(CERAMIC RESONATOR) COAXIAL

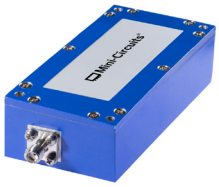
Bandpass Filter

ZCBP12-550-S+

50Ω 540 to 560 MHz SMA Female

KEY FEATURES

- Narrow Band Design with Fast Roll-off
- High Rejection, 73 dB Typ.
- Good Insertion Loss, 1.9 dB Typ.



Generic photo used for illustration purposes only

APPLICATIONS

- Satellite Communications
- Broadcasting
- Traffic Control

FUNCTIONAL DIAGRAM

PRODUCT OVERVIEW

All our coaxial-ceramic resonator filters are built with rugged construction. Excellent repeatability across units is achieved through precise tunning and process control.

ELECTRICAL SPECIFICATIONS[1] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	—	550	—	MHz
	Insertion Loss	F1-F2	540 - 560	—	1.9	2.5	dB
	Return Loss	F1-F2	540 - 560	10	17	—	dB
Stopband, Lower	Rejection	DC-F3	DC - 480	65	73	—	dB
		F3-F4	480 - 527	40	47	—	
Stopband, Upper	Rejection	F5-F6	573 - 620	40	45	—	dB
		F6-F7	620 - 1000	60	67	—	

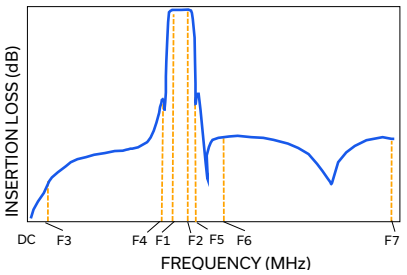
1. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

ABSOLUTE MAXIMUM RATINGS[2]

Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power[3]	6 W at +25°C

2. Permanent damage may occur if any of these limits are exceeded.
3. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 2 W at +85°C.

TYPICAL FREQUENCY RESPONSE



REV.OR
ECO-027770
ZCBP12-550-S+
EDU4487
URJ
251126

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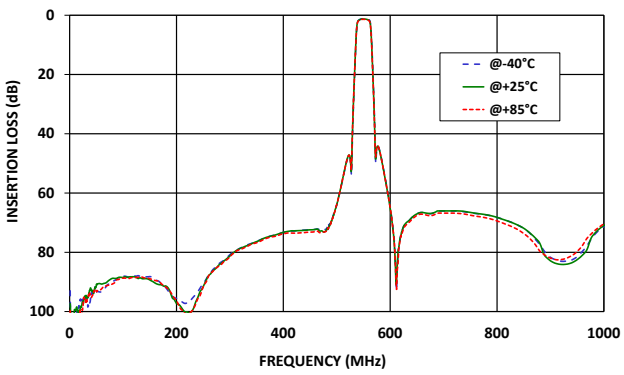
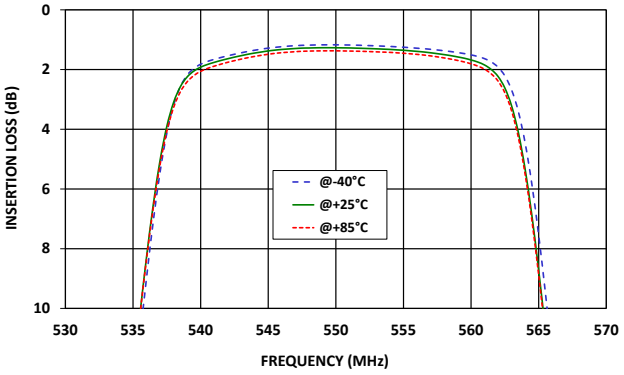
TYPICAL PERFORMANCE GRAPHS

