



Mini-Circuits

CAVITY COAXIAL

Bandpass Filter

ZVBP-K30R5G+

50 Ω

30 to 31 GHz

2.92mm Female

KEY FEATURES

- Low Insertion Loss, 1.5 dB Typ.
- Good Return Loss, 18 dB Typ.
- High Rejection, 77 dB Typ.
- Power Handling: 2.5 W
- Stopband up to 50 GHz

APPLICATIONS

- Block Upconverter
- Ka Band Stellite System

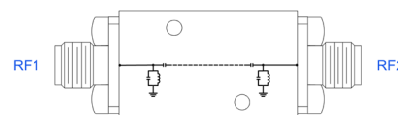


Generic photo used for illustration purposes only

PRODUCT OVERVIEW

Mini-Circuits' cavity filters are designed by implementing resonant structures with very high Q and are ideal for narrow-band, high-selectivity applications. These designs can provide bandwidths as narrow as 3% with very high selectivity and excellent low noise floor. Low insertion loss combined with excellent power handling makes them well-suited for transmitter and receiver front end. Advanced filter design and construction enables stopband width greater than 3x the center frequency.

FUNCTIONAL DIAGRAM

ELECTRICAL SPECIFICATIONS^{1,2} AT +25°C

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	Fc	—	—	30.5	—	GHz
	Insertion Loss	F1-F2	30 - 31	—	1.5	1.8	dB
	Return Loss	F1-F2	30 - 31	14	18	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 28	70	77	—	dB
		F3-F4	28 - 29	45	50	—	
Stop Band, Upper	Rejection	F5-F6	32.25 - 33	50	56	—	dB
		F6-F7	33 - 50	70	74	—	

1. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

2. Data measured after calibrating using 2.92mm cal kit.

ABSOLUTE MAXIMUM RATINGS^{3,4}

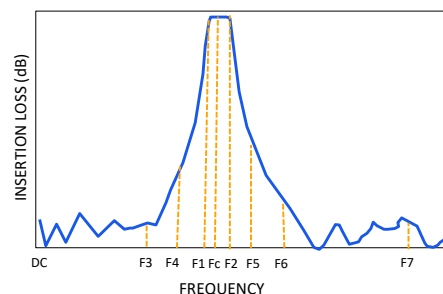
Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Input Power ⁵	2.5 W at +25°C

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

4. Input and output ports are DC short to ground.

5. Power rating applies only to signals within the passband.

TYPICAL FREQUENCY RESPONSE AT +25°C



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REV. OR
ECO-026642
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EDU5026
URJ
250829

