CAVITY COAXIAL

Bandpass Filter

ZVBP-778-S+

50Ω 773 to 783 MHz SMA Female

KEY FEATURES

- Low Insertion Loss, 0.7dB Typ.
- Good Return Loss, 23dB Typ.
- High Rejection, 60dB Typ.
- Wide Stopband up to 3300MHz
- Power Handling 100 Watts.

Generic photo used for illustration purposes only

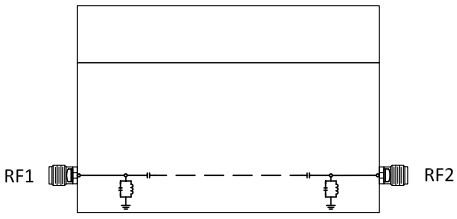
APPLICATIONS

- LTE Public Safety.

PRODUCT OVERVIEW

Mini-Circuits' ZVBP-778-S+ is a coaxial cavity filter designed by implementing resonant structures with very high Q and are ideal for narrow-band, high-selectivity applications.
Mini-Circuits' coaxial cavity filters feature a special protective assembly to prevent accidental de-tuning that would otherwise require expensive replacement or return to factory for re-tuning. Precise machining allows realization of cavity filters with small form factors for applications where size is critical.

FUNCTIONAL DIAGRAM



ELECTRICAL SPECIFICATIONS[1] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	—	778	—	MHz
	Insertion Loss	F1-F2	773 - 783	—	0.7	1.1	dB
	Return Loss	F1-F2	773 - 783	15	23	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 712	55	60	—	dB
		F3-F4	712 - 750	25	30	—	
Stop Band, Upper	Rejection	F5-F6	806 - 844	25	31	—	dB
		F6-F7	844 - 3300	55	63	—	

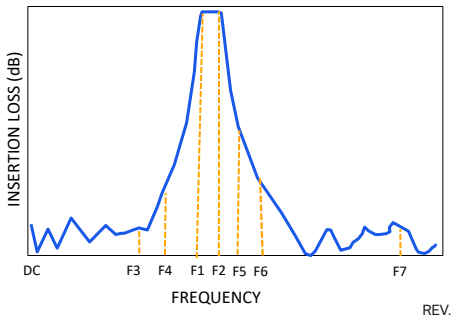
1. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

ABSOLUTE MAXIMUM RATINGS[2,3]

Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power[4]	100W 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. OR
ECO-020818
ZVBP-778-S+
EDU4644
URJ
240205

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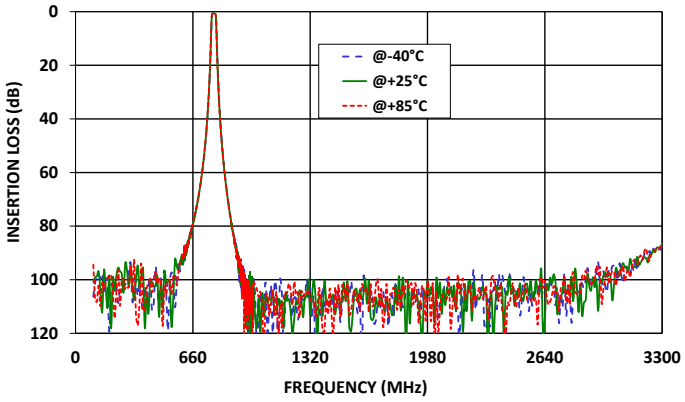
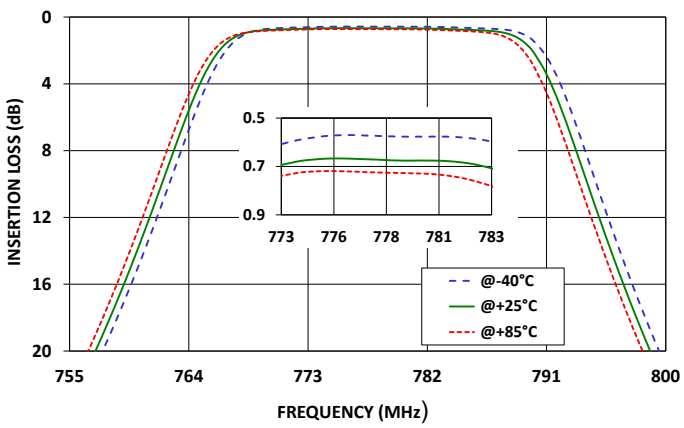
TYPICAL PERFORMANCE GRAPHS

