

Coaxial

# Bandpass Filter

## ZX75BP-750-S+

50Ω

600 to 900 MHz

### The Big Deal

- High rejection
- Good VSWR
- Fast roll-off
- Wide stop band
- Connectorized package



Generic photo used for illustration purposes only

CASE STYLE: HY1239

### Product Overview

ZX75BP-750-S+ is a band pass filter built in a connectorized package. Covering 600-900 MHz bandwidth, this offers good matching in the passband and high rejection in the stop band. Its wide stopband rejection will be suitable for applications which need far-frequency attenuation.

### Key Features

Feature	Advantages
Good VSWR	Provides good matching when cascaded with other devices
Fast roll-off	Helps in better adjacent channel rejection
Wide stop band	Rejects harmonics for a wide range of frequency
Connectorized package	Easy to interface with other devices and well suited for test setups.

#### 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-Circuit's 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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



# Coaxial Bandpass Filter

## ZX75BP-750-S+

50Ω 600 to 900 MHz



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CASE STYLE: HY1239  
Connectors Model  
SMA-FF ZX75BP-750-S+

### Features

- Wideband rejection
- High selectivity
- Good VSWR
- Connectorized package

### Applications

- Auxiliary broadcasting
- Private and public land mobile
- Public safety services

### Electrical Specifications at 25°C

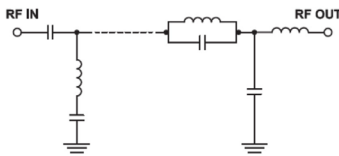
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
<b>Pass Band</b>	Center Frequency	-	-	750	-	MHz	
	Insertion Loss	F1-F2	600 - 900	-	1.7	2.5	dB
	VSWR	F1-F2	600 - 900	-	1.3	1.6	:1
<b>Stop Band, Lower</b>	Insertion Loss	DC-F3	DC - 100	50	55	-	dB
		F3-F4	100 - 500	25	30	-	dB
	VSWR	DC-F4	DC - 500	-	20	-	:1
<b>Stop Band, Upper</b>	Insertion Loss	F5-F6	1000 - 1400	30	40	-	dB
		F6-F7	1400 - 2500	60	70	-	dB
	F7-F8	2500 - 4500	-	40	-	dB	
	F8-F9	4500 - 6000	-	30	-	dB	
	VSWR	F5-F9	1000 - 6000	-	10	-	:1

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	3 W max. @ 25°C

Permanent damage may occur if any of these limits are exceeded.  
Max RF Power Input derate to 1 W at 85°C

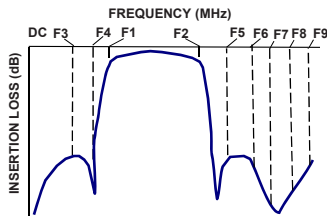
### Functional Schematic



### Typical Performance Data at 25°C

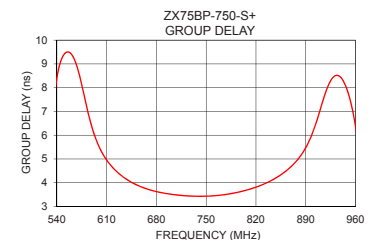
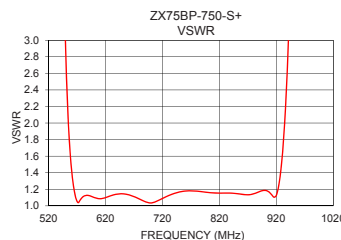
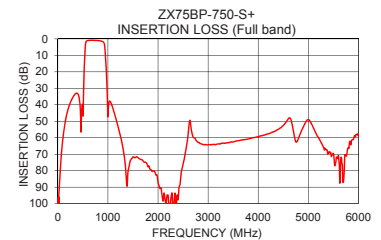
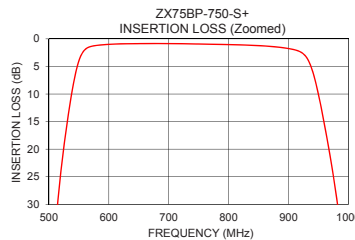
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	101.20	6114.89	600.0	5.47
100	60.78	2985.46	612.0	4.87
380	32.96	175.32	624.0	4.47
500	44.29	41.75	636.0	4.18
524	20.39	20.98	648.0	3.97
552	3.39	2.51	660.0	3.81
600	0.99	1.10	672.0	3.69
750	0.93	1.17	684.0	3.60
900	1.76	1.19	696.0	3.54
928	3.08	1.43	708.0	3.49
968	20.45	10.06	720.0	3.45
984	32.03	13.94	732.0	3.43
1000	47.30	17.26	744.0	3.43
1400	80.70	27.50	750.0	3.43
1500	71.63	25.18	768.0	3.47
2000	87.06	26.81	780.0	3.52
2500	76.00	27.00	792.0	3.58
4500	52.63	18.87	828.0	3.90
5200	59.80	10.02	852.0	4.27
6000	58.84	4.37	900.0	6.13

