SMA Connectorized

Power Splitter/Combiner

ZX10Q-2-3+

2 Way-90° 50Ω 220 to 470 MHz

CASE STYLE: GW1052

Connectors	Model
SMA	ZX10Q-2-3-S+

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	15W* max.

* Derate linearly to 7W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

Coaxial Connections

INPUT PORT	1
PORT 1 (+90°)	2
PORT 2 (0°)	3
50 OHM TERM EXTERNAL**	4

Features

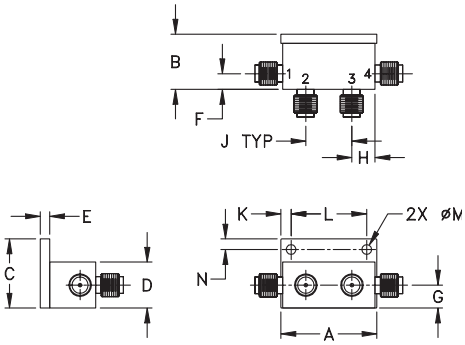
- low insertion loss, 0.4 dB typ.
- excellent amplitude unbalance
- very good phase unbalance
- small size
- low cost
- protected by U.S Patent 6,790,049

Applications

- balanced amplifiers
- modulators
- VHF
- defense communications

***** Recommended external termination Mini-Circuits Part. No. ANNE-50L***

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
1.04	.60	.75	.50	.10	.17	.25
26.42	15.24	19.05	12.70	2.54	4.32	6.35
H	**J**	**K**	**L**	**M**	**N**	**wt.**
.25	.50	.11	.820	.106	.12	grams
6.35	12.70	2.79	20.83	2.69	3.05	21.0

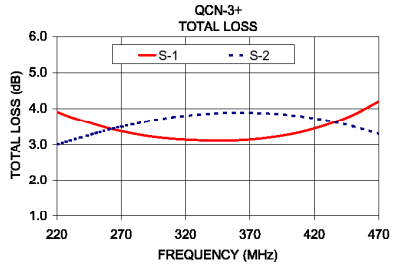
Electrical Specifications (T_{AMB}=25°C)

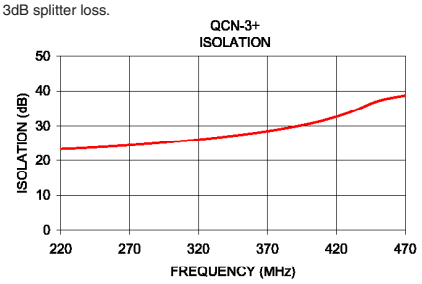
FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) Avg. of Coupled Outputs ABOVE 3 dB		PHASE UNBALANCE (Degrees)		AMPLITUDE UNBALANCE (dB)	
f_L-f_U	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.
220-470	**24**	**18**	**0.6**	**0.8**	**1**	**8**	**0.5**	**1.7**
270-350	25	18	0.4	0.7	3	5	0.7	1.0
350-450	30	20	0.6	0.8	5	8	0.5	1.0