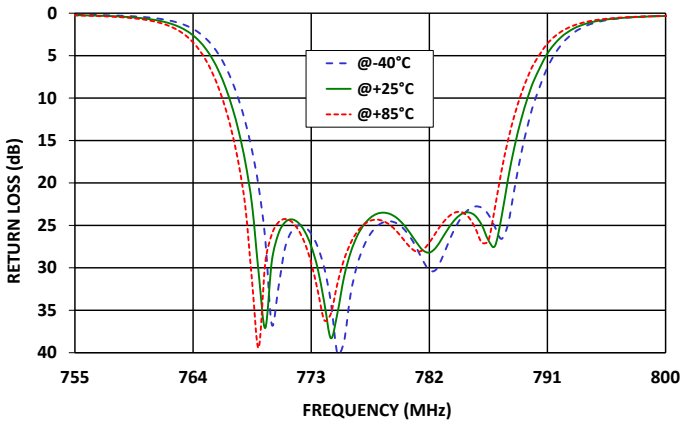
ZVBP-778-S+
INSERTION LOSS



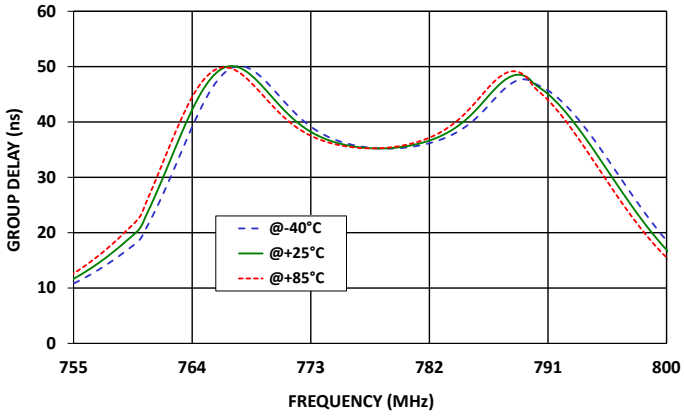
ZVBP-778-S+
INSERTION LOSS (Zoomed)