### Typical Frequency Response



### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



### Notes

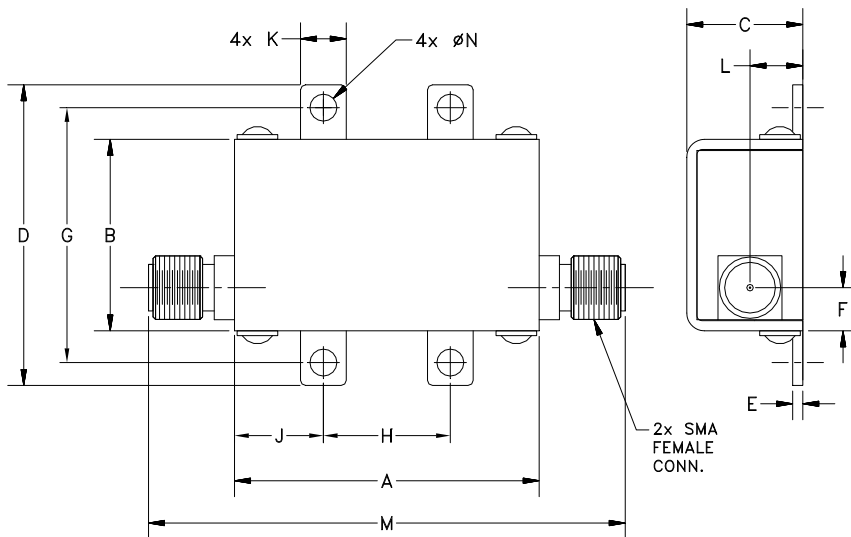
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## Coaxial Connections

PORT - 1	SMA-FEMALE
PORT - 2	SMA-FEMALE

## Outline Drawing



## Outline Dimensions ( $\frac{\text{inch}}{\text{mm}}$ )

A	B	C	D	E	F	G
<b>1.20</b>	<b>.75</b>	<b>.46</b>	<b>1.18</b>	<b>.04</b>	<b>.17</b>	<b>1.00</b>
30.48	19.05	11.68	29.97	1.02	4.32	25.40
H	J	K	L	M	N	Wt.
<b>.50</b>	<b>.35</b>	<b>.18</b>	<b>.21</b>	<b>1.88</b>	<b>.106</b>	grams
12.70	8.89	4.57	5.28	47.75	2.69	35.0

