Coaxial

Diplexer

ZCDP-1710-S+

50Ω 1176, 1590 MHz

Generic photo used for illustration purposes only

CASE STYLE: K18

The Big Deal

- Low insertion loss
- High rejection
- Good return loss
- Connectorized package

Product Overview

ZCDP-1710-S+ is a 50Ω high performance diplexer with channel-1 at 1176 MHz and channel-2 at 1590 MHz. Good return loss combined with high out of channel rejection makes it an ideal component in differential GPS and point to point microwave radio communication.

Key Features

Feature	Advantages
Low passband insertion loss	Low signal loss through both the channels.
Excellent stopband rejection	Eliminates unwanted spurious.
Good return loss	Makes signal transmission with less reflections and well- matched with the adjacent component used in the system.
Connectorized package	Easy to interface with other devices.

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Connectors	Model
SMA-F	ZCDP-1710-S+
BRACKET (OPTION "B")	

+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
RF Power Input	1 W Max.

Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation

Coaxial Connections

COMMON PORT	3
CHANNEL-1	1
CHANNEL-2	2

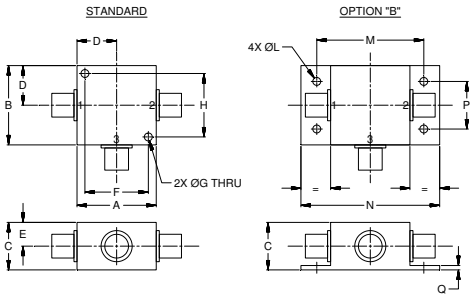
Features

- Low insertion loss
- 50Ω impedance
- Good return loss
- High rejection

Applications

- Differential GPS
- Aeronautical Radio navigation
- Point to point microwave radio communication

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.000	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40

J	K	L	M	N	P	Q	Wt.
--	--	.125	1.688	2.18	.75	.07	grams
--	--	3.18	42.88	55.37	19.05	1.78	70.0

Note: Please refer to case style drawing for details

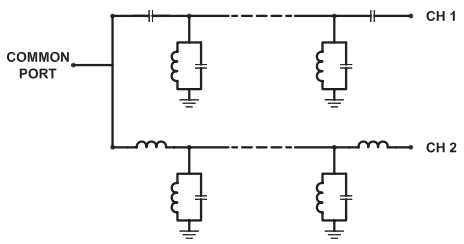
Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Channel-1	1176	-	0.8	1	dB
		Channel-2	1590	-	0.8	1	
	3 dB Bandwidth	Channel-1	1176	-	60	-	MHz
		Channel-2	1590	-	60	-	
	Return Loss	Channel-1	1176	-	11	-	dB
		Channel-2	1590	-	11	-	
		Common	1176	-	11	-	
			1590	-	11	-	
Stop Band Isolation		Channel-1	1590	30	50	-	dB
		Channel-2	1176	30	40	-	

Typical Performance Data at 25°C

FREQUENCY (MHz)	INSERTION LOSS (dB)		RETURN LOSS (dB)		
	Channel-1	Channel-2	Common Port	Channel-1	Channel-2
400	99.71	40.75	0.10	0.02	0.10
600	74.85	41.91	0.07	0.03	0.08
750	91.57	44.18	0.07	0.05	0.06
800	67.53	45.32	0.08	0.06	0.06
950	41.74	51.89	0.11	0.09	0.06
1000	34.26	58.07	0.14	0.11	0.06
1036	28.35	77.12	0.17	0.14	0.06
1084	18.80	55.42	0.33	0.27	0.06
1100	14.84	52.46	0.50	0.43	0.05
1144	2.44	49.50	6.15	5.77	0.06
1148	1.77	50.06	8.32	7.80	0.06
1150	1.51	50.29	9.66	9.03	0.06
1176	0.67	50.08	23.02	27.36	0.06
1202	1.98	52.77	6.36	6.47	0.07
1208	2.96	51.85	4.28	4.32	0.07
1290	18.25	37.25	0.26	0.20	0.07
1380	27.91	29.43	0.23	0.13	0.08
1590	55.10	0.76	26.38	0.14	22.26
1710	35.75	23.22	0.37	0.17	0.16
1770	32.94	32.15	0.35	0.19	0.11
1900	29.20	48.52	0.35	0.21	0.10
2000	27.38	66.29	0.36	0.23	0.10

