CAVITY COAXIAL

Bandpass Filter

ZVBP-38500-K1+

50Ω 37 to 40 GHz 2.92mm Female

Generic photo used for illustration purposes only

KEY FEATURES

- Low Insertion Loss, 3 dB Typ.
- Good Return Loss, 18.4 dB Typ.
- High Rejection
- Broad Stopband Performance up to 55 GHz
- Sharp Roll-off

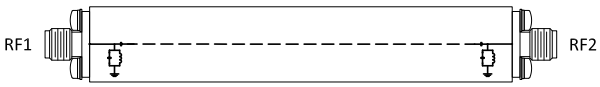
APPLICATIONS

- 5G Band n260

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	—	—	—	38.5	—	GHz
	Insertion Loss	F1-F2	37 - 40	—	3	4	dB
	Return Loss	F1-F2	37 - 40	14	18.4	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 36.5	75	84	—	dB
Stop Band, Upper	Rejection	F4-F5	40.5 - 55	75	79	—	dB

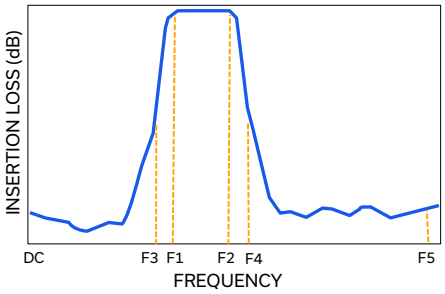
1. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
2. Data measured after calibrating using 2.92mm cal kit.

ABSOLUTE MAXIMUM RATINGS[3]

Parameter	Ratings
Operating Temperature	-30 °C to +70 °C
Storage Temperature	-30°C to +70 °C
Input Power[4]	2.5W

3. Permanent damage may occur if any of these limits are exceeded.
4. Power rating applies only to signals within the passband.

TYPICAL FREQUENCY RESPONSE



REV. OR
ECO-020237
ZVBP-38500-K1+
EDU4726
URJ
231212

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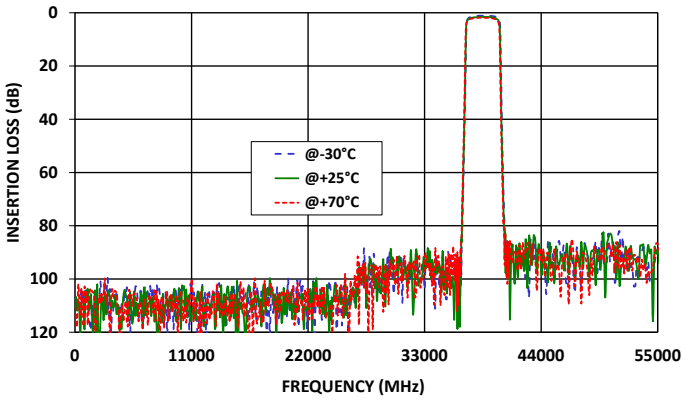
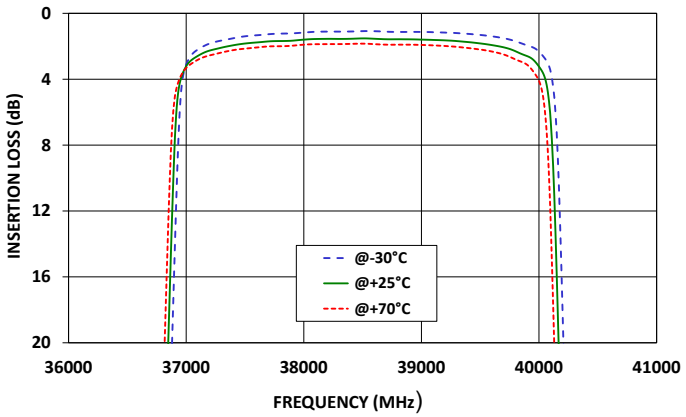
TYPICAL PERFORMANCE GRAPHS

