

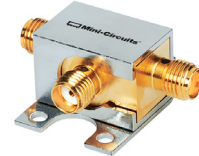
DC Pass

# Power Splitter/Combiner ZX10-2-1252-S+

2 Way-0° 50Ω 1800 to 12500 MHz

## The Big Deal

- Ultra-Wideband, 1800 to 12500 MHz
- Low insertion loss, 0.7 dB
- Low amplitude unbalance, 0.1 dB
- Rugged unibody case



CASE STYLE: FL2227

## Product Overview

Mini-Circuits' ZX10-2-1252-S+ is a coaxial, ultra-wideband 2-way 0° splitter/combiner providing RF input power handling up to 1.85W as a splitter and 0.7 dB insertion loss for an extremely wide range of applications from 1800 to 12500 MHz. Its outstanding combination of low loss and low unbalance make this model an excellent choice for distributing signals in systems where efficient transmission of signal power is needed. The splitter/combiner comes housed in a rugged, compact case (0.74 x 0.90 x 0.54") with SMA connectors.

## Key Features

Feature	Advantages
Ultra-wideband, 1800 to 12500 MHz	ZX10-2-1252-S+ supports bandwidth requirements for a wide variety of applications including broadband applications such as instrumentation and defense.
Low insertion loss, 0.7 dB	Provides excellent transmission of signal power, making this model an excellent candidate for signal distribution applications where low loss is a requirement.
Low amplitude unbalance, 0.1 dB	Produces nearly equal output signals, ideal for parallel path / multichannel systems.
DC passing up to 400mA	Supports applications where DC power is needed through the RF line.
Rugged, unibody construction	Mini-Circuits' unibody construction integrates the RF connector into the case body, providing high reliability and excellent survivability in critical applications.

### 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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



# Power Splitter/Combiner

## ZX10-2-1252-S+

2 Way-0° 50Ω 1800 to 12500 MHz

### Maximum Ratings

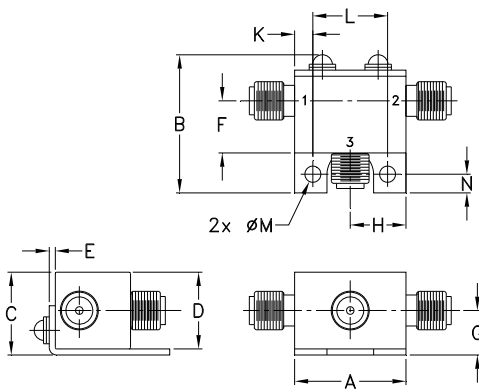
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	1.85W max.
Internal Dissipation	0.85 W max.
DC Current	0.4 A max.

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

### Coaxial Connections

SUM PORT	S
PORT 1	1
PORT 2	2

### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.74	.90	.54	.50	.04	.34	.29
18.80	22.86	13.72	12.70	1.02	8.64	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

### Features

- wide bandwidth, 1800 to 12500 MHz
- excellent amplitude unbalance, 0.2 dB typ.
- good phase unbalance, 6 deg. typ.
- high ESD level
- DC passing
- protected under US patent 6,790,049

### Applications

- WIMAX
- ISM
- instrumentation
- radar
- WLAN
- satellite communications
- LTE



Generic photo used for illustration purposes only

CASE STYLE: FL2227

Connectors	Model
SMA	ZX10-2-1252-S+

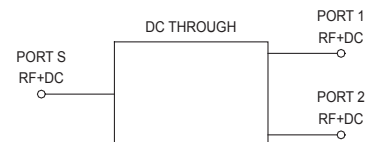
+RoHS Compliant

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.	Unit
<b>Frequency</b>		1800		12500	MHz
<b>Insertion Loss (above theoretical 3.0 dB)</b>	1800 - 3800	—	0.7	1.1	dB
	3800 - 8500	—	1.1	1.4	
	8500 - 12500	—	1.5	2.1	
<b>Isolation</b>	1800 - 3800	7.0	11.7	—	dB
	3800 - 8500	13.0	19.9	—	
	8500 - 12500	14.0	16.7	—	
<b>Phase Unbalance</b>	1800 - 3800	—	3.6	6.0	Degree
	3800 - 8500	—	8.1	12.0	
	8500 - 12500	—	11.5	—	
<b>Amplitude Unbalance</b>	1800 - 3800	—	0.1	0.2	dB
	3800 - 8500	—	0.1	0.4	
	8500 - 12500	—	0.3	0.9	
<b>VSWR (Port S)</b>	1800 - 3800	—	1.3	—	:1
	3800 - 8500	—	1.2	—	
	8500 - 12500	—	1.3	—	
<b>VSWR (Port 1-2)</b>	1800 - 3800	—	1.1	—	:1
	3800 - 8500	—	1.2	—	
	8500 - 12500	—	1.5	—	

