LUMPED LC COAXIAL

Bandpass Filter

ZX75BP-435-S+

50Ω 420 to 450 MHz SMA-Female

KEY FEATURES

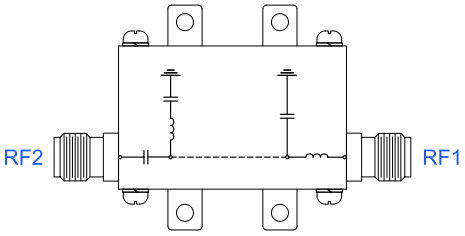
- Good Insertion Loss, 1.5 dB Typ.
- Passband Return Loss, 22 dB Typ.
- Stopband Rejection, 30 dB Typ.

Generic photo used for illustration purposes only

APPLICATIONS

- Defense
- Military
- Telecom
- Radar and Satellite

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

ZX75BP-435-S+ is a 50Ω bandpass filter in a connectorized package covering 420 to 450 MHz. This offers good matching within the passband and high rejection in stopband.

ELECTRICAL SPECIFICATIONS[1] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	Fc	—	—	435	—	MHz
	Insertion Loss	F1-F2	420 - 450	—	1.5	2.1	dB
	Return Loss	F1-F2	420 - 450	12	22	—	dB
Stopband, Lower	Rejection	DC-F3	DC - 380	22	28	—	dB
Stopband, Upper	Rejection	F4-F5	500 - 3000	24	30	—	dB

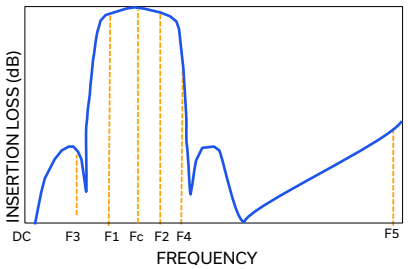
1. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

ABSOLUTE MAXIMUM RATINGS[2]

Parameter	Ratings
Operating Temperature	-40°C to + 85°C
Storage Temperature	-55°C to + 100°C
Input Power[3]	2 W at 25°C

2. Permanent damage may occur if any of these limits are exceeded.
3. Power rating applies only to signals within the passband. Derated power at +85°C is 1 W.

