CAVITY COAXIAL

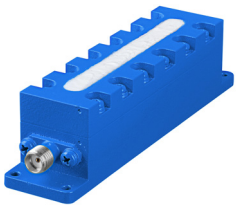
Bandpass Filter

ZVBP-7916R25-S+

50Ω 7682.5 to 8150 MHz SMA Female

KEY FEATURES

- Low Insertion Loss, 0.5dB Typ.
- Good Return Loss, 20dB Typ.
- Great Rejection, 90dB Typ.
- Stopband up to 15GHz.



Generic photo used for illustration purposes only

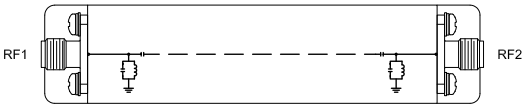
APPLICATIONS

- Test and Measurements.

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 (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	Fc	—	—	7916.25	—	MHz
	1dB Bandwidth	—	—	467.5	—	—	MHz
	Insertion Loss	Fc	7916.25	—	0.5	0.9	dB
	Return Loss	F1-F2	7682.5 - 8150	15	20	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 6717.5	70	93	—	dB
		F3-F4	6717.5- 7481.25	35	43	—	
		F4-F5	7481.25 - 7495	33	40	—	
		F5-F6	7495 - 7600	10	18	—	
Stop Band, Upper	Rejection	F7-F8	8230 - 8335	10	18	—	dB
		F8-F9	8335 - 8350	35	43	—	
		F9-F10	8350- 9300	38	46	—	
		F10-F11	9300 - 15000	70	94	—	

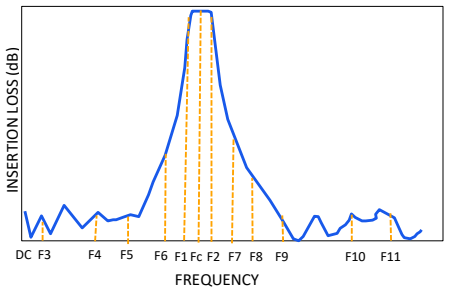
1. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

ABSOLUTE MAXIMUM RATINGS[2,3]

Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power[4]	10W at 25°C

2. Permanent damage may occur if any of these limits are exceeded.
3. Input and output ports are DC short to ground.
4. Power rating applies only to signals within the passband.

TYPICAL FREQUENCY RESPONSE AT +25°C



REV. A
ECO-020489
ZVBP-7916R25-S+
EDU4747
URJ
240104

Bandpass Filter

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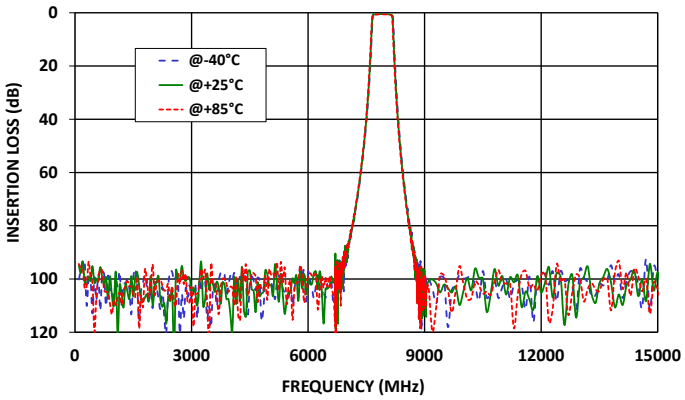
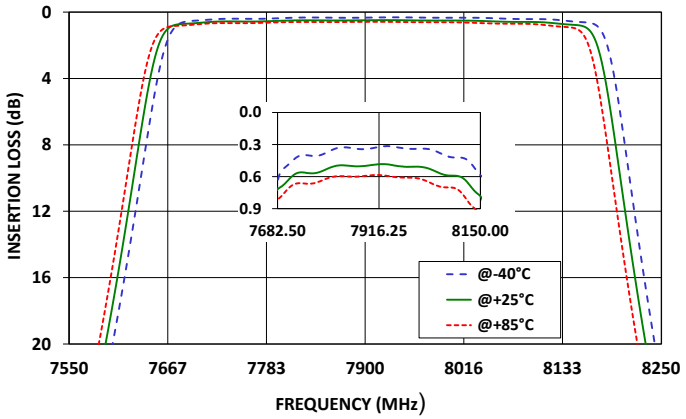
TYPICAL PERFORMANCE GRAPHS