### Electrical Schematic



### Notes

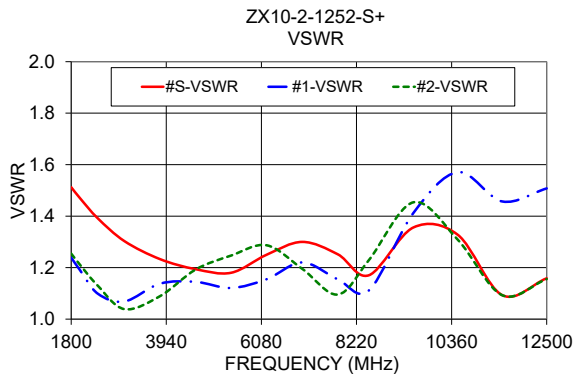
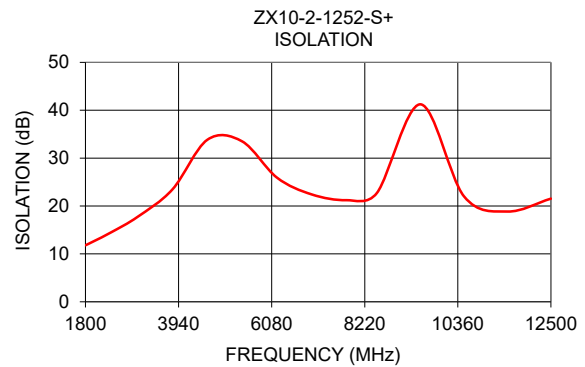
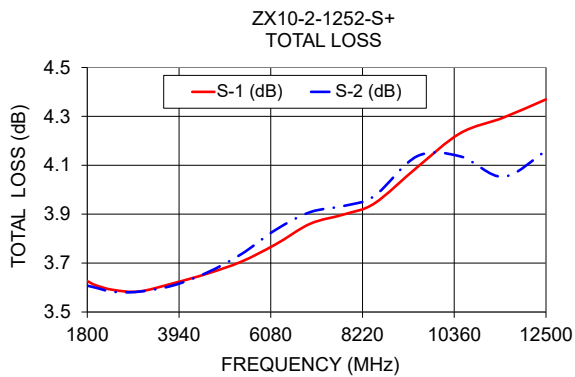
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## Typical Performance Data

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
1800	3.63	3.61	0.02	11.80	0.92	1.51	1.24	1.25
2000	3.61	3.60	0.01	12.68	0.98	1.47	1.19	1.21
2400	3.59	3.58	0.01	14.55	1.16	1.39	1.10	1.13
3000	3.58	3.58	0.00	17.75	1.32	1.30	1.07	1.04
3800	3.62	3.61	0.01	23.48	1.74	1.23	1.14	1.09
4600	3.66	3.66	0.00	33.83	2.11	1.19	1.14	1.19
5400	3.71	3.74	0.03	33.51	2.52	1.18	1.12	1.25
6200	3.78	3.84	0.06	25.94	2.64	1.25	1.16	1.29
7000	3.86	3.91	0.05	22.42	2.70	1.30	1.22	1.20
7800	3.90	3.93	0.03	21.22	2.95	1.25	1.15	1.10
8500	3.94	3.97	0.03	22.72	3.42	1.17	1.11	1.23
9500	4.09	4.14	0.04	41.24	3.08	1.36	1.41	1.45
10500	4.23	4.14	0.09	22.04	3.37	1.33	1.57	1.31
11500	4.29	4.05	0.24	18.84	4.13	1.09	1.46	1.09
12500	4.37	4.16	0.21	21.54	5.17	1.16	1.51	1.16

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



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# 2 Way-0° Power Splitter/Combiner