ZVBP-778-S+
RETURN LOSS



ZVBP-778-S+
GROUP DELAY



Bandpass Filter

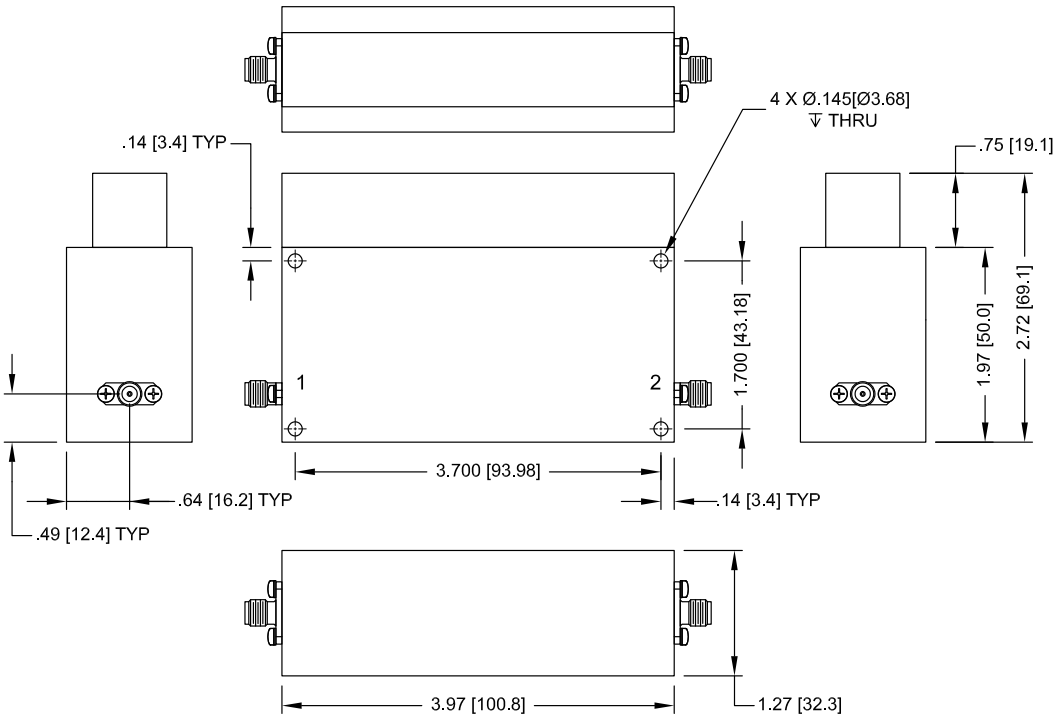
ZVBP-778-S+

50Ω 773 to 783 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: 285 grams

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

PRODUCT MARKING*: ZVBP-778-S+

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

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Bandpass Filter

ZVBP-778-S+

50Ω 773 to 783 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	ZK3546
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-778-S+