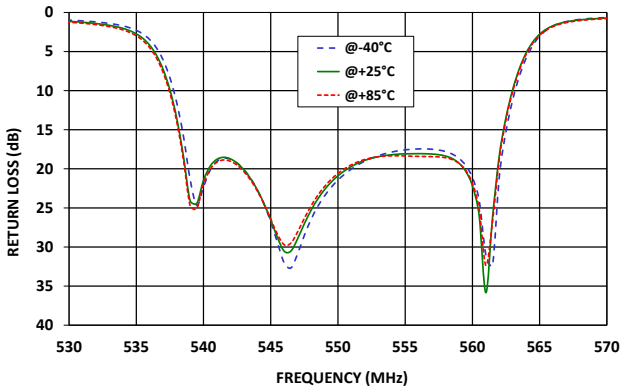
ZCBP12-550-S+
INSERTION LOSS



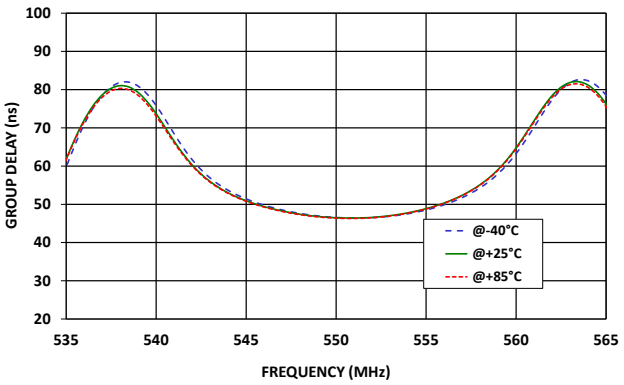
ZCBP12-550-S+
INSERTION LOSS (Zoomed)



ZCBP12-550-S+
RETURN LOSS (Zoomed)



ZCBP12-550-S+
GROUP DELAY



Bandpass Filter

ZCBP12-550-S+

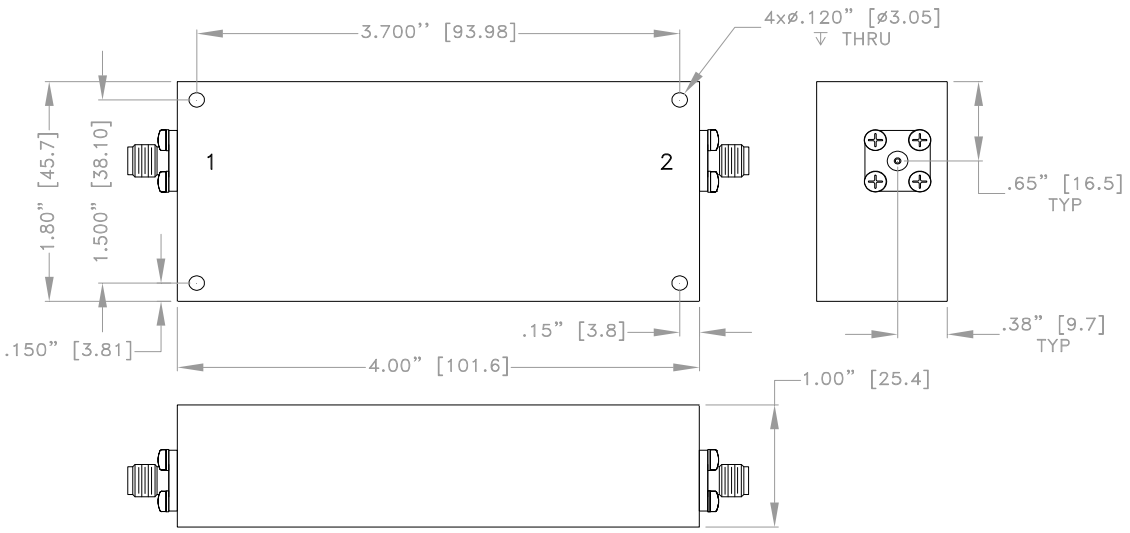
50Ω 540 to 560 MHz SMA Female

CONNECTOR DESCRIPTION

Function	Connector
RF1[4]	SMA Female
RF2[4]	SMA Female

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

CASE STYLE DRAWING



Unit Weight: 265 grams.
Dimensions are in inches [mm]. Tolerances: 2 Pl. ± .100 [2.540]; 3 Pl. ± .015 [0.381]

PRODUCT MARKING*: ZCBP12-550-S+

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

Bandpass Filter

ZCBP12-550-S+

50Ω 540 to 560 MHz SMA Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	BBC3340
RoHS Status	Compliant
Environmental Ratings	ENV125

