



CAVITY COAXIAL

# Bandpass Filter

## ZVBP-27925-K1+

50Ω 27.5 to 28.35 GHz 2.92mm Female

### KEY FEATURES

- Low Insertion Loss, 3dB Typ.
- Good Return Loss, 20dB Typ.
- High Rejection 80, dB Typ.
- Power Handling: 2.5W.
- Stopband up to 45GHz.



Generic photo used for illustration purposes only

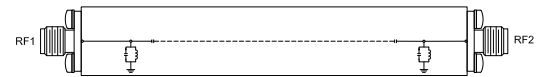
### APPLICATIONS

- 5G band n261.

### 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<sup>1,2</sup> AT +25°C

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	—	27.925	—	GHz
	Insertion Loss	F1-F2	27.5 - 28.35	—	3.0	4.0	dB
	Return Loss	F1-F2	27.5 - 28.35	15	20	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 27.325	50	60	—	dB
Stop Band, Upper	Rejection	F4-F5	28.525 - 45	50	57	—	dB

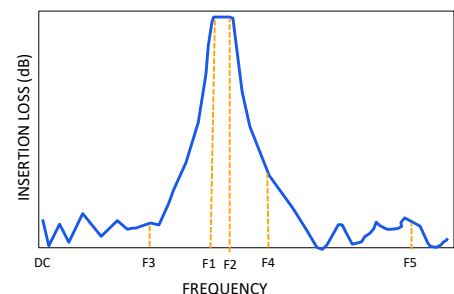
1. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
2. Data measured after calibrating using 2.92mm cal kit.

### ABSOLUTE MAXIMUM RATINGS<sup>3,4</sup>

Parameter	Ratings
Operating Temperature	-30°C to +70°C
Storage Temperature	-30°C to +70°C
Input Power <sup>5</sup>	2.5W 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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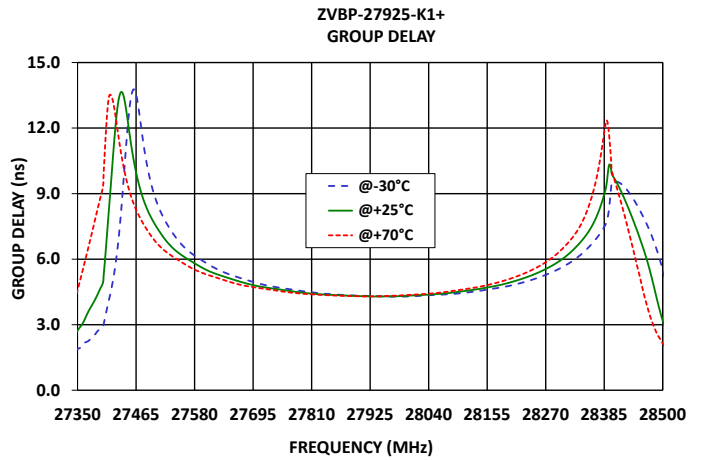
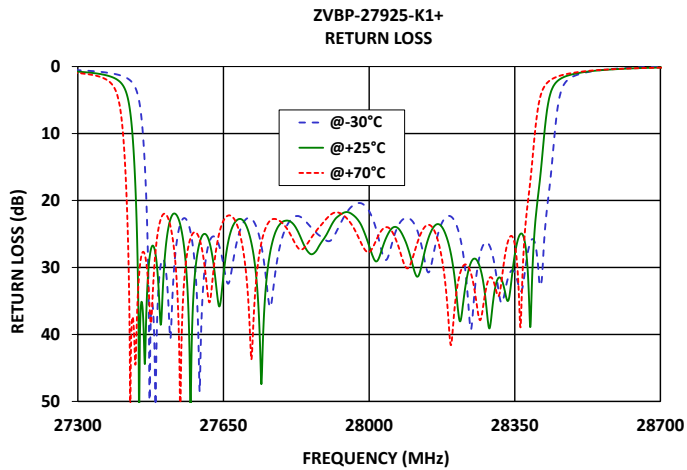
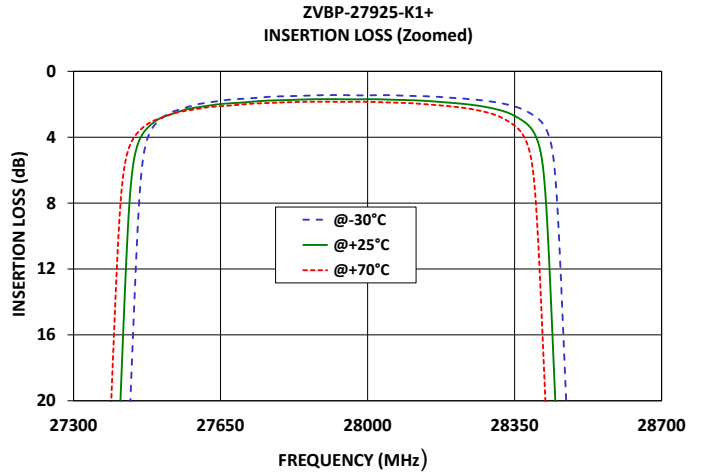
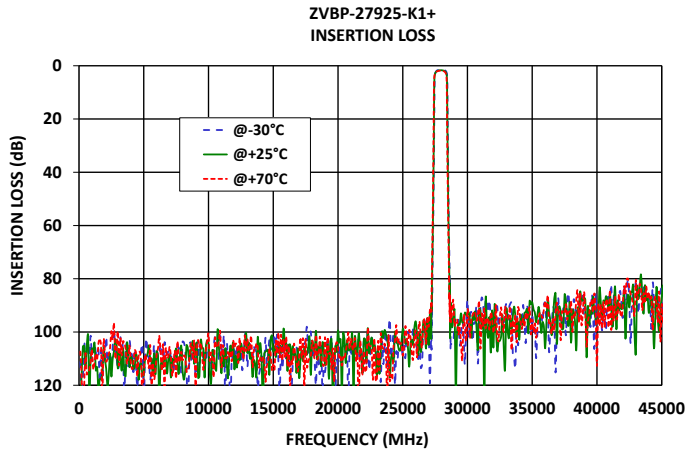
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## ZVBP-27925-K1+