Functional 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.
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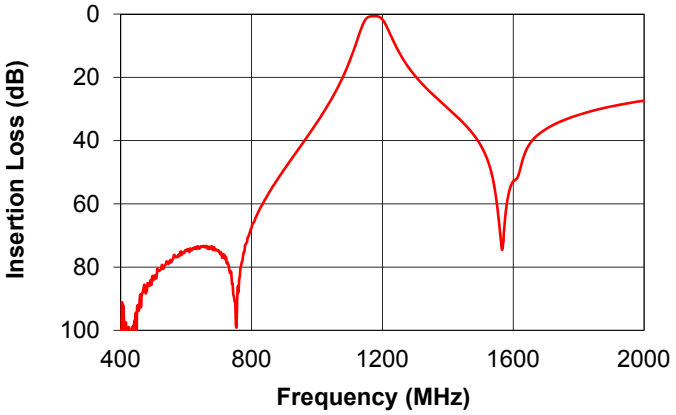
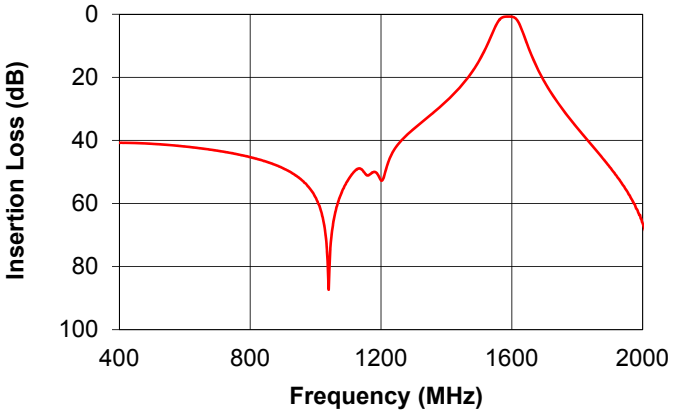
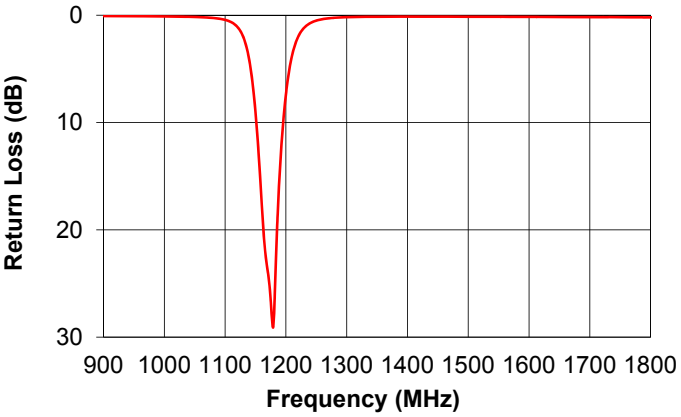
ZCDP-1710-S+ CHANNEL-1
INSERTION LOSS (P_{in}=0dBm)



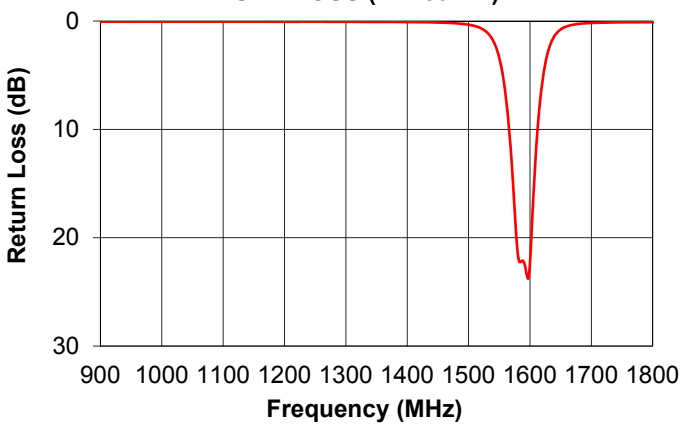
ZCDP-1710-S+ CHANNEL-2
INSERTION LOSS (P_{in}=0dBm)