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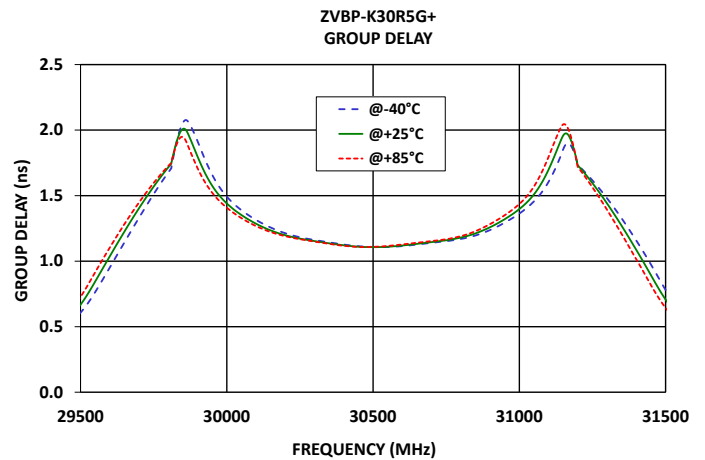
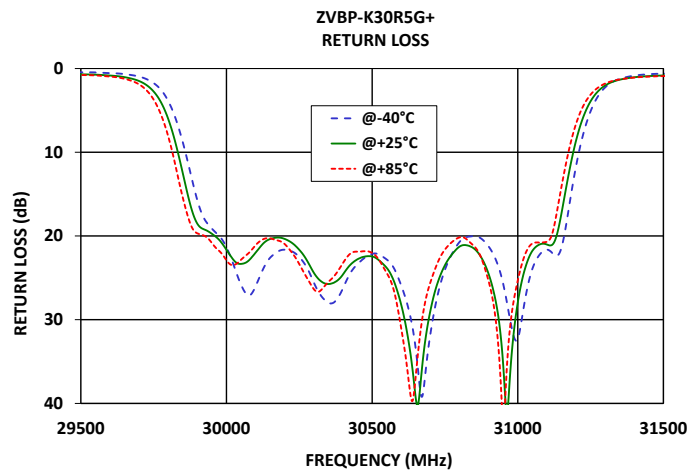
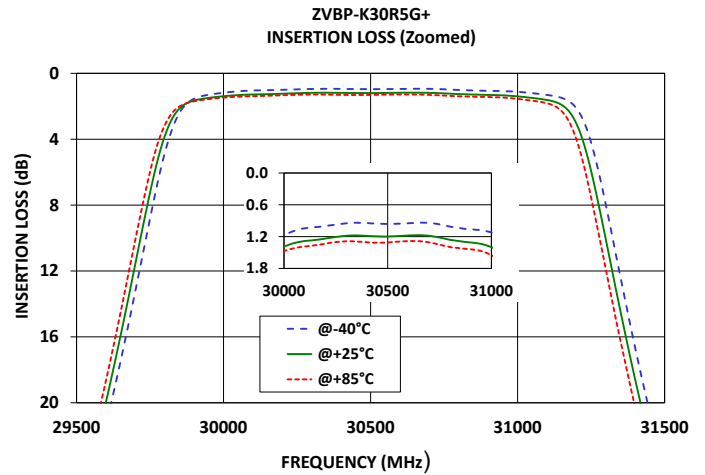
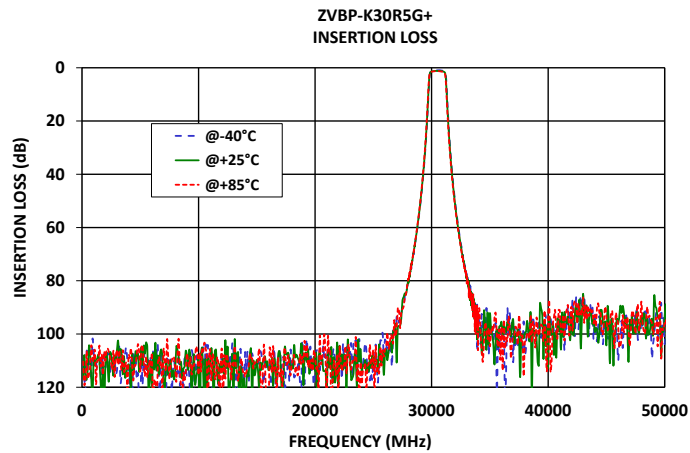
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2.92mm Female