Mini-Circuits

50Ω 27.5 to 28.35 GHz 2.92mm Female

### TYPICAL PERFORMANCE GRAPHS





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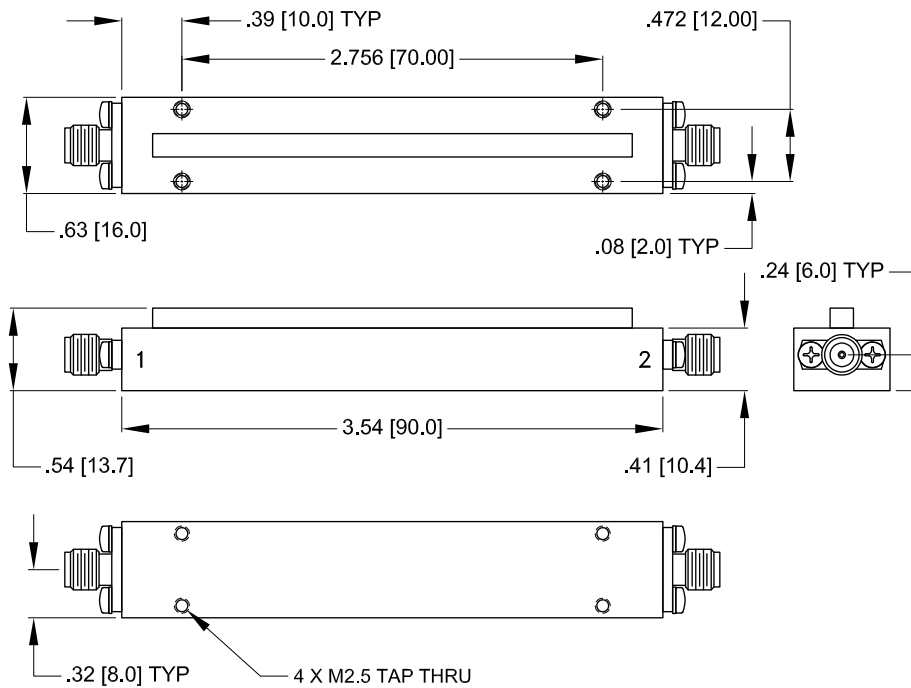
Mini-Circuits

50Ω 27.5 to 28.35 GHz 2.92mm Female

## CONNECTOR DESCRIPTION

Function	Marking on Unit	Connector
RF1 <sup>1</sup>	1	2.92mm Female
RF2 <sup>1</sup>	2	2.92mm Female

## CASE STYLE DRAWING



Unit Weight: 109.5 Grams.