Typical Performance Data

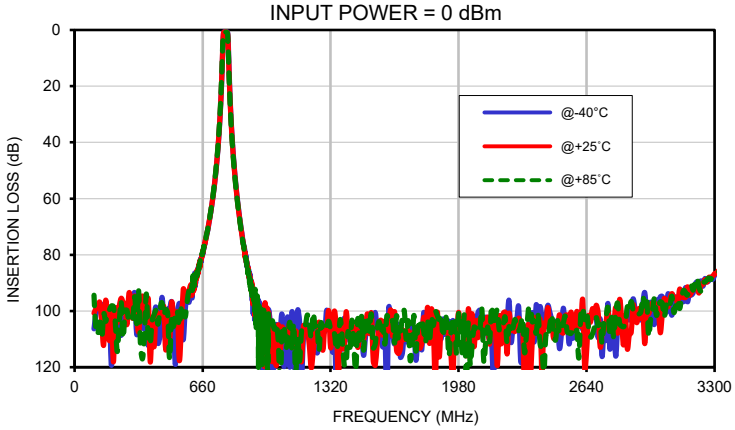
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
100	106.35	100.80	94.39	0.01	0.02	0.03	0.00	0.01	0.01
120	99.19	98.69	108.27	0.01	0.02	0.03	0.01	0.02	0.02
140	99.76	104.40	109.84	0.02	0.03	0.03	0.01	0.02	0.02
160	104.25	96.32	103.72	0.02	0.03	0.04	0.02	0.02	0.02
180	101.94	110.52	99.51	0.03	0.04	0.04	0.02	0.03	0.03
200	101.75	118.13	98.39	0.03	0.04	0.04	0.02	0.03	0.03
220	100.68	104.20	114.45	0.04	0.04	0.05	0.03	0.03	0.03
240	108.70	95.49	96.49	0.04	0.05	0.05	0.03	0.04	0.04
260	102.93	97.68	99.81	0.04	0.05	0.05	0.03	0.04	0.04
280	101.79	93.77	103.67	0.04	0.05	0.05	0.04	0.04	0.04
300	96.53	102.64	102.76	0.04	0.06	0.06	0.04	0.04	0.04
320	108.27	102.45	104.53	0.05	0.06	0.06	0.04	0.05	0.05
340	99.54	100.03	112.93	0.05	0.06	0.06	0.04	0.05	0.05
360	101.70	103.08	108.64	0.05	0.06	0.06	0.04	0.05	0.05
380	112.13	95.71	110.87	0.05	0.06	0.07	0.04	0.05	0.05
400	109.89	104.47	103.42	0.05	0.06	0.07	0.04	0.05	0.06
450	95.24	102.32	97.02	0.05	0.07	0.07	0.04	0.06	0.06
500	96.76	96.97	102.39	0.05	0.07	0.07	0.04	0.06	0.07
550	100.23	106.49	98.85	0.05	0.07	0.07	0.04	0.06	0.07
600	90.85	90.55	92.35	0.04	0.07	0.08	0.04	0.07	0.07
650	81.33	82.00	81.93	0.04	0.07	0.08	0.04	0.07	0.07
712	60.18	59.98	59.68	0.04	0.07	0.08	0.04	0.07	0.08
750	31.02	30.37	29.65	0.10	0.15	0.17	0.10	0.14	0.17
773	0.61	0.69	0.74	25.99	27.44	29.40	25.41	25.96	27.19
778	0.58	0.67	0.73	25.12	23.64	24.32	24.28	22.99	23.71
783	0.60	0.71	0.78	28.75	26.46	24.75	31.50	29.21	26.58
792	3.92	5.27	6.59	3.83	2.89	2.22	3.93	3.00	2.35
800	20.93	22.13	23.13	0.31	0.33	0.32	0.31	0.35	0.34
806	30.43	31.36	32.12	0.18	0.21	0.21	0.18	0.21	0.22
844	62.98	63.38	63.67	0.07	0.10	0.11	0.07	0.10	0.11
1050	111.49	104.96	110.56	0.03	0.07	0.09	0.03	0.07	0.08
1100	102.52	107.42	108.71	0.03	0.07	0.08	0.03	0.07	0.08
1150	100.06	110.18	109.08	0.03	0.07	0.08	0.03	0.07	0.08
1200	104.84	107.24	101.42	0.02	0.06	0.08	0.02	0.07	0.08
1250	114.87	109.18	104.68	0.02	0.06	0.08	0.02	0.06	0.08
1300	99.69	106.35	105.17	0.01	0.06	0.08	0.02	0.06	0.08
1350	128.61	106.37	113.94	0.01	0.06	0.08	0.01	0.06	0.08
1400	109.81	100.35	119.47	0.01	0.06	0.08	0.01	0.06	0.08
1450	111.52	105.69	121.04	0.00	0.06	0.08	0.01	0.06	0.08
1500	109.25	106.22	102.00	0.00	0.06	0.08	0.01	0.06	0.08
1550	100.50	119.36	111.72	0.00	0.05	0.08	0.00	0.06	0.08
1600	108.17	103.55	111.72	0.00	0.05	0.08	0.00	0.05	0.08
1650	111.69	100.22	111.41	0.01	0.05	0.08	0.00	0.05	0.08
1700	108.24	110.17	99.99	0.01	0.05	0.08	0.01	0.05	0.09
1750	106.80	107.10	101.56	0.01	0.05	0.08	0.01	0.05	0.09
1800	100.57	102.23	107.19	0.01	0.05	0.08	0.01	0.05	0.09
1820	104.11	98.68	103.57	0.01	0.05	0.08	0.01	0.05	0.09
2000	105.30	102.71	115.48	0.02	0.05	0.09	0.01	0.05	0.09
2100	103.96	105.91	99.22	0.02	0.05	0.09	0.02	0.05	0.10
2300	117.92	105.42	105.11	0.02	0.05	0.10	0.02	0.06	0.11
2500	113.33	101.33	107.76	0.02	0.06	0.11	0.02	0.06	0.11
2700	109.58	100.89	105.19	0.02	0.07	0.12	0.02	0.07	0.12
2900	102.71	104.06	101.56	0.01	0.08	0.13	0.01	0.07	0.13
3000	96.16	97.50	101.57	0.01	0.08	0.14	0.01	0.08	0.14
3050	100.52	97.49	98.10	0.01	0.08	0.14	0.00	0.08	0.14
3070	98.16	95.43	97.74	0.00	0.09	0.14	0.00	0.08	0.14
3100	94.99	95.37	97.64	0.00	0.09	0.14	0.00	0.08	0.14
3150	91.65	95.14	93.41	0.00	0.09	0.14	0.00	0.09	0.14
3200	90.46	91.63	89.38	0.00	0.09	0.15	0.00	0.09	0.14
3300	87.34	86.68	87.28	0.01	0.10	0.15	0.01	0.10	0.15