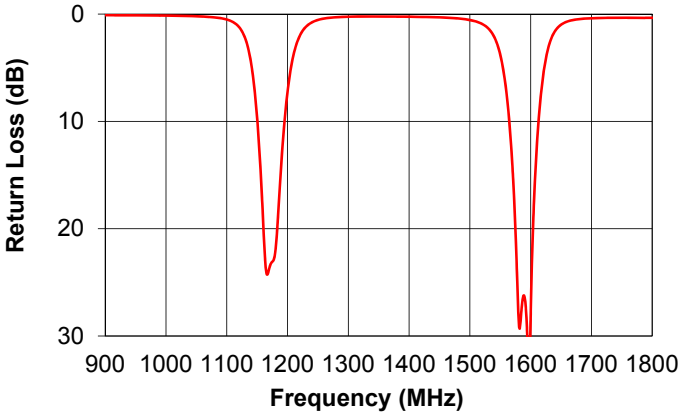
ZCDP-1710-S+ CHANNEL-1
RETURN LOSS (P_{in}=0dBm)



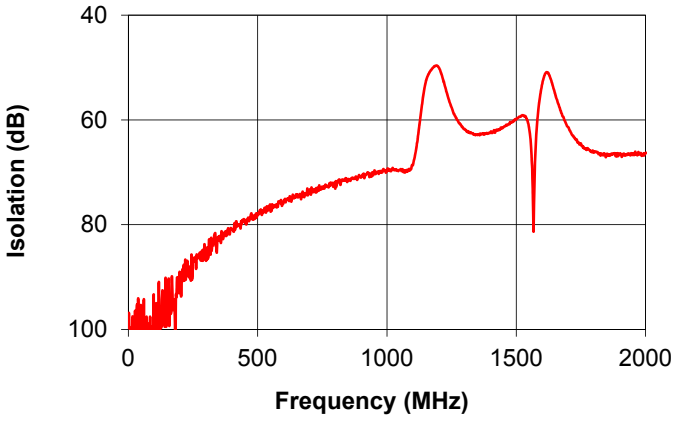
ZCDP-1710-S+ CHANNEL-2
RETURN LOSS (P_{in}=0dBm)



ZCDP-1710-S+ COMMON PORT
RETURN LOSS (P_{in}=0dBm)



ZCDP-1710-S+ CROSS OVER
ISOLATION (P_{in}=0dBm)



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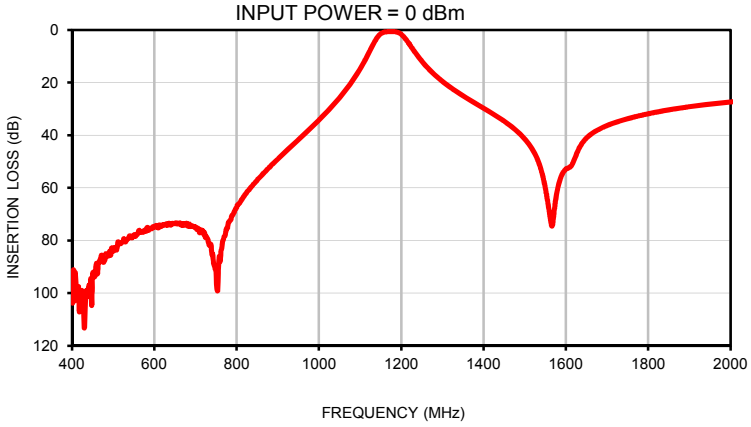
Coaxial Diplexer ZCDP-1710-S+