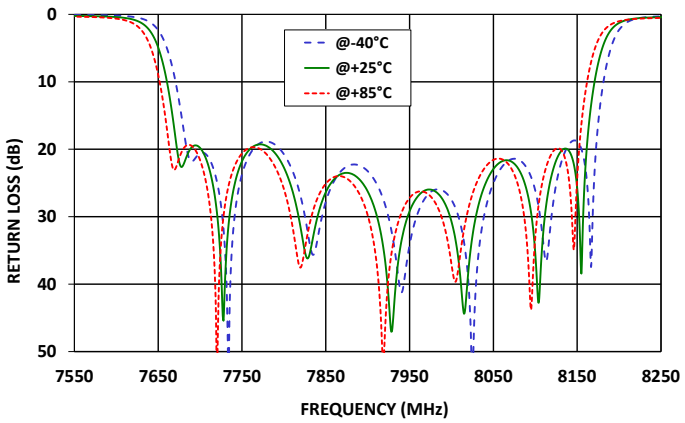
ZVBP-7916R25-S+
INSERTION LOSS



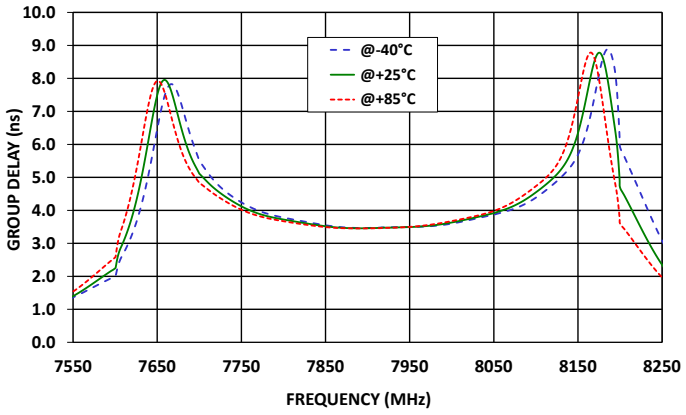
ZVBP-7916R25-S+
INSERTION LOSS (Zoomed)