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

Coaxial Band Pass Filter ZCBP12-550-S+

Typical Performance Data

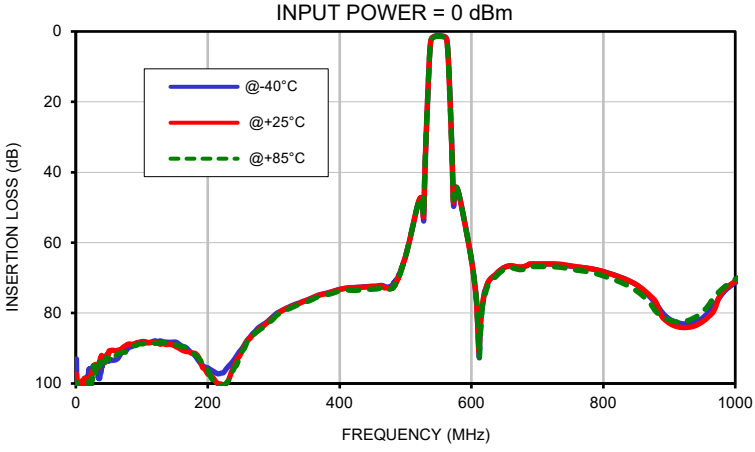
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	93.02	97.35	99.64	0.01	0.01	0.02	0.01	0.01	0.00
10	103.41	99.43	101.01	0.03	0.03	0.04	0.01	0.01	0.03
40	95.18	92.67	95.06	0.06	0.07	0.08	0.05	0.06	0.07
50	93.65	90.96	92.85	0.07	0.07	0.08	0.06	0.07	0.08
80	89.84	88.79	90.69	0.09	0.09	0.11	0.08	0.09	0.10
100	88.10	88.50	88.75	0.10	0.10	0.12	0.09	0.10	0.11
152	88.25	89.55	89.04	0.11	0.12	0.13	0.10	0.11	0.12
200	95.53	97.28	96.21	0.11	0.12	0.14	0.10	0.10	0.12
212	96.94	99.39	99.72	0.11	0.11	0.14	0.10	0.10	0.12
220	97.07	100.12	100.73	0.11	0.12	0.14	0.10	0.10	0.13
236	94.21	96.74	97.44	0.11	0.11	0.14	0.09	0.10	0.12
240	93.26	95.22	95.63	0.10	0.11	0.14	0.09	0.10	0.12
252	90.10	90.83	90.89	0.10	0.11	0.14	0.09	0.09	0.12
260	87.68	87.89	88.02	0.10	0.11	0.14	0.09	0.09	0.12
276	84.32	84.98	85.12	0.10	0.10	0.13	0.09	0.09	0.12
280	83.76	84.18	84.56	0.09	0.10	0.13	0.09	0.09	0.12
300	80.83	81.25	81.55	0.09	0.10	0.13	0.08	0.09	0.12
380	74.35	74.40	74.76	0.09	0.10	0.14	0.11	0.10	0.14
480	72.17	72.69	72.95	0.17	0.20	0.23	0.25	0.21	0.23
500	63.99	63.91	63.88	0.26	0.31	0.34	0.36	0.28	0.30
527	52.80	52.75	52.28	0.78	0.90	0.98	0.84	0.66	0.72
530	37.32	35.82	35.57	0.98	1.13	1.24	0.99	0.83	0.90
531	31.87	30.58	30.41	1.08	1.25	1.38	1.07	0.92	1.00
533	22.26	21.18	21.09	1.41	1.65	1.81	1.30	1.22	1.33
535	13.22	12.33	12.32	2.28	2.73	2.98	2.01	2.16	2.32
538	3.19	3.10	3.27	11.48	13.45	13.88	10.29	12.05	12.14
539	2.19	2.25	2.41	21.29	24.06	24.71	19.78	23.28	22.58
540	1.82	1.92	2.06	22.32	21.47	21.96	28.20	24.61	25.05