# ZX10-2-1252-S+

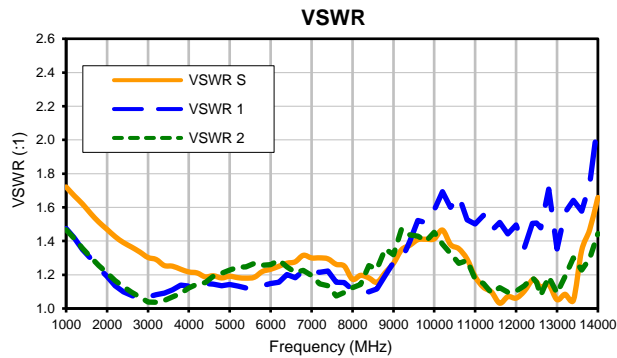
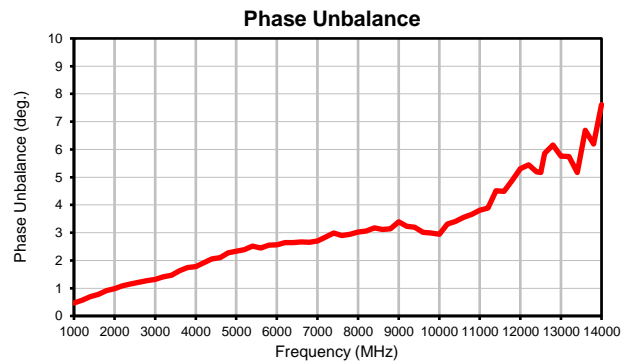
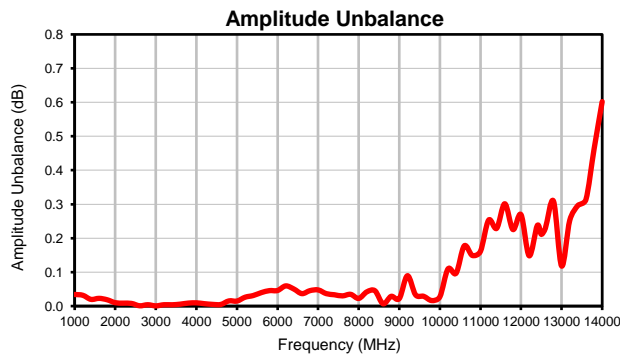
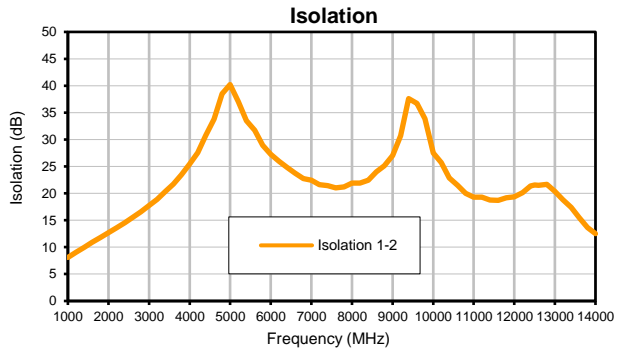
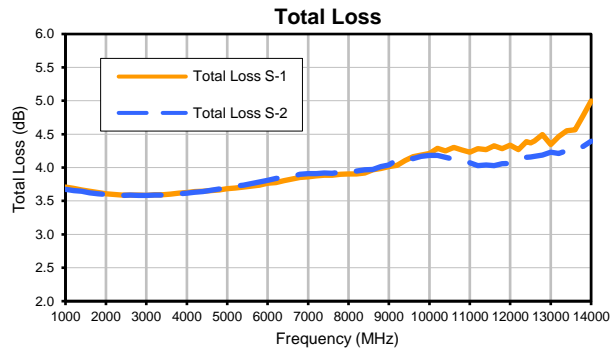
## Typical Performance Data