ZVBP-7916R25-S+
RETURN LOSS



ZVBP-7916R25-S+
GROUP DELAY



Bandpass Filter

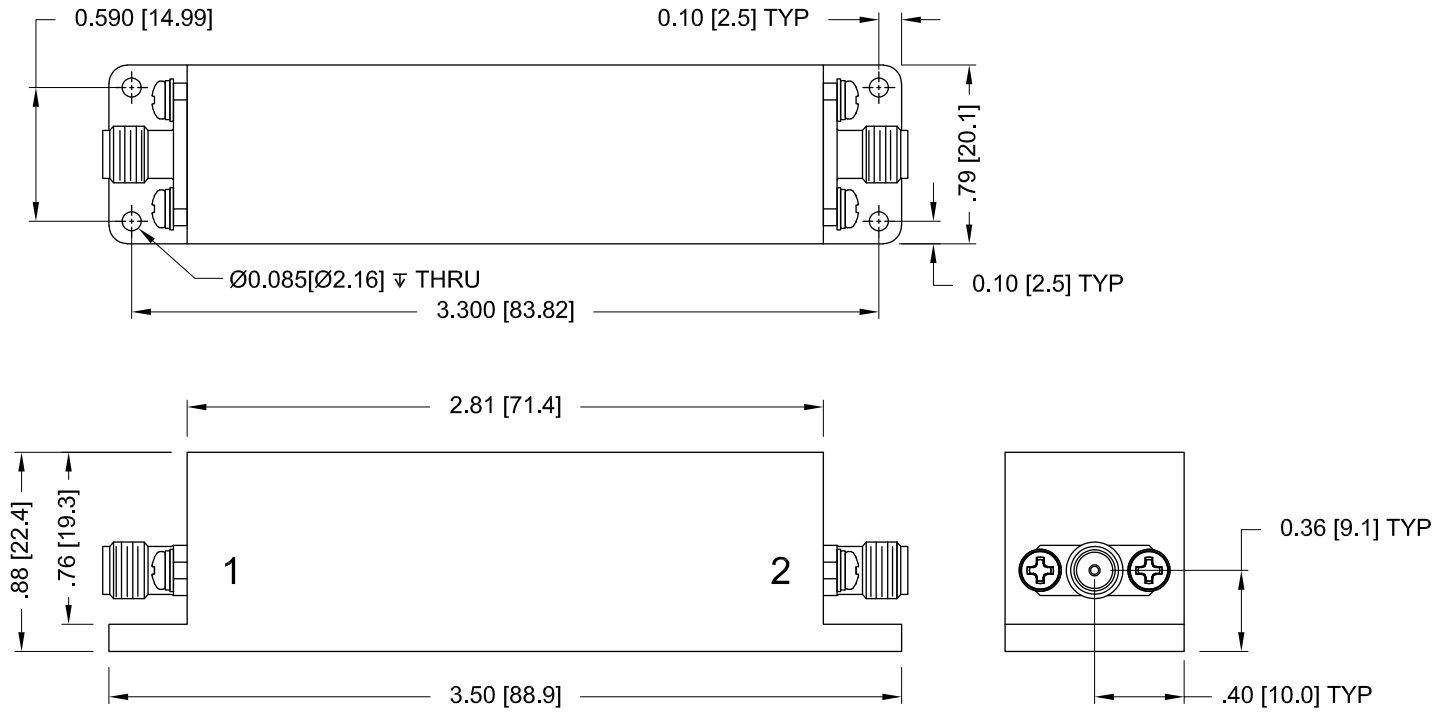
ZVBP-7916R25-S+

50Ω 7682.5 to 8150 MHz SMA Female

CONNECTOR DESCRIPTION

Function	Marking on Unit	Connector
RF1[1]	1	SMA Female
RF2[1]	2	SMA Female

CASE STYLE DRAWING



Unit Weight: 86 Grams.
Dimensions are in inches (mm). Tolerances: 2 Pl. ± .100; 3 Pl. ± .015

PRODUCT MARKING*: ZVBP-7916R25-S+

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

Bandpass Filter

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50Ω 7682.5 to 8150 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	ZU3551
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