TYPICAL FREQUENCY RESPONSE AT +25°C



REV. OR
ECO-026903
ZX75BP-435-S+
EDU4941
URJ
250910

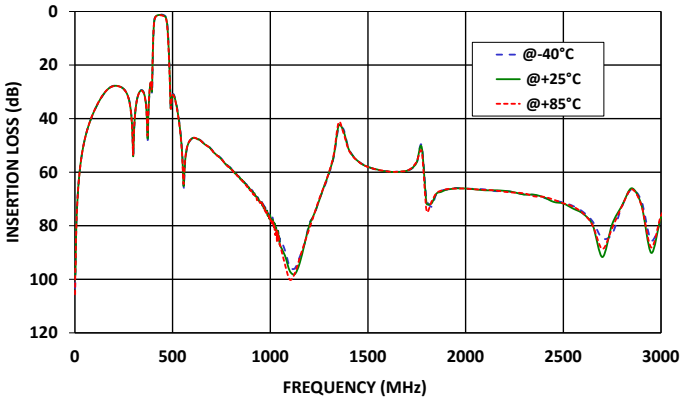
Bandpass Filter

ZX75BP-435-S+

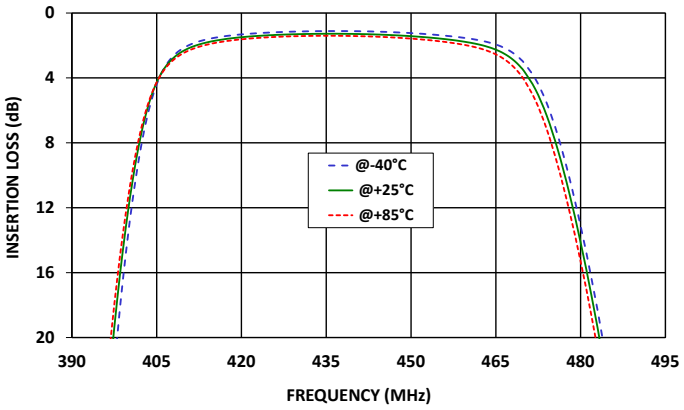
50Ω 420 to 450 MHz SMA-Female

TYPICAL PERFORMANCE GRAPHS

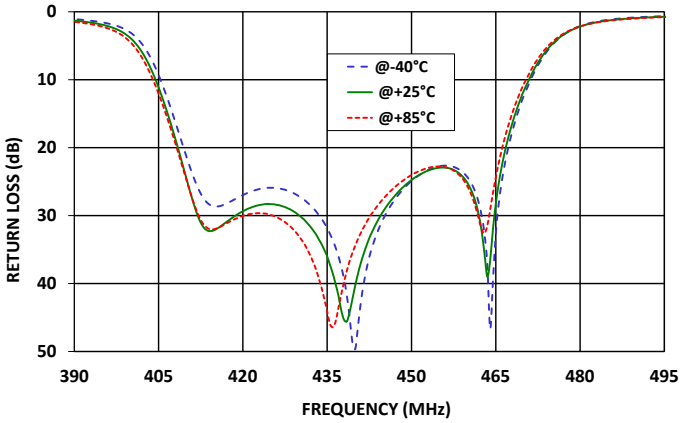
ZX75BP-435-S+
INSERTION LOSS



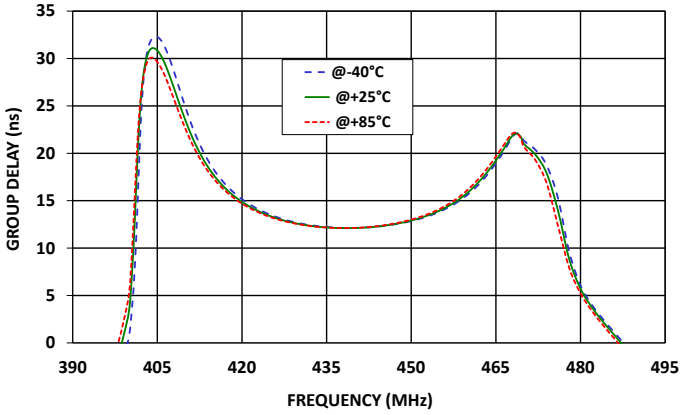
ZX75BP-435-S+
INSERTION LOSS (Zoomed)



ZX75BP-435-S+
RETURN LOSS



ZX75BP-435-S+
GROUP DELAY



Bandpass Filter

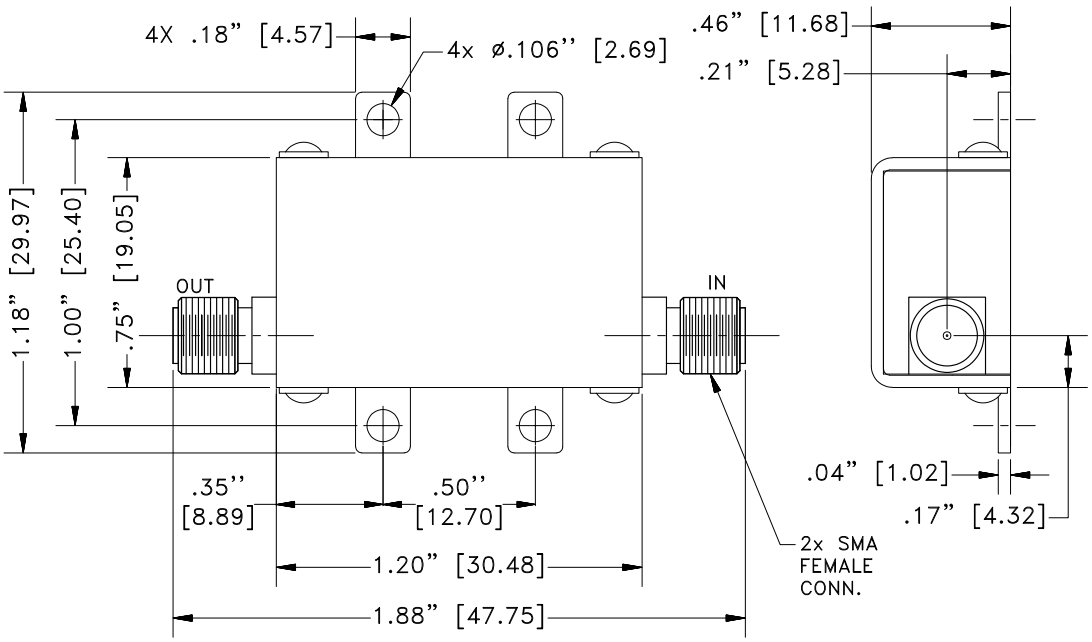
ZX75BP-435-S+

50Ω 420 to 450 MHz SMA-Female

CONNECTOR DESCRIPTION

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

CASE STYLE DRAWING



Weight: 35.0 grams
Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015
Tolerance on hole size and interaxes dimensions to be ± .005