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

PRODUCT MARKING\*: ZVBP-27925-K1+

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





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# Bandpass Filter

ZVBP-27925-K1+

Mini-Circuits

50Ω 27.5 to 28.35 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	ZN3567
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](http://www.minicircuits.com/terms/viewterm.html)



## Typical Performance Data

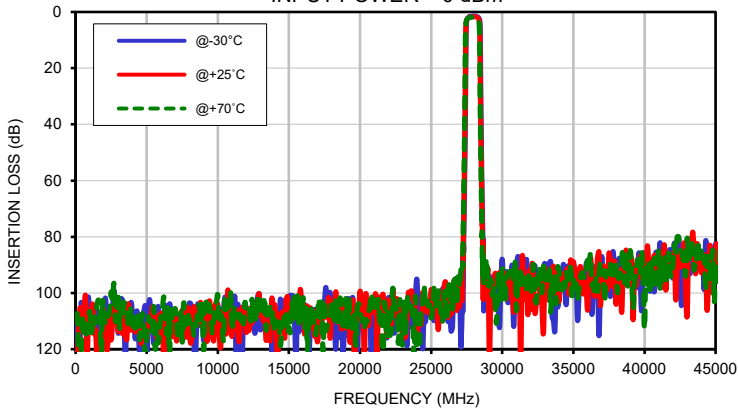
FREQ.  (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-30°C	@+25°C	@+70°C	@-30°C	@+25°C	@+70°C	@-30°C	@+25°C	@+70°C
100	111.24	126.88	107.35	0.00	0.02	0.02	0.01	0.02	0.03
200	121.17	116.03	116.49	0.02	0.03	0.04	0.03	0.04	0.05
400	103.34	105.20	120.54	0.04	0.05	0.06	0.05	0.06	0.07
800	108.74	124.20	114.26	0.05	0.07	0.08	0.06	0.07	0.09
1000	110.55	106.16	106.65	0.05	0.07	0.08	0.06	0.08	0.10
1500	106.23	121.69	104.34	0.04	0.06	0.08	0.05	0.07	0.10
2000	111.33	110.43	107.82	0.03	0.06	0.07	0.05	0.07	0.10
2400	110.27	108.12	105.98	0.03	0.05	0.07	0.04	0.06	0.09
3000	114.33	113.71	99.89	0.01	0.04	0.06	0.02	0.05	0.08
3500	123.94	115.35	104.18	0.00	0.03	0.05	0.01	0.05	0.07
4500	120.89	110.18	116.67	0.01	0.03	0.04	0.00	0.04	0.07
5500	118.05	110.10	104.88	0.01	0.05	0.06	0.00	0.05	0.08
9000	116.93	105.05	120.36	0.11	0.16	0.19	0.09	0.16	0.20
9500	105.33	105.62	108.06	0.10	0.16	0.18	0.08	0.15	0.19
11000	105.80	115.50	113.33	0.04	0.10	0.12	0.03	0.10	0.14
12000	105.43	113.96	105.67	0.02	0.05	0.07	0.02	0.06	0.11
13000	113.17	107.88	102.61	0.07	0.01	0.02	0.08	0.01	0.06
14500	112.02	107.04	112.86	0.09	0.02	0.01	0.10	0.00	0.05
15000	105.27	107.33	112.16	0.08	0.01	0.02	0.08	0.02	0.07
16000	110.02	104.04	101.64	0.03	0.05	0.08	0.03	0.07	0.13
17000	117.10	117.36	108.77	0.03	0.11	0.15	0.04	0.14	0.21
18500	111.98	105.57	108.89	0.12	0.22	0.26	0.12	0.25	0.32
20000	112.49	99.39	105.88	0.18	0.27	0.31	0.18	0.31	0.37
22000	102.05	102.50	107.13	0.09	0.18	0.21	0.09	0.20	0.25
22500	108.22	104.93	105.24	0.06	0.14	0.17	0.03	0.15	0.20
23000	106.58	116.46	118.41	0.01	0.10	0.13	0.02	0.11	0.16
23500	112.08	102.29	106.33	0.04	0.06	0.09	0.07	0.07	0.12
24000	95.25	117.15	118.31	0.10	0.01	0.04	0.12	0.02	0.08
25500	101.20	113.04	99.26	0.19	0.06	0.01	0.19	0.03	0.05
26000	103.72	96.03	99.57	0.18	0.05	0.01	0.17	0.01	0.07
26500	112.09	102.13	105.75	0.12	0.01	0.07	0.08	0.08	0.18
27000	97.53	104.84	98.04	0.07	0.22	0.30	0.11	0.28	0.40
27325	69.50	61.28	52.84	0.64	0.89	1.15	0.58	0.84	1.08
27350	60.69	51.63	41.85	0.76	1.08	1.47	0.67	0.97	1.31
27415	31.94	17.89	7.05	1.62	3.65	16.43	1.31	2.78	10.70
27435	20.18	7.33	4.45	2.77	13.63	39.79	2.06	8.92	23.97
27500	3.06	2.94	2.90	29.33	38.41	22.65	24.88	34.40	24.08
27925	1.44	1.69	1.85	24.21	22.38	21.79	38.74	26.01	22.52
28350	2.13	2.70	3.30	30.79	28.12	26.56	35.82	25.21	22.77
28525	45.49	55.34	63.46	0.83	0.75	0.66	0.75	0.71	0.65
29000	97.54	91.65	97.60	0.17	0.03	0.02	0.12	0.05	0.14
30000	88.05	93.52	91.61	0.10	0.04	0.10	0.10	0.08	0.19
33000	89.61	91.41	95.03	0.32	0.44	0.51	0.27	0.42	0.52
35000	93.18	88.85	95.33	0.34	0.49	0.53	0.26	0.46	0.55
37000	87.02	91.86	93.24	0.06	0.25	0.28	0.06	0.28	0.36
39000	93.46	86.98	84.89	0.27	0.08	0.05	0.08	0.12	0.21
40000	94.02	96.33	112.74	0.37	0.17	0.14	0.29	0.07	0.01
40500	91.47	88.23	88.69	0.42	0.22	0.17	0.27	0.04	0.06
41000	88.59	86.05	84.25	0.44	0.29	0.22	0.07	0.04	0.15
41500	90.58	98.99	95.14	0.39	0.22	0.15	0.21	0.02	0.13
42000	94.48	89.65	89.66	0.29	0.10	0.04	0.24	0.00	0.10
42500	89.46	90.78	83.65	0.40	0.22	0.13	0.58	0.40	0.20
43000	81.70	107.96	80.56	0.18	0.02	0.10	0.13	0.06	0.28
43500	86.11	86.09	91.86	0.01	0.13	0.24	0.02	0.15	0.33
44000	88.93	92.73	84.96	0.05	0.25	0.33	0.03	0.16	0.34
44200	98.86	86.33	86.91	0.08	0.25	0.37	0.09	0.29	0.48
44400	87.57	106.15	88.97	0.12	0.32	0.41	0.10	0.27	0.48
44600	95.14	83.01	89.47	0.15	0.36	0.43	0.06	0.24	0.43
44800	87.38	99.82	84.78	0.19	0.35	0.46	0.18	0.38	0.56
45000	82.94	86.66	89.60	0.23	0.43	0.52	0.22	0.40	0.60