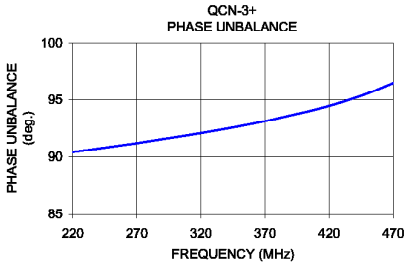
Typical Performance Data

Frequency (MHz)	Total Loss[1] (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
220.00	3.91	3.00	0.91	23.23	90.40	1.07	1.12	1.07
230.00	3.77	3.11	0.67	23.41	90.55	1.06	1.12	1.06
250.00	3.55	3.31	0.23	23.85	90.86	1.05	1.11	1.06
260.00	3.45	3.41	0.05	24.11	91.02	1.05	1.11	1.05
270.00	3.37	3.49	0.12	24.37	91.18	1.04	1.10	1.05
290.00	3.24	3.64	0.39	24.96	91.53	1.04	1.10	1.04
310.00	3.16	3.76	0.60	25.67	91.88	1.03	1.09	1.03
330.00	3.12	3.83	0.72	26.46	92.26	1.03	1.08	1.03
350.00	3.11	3.88	0.77	27.38	92.67	1.04	1.08	1.02
370.00	3.14	3.88	0.74	28.47	93.12	1.05	1.07	1.02
390.00	3.22	3.85	0.63	29.82	93.63	1.07	1.07	1.02
410.00	3.35	3.78	0.42	31.55	94.16	1.09	1.07	1.01
430.00	3.55	3.66	0.11	33.99	94.80	1.11	1.07	1.01
450.00	3.82	3.50	0.32	37.16	95.56	1.14	1.07	1.02
470.00	4.19	3.29	0.90	38.74	96.48	1.17	1.08	1.02

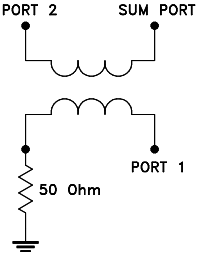
1. Total Loss = Insertion Loss + 3dB splitter loss.







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-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. F
M151107
ZX10Q-2-3+
AD/CP/AM
151019

2 Way-90° Power Splitter/Combiner ZX10Q-2-3+

Typical Performance Data

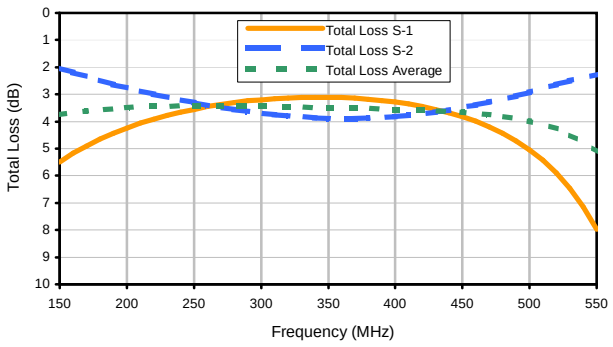
FREQ. (MHz)	TOTAL LOSS[1] (dB)			AMP. UNBAL. (dB)	ISOLATION (dB)	PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)		
	S-1	S-2	AVG.					S	1	2
150.0	5.49	2.03	3.76	3.46	22.90	89.60	150.0	1.09	1.12	1.08
160.0	5.17	2.19	3.68	2.99	22.84	89.68	160.0	1.09	1.12	1.08
170.0	4.90	2.33	3.62	2.57	22.82	89.78	170.0	1.09	1.12	1.08
180.0	4.65	2.48	3.57	2.17	22.84	89.89	180.0	1.08	1.12	1.08
190.0	4.43	2.63	3.53	1.81	22.90	90.01	190.0	1.08	1.12	1.08
200.0	4.24	2.75	3.50	1.48	22.98	90.14	200.0	1.08	1.12	1.07
210.0	4.06	2.88	3.47	1.18	23.08	90.27	210.0	1.07	1.12	1.07
220.0	3.91	3.00	3.46	0.91	23.23	90.40	220.0	1.07	1.12	1.07
230.0	3.77	3.11	3.44	0.67	23.41	90.55	230.0	1.06	1.12	1.06