Note: Please refer to case style drawing for details

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# Coaxial Band Pass Filter

# ZX75BP-750-S+

## Typical Performance Data

FREQ.  (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1.0	96.49	101.20	104.88	0.00	0.00	0.00	0.00	0.00	0.00
12.0	99.65	103.17	108.72	0.00	0.00	0.00	0.01	0.01	0.01
13.0	99.22	97.73	102.93	0.00	0.00	0.00	0.01	0.01	0.01
40.0	84.88	84.39	84.34	0.00	0.00	0.00	0.02	0.03	0.04
60.0	74.42	74.00	74.17	0.00	0.00	0.00	0.04	0.06	0.07
80.0	66.50	66.59	66.36	0.00	0.00	0.00	0.06	0.10	0.11
100.0	60.64	60.78	60.63	0.00	0.01	0.01	0.10	0.15	0.17
120.0	55.78	55.75	55.71	0.00	0.01	0.01	0.16	0.21	0.24
300.0	35.42	35.46	35.41	0.03	0.05	0.06	0.38	0.49	0.56
380.0	32.74	32.96	33.06	0.07	0.10	0.12	0.49	0.62	0.69
420.0	34.69	34.99	35.26	0.12	0.15	0.17	0.58	0.73	0.81
500.0	42.84	44.29	45.19	0.33	0.42	0.47	0.78	0.98	1.11
524.0	21.68	20.39	19.44	0.65	0.83	0.97	1.03	1.34	1.57
552.0	3.55	3.39	3.26	5.98	7.34	8.50	6.14	7.65	8.87
600.0	0.80	0.99	1.10	24.39	26.23	29.08	22.41	23.62	25.48
750.0	0.72	0.93	1.06	22.62	22.23	21.43	20.81	20.20	19.68
900.0	1.36	1.76	2.02	23.02	21.35	20.31	20.45	19.07	18.12
928.0	2.35	3.08	3.66	16.27	14.97	13.97	17.29	15.36	13.62
968.0	18.70	20.45	21.74	1.52	1.73	1.85	1.17	1.31	1.38
984.0	30.12	32.03	33.47	1.04	1.25	1.36	0.73	0.87	0.95
1000.0	47.88	47.30	46.69	0.82	1.01	1.11	0.54	0.67	0.74
1100.0	41.62	42.30	42.77	0.42	0.55	0.62	0.21	0.30	0.35
1300.0	65.74	66.35	66.98	0.43	0.54	0.62	0.10	0.19	0.23
1400.0	82.16	80.70	79.34	0.49	0.63	0.74	0.08	0.17	0.21
2400.0	87.10	97.56	91.80	0.40	0.64	0.79	0.07	0.23	0.31
2500.0	75.38	76.00	76.00	0.41	0.64	0.79	0.08	0.23	0.32
2600.0	59.07	58.04	57.10	0.42	0.65	0.80	0.09	0.25	0.34
2700.0	59.36	59.59	60.06	0.43	0.66	0.80	0.09	0.26	0.35
2800.0	62.17	62.85	62.99	0.43	0.64	0.78	0.10	0.26	0.36
2900.0	63.87	64.15	63.95	0.43	0.64	0.77	0.10	0.27	0.36
3000.0	64.00	64.27	64.26	0.43	0.64	0.76	0.11	0.28	0.38
3100.0	64.27	64.10	63.95	0.43	0.63	0.76	0.12	0.29	0.39
3200.0	64.01	63.75	63.65	0.43	0.64	0.76	0.12	0.30	0.40
3300.0	63.48	63.25	63.19	0.43	0.63	0.75	0.13	0.31	0.41
3400.0	63.14	62.96	62.80	0.42	0.63	0.75	0.13	0.32	0.42
3500.0	62.43	62.55	62.02	0.42	0.64	0.77	0.13	0.32	0.42
3600.0	61.99	61.74	61.52	0.42	0.64	0.78	0.14	0.33	0.44
3700.0	61.56	61.15	61.08	0.41	0.65	0.80	0.15	0.34	0.44
3800.0	60.96	60.69	60.22	0.41	0.66	0.82	0.16	0.35	0.45
3900.0	60.61	59.94	59.62	0.42	0.68	0.86	0.16	0.36	0.46
4000.0	59.84	59.32	58.90	0.43	0.70	0.89	0.16	0.36	0.47
4100.0	58.98	58.50	57.99	0.44	0.74	0.94	0.17	0.38	0.48
4200.0	58.32	57.63	57.02	0.45	0.77	0.99	0.17	0.38	0.48
4300.0	57.27	56.50	55.61	0.47	0.81	1.06	0.19	0.40	0.50
4400.0	56.00	54.89	53.83	0.52	0.87	1.14	0.20	0.42	0.54
4500.0	54.09	52.63	50.92	0.54	0.92	1.22	0.21	0.45	0.58
4600.0	50.95	48.55	49.19	0.59	1.02	1.35	0.24	0.50	0.65
4700.0	45.48	55.47	60.02	0.72	1.09	1.41	0.30	0.59	0.80
4800.0	65.33	60.60	57.08	0.69	1.15	1.51	0.38	0.83	1.29
4900.0	58.22	53.52	51.20	0.76	1.27	1.65	0.68	1.85	3.55
5000.0	50.40	48.96	51.11	0.84	1.40	1.81	2.70	6.71	3.94
5100.0	49.11	53.90	56.60	0.92	1.55	2.00	4.54	1.88	1.40
5200.0	56.67	59.80	61.56	1.04	1.74	2.25	0.84	0.87	0.87
5300.0	63.39	65.73	65.97	1.19	1.97	2.54	0.41	0.61	0.70
5400.0	67.86	68.86	67.81	1.36	2.25	2.90	0.29	0.52	0.63
5500.0	69.57	69.48	69.41	1.59	2.61	3.37	0.25	0.49	0.60
5600.0	69.07	70.81	72.04	1.86	3.04	3.93	0.22	0.46	0.57
5700.0	73.66	86.96	70.27	2.19	3.57	4.59	0.20	0.44	0.56
5750.0	74.16	70.46	64.72	2.38	3.81	4.89	0.21	0.45	0.56
6000.0	61.64	58.84	56.65	2.69	4.05	5.04	0.17	0.41	0.53



