

Coaxial

Power Splitter/Combiner

4 Way-0° 50Ω 10 to 800 MHz

ZBSC-413+

Maximum Ratings

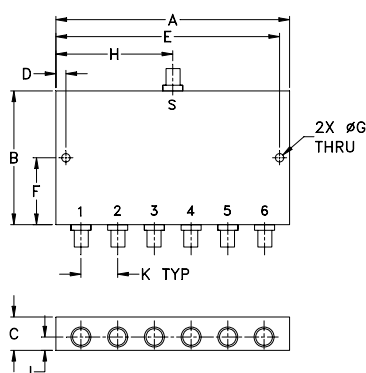
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	1W max.
Internal Dissipation	0.250W max.
Permanent damage may occur if any of these limits are exceeded.	

Coaxial Connections

SUM PORT	S
PORT 1	2
PORT 2	3
PORT 3	4
PORT 4	5
NOT USED	1,6

Ports 1,2,3,4 occupy positions 2,3,4,5 in outline drawing; positions 1,6 not occupied.

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F
3.50	2.00	.50	.150	3.350	1.00
88.90	50.80	12.70	3.81	85.09	25.40
G	H	J	K	wt	
.125	1.75	.20	.55	grams	
3.18	44.45	5.08	13.97	120	

Features

- wideband, 10 to 800 MHz
- rugged, shielded case

Applications

- VHF/UHF
- receivers/transmitters



CASE STYLE: UU102

Connectors	Model
SMA	ZBSC-413+

+RoHS Compliant

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

Electrical Specifications

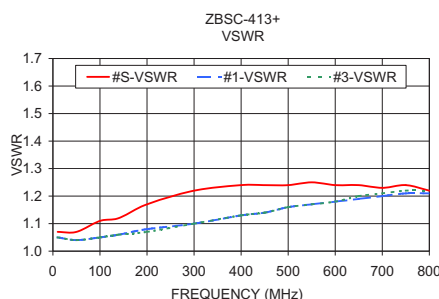
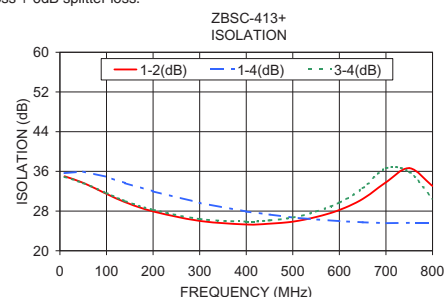
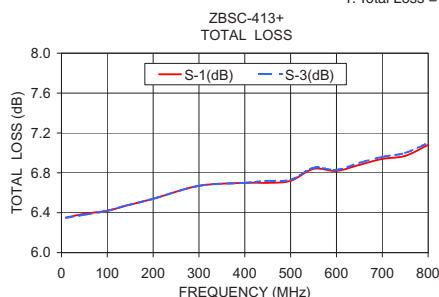
FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 6.0 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L			L		
	Typ.	Min	Typ.	Min	Typ.	Min	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
10-800	26	20	18	15	18	15	0.6	1.0	1.0	1.5	1.6	2.0	4	8	8	0.2	0.4	0.6

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	1-4	3-4						
10.00	6.35	6.36	6.35	6.34	0.01	35.02	35.64	34.88	0.05	1.07	1.05	1.05	1.05	1.05
50.00	6.39	6.38	6.38	6.39	0.01	33.68	35.96	33.63	0.06	1.07	1.04	1.04	1.04	1.05
100.00	6.42	6.41	6.42	6.42	0.00	31.47	34.89	31.62	0.14	1.11	1.05	1.05	1.05	1.04
140.00	6.47	6.47	6.47	6.47	0.00	29.80	33.64	30.02	0.22	1.12	1.06	1.06	1.06	1.07
200.00	6.54	6.54	6.54	6.55	0.01	27.93	31.98	28.25	0.12	1.17	1.08	1.07	1.07	1.08
300.00	6.67	6.67	6.67	6.66	0.01	26.02	29.66	26.40	0.24	1.22	1.10	1.10	1.10	1.11
400.00	6.70	6.71	6.70	6.71	0.01	25.30	27.90	25.88	0.29	1.24	1.13	1.13	1.13	1.15
450.00	6.70	6.71	6.72	6.71	0.01	25.45	27.31	26.13	0.41	1.24	1.14	1.14	1.14	1.14
500.00	6.72	6.72	6.73	6.73	0.01	25.86	26.70	26.70	0.46	1.24	1.16	1.16	1.16	1.19
550.00	6.84	6.84	6.85	6.84	0.01	26.81	26.31	27.88	0.48	1.25	1.17	1.17	1.17	1.18
600.00	6.82	6.83	6.83	6.83	0.01	28.21	25.97	29.70	0.45	1.24	1.18	1.19	1.18	1.21
650.00	6.88	6.88	6.90	6.90	0.02	30.44	25.73	32.60	0.51	1.24	1.19	1.20	1.20	1.22
700.00	6.94	6.95	6.96	6.96	0.02	33.79	25.57	36.63	0.80	1.23	1.20	1.21	1.21	1.23
750.00	6.97	6.98	7.00	6.99	0.03	36.64	25.63	35.87	0.73	1.24	1.21	1.22	1.22	1.23
800.00	7.08	7.07	7.10	7.10	0.03	33.06	25.63	30.50	0.73	1.22	1.21	1.22	1.22	1.24