Cavity Band Pass Filter ZVBP-7916R25-S+

Typical Performance Data

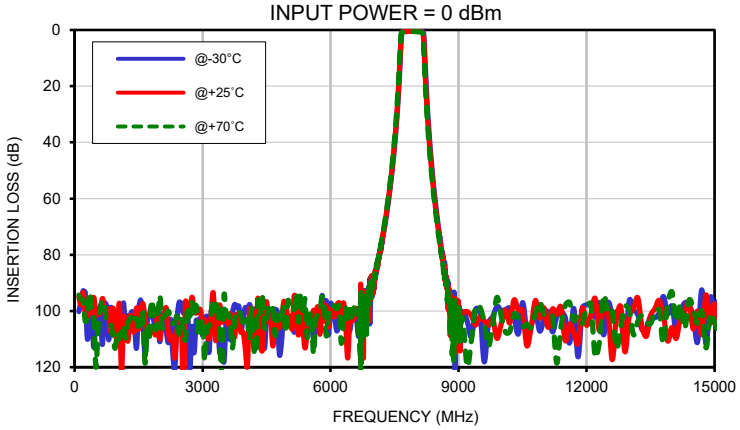
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-30°C	@+25°C	@+70°C	@-30°C	@+25°C	@+70°C	@-30°C	@+25°C	@+70°C
100.00	100.21	95.03	94.35	0.00	0.01	0.02	0.02	0.01	0.01
200.00	92.78	93.43	96.26	0.02	0.03	0.05	0.01	0.04	0.03
400.00	100.03	100.70	99.23	0.04	0.06	0.08	0.04	0.07	0.07
800.00	110.28	99.33	104.90	0.05	0.09	0.11	0.03	0.08	0.09
1000.00	107.16	110.06	107.93	0.05	0.09	0.11	0.01	0.08	0.07
1500.00	99.56	106.57	106.18	0.03	0.08	0.12	0.01	0.06	0.07
2000.00	110.85	109.90	94.51	0.01	0.08	0.12	0.03	0.07	0.08
2400.00	102.94	106.60	101.88	0.01	0.07	0.12	0.05	0.06	0.09
3000.00	108.69	104.36	103.09	0.02	0.08	0.14	0.06	0.06	0.11
3500.00	118.17	100.79	94.65	0.01	0.09	0.17	0.05	0.08	0.13
4000.00	98.76	113.21	102.85	0.00	0.10	0.19	0.04	0.10	0.15
4500.00	101.78	96.72	102.56	0.02	0.13	0.21	0.03	0.12	0.17
5000.00	103.41	102.22	96.40	0.05	0.15	0.23	0.01	0.15	0.20
5500.00	106.86	104.76	102.41	0.07	0.17	0.23	0.02	0.16	0.20
6000.00	97.54	99.56	99.32	0.09	0.19	0.24	0.04	0.18	0.20
6250.00	98.50	103.98	111.40	0.10	0.20	0.24	0.05	0.19	0.20
6717.50	100.98	101.53	106.64	0.11	0.20	0.24	0.05	0.19	0.20
7000.00	88.44	93.70	88.37	0.11	0.20	0.23	0.04	0.18	0.18
7441.25	50.27	49.19	48.03	0.08	0.20	0.25	0.01	0.17	0.19
7481.25	44.37	43.09	41.79	0.08	0.20	0.27	0.01	0.17	0.21
7495.00	42.15	40.82	39.45	0.08	0.21	0.27	0.01	0.17	0.21
7555.00	31.03	29.28	27.50	0.09	0.24	0.35	0.02	0.21	0.29
7600.00	20.38	18.05	15.73	0.18	0.40	0.63	0.11	0.38	0.59
7658.50	3.05	1.64	1.12	4.37	8.81	15.20	4.49	9.28	16.62
7682.50	0.65	0.72	0.81	18.82	21.54	19.56	22.97	23.21	19.29
7916.25	0.32	0.48	0.59	26.63	32.82	46.42	26.32	31.87	41.01
8150.00	0.59	0.78	1.02	18.86	25.79	24.33	17.94	22.17	20.63
8230.00	16.20	19.62	22.53	0.45	0.50	0.60	0.35	0.48	0.54
8335.00	42.09	44.11	45.89	0.21	0.34	0.42	0.15	0.33	0.38
8350.00	44.86	46.79	48.49	0.21	0.33	0.41	0.14	0.32	0.37
9300.00	109.23	101.67	110.43	0.13	0.25	0.28	0.08	0.24	0.25
10000.00	99.82	104.51	101.88	0.08	0.21	0.27	0.01	0.19	0.22
10200.00	98.95	104.25	107.30	0.06	0.21	0.26	0.02	0.18	0.21
10600.00	106.95	112.35	104.68	0.03	0.19	0.27	0.06	0.15	0.20
10800.00	100.21	96.27	100.82	0.01	0.18	0.27	0.09	0.14	0.20
11000.00	103.06	98.88	101.27	0.01	0.17	0.27	0.11	0.13	0.20
11200.00	107.41	99.32	101.60	0.03	0.16	0.27	0.13	0.12	0.21
11400.00	100.34	98.60	105.67	0.04	0.15	0.28	0.15	0.10	0.20
11600.00	111.42	104.69	96.95	0.06	0.15	0.28	0.17	0.10	0.21
11800.00	116.34	111.54	101.99	0.06	0.14	0.29	0.19	0.08	0.20
12000.00	97.79	105.06	98.58	0.08	0.14	0.30	0.21	0.07	0.20
12200.00	102.19	95.50	116.24	0.09	0.13	0.30	0.23	0.06	0.20
12400.00	108.49	97.64	94.43	0.11	0.13	0.30	0.24	0.05	0.20
12600.00	100.78	117.32	100.16	0.11	0.12	0.31	0.25	0.05	0.21
12800.00	102.49	98.41	105.30	0.12	0.12	0.31	0.25	0.05	0.22
13000.00	96.26	101.49	99.64	0.13	0.11	0.32	0.25	0.05	0.23
13200.00	101.34	95.33	103.75	0.13	0.11	0.32	0.25	0.05	0.23
13400.00	106.08	109.01	103.92	0.13	0.11	0.33	0.25	0.06	0.24
13600.00	102.43	99.21	100.13	0.14	0.11	0.34	0.26	0.05	0.23
13800.00	94.83	101.34	111.81	0.14	0.11	0.34	0.26	0.05	0.23
13900.00	101.05	110.66	97.58	0.14	0.11	0.34	0.26	0.05	0.24
14000.00	98.24	105.80	93.16	0.14	0.11	0.34	0.26	0.06	0.24
14100.00	107.17	109.75	103.73	0.14	0.12	0.35	0.25	0.07	0.25
14200.00	100.31	102.38	97.58	0.14	0.12	0.35	0.24	0.07	0.26
14300.00	97.11	100.23	106.31	0.13	0.12	0.35	0.23	0.08	0.27
14400.00	97.73	96.74	96.21	0.13	0.11	0.35	0.23	0.08	0.27
14600.00	111.08	100.03	104.63	0.13	0.12	0.36	0.23	0.08	0.27
14800.00	111.76	94.30	113.11	0.12	0.12	0.36	0.23	0.08	0.27
14900.00	95.32	104.32	101.23	0.13	0.13	0.36	0.23	0.08	0.26
15000.00	99.24	97.46	103.90	0.13	0.12	0.35	0.23	0.08	0.26