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IF/RF MICROWAVE COMPONENTS

REV. OR  
ZX75BP-750-S+  
190703

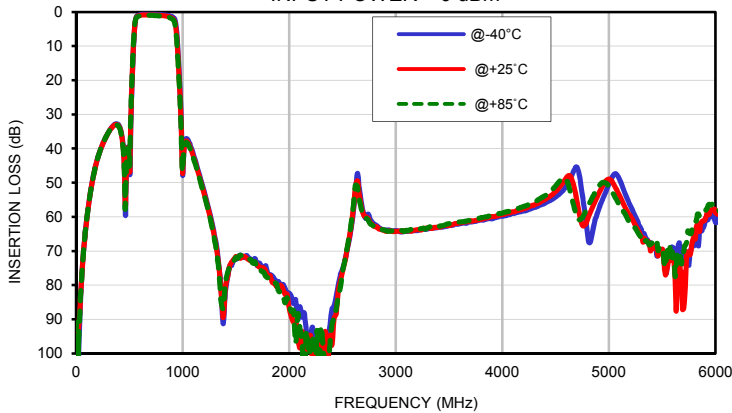
Page 1 of 2

## Typical Performance Data

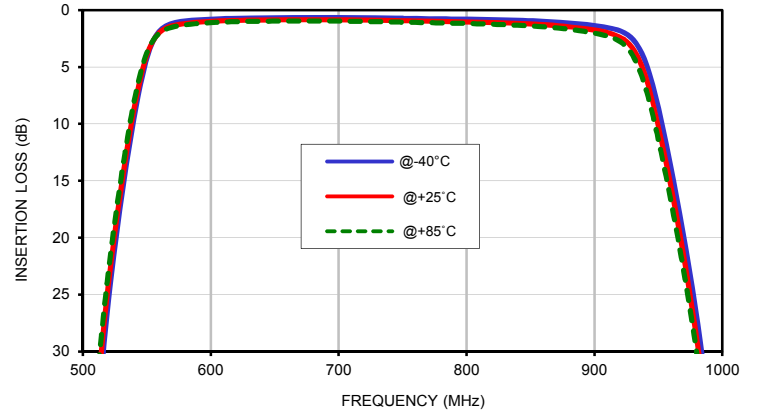
FREQ.  (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
600.0	5.58	5.47	5.40
604.0	5.33	5.24	5.18
608.0	5.12	5.04	4.99
612.0	4.94	4.87	4.83
616.0	4.78	4.72	4.68
620.0	4.64	4.59	4.56
624.0	4.52	4.47	4.44
628.0	4.41	4.37	4.34
632.0	4.31	4.27	4.25
636.0	4.22	4.18	4.16
640.0	4.13	4.10	4.09
644.0	4.06	4.03	4.02
648.0	3.99	3.97	3.95
652.0	3.93	3.91	3.90
656.0	3.87	3.86	3.85
660.0	3.82	3.81	3.80
664.0	3.78	3.76	3.76
668.0	3.74	3.72	3.72
672.0	3.70	3.69	3.68
676.0	3.67	3.66	3.65
680.0	3.63	3.63	3.62
684.0	3.61	3.60	3.60
700.0	3.52	3.52	3.52
720.0	3.46	3.45	3.45
750.0	3.43	3.43	3.44
840.0	4.03	4.07	4.10
844.0	4.09	4.13	4.17
848.0	4.16	4.20	4.24
852.0	4.23	4.27	4.31
856.0	4.30	4.35	4.40
860.0	4.39	4.44	4.49
864.0	4.48	4.54	4.59
868.0	4.58	4.64	4.69
872.0	4.68	4.75	4.81
876.0	4.80	4.88	4.94
880.0	4.94	5.02	5.09
884.0	5.09	5.18	5.26
888.0	5.26	5.37	5.46
892.0	5.46	5.58	5.68
896.0	5.69	5.83	5.95
900.0	5.96	6.13	6.26