PRODUCT MARKING*: ZX75BP-435-S+

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

Bandpass Filter

ZX75BP-435-S+

50Ω 420 to 450 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	HY1239
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

Coaxial Band Pass Filter ZX75BP-435-S+

Typical Performance Data

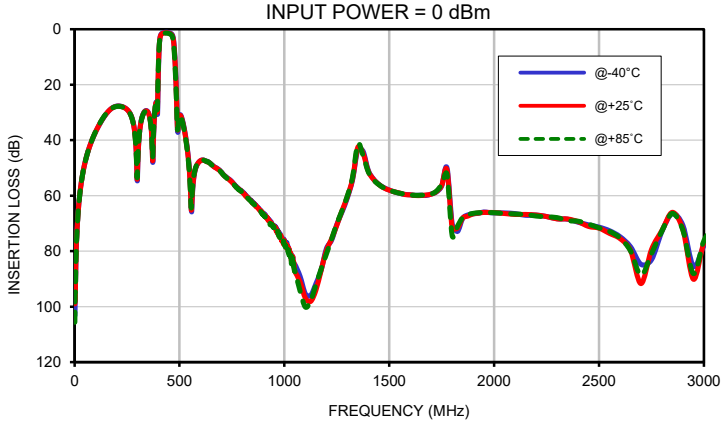
FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
10	74.93	74.79	74.91	0.13	0.15	0.17	0.00	0.00	0.00
12	71.64	71.44	71.80	0.14	0.16	0.18	0.00	0.00	0.00
14	69.00	69.05	69.16	0.15	0.17	0.19	0.00	0.00	0.00
16	66.74	66.79	66.64	0.16	0.18	0.21	0.00	0.00	0.00
20	62.91	62.82	62.98	0.17	0.20	0.22	0.00	0.00	0.00
22	61.47	61.47	61.40	0.18	0.21	0.23	0.00	0.00	0.00
25	59.25	59.15	59.22	0.19	0.22	0.24	0.00	0.00	0.00
30	56.28	56.27	56.17	0.20	0.23	0.25	0.00	0.00	0.00
35	53.63	53.56	53.58	0.21	0.24	0.26	0.00	0.00	0.00
40	51.49	51.45	51.45	0.21	0.24	0.26	0.00	0.00	0.00
45	49.53	49.60	49.55	0.21	0.24	0.26	0.00	0.00	0.00
50	47.86	47.88	47.80	0.21	0.23	0.26	0.00	0.00	0.00
55	46.35	46.36	46.32	0.20	0.23	0.26	0.00	0.00	0.00
60	45.00	44.99	44.97	0.20	0.23	0.25	0.00	0.00	0.00
65	43.73	43.73	43.71	0.20	0.22	0.24	0.00	0.00	0.01
70	42.60	42.57	42.55	0.19	0.22	0.24	0.00	0.00	0.01
75	41.52	41.50	41.47	0.19	0.21	0.23	0.00	0.01	0.01
80	40.52	40.48	40.44	0.18	0.21	0.23	0.00	0.00	0.01
85	39.59	39.53	39.47	0.18	0.20	0.22	0.00	0.00	0.01
90	38.69	38.62	38.56	0.17	0.20	0.22	0.00	0.00	0.01
98	37.35	37.27	37.20	0.16	0.19	0.21	0.00	0.00	0.01
103	36.56	36.48	36.39	0.16	0.19	0.21	0.00	0.01	0.01
122	33.86	33.75	33.64	0.16	0.20	0.22	0.00	0.01	0.02
131	32.71	32.61	32.51	0.17	0.21	0.24	0.01	0.01	0.02
150	30.60	30.53	30.45	0.21	0.25	0.29	0.01	0.02	0.03
170	28.91	28.92	28.90	0.27	0.32	0.36	0.02	0.03	0.04
200	27.71	27.80	27.85	0.35	0.41	0.45	0.04	0.05	0.06