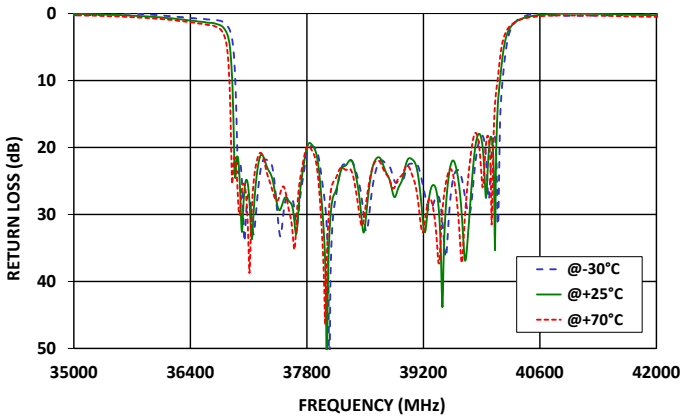
ZVBP-38500-K1+
INSERTION LOSS



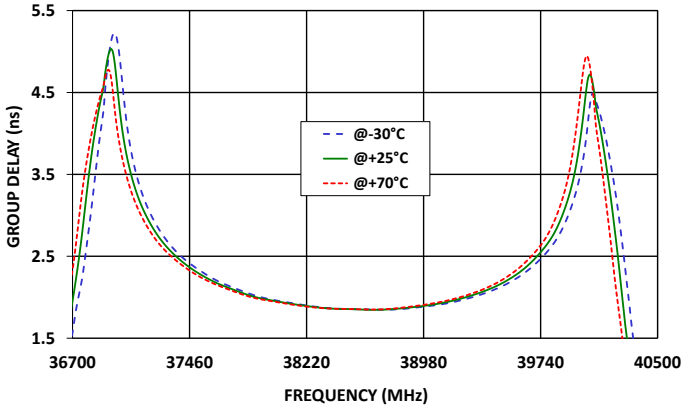
ZVBP-38500-K1+
INSERTION LOSS (Zoomed)



ZVBP-38500-K1+
RETURN LOSS



ZVBP-38500-K1+
GROUP DELAY



Bandpass Filter

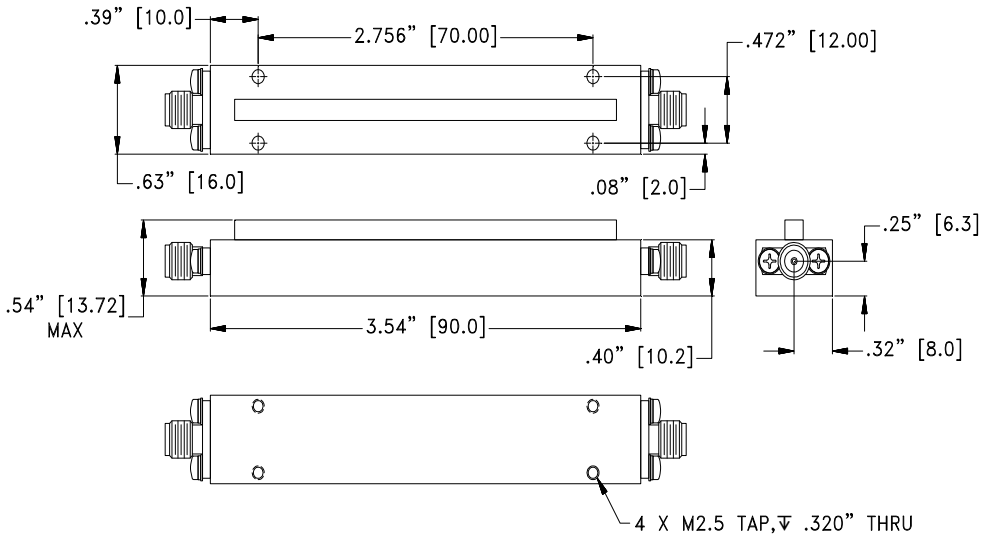
ZVBP-38500-K1+

50Ω 37 to 40 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



Weight: 115 grams

Dimensions are in inches[mm]. Tolerance:2PL ±.100; 3PL ±.015

PRODUCT MARKING*: ZVBP-38500-K1+

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

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Bandpass Filter

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50Ω 37 to 40 GHz 2.92mm 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	ZS3573
RoHS Status	Compliant
Environmental Ratings	ENV77T1