## Typical Performance Data

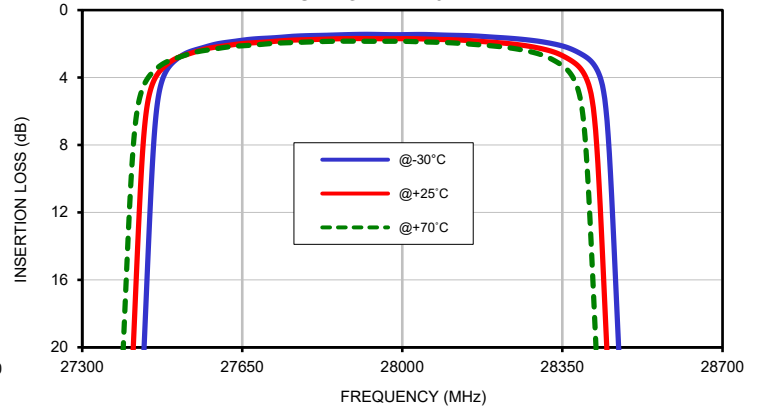
FREQ.  (MHz)	GROUP DELAY		
	(nsec)		
	@-30°C	@+25°C	@+70°C
27500	9.00	7.68	6.90
27505	8.65	7.48	6.76
27510	8.35	7.30	6.63
27515	8.08	7.13	6.52
27520	7.85	6.97	6.41
27525	7.64	6.82	6.32
27530	7.45	6.68	6.23
27535	7.26	6.56	6.15
27540	7.09	6.45	6.07
27545	6.94	6.35	6.00
27550	6.79	6.26	5.93
27555	6.66	6.18	5.85
27560	6.54	6.10	5.78
27565	6.43	6.02	5.71
27570	6.33	5.95	5.64
27580	6.16	5.81	5.52
27600	5.86	5.55	5.33
27620	5.59	5.34	5.18
27640	5.38	5.18	5.03
27660	5.21	5.04	4.89
27680	5.06	4.90	4.78
27700	4.93	4.79	4.70
27750	4.68	4.60	4.53
27800	4.51	4.44	4.40
27825	4.44	4.40	4.37
27875	4.36	4.34	4.32
27900	4.33	4.31	4.30
27925	4.31	4.30	4.29
27950	4.30	4.29	4.31
27960	4.29	4.30	4.32
27975	4.29	4.30	4.33
27995	4.29	4.32	4.35
28000	4.29	4.33	4.36
28050	4.36	4.39	4.44
28100	4.43	4.51	4.59
28150	4.59	4.68	4.79
28200	4.79	4.93	5.10
28250	5.11	5.33	5.59
28280	5.38	5.67	6.02
28300	5.60	5.96	6.41
28350	6.44	7.12	8.13