Typical Performance Data

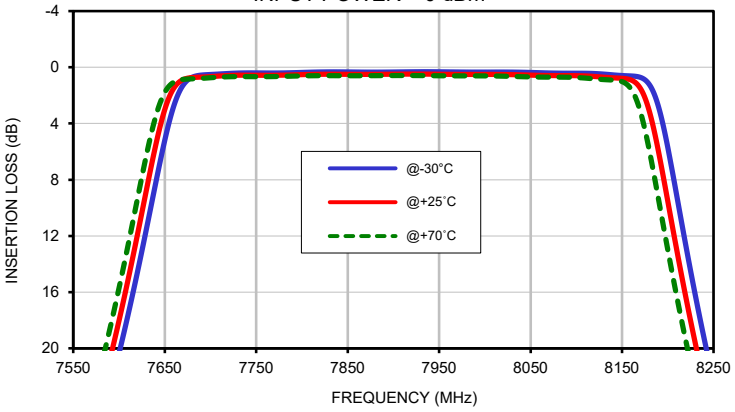
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-30°C	@+25°C	@+70°C
7682.50	6.88	6.15	5.56
7685.00	6.65	5.96	5.42
7670.00	7.77	7.32	6.52
7680.00	7.10	6.37	5.71
7690.00	6.23	5.62	5.19
7700.00	5.50	5.11	4.83
7710.00	5.14	4.85	4.64
7720.00	4.83	4.62	4.45
7730.00	4.60	4.43	4.29
7740.00	4.40	4.27	4.14
7750.00	4.24	4.12	4.02
7760.00	4.10	4.00	3.92
7770.00	3.99	3.90	3.83
7780.00	3.91	3.83	3.77
7790.00	3.84	3.77	3.72
7800.00	3.78	3.72	3.67
7820.00	3.68	3.63	3.59
7840.00	3.59	3.55	3.52
7860.00	3.51	3.49	3.47
7880.00	3.47	3.46	3.45
7900.00	3.47	3.46	3.45
7916.25	3.48	3.47	3.46
7940.00	3.49	3.49	3.48
7960.00	3.50	3.51	3.52
7980.00	3.53	3.55	3.58
8000.00	3.60	3.63	3.68
8010.00	3.65	3.68	3.73
8020.00	3.70	3.74	3.78
8030.00	3.76	3.79	3.84
8040.00	3.82	3.85	3.90
8050.00	3.87	3.91	3.97
8060.00	3.94	4.00	4.08
8070.00	4.01	4.09	4.21
8080.00	4.11	4.22	4.37
8100.00	4.39	4.55	4.73
8110.00	4.57	4.74	4.94
8120.00	4.78	4.97	5.21
8130.00	5.01	5.24	5.62
8135.00	5.13	5.42	5.92
8140.00	5.28	5.65	6.31
8150.00	5.69	6.34	7.42