240.0	3.65	3.21	3.43	0.44	23.61	90.71	240.0	1.06	1.11	1.06
250.0	3.55	3.31	3.43	0.23	23.85	90.86	250.0	1.05	1.11	1.06
260.0	3.45	3.41	3.43	0.05	24.11	91.02	260.0	1.05	1.11	1.05
270.0	3.37	3.49	3.43	0.12	24.37	91.18	270.0	1.04	1.10	1.05
280.0	3.30	3.57	3.44	0.26	24.66	91.36	280.0	1.04	1.10	1.05
290.0	3.24	3.64	3.44	0.39	24.96	91.53	290.0	1.04	1.10	1.04
300.0	3.20	3.70	3.45	0.50	25.29	91.70	300.0	1.03	1.09	1.04
310.0	3.16	3.76	3.46	0.60	25.67	91.88	310.0	1.03	1.09	1.03
320.0	3.13	3.80	3.47	0.67	26.07	92.07	320.0	1.03	1.09	1.03
330.0	3.12	3.83	3.48	0.72	26.46	92.26	330.0	1.03	1.08	1.03
340.0	3.11	3.86	3.49	0.75	26.89	92.47	340.0	1.04	1.08	1.02
350.0	3.11	3.88	3.50	0.77	27.38	92.67	350.0	1.04	1.08	1.02
360.0	3.12	3.88	3.50	0.76	27.90	92.89	360.0	1.05	1.08	1.02
370.0	3.14	3.88	3.51	0.74	28.47	93.12	370.0	1.05	1.07	1.02
380.0	3.18	3.87	3.53	0.70	29.08	93.37	380.0	1.06	1.07	1.02
390.0	3.22	3.85	3.54	0.63	29.82	93.63	390.0	1.07	1.07	1.02
400.0	3.28	3.82	3.55	0.54	30.61	93.89	400.0	1.08	1.07	1.01
410.0	3.35	3.78	3.57	0.42	31.55	94.16	410.0	1.09	1.07	1.01
420.0	3.44	3.72	3.58	0.28	32.68	94.46	420.0	1.10	1.07	1.01
430.0	3.55	3.66	3.61	0.11	33.99	94.80	430.0	1.11	1.07	1.01
440.0	3.67	3.58	3.63	0.09	35.49	95.17	440.0	1.13	1.07	1.02
450.0	3.82	3.50	3.66	0.32	37.16	95.56	450.0	1.14	1.07	1.02
460.0	3.99	3.40	3.70	0.59	38.56	95.99	460.0	1.15	1.07	1.02
470.0	4.19	3.29	3.74	0.90	38.74	96.48	470.0	1.17	1.08	1.02
480.0	4.43	3.18	3.81	1.25	37.01	97.04	480.0	1.19	1.08	1.03
490.0	4.71	3.06	3.89	1.65	34.39	97.69	490.0	1.21	1.09	1.03
500.0	5.04	2.92	3.98	2.12	31.79	98.44	500.0	1.23	1.10	1.04
510.0	5.43	2.79	4.11	2.65	29.38	99.33	510.0	1.26	1.12	1.05
520.0	5.90	2.65	4.28	3.25	27.20	100.45	520.0	1.29	1.13	1.07
530.0	6.47	2.51	4.49	3.95	25.22	101.84	530.0	1.32	1.15	1.08
540.0	7.15	2.38	4.77	4.77	23.40	103.64	540.0	1.35	1.17	1.10
550.0	7.97	2.26	5.12	5.71	21.71	106.03	550.0	1.39	1.20	1.13