TYPICAL PERFORMANCE GRAPHS





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ZVBP-K30R5G+

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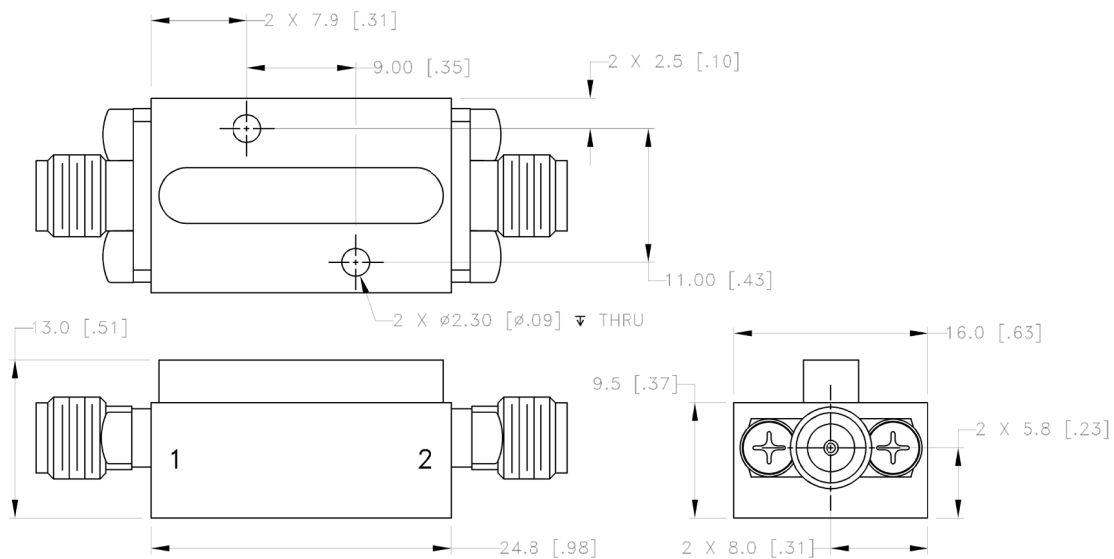
30 to 31 GHz

2.92mm Female

CONNECTOR DESCRIPTION

Function	Marking on Unit	Connector
RF1 ¹	1	2.92mm Female
RF2 ¹	2	2.92mm Female

CASE STYLE DRAWING



Unit Weight: 35 Grams.

Dimensions are in mm (inches). Tolerances: 1 Pl. ± 1.5 (0.06); 2 Pl. ± 0.38 (0.015)

PRODUCT MARKING*: ZVBP-K30R5G+

*Marking may contain other features or characters for internal lot control.





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ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

[CLICK HERE](#)

Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	BAU3709
RoHS Status	Compliant
Environmental Ratings	ENV46

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-Circuits' 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/terms/viewterm.html