## Typical Performance Curves

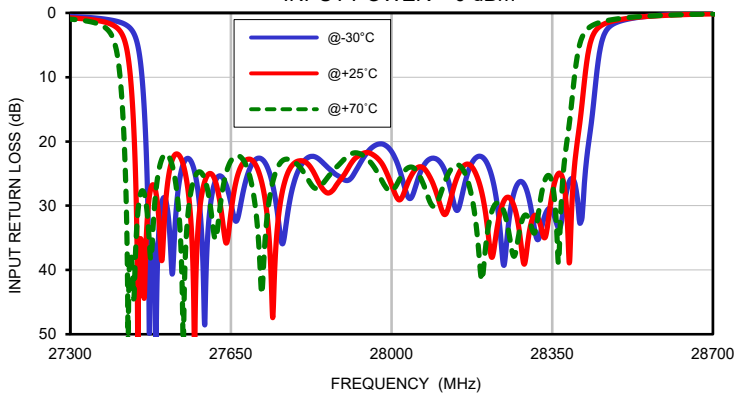
**INSERTION LOSS vs. TEMPERATURE**  
INPUT POWER = 0 dBm



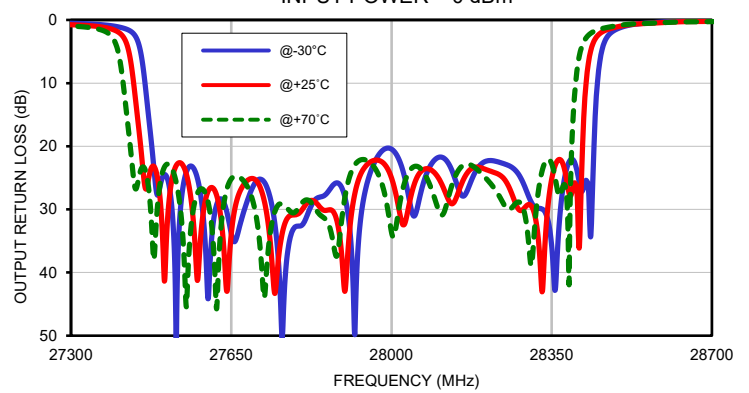
**INSERTION LOSS vs. TEMPERATURE (Zoomed)**  
INPUT POWER = 0 dBm



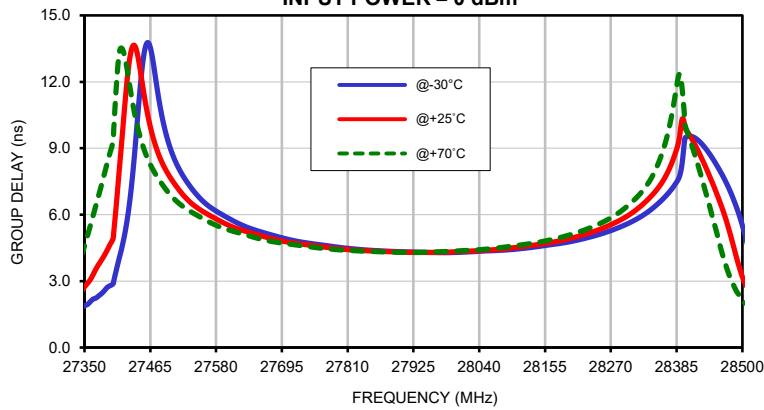
**INPUT RETURN LOSS vs. TEMPERATURE**  
INPUT POWER = 0 dBm