Typical Performance Data

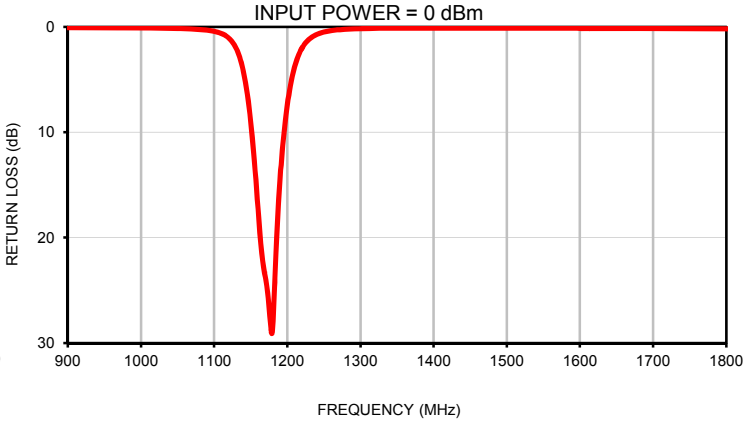
FREQUENCY (MHz)	INSERTION LOSS (dB)		Cross over isolation (dB)	RETURN LOSS (dB)		
	Lowpass port CH-1	Highpass port CH-2	(between CH-1 and CH-2)	Common port	Lowpass port CH-1	Highpass port CH-2
1	94.78	85.50	99.43	0.01	0.03	0.01
90	104.70	48.48	103.88	0.08	0.00	0.10
204	88.16	42.78	93.72	0.11	0.00	0.13
244	84.98	41.90	85.70	0.11	0.01	0.12
398	92.17	40.75	80.79	0.10	0.02	0.10
400	99.71	40.75	80.83	0.10	0.02	0.10
500	84.04	41.07	78.19	0.09	0.03	0.09
580	76.48	41.71	75.59	0.07	0.03	0.08
630	73.63	42.27	75.61	0.08	0.04	0.08
724	78.81	43.69	73.84	0.07	0.04	0.06
918	46.38	49.74	70.50	0.10	0.08	0.06
1024	30.39	65.56	69.45	0.16	0.12	0.06
1036	28.35	77.12	69.44	0.17	0.14	0.06
1080	19.71	56.49	69.82	0.31	0.25	0.06
1084	18.80	55.42	69.60	0.33	0.27	0.06
1086	18.33	55.16	69.35	0.34	0.28	0.06
1127	6.98	49.07	60.39	1.80	1.65	0.06
1139	3.55	49.08	55.78	4.21	3.94	0.06
1144	2.44	49.50	54.21	6.15	5.77	0.06
1148	1.77	50.06	53.19	8.32	7.80	0.06
1156	1.00	50.92	51.75	14.89	13.62	0.06
1162	0.78	51.08	51.14	21.77	19.15	0.06
1170	0.69	50.50	50.52	23.69	23.79	0.06
1175	0.67	50.10	50.20	23.07	26.54	0.06
1176	0.67	50.08	50.12	23.02	27.36	0.06
1177	0.67	50.06	50.08	22.93	28.20	0.06
1181	0.68	50.00	49.86	21.56	27.19	0.06
1187	0.78	50.33	49.70	16.40	17.88	0.07
1200	1.71	52.65	49.99	7.25	7.40	0.07
1201	1.84	52.75	50.04	6.79	6.92	0.07
1208	2.96	51.85	50.89	4.28	4.32	0.07
1209	3.15	51.53	51.00	4.01	4.05	0.07
1223	6.18	46.70	53.33	1.72	1.70	0.06
1268	15.04	39.42	59.61	0.35	0.30	0.06
1288	17.99	37.44	61.16	0.26	0.20	0.07
1290	18.25	37.25	61.34	0.26	0.20	0.07
1330	22.99	33.79	62.58	0.22	0.14	0.08
1376	27.53	29.80	62.80	0.23	0.13	0.08
1410	30.71	26.57	62.31	0.25	0.13	0.09
1432	32.82	24.24	61.81	0.27	0.12	0.11
1460	35.81	20.88	60.98	0.32	0.13	0.15
1462	36.04	20.62	60.93	0.33	0.13	0.16
1516	44.74	11.66	59.40	0.80	0.14	0.56
1538	52.26	6.65	59.56	1.91	0.14	1.61
1547	57.67	4.53	60.83	3.14	0.14	2.79
1583	58.41	0.77	59.23	28.87	0.14	22.23
1587	56.28	0.76	57.30	26.52	0.15	22.13
1589	55.56	0.76	56.51	26.23	0.15	22.16
1590	55.10	0.76	56.26	26.38	0.14	22.26
1591	54.78	0.76	55.79	26.72	0.15	22.40
1592	54.59	0.76	55.50	27.31	0.14	22.62
1601	52.78	0.81	53.01	25.64	0.15	21.40
1633	44.70	5.58	52.16	2.41	0.16	2.18
1654	40.50	11.41	55.74	0.85	0.17	0.64
1676	38.14	16.69	58.82	0.49	0.16	0.28
1696	36.62	20.72	61.16	0.39	0.17	0.19
1710	35.75	23.22	62.31	0.37	0.17	0.16
1770	32.94	32.15	65.67	0.35	0.19	0.11
1806	31.68	36.80	66.11	0.34	0.19	0.09
2000	27.38	66.29	66.30	0.36	0.23	0.10