FREQUENCY (MHz)	TOTAL LOSS <sup>1</sup> (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB) 1-2	PHASE UNBALANCE (deg.)	FREQUENCY (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
1000	3.71	3.68	0.03	8.09	0.47	1000	1.72	1.48	1.47
1200	3.69	3.66	0.03	9.07	0.57	1200	1.67	1.42	1.41
1400	3.67	3.65	0.02	9.97	0.69	1400	1.62	1.35	1.36
1600	3.65	3.62	0.02	10.88	0.78	1600	1.56	1.30	1.30
1800	3.63	3.61	0.02	11.80	0.92	1800	1.51	1.24	1.25
2000	3.61	3.60	0.01	12.68	0.98	2000	1.47	1.19	1.21
2200	3.60	3.59	0.01	13.59	1.08	2200	1.43	1.14	1.16
2400	3.59	3.58	0.01	14.55	1.16	2400	1.39	1.10	1.13
2600	3.59	3.59	0.00	15.52	1.21	2600	1.36	1.08	1.10
2800	3.59	3.58	0.00	16.57	1.27	2800	1.34	1.06	1.07
3000	3.58	3.58	0.00	17.75	1.32	3000	1.30	1.07	1.04
3200	3.59	3.59	0.00	18.90	1.40	3200	1.29	1.08	1.04
3400	3.59	3.59	0.00	20.38	1.47	3400	1.25	1.09	1.05
3600	3.60	3.60	0.01	21.72	1.62	3600	1.25	1.11	1.07
3800	3.62	3.61	0.01	23.48	1.74	3800	1.23	1.14	1.09
4000	3.63	3.62	0.01	25.48	1.77	4000	1.22	1.13	1.12
4200	3.64	3.63	0.01	27.57	1.92	4200	1.21	1.15	1.14
4400	3.65	3.64	0.01	30.80	2.05	4400	1.19	1.15	1.15
4600	3.66	3.66	0.00	33.83	2.11	4600	1.19	1.14	1.19
4800	3.66	3.68	0.02	38.50	2.27	4800	1.18	1.14	1.21
5000	3.69	3.70	0.01	40.22	2.33	5000	1.19	1.14	1.23
5200	3.69	3.72	0.03	37.00	2.39	5200	1.18	1.13	1.25
5400	3.71	3.74	0.03	33.51	2.52	5400	1.18	1.12	1.25
5600	3.72	3.76	0.04	31.72	2.44	5600	1.19	1.13	1.27
5800	3.74	3.78	0.05	28.91	2.56	5800	1.22	1.14	1.26
6000	3.76	3.81	0.05	27.28	2.56	6000	1.23	1.15	1.26
6200	3.78	3.84	0.06	25.94	2.64	6200	1.25	1.16	1.29
6400	3.80	3.85	0.05	24.82	2.64	6400	1.27	1.20	1.25
6600	3.83	3.86	0.04	23.73	2.66	6600	1.28	1.18	1.22
6800	3.85	3.90	0.05	22.77	2.66	6800	1.32	1.22	1.23
7000	3.86	3.91	0.05	22.42	2.70	7000	1.30	1.22	1.20
7200	3.87	3.91	0.04	21.61	2.84	7200	1.30	1.22	1.15
7400	3.89	3.92	0.03	21.42	2.98	7400	1.29	1.22	1.13
7600	3.89	3.92	0.03	21.03	2.90	7600	1.26	1.16	1.07
7800	3.90	3.93	0.03	21.22	2.95	7800	1.25	1.15	1.10
8000	3.91	3.93	0.02	21.93	3.02	8000	1.17	1.11	1.12
8200	3.90	3.95	0.04	21.91	3.06	8200	1.20	1.10	1.14
8400	3.92	3.97	0.05	22.45	3.18	8400	1.18	1.10	1.25
8600	3.97	3.97	0.01	24.00	3.12	8600	1.16	1.12	1.23
8800	3.99	4.02	0.03	25.14	3.14	8800	1.21	1.20	1.35
9000	4.02	4.04	0.02	27.02	3.39	9000	1.27	1.27	1.32
9200	4.03	4.12	0.09	30.74	3.24	9200	1.35	1.29	1.47
9400	4.11	4.14	0.03	37.64	3.19	9400	1.37	1.40	1.44
9600	4.16	4.13	0.03	36.73	3.01	9600	1.41	1.52	1.43
9800	4.19	4.17	0.02	33.84	2.99	9800	1.41	1.51	1.40
10000	4.21	4.18	0.03	27.53	2.95	10000	1.41	1.58	1.45
10200	4.29	4.18	0.11	25.73	3.31	10200	1.47	1.69	1.38
10400	4.25	4.15	0.10	22.87	3.41	10400	1.38	1.60	1.33
10600	4.30	4.12	0.18	21.49	3.56	10600	1.35	1.67	1.27
10800	4.26	4.11	0.15	20.02	3.65	10800	1.29	1.53	1.28
11000	4.23	4.07	0.16	19.31	3.80	11000	1.19	1.50	1.18
11200	4.28	4.03	0.25	19.27	3.88	11200	1.13	1.55	1.15
11400	4.27	4.04	0.23	18.77	4.51	11400	1.10	1.46	1.09
11600	4.33	4.03	0.30	18.68	4.49	11600	1.03	1.51	1.12
11800	4.28	4.06	0.23	19.17	4.89	11800	1.07	1.44	1.10
12000	4.33	4.06	0.27	19.33	5.31	12000	1.06	1.50	1.10
12200	4.27	4.12	0.15	20.10	5.44	12200	1.10	1.36	1.13
12400	4.39	4.15	0.24	21.40	5.20	12400	1.17	1.50	1.18
12500	4.37	4.16	0.21	21.54	5.17	12500	1.16	1.51	1.16
12600	4.40	4.17	0.23	21.52	5.86	12600	1.13	1.48	1.08
12800	4.49	4.18	0.31	21.68	6.16	12800	1.14	1.71	1.19
13000	4.35	4.23	0.12	20.40	5.75	13000	1.05	1.35	1.09
13200	4.46	4.21	0.25	18.83	5.75	13200	1.08	1.57	1.19
13400	4.55	4.26	0.30	17.42	5.17	13400	1.05	1.64	1.30
13600	4.57	4.25	0.31	15.48	6.69	13600	1.34	1.58	1.23
13800	4.78	4.32	0.46	13.64	6.20	13800	1.47	1.74	1.30
14000	5.00	4.39	0.60	12.50	7.62	14000	1.66	2.11	1.44