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-38500-K1+

Typical Performance Data

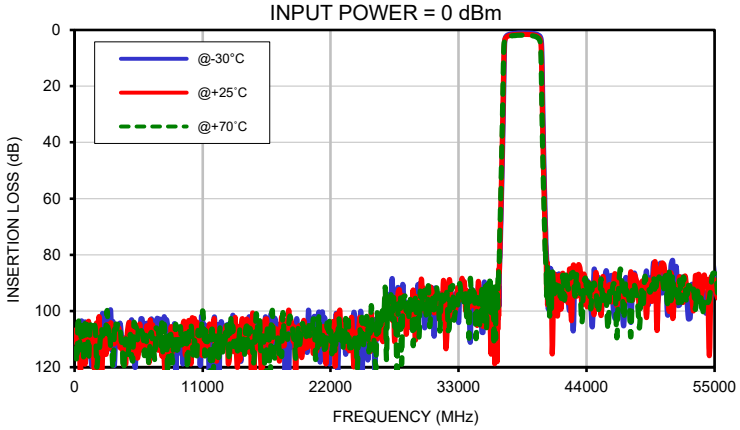
FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@-30°C	@+25°C	@+70°C	@-30°C	@+25°C	@+70°C	@-30°C	@+25°C	@+70°C
100	109.33	106.70	113.34	0.01	0.02	0.03	0.01	0.02	0.03
200	111.51	111.92	117.64	0.02	0.03	0.04	0.02	0.03	0.04
300	109.87	108.08	102.34	0.04	0.05	0.06	0.03	0.05	0.06
400	109.78	111.11	107.24	0.04	0.06	0.07	0.04	0.05	0.07
500	110.39	122.41	113.80	0.04	0.06	0.07	0.04	0.06	0.07
600	103.50	109.65	103.63	0.04	0.07	0.08	0.04	0.06	0.08
800	108.59	109.10	117.85	0.05	0.07	0.09	0.04	0.07	0.09
1000	106.08	104.60	109.23	0.05	0.08	0.10	0.04	0.07	0.10
1200	104.31	103.64	117.27	0.04	0.08	0.10	0.03	0.07	0.10
1500	119.17	105.63	103.44	0.04	0.08	0.10	0.03	0.07	0.10
2000	109.12	122.65	116.05	0.03	0.07	0.10	0.02	0.07	0.10
2500	107.09	106.81	105.59	0.01	0.06	0.10	0.00	0.06	0.10
3000	103.85	113.18	106.05	0.00	0.06	0.09	0.01	0.05	0.09
3500	112.48	108.15	103.72	0.01	0.05	0.08	0.02	0.04	0.09
4000	107.80	113.24	110.50	0.02	0.04	0.08	0.04	0.03	0.08
4500	110.26	109.47	111.74	0.03	0.04	0.08	0.05	0.03	0.08
5000	110.21	115.59	117.71	0.03	0.04	0.09	0.05	0.03	0.09
5500	111.60	114.47	105.92	0.03	0.05	0.10	0.05	0.04	0.10
6000	114.98	109.39	115.90	0.02	0.06	0.11	0.04	0.05	0.12
6500	114.99	103.14	108.58	0.01	0.08	0.13	0.02	0.07	0.14
7000	108.32	108.88	106.06	0.02	0.10	0.15	0.00	0.10	0.17
8000	105.62	110.12	122.43	0.05	0.15	0.21	0.03	0.14	0.22
10000	103.83	118.84	104.68	0.03	0.14	0.21	0.02	0.14	0.23
15000	102.03	114.62	106.15	0.12	0.02	0.11	0.20	0.04	0.10
20000	114.42	113.00	104.65	0.03	0.25	0.37	0.07	0.29	0.44
25000	112.30	103.28	106.48	0.30	0.06	0.09	0.36	0.08	0.13
30000	101.09	92.05	96.67	0.15	0.42	0.58	0.15	0.43	0.65
35000	107.51	96.00	91.68	0.26	0.08	0.28	0.39	0.01	0.32
36500	87.38	86.21	81.59	0.78	1.20	1.49	0.48	0.88	1.15
36800	37.70	30.78	23.99	1.32	2.15	3.10	0.56	1.35	2.13
36840	29.22	21.77	14.57	1.78	2.99	5.11	0.86	1.91	3.61
36900	15.16	8.31	5.28	3.70	9.24	25.31	2.30	6.28	14.41
37000	3.11	3.21	3.32	22.47	27.14	29.00	20.95	30.43	28.44
37300	1.65	2.08	2.38	21.76	22.18	22.76	24.37	24.19	21.62
37600	1.33	1.77	2.07	27.63	28.20	30.22	20.67	21.08	21.48
37900	1.22	1.66	1.97	20.03	20.42	21.62	21.76	21.36	24.83
38200	1.11	1.55	1.87	23.66	23.85	23.11	29.61	28.82	24.11
38500	1.08	1.52	1.84	31.88	31.63	29.32	33.08	30.31	26.94
39000	1.13	1.59	1.92	23.09	22.13	22.72	21.60	20.41	21.35
39500	1.31	1.83	2.20	31.55	24.72	23.70	22.47	20.59	21.51
40000	2.32	3.24	4.10	25.28	18.88	21.01	28.67	19.29	19.31
40120	4.45	9.27	17.67	16.60	9.99	6.68	11.51	4.91	2.39
40160	8.78	18.30	27.98	8.89	5.63	3.84	4.26	1.98	1.39
40200	18.03	28.60	37.38	4.73	3.28	2.55	1.45	1.11	0.98
40500	75.38	80.06	83.42	0.08	0.37	0.54	0.44	0.02	0.26
41000	96.41	89.37	91.78	0.34	0.02	0.29	0.44	0.05	0.32
41500	87.27	101.83	89.11	0.24	0.11	0.38	0.20	0.11	0.48
42100	96.28	95.92	96.09	0.04	0.28	0.52	0.03	0.30	0.66
42550	99.61	85.01	89.64	0.08	0.39	0.61	0.12	0.41	0.77
43000	85.51	90.18	94.74	0.19	0.48	0.69	0.14	0.47	0.84
43600	88.90	97.94	104.41	0.23	0.53	0.76	0.18	0.58	0.92
44050	89.20	98.53	94.22	0.24	0.57	0.80	0.19	0.59	0.91
44500	105.41	94.41	90.66	0.22	0.58	0.82	0.20	0.60	0.87
45550	88.60	93.33	94.36	0.07	0.46	0.65	0.10	0.48	0.67
46000	91.53	90.74	91.56	0.02	0.40	0.58	0.02	0.41	0.59
47200	105.01	98.98	102.80	0.31	0.11	0.29	0.49	0.11	0.25
48100	86.48	87.31	90.74	0.56	0.06	0.18	0.72	0.16	0.03
49000	92.03	90.57	87.90	0.71	0.19	0.08	0.83	0.32	0.01
51100	97.61	100.19	86.14	0.43	0.03	0.35	0.54	0.01	0.41
55000	88.71	88.99	86.74	1.21	0.60	0.34	0.96	0.18	0.14