Typical Performance Curves

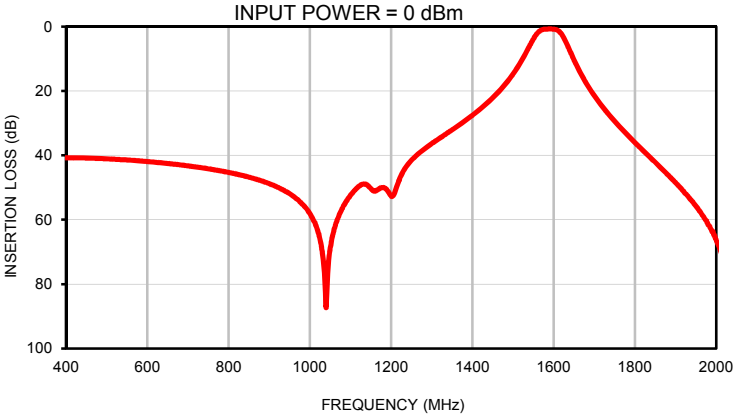
CHANNEL-1 INSERTION LOSS
INPUT POWER = 0 dBm



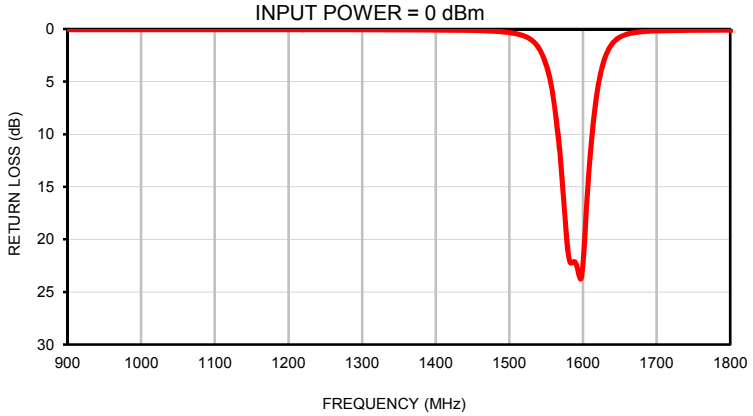
CHANNEL-1 RETURN LOSS
INPUT POWER = 0 dBm



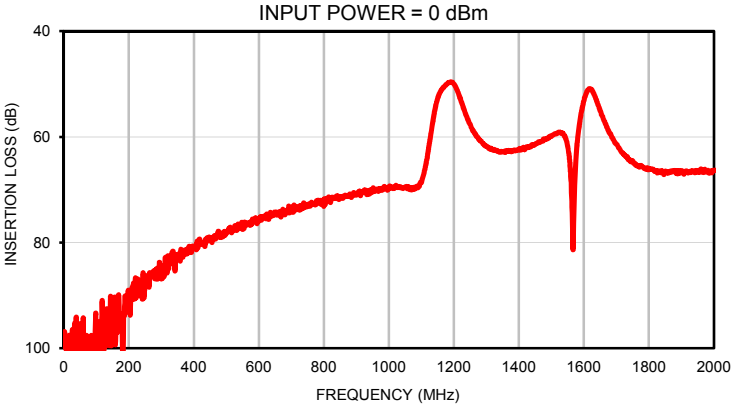
CHANNEL-2 INSERTION LOSS
INPUT POWER = 0 dBm