**OUTPUT RETURN LOSS vs. TEMPERATURE**  
INPUT POWER = 0 dBm



**GROUP DELAY vs. TEMPERATURE**  
INPUT POWER = 0 dBm

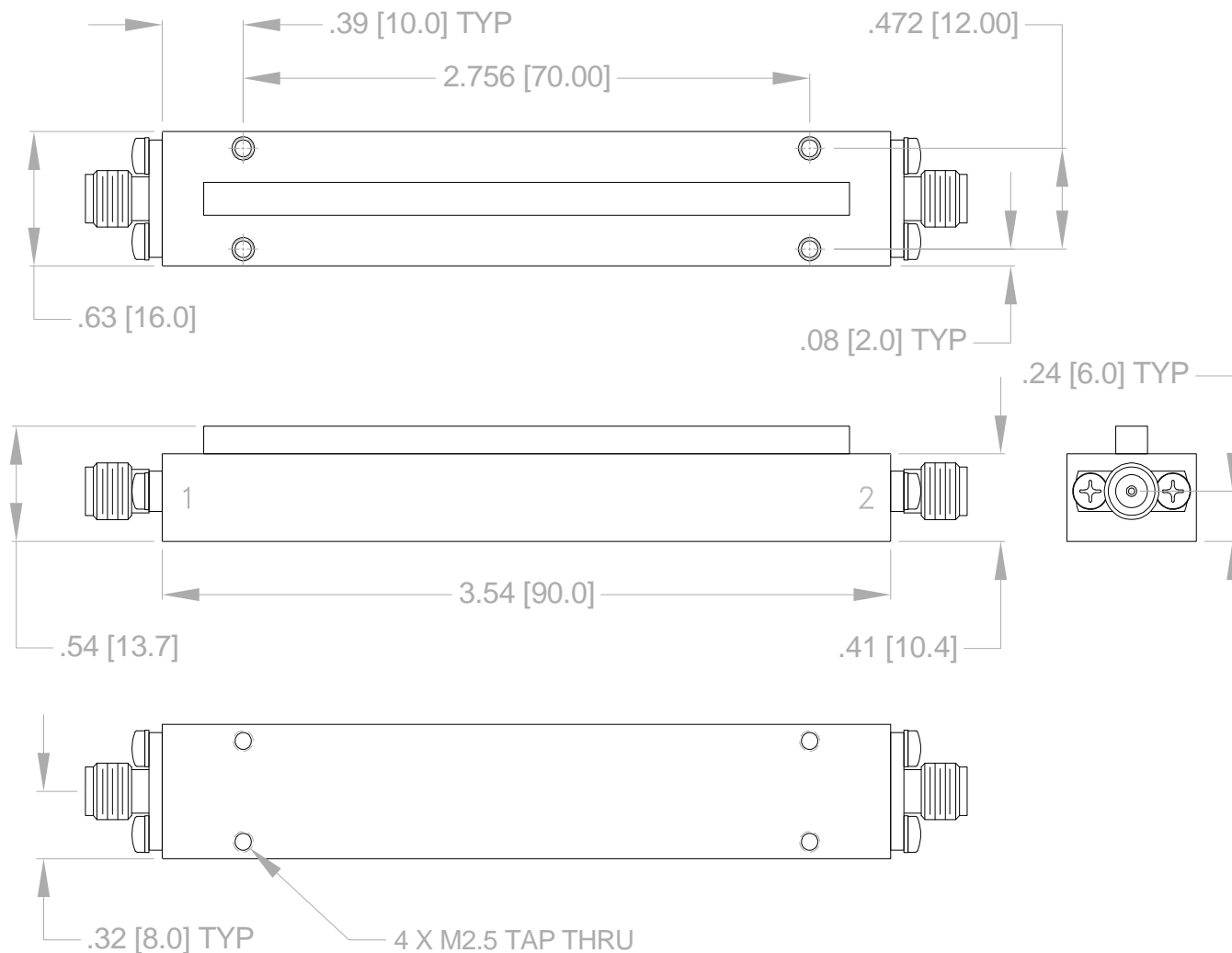


# Case Style

# ZN

## Outline Dimensions

### ZN3567



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

### Notes:

1. Case material: Brass.
2. Case Finish: Powder coated.
3. Unit Weight: 109.5 grams.
4. Refer to the individual model data sheet for the type of connectors available.

**Mini-Circuits®**  
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RF/IF MICROWAVE COMPONENTS





# 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