## Typical Performance Curves

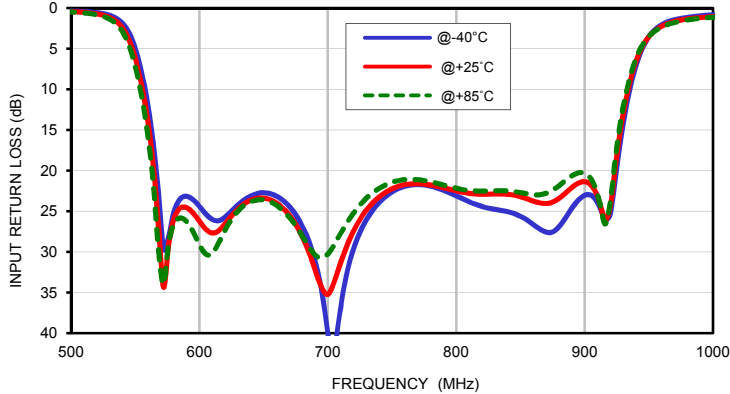
**INSERTION LOSS vs. TEMPERATURE**  
INPUT POWER = 0 dBm



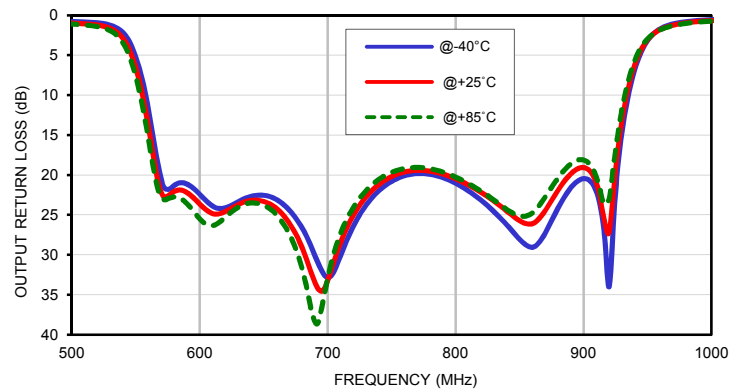
**INSERTION LOSS vs. TEMPERATURE (Zoomed)**  
INPUT POWER = 0 dBm



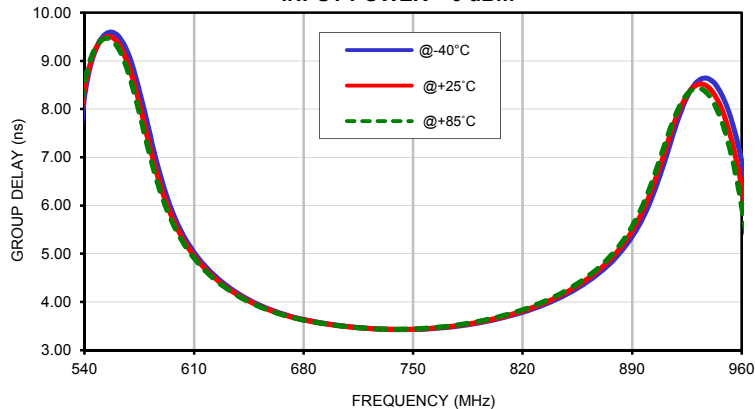
**INPUT RETURN LOSS vs. TEMPERATURE**  
INPUT POWER = 0 dBm