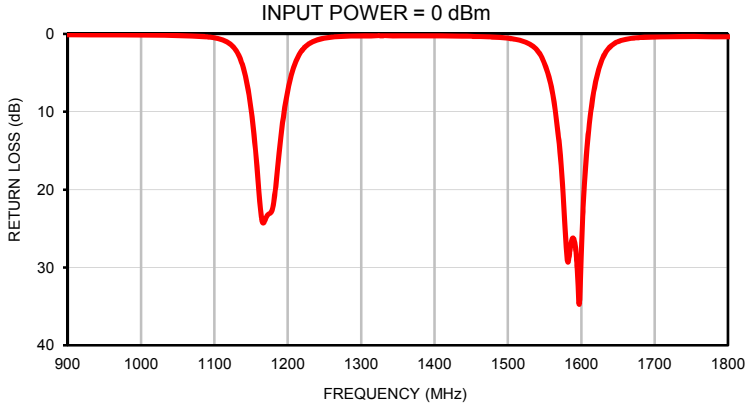
CHANNEL-2 RETURN LOSS
INPUT POWER = 0 dBm



CROSSOVER ISOLATION
INPUT POWER = 0 dBm



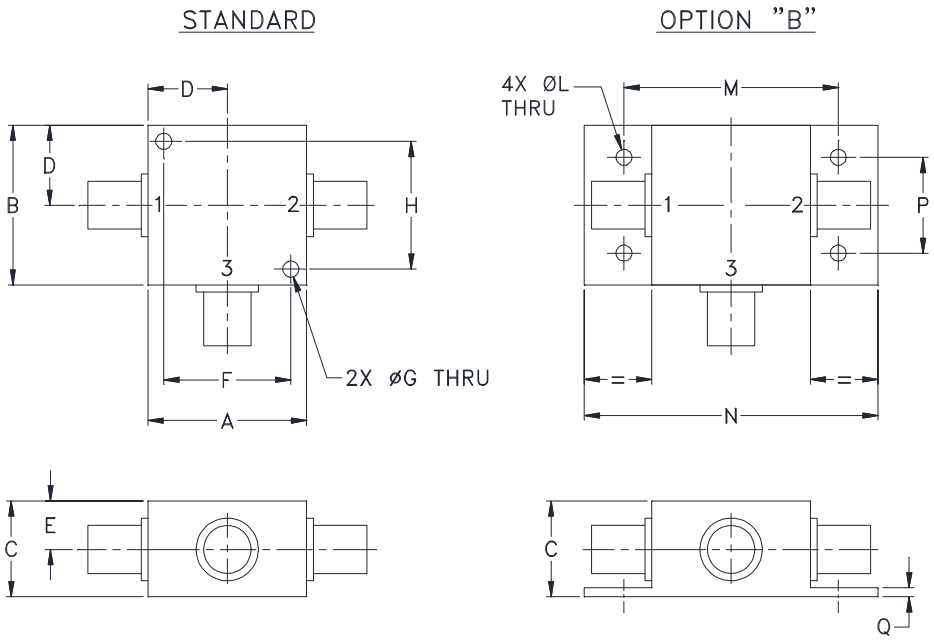
COMMON PORT RETURN LOSS
INPUT POWER = 0 dBm



Case Style K

K18

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
K18	1.25 (31.75	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	-- --	-- --	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT. GRAMS
K18	.75 (19.05)	.07 (1.78)	70.0

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .03; 3 Pl. ± .015

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number.
4. For port marking 1, 2, and 3 see specifications data sheet.
5. For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
6. Refer to the individual model data sheet for the type of connectors available.

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Environmental Specifications **ENV109**

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 Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 40°C, 96 hours Units may require bake-out after humidity to restore full performance.	MIL-STD-202. method 103. Condition B
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition D
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	50g, 11ms half-sine, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition A