



COAXIAL

Power Splitter/Combiner

ZX10R-2-183-S+

Mini-Circuits

2 Way -0° 50Ω DC to 18000 MHz

THE BIG DEAL

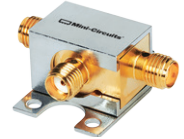
- Wide bandwidth, DC to 18 GHz
- Excellent isolation, 20 dB typ. at 12 GHz
- Excellent amplitude unbalance, 0.1 dB typ. to 18 GHz
- Good phase unbalance, 3.3° at 12 GHz
- Patent pending
- Rugged unibody case

APPLICATIONS

- WIMAX
- ISM
- Instrumentation
- Radar
- WLAN
- Satellite communications
- LTE

PRODUCT OVERVIEW

Mini-Circuits' ZX10R-2-183-S+ is a coaxial 2-way 0° splitter/combiner designed for wideband operation from DC to 18 GHz supporting many applications requiring high performance across a wide frequency range including all the LTE bands through WiMax and WiFi, as well as instrumentation and more. This model provides excellent power handling up to 0.6W (as a splitter/combiner) with good isolation, and low phase and amplitude unbalance in a rugged, compact case 0.74 x 0.90 x 0.54" with SMA connectors.



Generic photo used for illustration purposes only

Model No.	ZX10R-2-183-S+
Case Style	FL2227
Connectors	SMA-Female

+RoHS Compliant

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

KEY FEATURES

Feature	Advantages
Wideband, DC to 18 GHz	One power splitter can be used in a HF thru, LTE bands, WiMax and WiFi, saving component count. Also ideal for wideband applications such as military and instrumentation.
High isolation, 20 dB typ. at 12 GHz Excellent power handling, 0.6W as a splitter / combiner	In power combiner applications, half the power is dissipated internally. ZX10R-2-183-S+ is designed to handle 0.6W internal dissipation as a combiner allowing reliable operation without excessive temperature rise.
Excellent Amplitude unbalance, 0.1 dB typ. Good phase unbalance, 3.3° typ. at 12 GHz	Ideal for Applications such as WMO & phased array radars
Rugged, unibody construction	Mini-Circuits' unibody construction integrates the RF connector into the case body, providing high reliability and excellent survivability in critical applications.

REV. OR
ECO-009321
ZX10R-2-183-S+
MCL NY
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MAXIMUM RATINGS

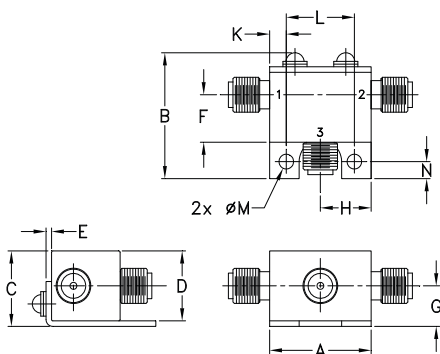
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.6W max. at 25°C
Internal Dissipation	0.6W max. at 25°C

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

COAXIAL CONNECTIONS

Sum Port	S
Port 1-2	1-2

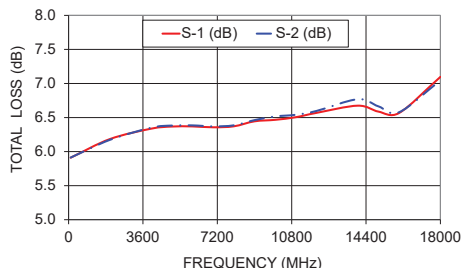
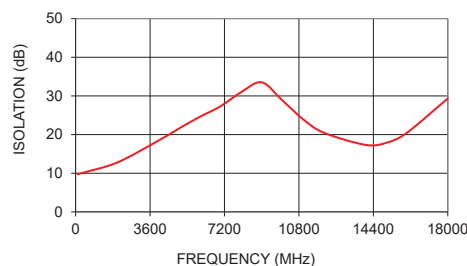
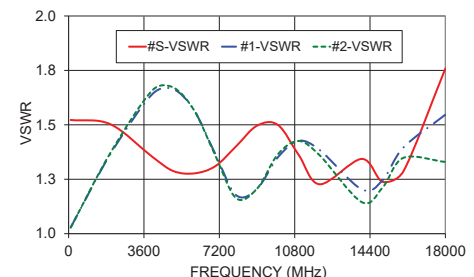
OUTLINE DRAWING



OUTLINE DIMENSIONS (INCH/MM)