542	1.54	1.64	1.76	18.77	18.73	19.03	19.43	19.11	19.39
544	1.35	1.45	1.56	22.70	22.69	22.83	21.36	21.51	21.38
546	1.23	1.33	1.44	32.03	30.54	29.71	25.20	25.11	24.36
548	1.18	1.28	1.38	26.47	25.30	24.74	24.25	24.10	23.44
550	1.17	1.27	1.37	21.44	20.90	20.59	21.12	21.49	21.11
552	1.19	1.29	1.39	19.01	18.91	18.80	19.21	19.88	19.75
554	1.23	1.33	1.42	17.86	18.20	18.34	18.50	19.19	19.42
556	1.28	1.39	1.49	17.45	18.06	18.40	18.81	19.30	19.91
558	1.37	1.50	1.61	17.79	18.37	18.58	20.14	20.41	21.10
560	1.51	1.68	1.81	21.12	22.19	21.85	24.37	25.14	25.53
563	2.68	3.22	3.39	11.15	9.83	10.08	13.07	11.66	12.14
566	11.59	12.90	13.05	1.73	1.69	1.80	3.58	3.64	3.89
568	20.78	22.20	22.30	0.89	0.95	1.03	2.43	2.61	2.81
570	31.03	32.65	32.68	0.65	0.72	0.79	1.90	2.08	2.26
573	49.72	48.52	47.84	0.51	0.57	0.63	1.42	1.56	1.71
600	64.56	65.19	64.92	0.23	0.27	0.31	0.29	0.35	0.38
620	73.84	74.66	74.29	0.18	0.22	0.25	0.19	0.24	0.26
640	68.39	68.39	69.05	0.15	0.17	0.22	0.18	0.17	0.23
660	66.60	66.54	67.15	0.14	0.15	0.21	0.18	0.17	0.22
680	66.80	66.77	67.52	0.13	0.14	0.20	0.20	0.17	0.22
704	66.09	66.04	66.79	0.13	0.14	0.19	0.22	0.18	0.22
720	66.08	66.02	66.79	0.12	0.14	0.19	0.24	0.19	0.22
744	66.49	66.37	67.27	0.12	0.13	0.19	0.27	0.20	0.23
760	66.92	66.84	67.81	0.12	0.14	0.19	0.29	0.21	0.24
784	67.51	67.49	68.58	0.13	0.14	0.19	0.33	0.23	0.25
800	68.22	68.21	69.44	0.14	0.15	0.20	0.35	0.24	0.26
824	69.68	69.72	71.07	0.14	0.15	0.20	0.39	0.26	0.27
840	70.96	70.93	72.47	0.14	0.15	0.20	0.42	0.27	0.27
904	82.12	83.31	82.19	0.15	0.16	0.21	0.50	0.30	0.28
920	83.04	84.10	82.45	0.15	0.16	0.21	0.51	0.30	0.29
952	81.18	82.22	79.37	0.16	0.17	0.21	0.55	0.31	0.28
1000	71.37	71.00	70.41	0.17	0.17	0.22	0.62	0.33	0.29