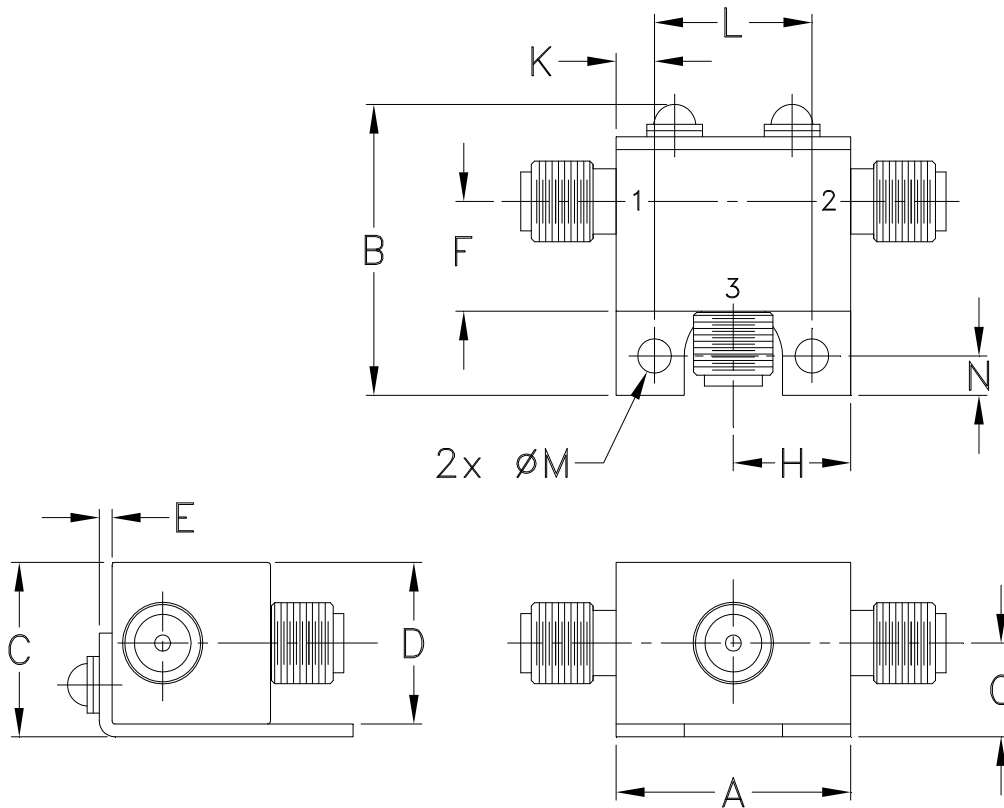
<sup>1</sup>Total Loss = Insertion Loss + 3dB Splitter Loss



## Typical Performance Curves



### Outline Dimensions



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N	WT, GRAM
FL2227	.74 (18.80)	.90 (22.86)	.54 (13.72)	.50 (12.70)	.04 (1.02)	.34 (8.64)	.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.



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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	-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