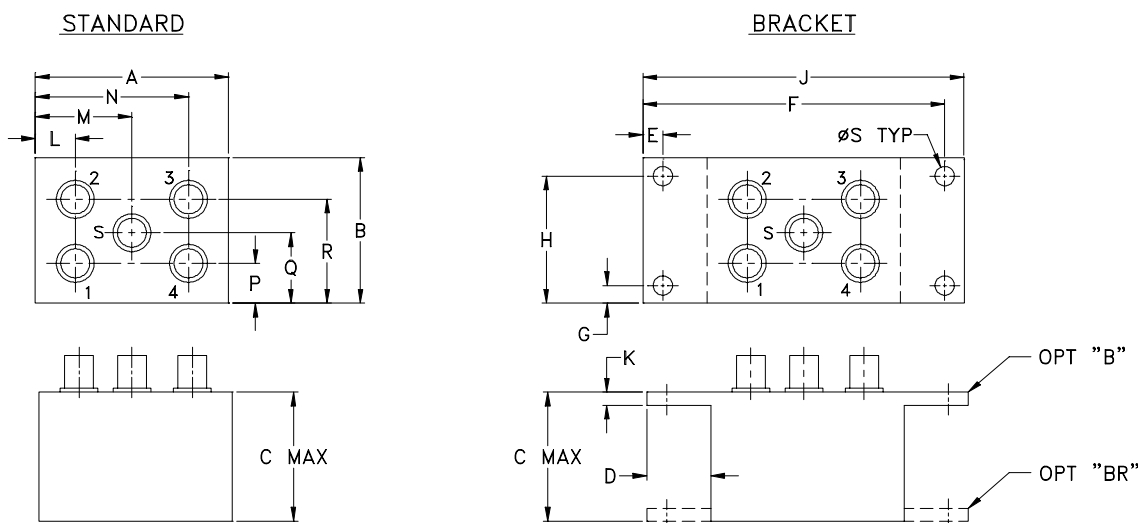
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Outline Dimensions



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.



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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