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



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

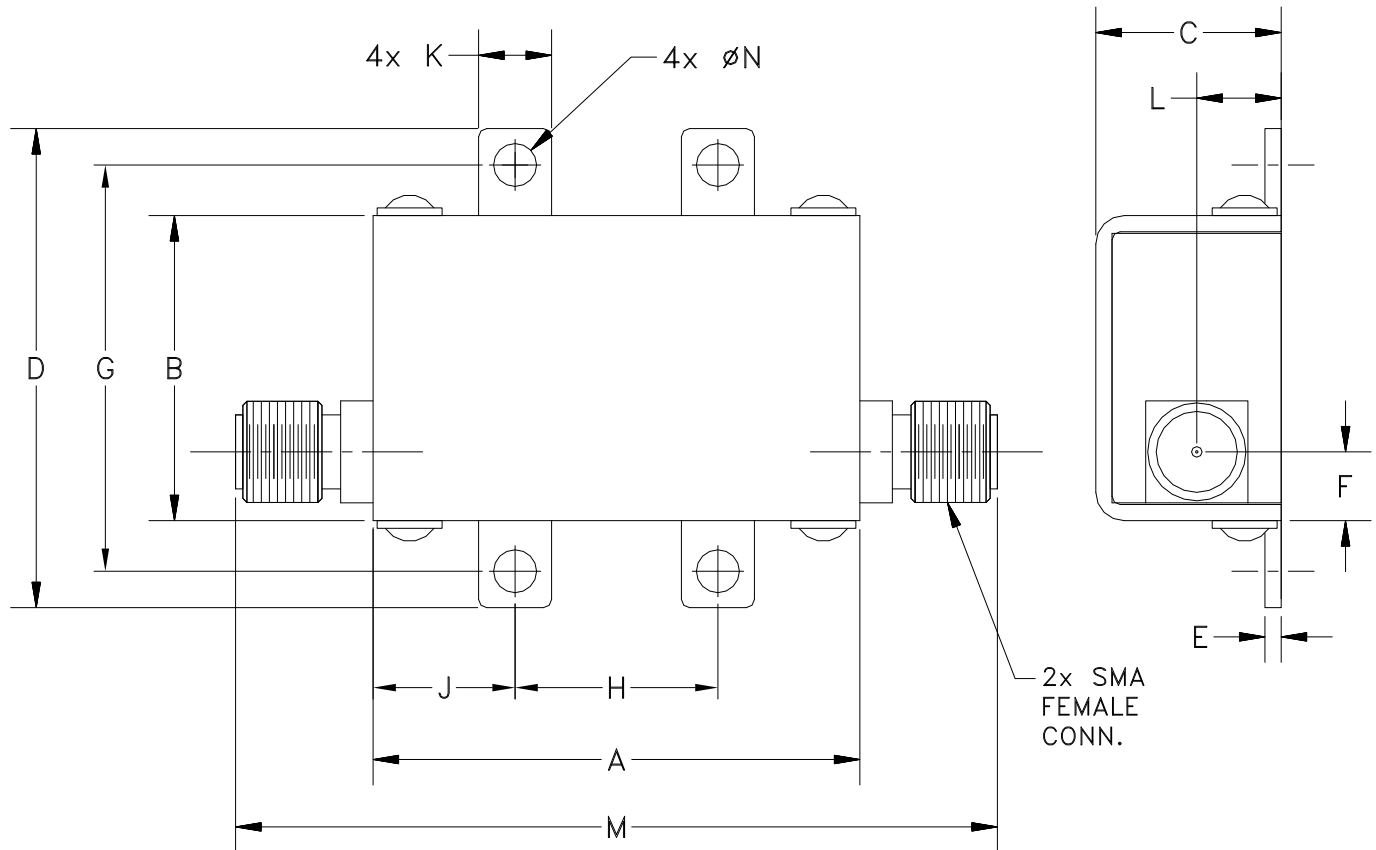


# Case Style

# HY

## Outline Dimensions

## HY1239



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N	WT GRAMS
HY1239	1.20 (30.48)	.75 (19.05)	.46 (11.68)	1.18 (29.97)	.04 (1.02)	.17 (4.32)	1.00 (25.40)	.50 (12.70)	.35 (8.89)	.18 (4.57)	.21 (5.28)	1.88 (47.75)	.106 (2.69)	35.0

**Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .03$ ; 3Pl.  $\pm .015$**   
**Tolerance on hole size and interaxes dimensions to be  $\pm .005$ .**

### Note:

1. Case material: Brass
2. Case finish: Nickel plate

**Mini-Circuits®**

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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, Condition 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