Typical Performance Data

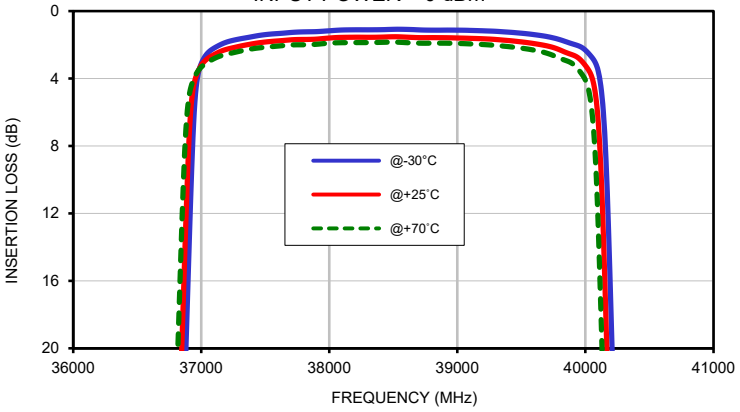
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-30°C	@+25°C	@+70°C
37000	5.02	4.40	3.93
37050	4.15	3.75	3.49
37100	3.61	3.37	3.19
37150	3.28	3.11	2.98
37200	3.04	2.92	2.82
37250	2.86	2.76	2.68
37300	2.72	2.64	2.57
37350	2.60	2.54	2.48
37400	2.51	2.45	2.41
37450	2.43	2.38	2.34
37500	2.36	2.31	2.28
37550	2.30	2.26	2.23
37600	2.24	2.21	2.18
37650	2.19	2.16	2.14
37700	2.15	2.12	2.10
37750	2.11	2.09	2.07
37800	2.08	2.05	2.04
37850	2.04	2.02	2.01
37900	2.01	2.00	1.98
38000	1.97	1.96	1.95
38100	1.94	1.93	1.92
38200	1.91	1.90	1.89
38300	1.88	1.87	1.87
38400	1.86	1.86	1.86
38500	1.86	1.86	1.86
38600	1.85	1.85	1.85
38700	1.85	1.85	1.85
38800	1.85	1.86	1.86
38900	1.87	1.88	1.89
39000	1.89	1.90	1.91
39100	1.92	1.93	1.95
39150	1.93	1.95	1.97
39200	1.95	1.97	1.99
39300	2.00	2.03	2.05
39400	2.06	2.09	2.12
39500	2.14	2.18	2.22
39600	2.25	2.30	2.36
39700	2.40	2.47	2.54
39800	2.59	2.70	2.81
39900	2.91	3.10	3.32
40000	3.52	3.96	4.51