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



electrical schematic



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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



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REV. E
M151057
ZBSC-413+
HY/TD/CP/AM
151016

4 Way-0° Power Splitter/Combiner

ZBSC-413+

Typical Performance Data

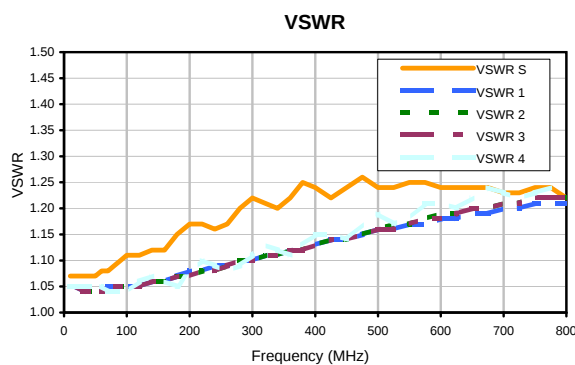
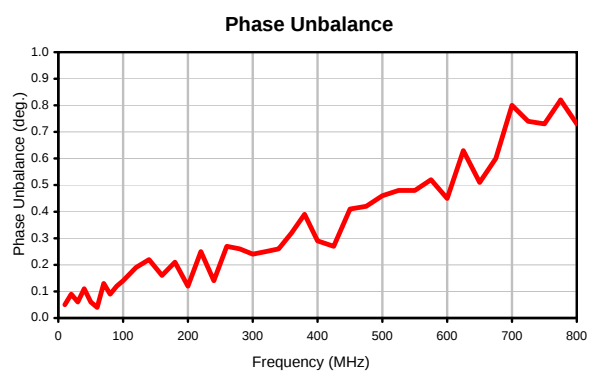
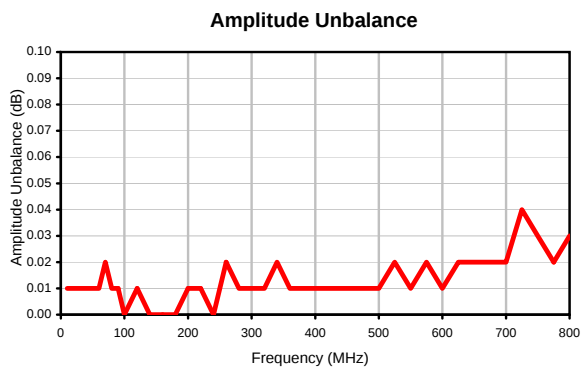
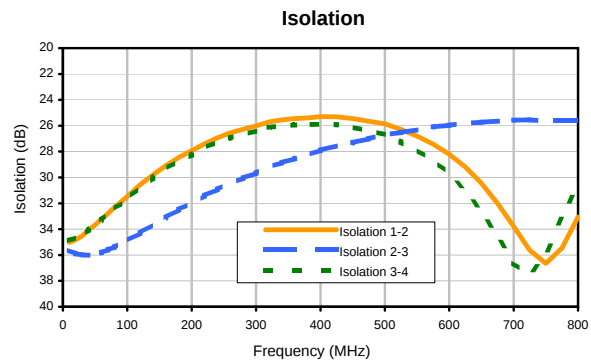
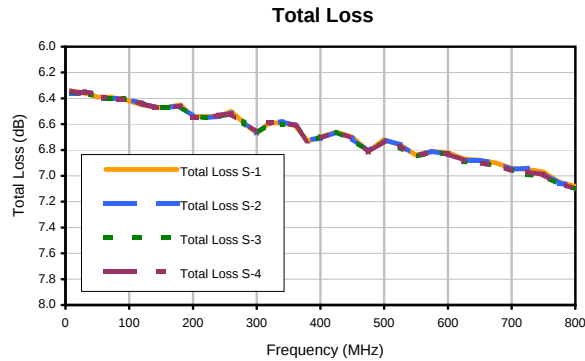
FREQ. (MHz)	TOTAL LOSS ¹ (dB)				AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)				
	S-1	S-2	S-3	S-4		1-2	2-3	3-4			S	1	2	3	4
10.0	6.35	6.36	6.35	6.34	0.01	35.02	35.64	34.88	0.05	10.0	1.07	1.05	1.05	1.05	1.05
20.0	6.35	6.36	6.36	6.36	0.01	34.81	35.90	34.65	0.09	20.0	1.07	1.05	1.05	1.05	1.05
30.0	6.36	6.35	6.36	6.35	0.01	34.52	35.99	34.37	0.06	30.0	1.07	1.04	1.04	1.04	1.05
40.0	6.37	6.36	6.37	6.36	0.01	34.06	36.02	34.06	0.11	40.0	1.07	1.04	1.04	1.04	1.05
50.0	6.39	6.38	6.38	6.39	0.01	33.68	35.96	33.63	0.06	50.0	1.07	1.04	1.04	1.04	1.05
60.0	6.39	6.40	6.40	6.39	0.01	33.22	35.80	33.28	0.04	60.0	1.08	1.04	1.04	1.04	1.05
70.0	6.39	6.40	6.40	6.40	0.02	32.78	35.60	32.83	0.13	70.0	1.08	1.05	1.04	1.04	1.04
80.0	6.40	6.40	6.40	6.41	0.01	32.32	35.38	32.41	0.09	80.0	1.09	1.05	1.05	1.05	1.04
90.0	6.40	6.41	6.40	6.41	0.01	31.90	35.12	32.02	0.12	90.0	1.10	1.05	1.05	1.05	1.04
100.0	6.42	6.41	6.42	6.42	0.00	31.47	34.89	31.62	0.14	100.0	1.11	1.05	1.05	1.05	1.04
120.0	6.45	6.44	6.44	6.44	0.01	30.56	34.30	30.76	0.19	120.0	1.11	1.05	1.05	1.05	1.06
140.0	6.47	6.47	6.47	6.47	0.00	29.80	33.64	30.02	0.22	140.0	1.12	1.06	1.06	1.06	1.07
160.0	6.47	6.47	6.47	6.47	0.00	29.09	33.09	29.32	0.16	160.0	1.12	1.06	1.06	1.06	1.06
180.0	6.45	6.46	6.46	6.46	0.00	28.45	32.49	28.72	0.21	180.0	1.15	1.07	1.07	1.07	1.05
200.0	6.54	6.54	6.54	6.55	0.01	27.93	31.98	28.25	0.12	200.0	1.17	1.08	1.07	1.07	1.08
220.0	6.54	6.55	6.55	6.55	0.01	27.40	31.41	27.70	0.25	220.0	1.17	1.08	1.08	1.08	1.10