Typical Performance Data

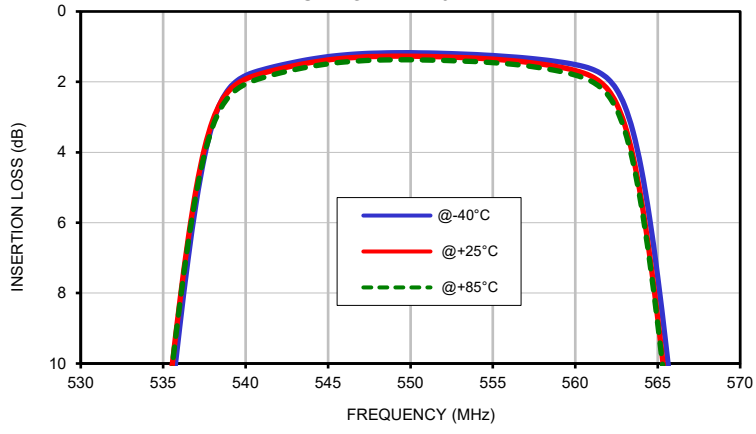
FREQ. (MHz)	GROUP DELAY (ns)		
	@-40°C	@+25°C	@+85°C
540.0	75.84	73.70	73.07
540.5	72.23	70.12	69.60
541.0	68.42	66.51	66.10
541.5	64.84	63.18	62.88
542.0	61.67	60.30	60.07
542.5	59.04	57.91	57.72
543.0	56.88	55.95	55.78
543.5	55.11	54.34	54.18
544.0	53.66	53.00	52.86
544.5	52.44	51.88	51.74
545.0	51.42	50.94	50.80
545.5	50.53	50.11	49.98
546.0	49.77	49.41	49.28
546.5	49.11	48.79	48.67
547.0	48.52	48.26	48.13
547.5	48.03	47.79	47.68
548.0	47.60	47.41	47.29
548.5	47.24	47.07	46.96
549.0	46.95	46.82	46.71
549.5	46.72	46.62	46.51
550.0	46.56	46.49	46.38
550.5	46.46	46.42	46.31
551.0	46.41	46.41	46.30
551.5	46.43	46.46	46.36
552.0	46.51	46.58	46.48
552.5	46.68	46.78	46.68
553.0	46.89	47.04	46.95
553.5	47.18	47.38	47.30
554.0	47.55	47.79	47.71
554.5	48.00	48.29	48.21
555.0	48.52	48.87	48.80
555.5	49.15	49.56	49.48
556.0	49.89	50.36	50.28
556.5	50.75	51.28	51.20
557.0	51.75	52.36	52.27
557.5	52.94	53.64	53.55
558.0	54.32	55.14	55.03
558.5	55.99	56.95	56.81
559.0	58.00	59.12	58.95
559.5	60.40	61.72	61.52
560.0	63.26	64.78	64.54

Typical Performance Curves

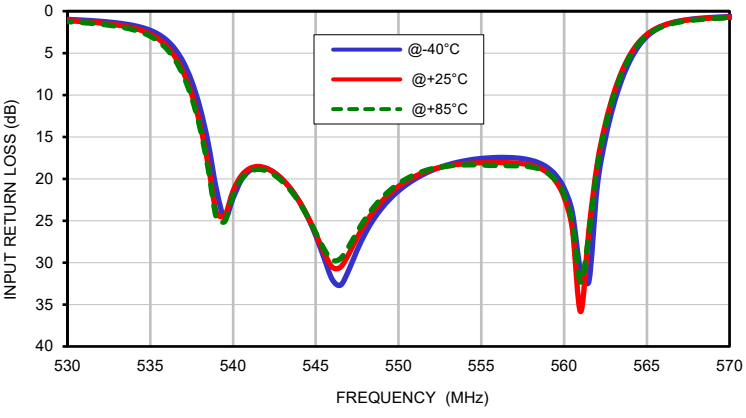
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



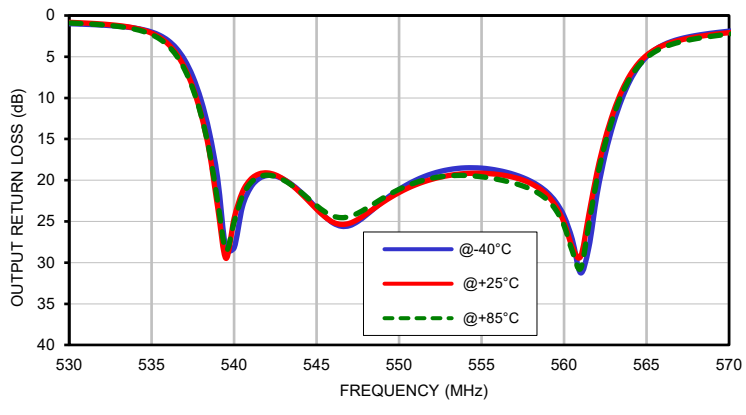
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



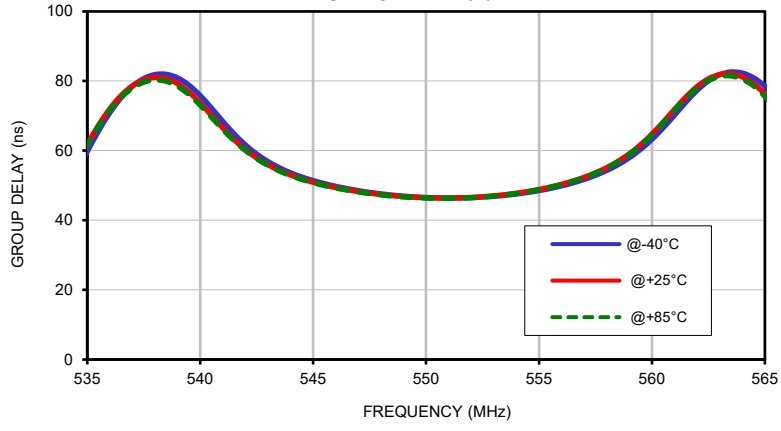
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