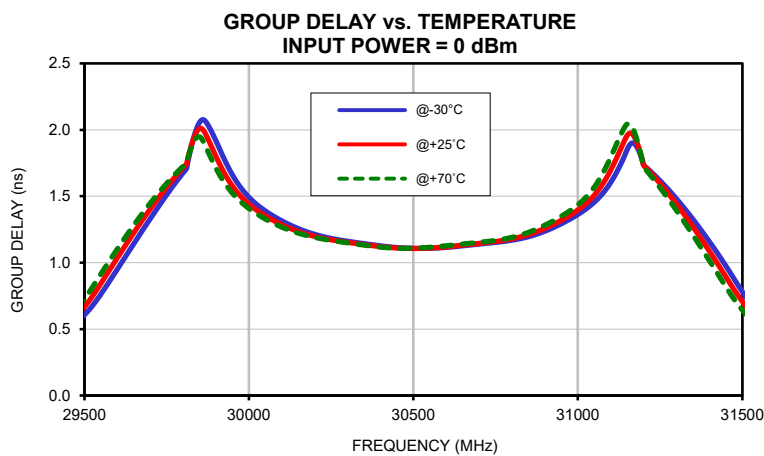
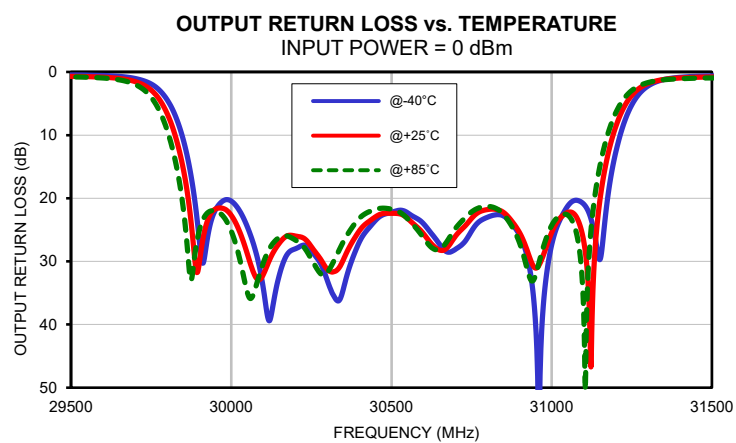
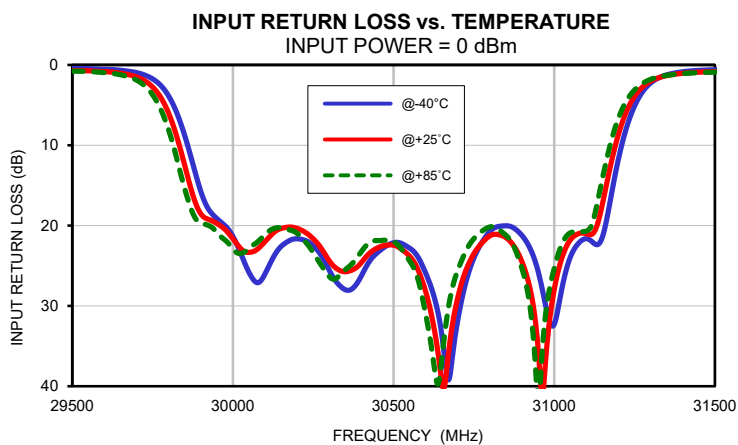
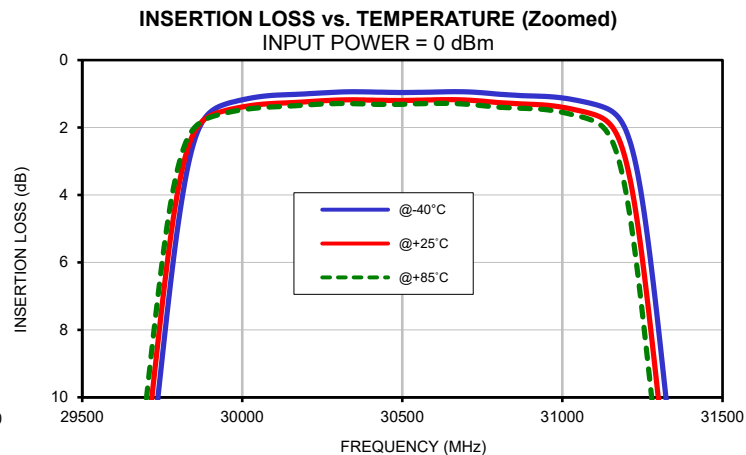
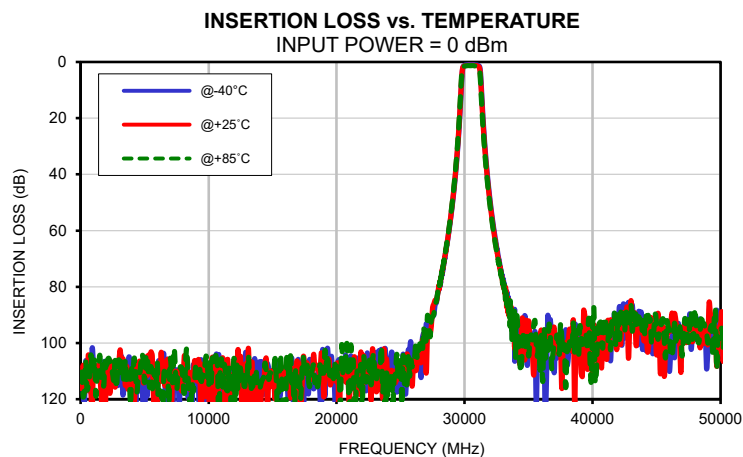
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
100	111.19	116.36	110.34	0.12	0.16	0.19	0.12	0.16	0.19
200	116.94	107.89	119.15	0.16	0.21	0.24	0.16	0.20	0.25
400	106.50	117.18	106.35	0.21	0.27	0.31	0.21	0.27	0.31
800	117.45	117.14	104.23	0.27	0.35	0.39	0.28	0.35	0.41
1000	106.95	109.64	110.36	0.29	0.37	0.42	0.30	0.37	0.43
1500	111.98	110.55	104.34	0.32	0.40	0.46	0.33	0.42	0.48
2000	112.60	112.83	110.08	0.33	0.43	0.48	0.35	0.43	0.49
2400	114.78	106.81	108.65	0.35	0.44	0.50	0.35	0.44	0.50
3000	113.73	106.00	106.04	0.35	0.45	0.50	0.36	0.45	0.51
3500	109.11	115.16	106.09	0.35	0.46	0.51	0.36	0.45	0.51
4500	114.69	110.77	111.69	0.33	0.43	0.48	0.33	0.42	0.47
5500	111.61	103.13	108.37	0.29	0.39	0.44	0.30	0.39	0.44
9000	115.81	107.95	107.42	0.20	0.30	0.34	0.25	0.33	0.37
9500	107.95	115.32	111.42	0.19	0.29	0.33	0.25	0.33	0.37
11000	113.54	109.87	105.67	0.19	0.30	0.34	0.25	0.34	0.38
12000	106.36	112.35	105.83	0.18	0.30	0.34	0.24	0.33	0.38
13000	106.78	127.18	112.40	0.17	0.29	0.33	0.22	0.32	0.36