A	B	C	D	E	F	G	H	J	K	L	M	N	wt
.74	.90	.54	.50	.04	.34	.29	.37	--	.122	.496	.106	.122	grams
18.80	22.86	13.72	12.70	1.02	8.64	7.37	9.40	--	3.10	12.60	2.69	3.10	20.0

ELECTRICAL SCHEMATIC

ZX10R-2-183-S+
TOTAL LOSSZX10R-2-183-S+
ISOLATIONZX10R-2-183-S+
VSWR

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

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		DC		18000	MHz
Insertion Loss Above 3 dB	DC-4 4-18	— —	3.3 3.9	4.0 4.5	dB
Isolation	DC-4 4-18	8 14	13 26	— —	dB
Phase Unbalance ($\pm$) ¹	DC-4 4-18	— —	1 2	5 15	Degree
Amplitude Unbalance ($\pm$) ¹	DC-4 4-18	— —	0.1 0.2	0.4 0.6	dB
VSWR (Port S)	DC-4 4-18	— —	1.5 1.3	— —	:1
VSWR (Port 1-2)	DC-4 4-18	— —	1.4 1.4	— —	:1

1. With reference to average.

TYPICAL PERFORMANCE DATA

Freq. (MHz)	Insertion Loss (dB)		Ampl. Unbal. (dB)	Isolation (dB)	Phase Unbal. (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
100	5.91	5.91	0.00	9.74	0.02	1.52	1.03	1.03
2000	6.18	6.17	0.01	12.74	0.19	1.50	1.37	1.37
4000	6.34	6.35	0.01	18.41	0.30	1.35	1.64	1.66
5000	6.37	6.38	0.01	21.56	0.33	1.29	1.66	1.67
6000	6.37	6.38	0.02	24.57	0.38	1.28	1.57	1.57
7000	6.36	6.37	0.01	27.29	0.47	1.31	1.37	1.36
8000	6.37	6.39	0.01	30.94	0.60	1.40	1.18	1.16
9000	6.44	6.46	0.02	33.52	0.73	1.50	1.21	1.21
10000	6.47	6.52	0.05	28.85	0.64	1.50	1.35	1.36
11000	6.51	6.54	0.04	23.98	0.65	1.36	1.43	1.43
12000	6.57	6.60	0.03	20.49	0.76	1.23	1.38	1.36
14000	6.67	6.77	0.09	17.35	0.76	1.34	1.20	1.15
15000	6.59	6.66	0.08	17.83	0.40	1.24	1.25	1.21
16000	6.57	6.58	0.01	20.37	0.44	1.29	1.40	1.35
18000	7.10	7.05	0.05	29.34	1.38	1.76	1.55	1.33