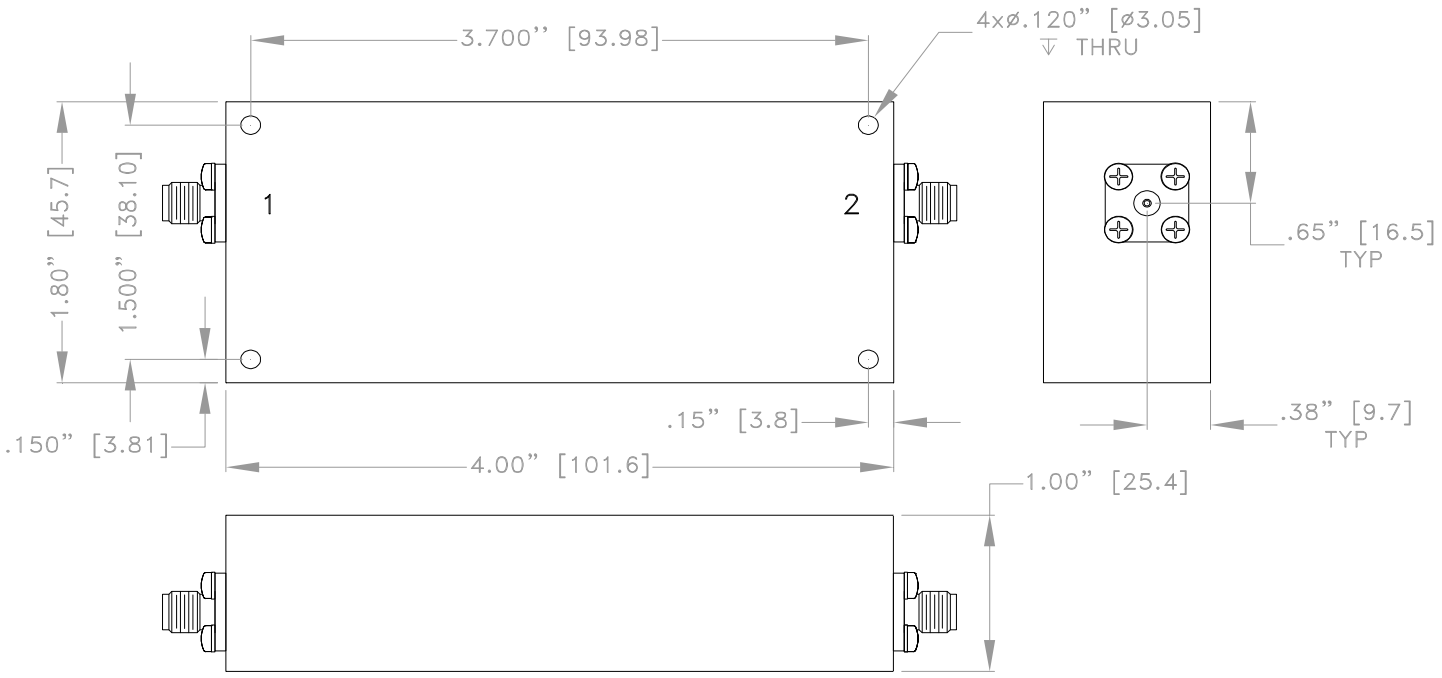
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style BBC

Outline Dimensions

BBC3340



Dimensions are in inches [mm]. Tolerances: 2 Pl. ± .100 [2.540]; 3 Pl. ± .015 [0.381]

Notes:

1. Case material: Aluminum Alloy.
2. Case Finish: Powder coated.
3. Unit Weight: 265 grams.
4. Refer to the individual model data sheet for the type of connectors available.

Mini-Circuits

Environmental Specifications ENV125

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