14500	107.45	105.57	109.64	0.12	0.26	0.30	0.16	0.26	0.31
15000	109.88	109.74	111.21	0.10	0.24	0.28	0.15	0.25	0.29
16000	111.39	113.52	131.45	0.06	0.20	0.24	0.09	0.20	0.25
17000	105.83	107.59	116.58	0.02	0.16	0.20	0.05	0.16	0.21
18500	112.85	108.78	115.57	0.04	0.11	0.15	0.00	0.12	0.17
20000	112.97	113.89	107.95	0.08	0.09	0.14	0.02	0.11	0.17
22000	114.30	118.97	123.49	0.08	0.12	0.18	0.02	0.17	0.26
22500	113.31	107.68	111.81	0.05	0.15	0.22	0.04	0.20	0.29
23000	107.53	108.34	112.75	0.02	0.19	0.26	0.07	0.23	0.32
23500	102.39	110.91	101.28	0.01	0.22	0.29	0.10	0.27	0.37
24000	115.62	113.89	118.81	0.05	0.26	0.33	0.13	0.31	0.40
25500	108.94	103.98	114.73	0.20	0.40	0.48	0.26	0.44	0.54
26000	102.04	107.57	105.85	0.24	0.44	0.53	0.31	0.49	0.60
26500	103.03	102.78	100.37	0.27	0.47	0.56	0.36	0.53	0.65
27000	93.25	110.74	98.45	0.31	0.51	0.60	0.40	0.57	0.68
28000	80.72	79.54	79.43	0.33	0.56	0.64	0.48	0.64	0.76
29000	52.49	51.91	51.37	0.36	0.59	0.65	0.48	0.67	0.76
29470	30.18	29.07	28.06	0.43	0.67	0.74	0.48	0.69	0.77
29610	20.61	19.17	17.85	0.56	0.86	0.99	0.58	0.86	1.00
29833	3.05	2.53	2.26	6.72	9.92	12.80	7.85	11.39	15.82
30000	1.18	1.39	1.47	21.36	21.65	22.90	20.45	22.70	25.19