Typical Performance Data

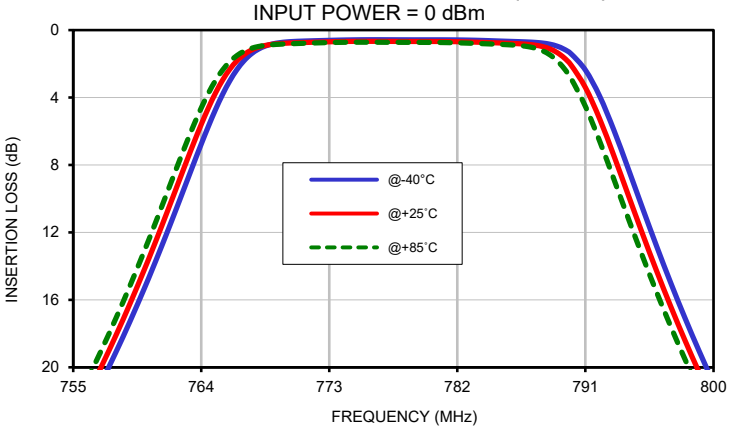
FREQ.	GROUP DELAY		
	(nsec)		
(MHz)	@-40°C	@+25°C	@+85°C
773.0	39.17	38.23	37.52
773.5	38.37	37.58	36.99
774.0	37.70	37.04	36.55
774.5	37.14	36.60	36.20
775.0	36.67	36.23	35.90
775.5	36.28	35.93	35.67
776.0	35.96	35.68	35.48
776.5	35.70	35.49	35.35
777.0	35.50	35.35	35.27
777.5	35.35	35.26	35.23
778.0	35.25	35.22	35.24
778.5	35.20	35.22	35.30
779.0	35.19	35.27	35.40
779.5	35.24	35.37	35.56
780.0	35.33	35.52	35.76
780.5	35.46	35.72	36.02
781.0	35.65	35.97	36.33
781.5	35.88	36.28	36.71
782.0	36.17	36.65	37.16
782.5	36.52	37.09	37.70
783.0	36.94	37.62	38.35

Typical Performance Curves

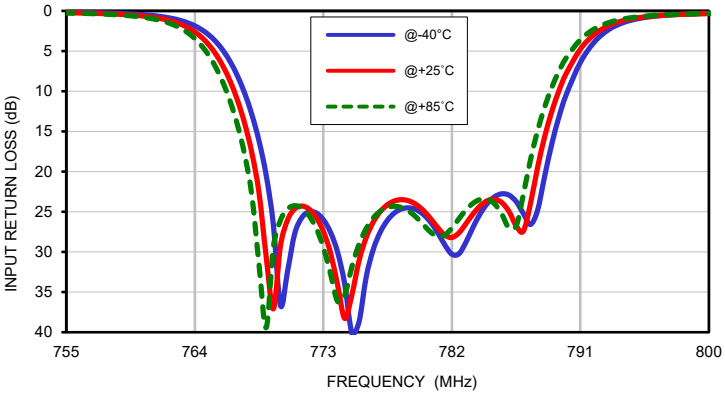
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



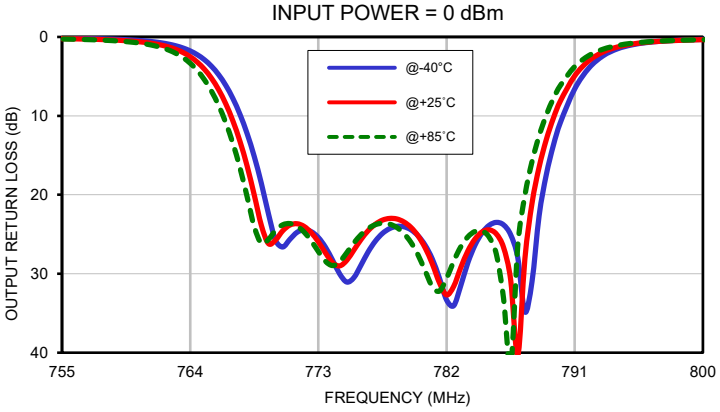
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



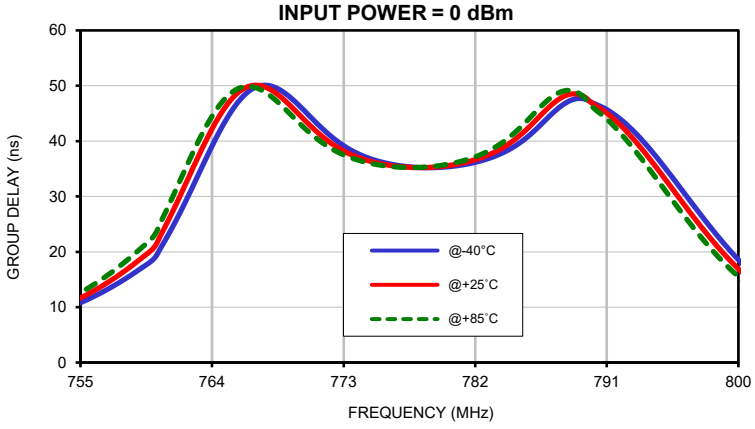
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