240.0	6.54	6.54	6.54	6.53	0.00	26.93	30.92	27.26	0.14	240.0	1.16	1.09	1.08	1.08	1.09
260.0	6.50	6.51	6.52	6.52	0.02	26.55	30.45	26.93	0.27	260.0	1.17	1.09	1.09	1.09	1.08
280.0	6.59	6.58	6.59	6.59	0.01	26.28	30.05	26.68	0.26	280.0	1.20	1.10	1.10	1.10	1.09
300.0	6.67	6.67	6.67	6.66	0.01	26.02	29.66	26.40	0.24	300.0	1.22	1.10	1.10	1.10	1.11
320.0	6.59	6.59	6.60	6.59	0.01	25.71	29.18	26.13	0.25	320.0	1.21	1.11	1.11	1.11	1.13
340.0	6.59	6.58	6.60	6.59	0.02	25.55	28.86	26.01	0.26	340.0	1.20	1.11	1.11	1.11	1.12
360.0	6.61	6.61	6.61	6.61	0.01	25.45	28.54	25.94	0.32	360.0	1.22	1.12	1.12	1.12	1.11
380.0	6.73	6.72	6.73	6.73	0.01	25.39	28.26	25.92	0.39	380.0	1.25	1.12	1.12	1.12	1.13
400.0	6.70	6.71	6.70	6.71	0.01	25.30	27.90	25.88	0.29	400.0	1.24	1.13	1.13	1.13	1.15
425.0	6.66	6.66	6.66	6.66	0.01	25.31	27.55	25.91	0.27	425.0	1.22	1.14	1.14	1.14	1.15
450.0	6.70	6.71	6.72	6.71	0.01	25.45	27.31	26.13	0.41	450.0	1.24	1.14	1.14	1.14	1.14
475.0	6.81	6.81	6.81	6.82	0.01	25.65	27.01	26.39	0.42	475.0	1.26	1.15	1.15	1.15	1.17
500.0	6.72	6.72	6.73	6.73	0.01	25.86	26.70	26.70	0.46	500.0	1.24	1.16	1.16	1.16	1.19
525.0	6.76	6.76	6.78	6.77	0.02	26.29	26.52	27.26	0.48	525.0	1.24	1.16	1.17	1.16	1.17
550.0	6.84	6.84	6.85	6.84	0.01	26.81	26.31	27.88	0.48	550.0	1.25	1.17	1.17	1.17	1.18
575.0	6.81	6.81	6.82	6.82	0.02	27.42	26.09	28.66	0.52	575.0	1.25	1.17	1.18	1.18	1.21
600.0	6.82	6.83	6.83	6.83	0.01	28.21	25.97	29.70	0.45	600.0	1.24	1.18	1.19	1.18	1.21
625.0	6.87	6.88	6.89	6.88	0.02	29.19	25.82	30.98	0.63	625.0	1.24	1.18	1.19	1.19	1.20
650.0	6.88	6.88	6.90	6.90	0.02	30.44	25.73	32.60	0.51	650.0	1.24	1.19	1.20	1.20	1.22
675.0	6.90	6.90	6.92	6.92	0.02	32.00	25.64	34.60	0.60	675.0	1.24	1.19	1.20	1.20	1.24
700.0	6.94	6.95	6.96	6.96	0.02	33.79	25.57	36.63	0.80	700.0	1.23	1.20	1.21	1.21	1.23
725.0	6.95	6.94	6.99	6.97	0.04	35.63	25.55	37.48	0.74	725.0	1.23	1.20	1.21	1.21	1.22
750.0	6.97	6.98	7.00	6.99	0.03	36.64	25.63	35.87	0.73	750.0	1.24	1.21	1.22	1.22	1.23
775.0	7.05	7.06	7.07	7.06	0.02	35.47	25.63	33.19	0.82	775.0	1.24	1.21	1.22	1.22	1.24
800.0	7.08	7.07	7.10	7.10	0.03	33.06	25.63	30.50	0.73	800.0	1.22	1.21	1.22	1.22	1.24