210	27.65	27.74	27.80	0.36	0.42	0.46	0.04	0.06	0.07
380	32.40	31.94	31.34	0.69	0.83	0.94	0.78	0.92	1.04
385	27.74	27.65	27.33	0.84	1.00	1.14	0.96	1.14	1.29
390	26.24	26.71	26.73	1.08	1.30	1.49	1.23	1.47	1.68
400	13.50	12.05	11.27	3.07	3.88	4.49	3.20	4.02	4.70
420	1.32	1.49	1.62	26.98	29.36	30.04	28.84	32.43	32.77
435	1.11	1.28	1.40	31.82	36.01	44.08	33.77	36.99	37.44
440	1.12	1.29	1.42	49.63	40.26	34.40	36.42	34.24	31.88
450	1.24	1.43	1.58	24.91	24.77	24.02	24.74	24.87	24.62
460	1.56	1.80	2.00	24.40	25.25	25.75	21.87	22.53	23.10
470	3.07	3.59	4.11	12.35	11.60	10.62	11.74	11.38	10.81
480	13.13	14.15	15.32	2.10	2.18	2.15	2.57	2.70	2.74
484	20.30	21.41	22.77	1.30	1.40	1.44	1.77	1.92	2.00
500	31.02	31.17	31.22	0.52	0.60	0.65	0.93	1.04	1.11
600	47.38	47.39	47.34	0.12	0.16	0.19	0.38	0.46	0.51
700	51.49	51.64	51.74	0.08	0.11	0.13	0.23	0.29	0.33
800	58.53	58.85	58.80	0.05	0.08	0.11	0.19	0.25	0.28
900	66.67	66.58	66.64	0.05	0.08	0.11	0.21	0.26	0.29
1000	76.02	76.45	77.66	0.03	0.07	0.10	0.25	0.30	0.33
1200	79.14	79.80	81.06	0.02	0.06	0.10	0.31	0.36	0.39
1400	50.92	51.20	51.42	0.03	0.08	0.12	0.29	0.35	0.38
1600	59.69	59.70	59.72	0.02	0.08	0.12	0.24	0.30	0.34
1800	70.21	71.69	74.50	0.03	0.08	0.13	0.21	0.28	0.32
2000	66.20	66.09	66.14	0.03	0.09	0.14	0.21	0.29	0.33
2200	67.00	66.98	67.34	0.03	0.09	0.14	0.23	0.32	0.37
2400	69.57	69.37	69.22	0.03	0.10	0.15	0.30	0.39	0.45
2500	71.34	71.71	71.61	0.02	0.09	0.15	0.36	0.45	0.50
2600	74.79	75.47	75.26	0.03	0.10	0.16	0.43	0.53	0.59
2700	84.76	91.69	88.68	0.04	0.11	0.17	0.58	0.68	0.75
2800	72.87	72.53	72.68	0.04	0.11	0.17	1.25	1.46	1.62
2900	70.76	72.28	72.51	0.04	0.11	0.18	2.47	2.10	2.24
2950	85.45	90.14	88.09	0.04	0.12	0.19	1.02	1.03	1.12
3000	78.02	76.95	76.24	0.05	0.13	0.19	0.76	0.82	0.90