Typical Performance Curves

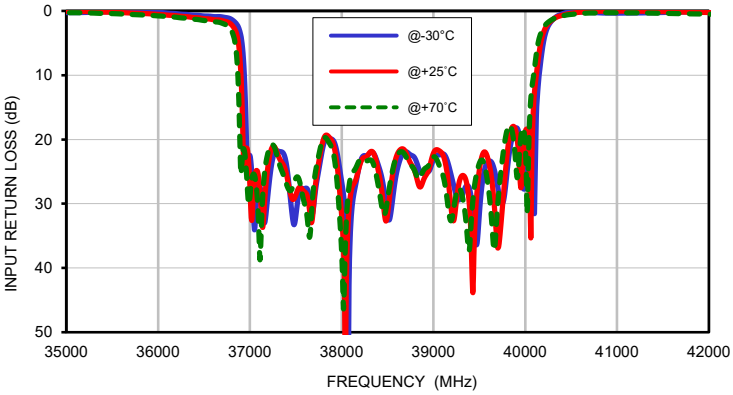
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



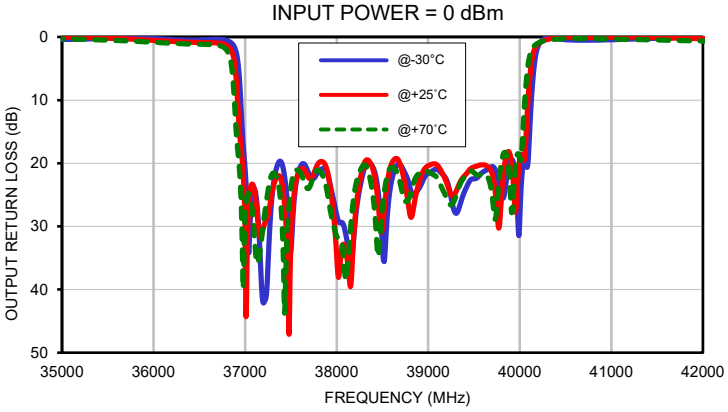
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



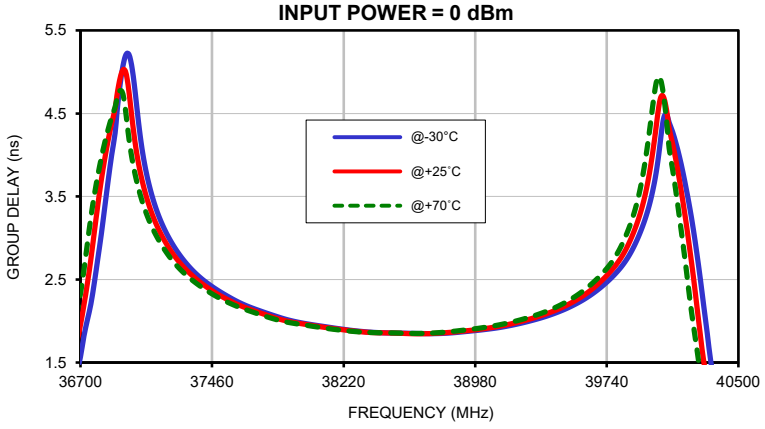
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