30100	1.04	1.28	1.39	26.00	21.99	21.10	34.23	32.09	30.24
30200	1.00	1.24	1.33	21.64	20.35	20.97	28.01	25.98	26.62
30300	0.95	1.18	1.29	25.57	24.40	26.35	33.05	31.28	31.76
30400	0.94	1.19	1.31	26.23	24.58	23.23	26.91	25.15	23.17
30500	0.96	1.20	1.31	22.14	22.44	22.03	22.24	22.38	21.73
30600	0.95	1.18	1.28	25.93	28.24	31.07	24.04	25.63	26.27
30700	0.94	1.18	1.31	31.72	28.93	25.54	28.08	25.99	24.77
30800	1.01	1.26	1.40	20.71	21.27	20.17	23.00	21.79	21.30
30900	1.06	1.31	1.44	21.26	24.55	25.41	25.85	25.47	27.11
31000	1.12	1.40	1.55	32.28	27.95	25.31	27.36	25.43	24.31
32250	58.39	59.35	60.15	0.38	0.59	0.66	0.57	0.75	0.86
33000	77.07	78.46	79.12	0.30	0.53	0.60	0.53	0.72	0.81
40000	96.80	112.91	94.26	0.09	0.35	0.44	0.18	0.05	0.15
41000	99.78	94.79	91.20	0.06	0.34	0.43	0.19	0.03	0.17
42000	95.52	91.74	89.75	0.13	0.49	0.57	0.11	0.16	0.27
43000	91.18	84.89	86.24	0.31	0.03	0.14	0.30	0.06	0.15
44000	91.57	99.19	92.89	0.17	0.17	0.28	0.19	0.07	0.26
45000	100.00	104.29	93.60	0.10	0.20	0.31	0.07	0.17	0.36
46000	110.03	96.04	96.08	0.01	0.25	0.40	0.05	0.26	0.48
47000	94.61	94.88	104.64	0.32	0.30	0.69	0.06	0.34	0.48
48000	98.68	93.42	87.83	0.23	0.36	0.52	0.13	0.30	0.63
50000	103.81	93.37	95.43	0.52	0.73	1.07	0.21	0.46	0.68