¹ Total Loss = Insertion Loss+ 6dB Splitter Loss

4 Way-0° Power Splitter/Combiner

ZBSC-413+

Typical Performance Curves



REV. X2
ZBSC-413+
100627
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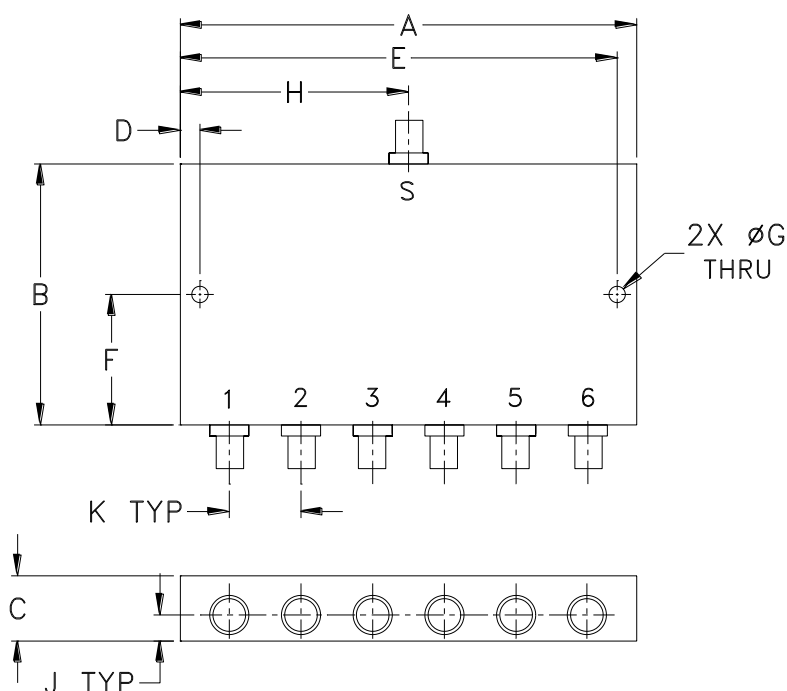


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Outline Dimensions

UU102



CASE#	A	B	C	D	E	F	G	H	J	K	WT. GRAMS
UU102	3.50 (88.90)	2.00 (50.80)	.50 (12.70)	.150 (3.81)	3.350 (85.09)	1.00 (25.40)	.125 (3.18)	1.75 (44.45)	.20 (5.08)	.55 (13.97)	120

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.
- Refer to the individual model data sheet for the type of connectors available.



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Sheet 1 of 1



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