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

2 Way-0° Power Splitter/Combiner

ZX10R-2-183-S+

Typical Performance Data

FREQUENCY	TOTAL LOSS ¹		AMPLITUDE UNBALANCE	ISOLATION	PHASE UNBALANCE	FREQUENCY	VSWR		
(MHz)	(dB)		(dB)	(dB)	(deg.)	(MHz)	(:1)		
	S-1	S-2		1-2			S	1	2
100	5.91	5.91	0.00	9.74	0.02	100	1.52	1.03	1.03
200	5.93	5.92	0.00	9.79	0.02	200	1.52	1.04	1.04
400	5.96	5.95	0.01	9.92	0.01	400	1.52	1.08	1.08
600	5.98	5.98	0.01	10.13	0.02	600	1.51	1.11	1.11
800	6.01	6.00	0.01	10.39	0.04	800	1.51	1.15	1.15
1000	6.04	6.03	0.01	10.68	0.04	1000	1.51	1.19	1.18
1500	6.12	6.10	0.01	11.61	0.12	1500	1.51	1.28	1.28
2000	6.18	6.17	0.01	12.74	0.19	2000	1.50	1.37	1.37
2500	6.24	6.24	0.00	14.01	0.24	2500	1.48	1.45	1.46
3000	6.28	6.28	0.00	15.40	0.28	3000	1.45	1.53	1.55
3500	6.32	6.33	0.01	16.88	0.30	3500	1.40	1.60	1.61
4000	6.34	6.35	0.01	18.41	0.30	4000	1.35	1.64	1.66
4500	6.36	6.38	0.02	20.00	0.30	4500	1.31	1.67	1.68
5000	6.37	6.38	0.01	21.56	0.33	5000	1.29	1.66	1.67
5500	6.37	6.39	0.01	23.09	0.37	5500	1.28	1.63	1.63
6000	6.37	6.38	0.02	24.57	0.38	6000	1.28	1.57	1.57
6500	6.36	6.38	0.02	25.92	0.43	6500	1.29	1.47	1.47
7000	6.36	6.37	0.01	27.29	0.47	7000	1.31	1.37	1.36
7500	6.36	6.37	0.01	28.93	0.53	7500	1.35	1.26	1.25
8000	6.37	6.39	0.01	30.94	0.60	8000	1.40	1.18	1.16
8500	6.40	6.41	0.02	33.00	0.65	8500	1.45	1.16	1.14
9000	6.44	6.46	0.02	33.52	0.73	9000	1.50	1.21	1.21
9500	6.45	6.49	0.05	31.77	0.83	9500	1.52	1.28	1.29
10000	6.47	6.52	0.05	28.85	0.64	10000	1.50	1.35	1.36
10500	6.49	6.53	0.04	26.15	0.64	10500	1.44	1.40	1.41
11000	6.51	6.54	0.04	23.98	0.65	11000	1.36	1.43	1.43
11500	6.53	6.56	0.03	22.05	0.70	11500	1.27	1.42	1.41
12000	6.57	6.60	0.03	20.49	0.76	12000	1.23	1.38	1.36
12500	6.61	6.65	0.04	19.24	0.84	12500	1.24	1.33	1.30
13000	6.65	6.71	0.05	18.29	0.88	13000	1.29	1.27	1.22
13500	6.68	6.75	0.08	17.68	0.86	13500	1.34	1.23	1.17
14000	6.67	6.77	0.09	17.35	0.76	14000	1.34	1.20	1.15
14500	6.64	6.73	0.09	17.39	0.56	14500	1.30	1.21	1.16
15000	6.59	6.66	0.08	17.83	0.40	15000	1.24	1.25	1.21
15500	6.54	6.58	0.04	18.72	0.36	15500	1.21	1.31	1.27
16000	6.57	6.58	0.01	20.37	0.44	16000	1.29	1.40	1.35
16500	6.66	6.64	0.02	23.06	0.56	16500	1.44	1.50	1.42
17000	6.81	6.77	0.04	28.16	0.77	17000	1.59	1.59	1.46
17500	6.97	6.91	0.05	49.51	1.06	17500	1.70	1.62	1.43
18000	7.10	7.05	0.05	29.34	1.38	18000	1.76	1.55	1.33

¹Total Loss = Insertion Loss + 3dB Splitter Loss

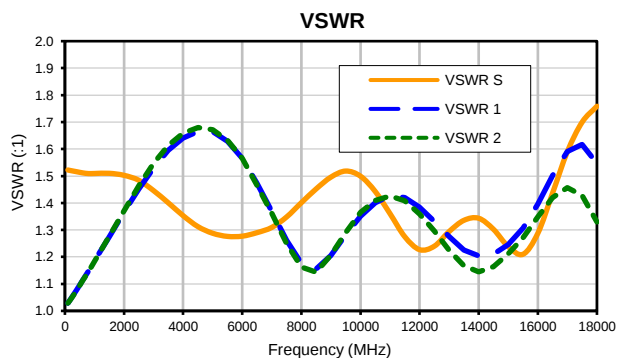
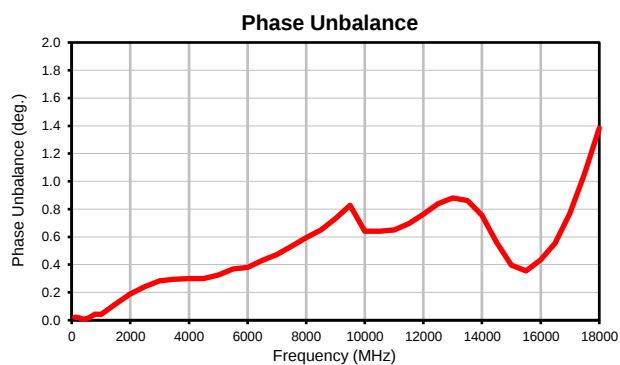
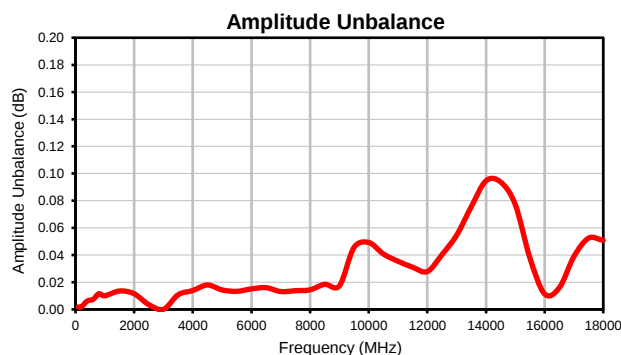
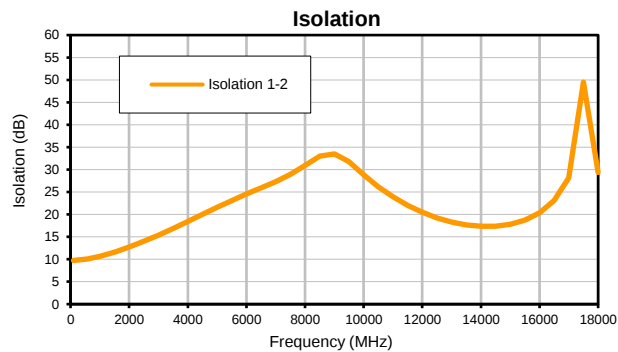
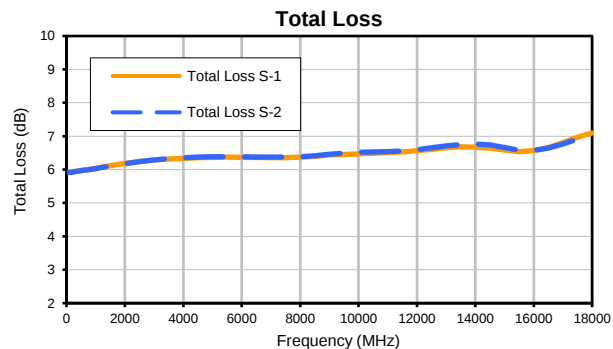