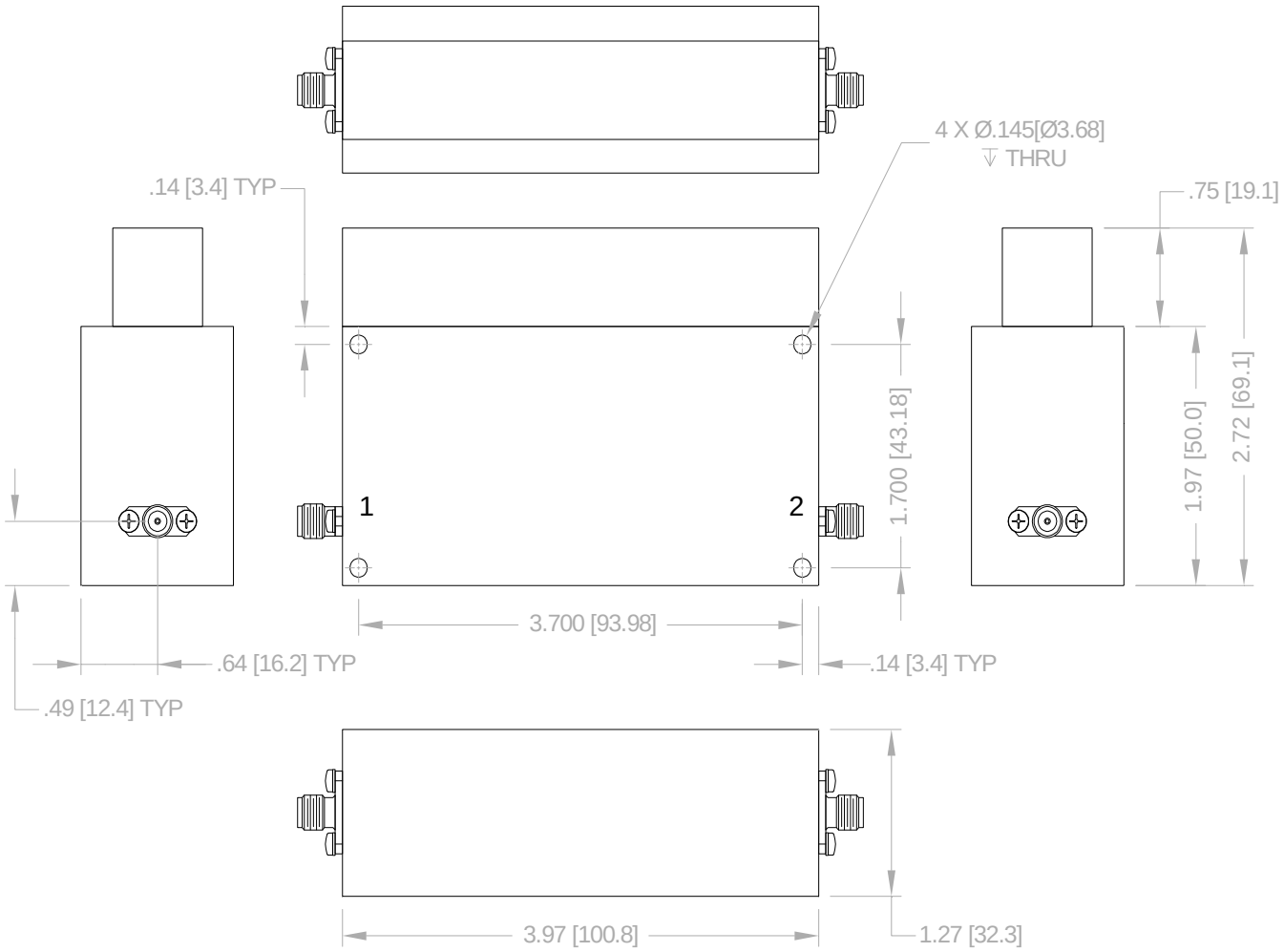
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style ZK

Outline Dimensions

ZK3546



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

Notes:

1. Case material: Aluminum.
2. Case Finish: Powder coated.
3. Unit Weight: 285 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