Typical Performance Curves

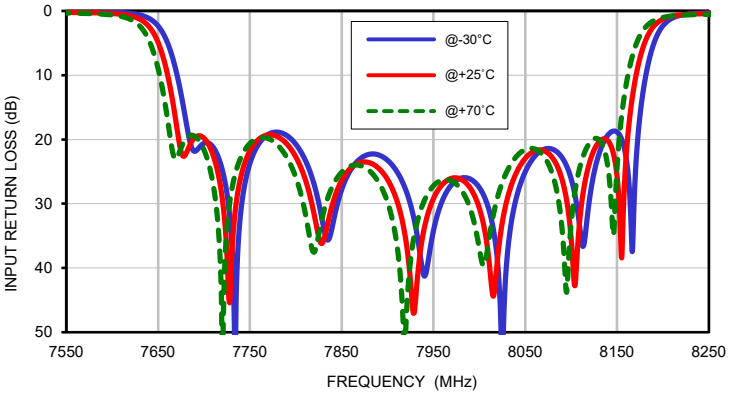
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



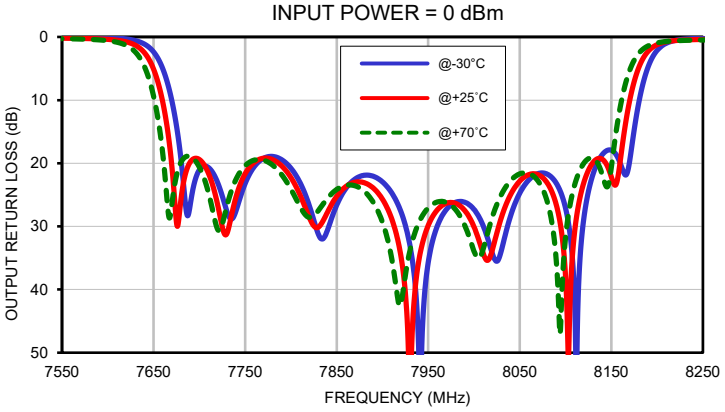
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



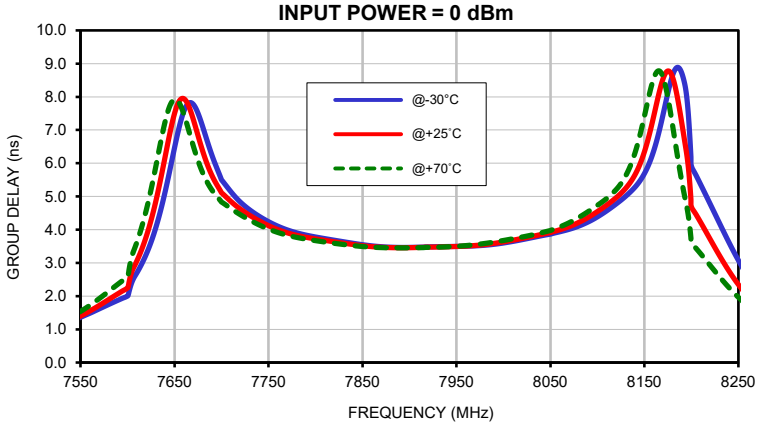
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