Typical Performance Data

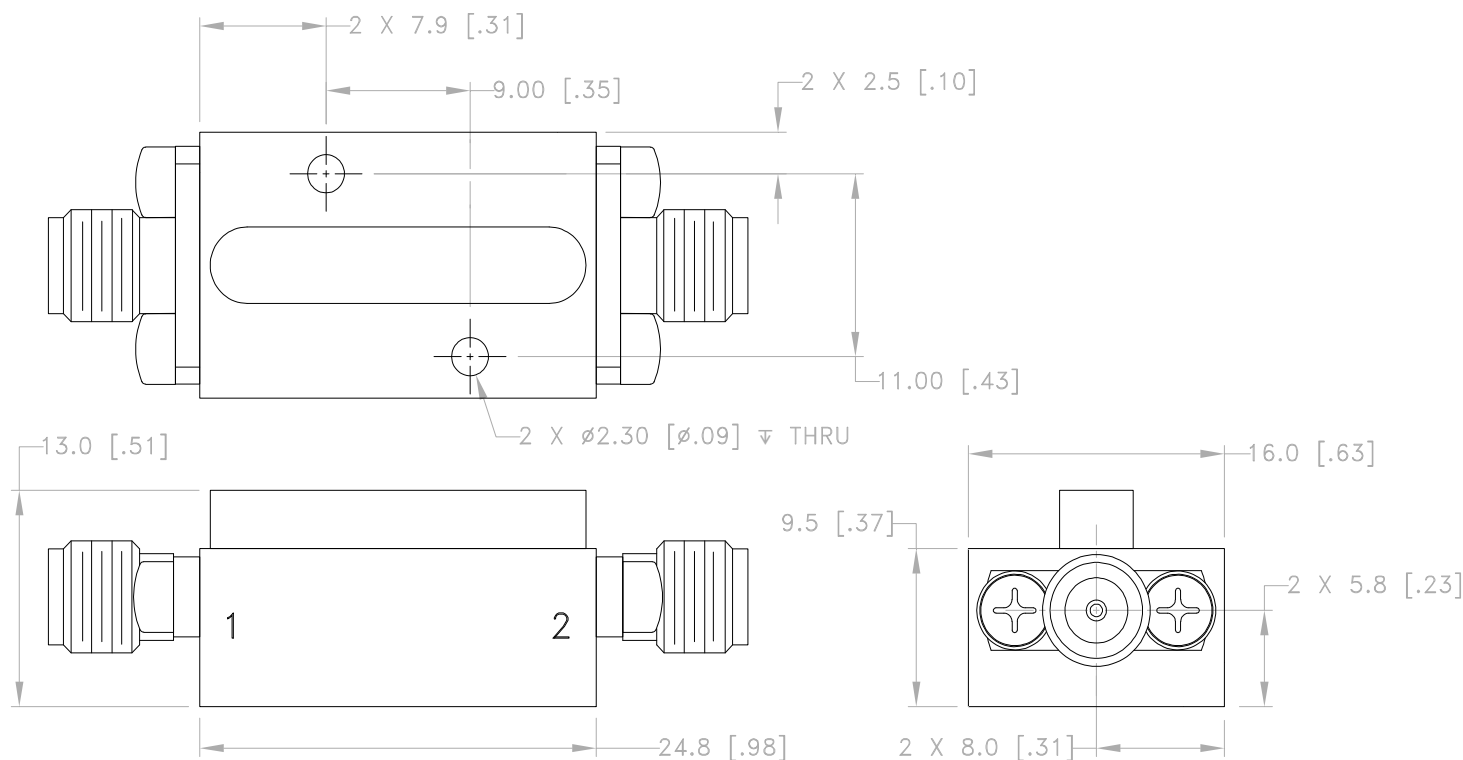
FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-40°C	@+25°C	@+85°C
30000	1.49	1.44	1.41
30010	1.47	1.42	1.39
30020	1.45	1.40	1.37
30050	1.39	1.35	1.33
30060	1.37	1.34	1.32
30070	1.36	1.32	1.30
30080	1.34	1.31	1.29
30090	1.33	1.30	1.28
30100	1.31	1.29	1.27
30130	1.28	1.25	1.24
30140	1.27	1.24	1.23
30150	1.26	1.23	1.22
30160	1.25	1.23	1.21
30170	1.24	1.22	1.21
30180	1.23	1.21	1.20
30190	1.22	1.20	1.20
30200	1.21	1.20	1.19
30210	1.21	1.19	1.19
30250	1.18	1.17	1.17
30260	1.18	1.17	1.16
30280	1.17	1.16	1.16
30300	1.16	1.15	1.15
30350	1.14	1.14	1.13
30370	1.14	1.13	1.13
30400	1.13	1.12	1.12
30410	1.12	1.12	1.11
30450	1.11	1.11	1.11
30470	1.11	1.11	1.11
30490	1.11	1.11	1.11
30500	1.11	1.11	1.11
30550	1.11	1.11	1.12
30600	1.12	1.12	1.13
30650	1.13	1.13	1.14
30700	1.14	1.15	1.15
30750	1.15	1.16	1.17
30800	1.17	1.18	1.19
30850	1.20	1.21	1.23
30900	1.24	1.26	1.28
30920	1.26	1.28	1.31
30950	1.29	1.32	1.35
31000	1.36	1.40	1.44

Typical Performance Curves



Outline Dimensions

BAU3709



Dimensions are in mm (inches). Tolerances: 1 Pl. ± 1.5 (0.06); 2 Pl. ± 0.38 (0.015)

Notes:

1. Case material: Brass alloy.
2. Case Finish: Powder coated.
3. Unit Weight: 35 grams.
4. Refer to the individual model data sheet for the type of connectors available.



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

RF/IF MICROWAVE COMPONENTS





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
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, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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