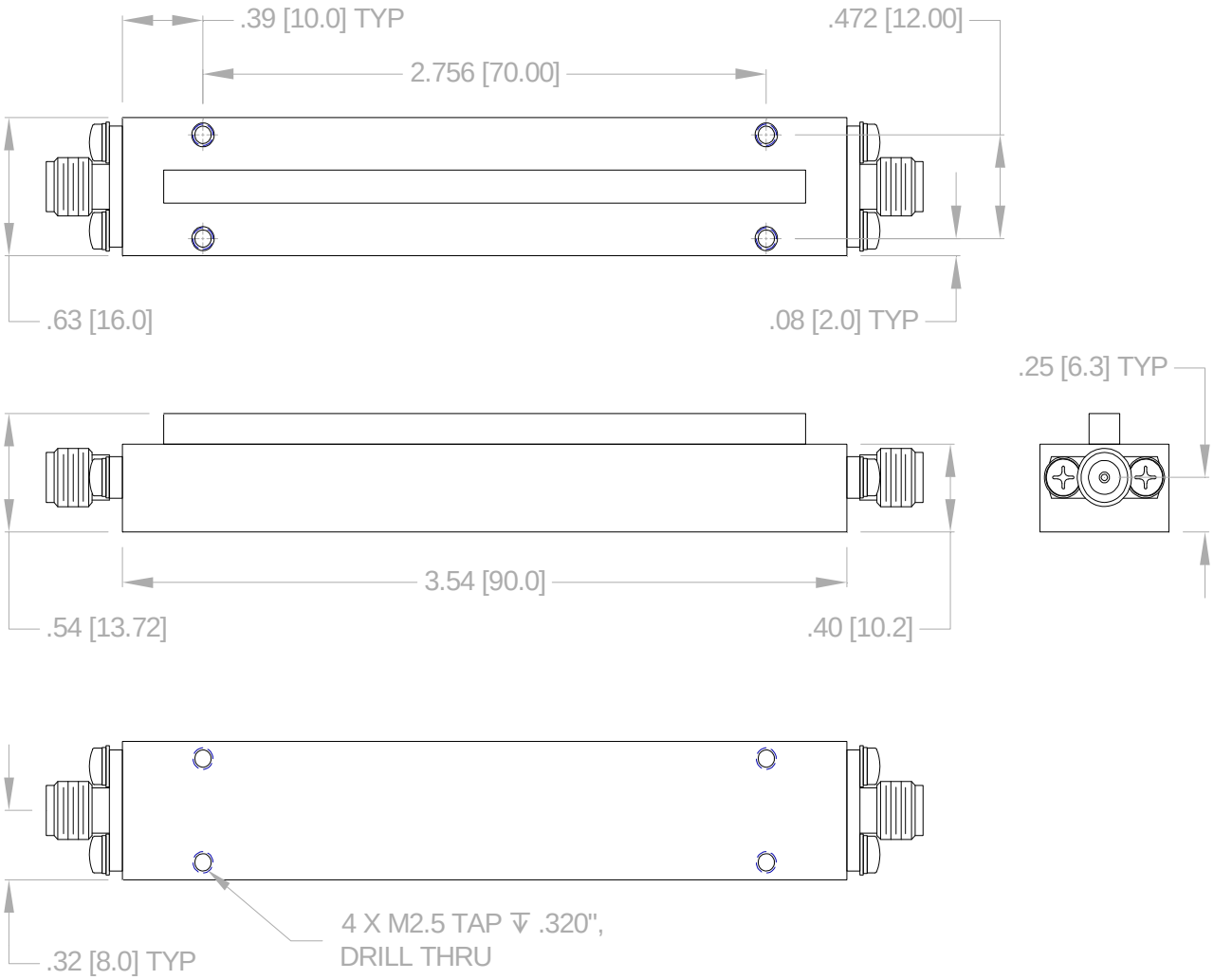
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style ZS

Outline Dimensions

ZS3573



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

Notes:

1. Case material: Brass.
2. Case Finish: Powder coated.
3. Unit Weight: 115 Grams.
4. Refer to the individual model data sheet for the type of connectors available.

Mini-Circuits

Environmental Specifications ENV77T1

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	-30° to 70°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-30° to 70° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C