[1] Total Loss = Insertion Loss + 3dB Splitter Loss

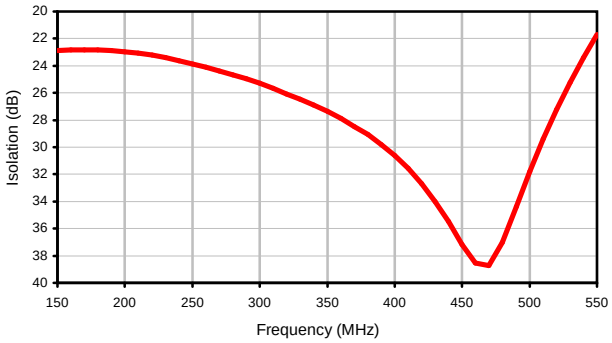
2 Way-90° Power Splitter/Combiner ZX10Q-2-3+

Typical Performance Curves

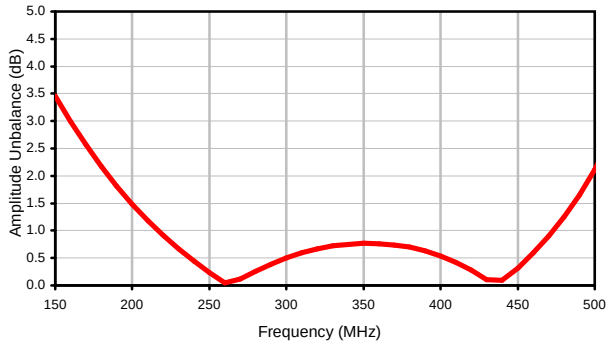
Total Loss



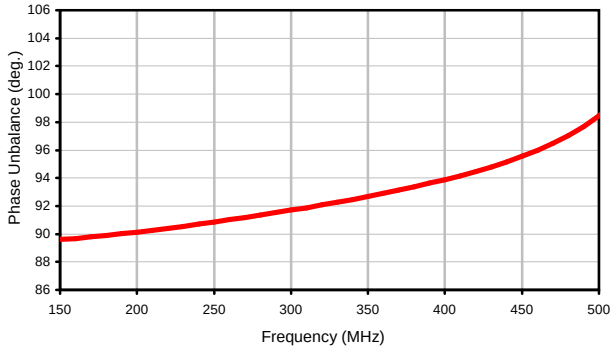
Isolation



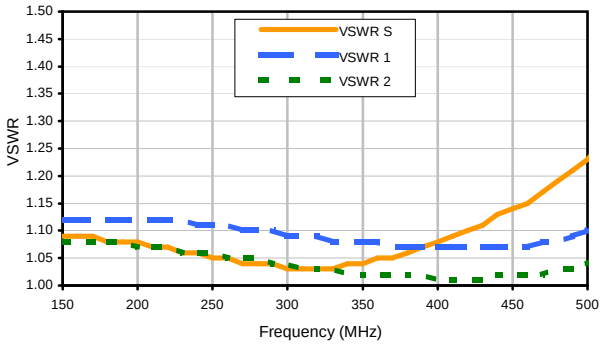
Amplitude Unbalance



Phase Unbalance



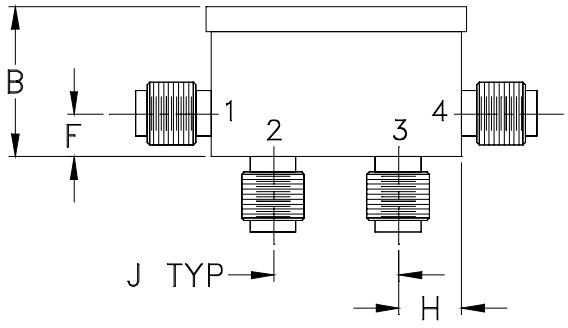
VSWR

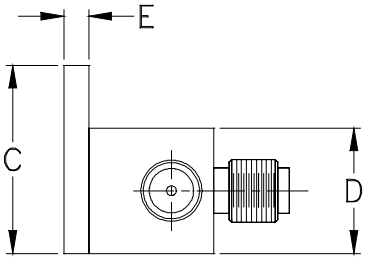


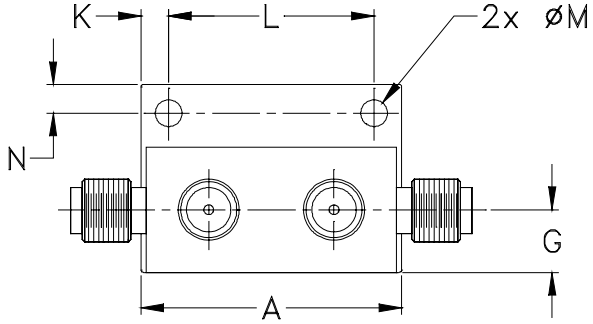
Case Style GW

GW1052

Outline Dimensions







CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	WT. GRAM
GW1052	1.04 (26.42)	.60 (15.24)	.75 (19.05)	.50 (12.70)	.10 (2.54)	.17 (4.32)	.25 (6.35)	.25 (6.35)	.50 (12.70)	.11 (2.79)	.820 (20.83)	.106 (2.69)	.12 (3.05)	21.0

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015.
Tolerance on hole size and interaxes dimensions to be ±.005.

Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.

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Environmental Specifications **ENV28T5**

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