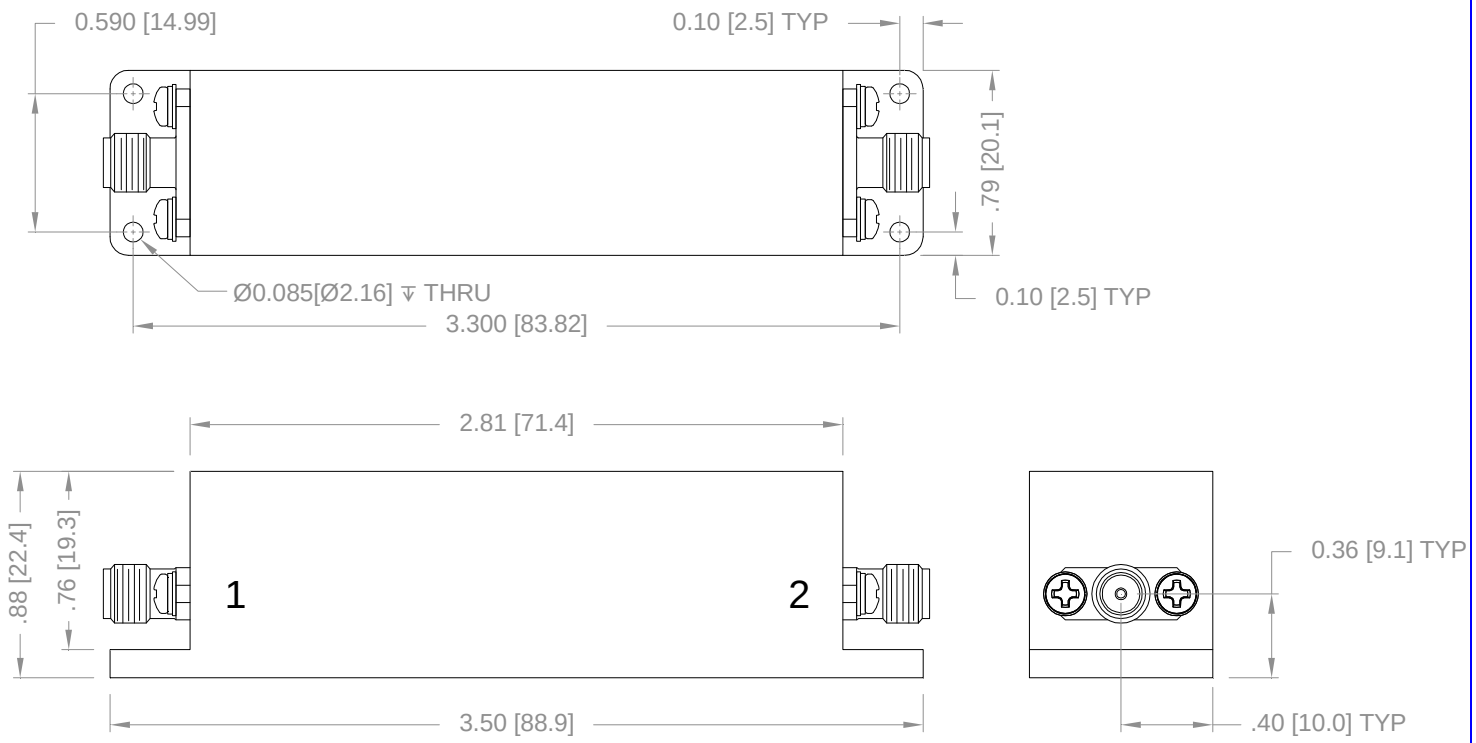
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style ZU

Outline Dimensions

ZU3551



Dimensions are in inches (mm). Tolerances: 2 Pl. ± .100; 3 Pl. ± .015

Notes:

1. Case material: Aluminum alloy
2. Case Finish: Powder coated.
3. Unit Weight: 86 grams.
4. Refer to the individual model data sheet for the type of connectors available.

Mini-Circuits

Environmental Specifications ENV46

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, Condintion 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