P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site
 The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

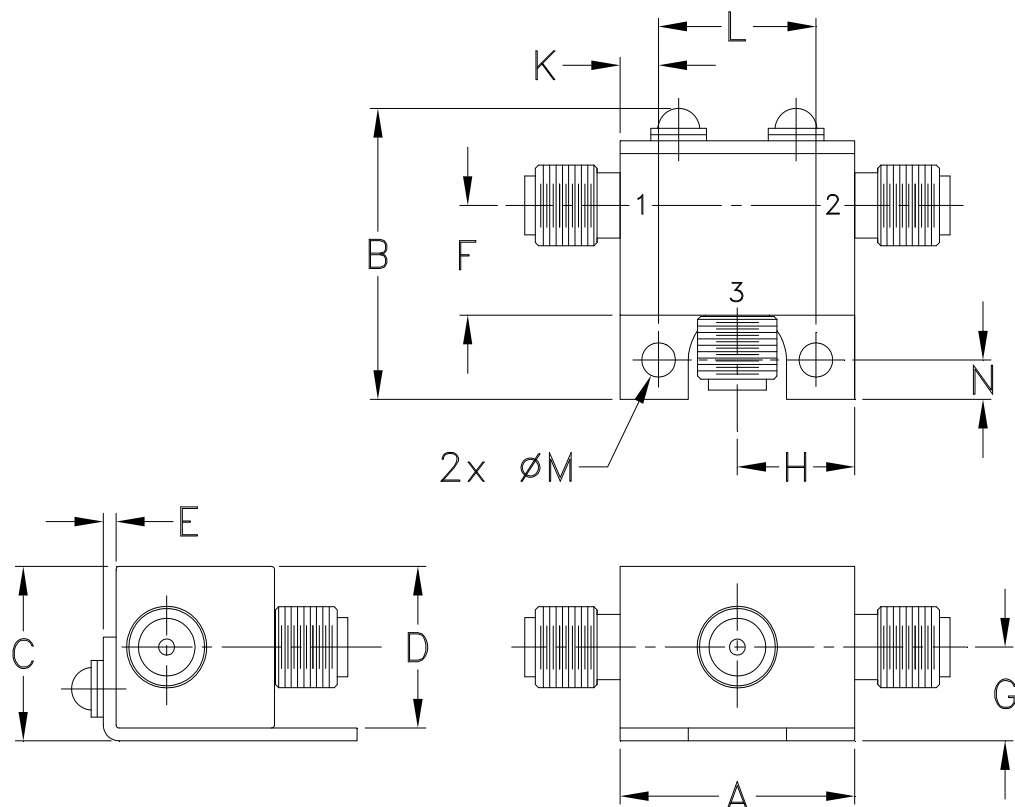
IF/RF MICROWAVE COMPONENTS

REV. OR
 ZX10R-2-183-S+
 8/17/2021
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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:

- Case material: Brass.
- Case finish: Nickel plate.



INTERNET <http://www.minicircuits.com>

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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	-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