Typical Performance Data

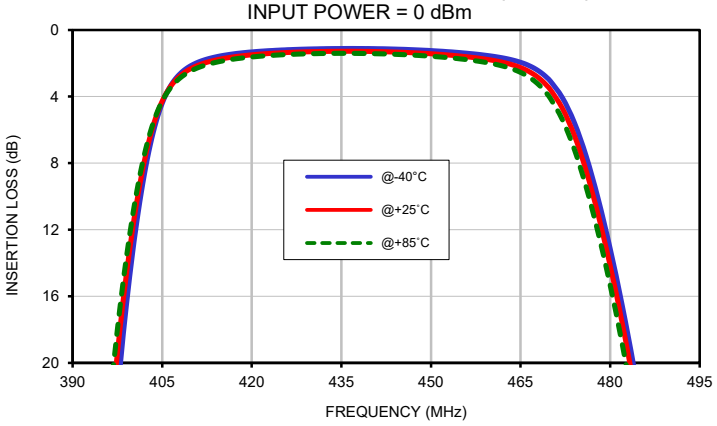
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25˚C	@+85˚C
420	15.16	14.88	14.69
421	14.75	14.51	14.34
422	14.39	14.17	14.02
423	14.07	13.88	13.75
424	13.78	13.60	13.49
425	13.53	13.38	13.28
426	13.31	13.17	13.09
427	13.10	12.99	12.91
428	12.93	12.82	12.77
429	12.78	12.69	12.64
430	12.64	12.56	12.52
431	12.53	12.46	12.42
434	12.28	12.23	12.21
435	12.23	12.18	12.17
436	12.18	12.15	12.14
437	12.15	12.12	12.12
438	12.13	12.11	12.11
439	12.13	12.11	12.12
440	12.13	12.12	12.14
441	12.15	12.14	12.16
442	12.18	12.18	12.21
443	12.21	12.22	12.25
444	12.27	12.28	12.32
445	12.33	12.34	12.39
446	12.41	12.43	12.49
447	12.50	12.53	12.60
448	12.60	12.64	12.71
449	12.71	12.76	12.85
450	12.85	12.91	13.00

Typical Performance Curves

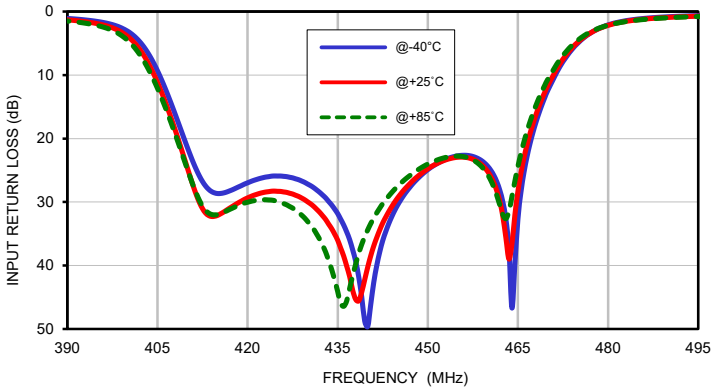
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



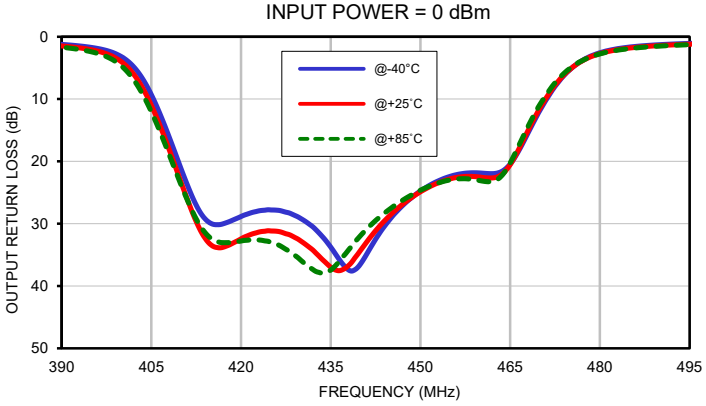
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



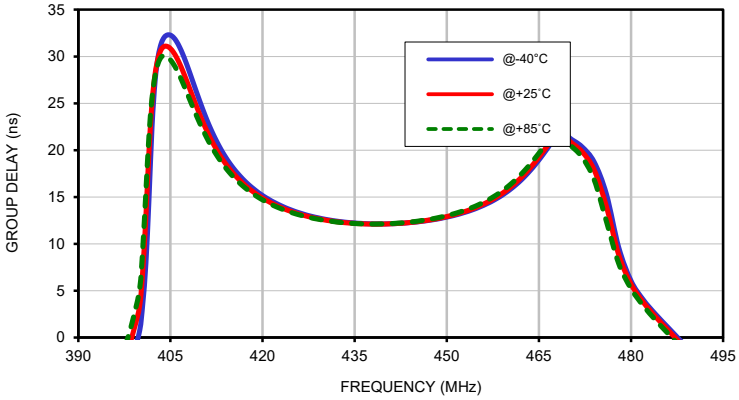
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



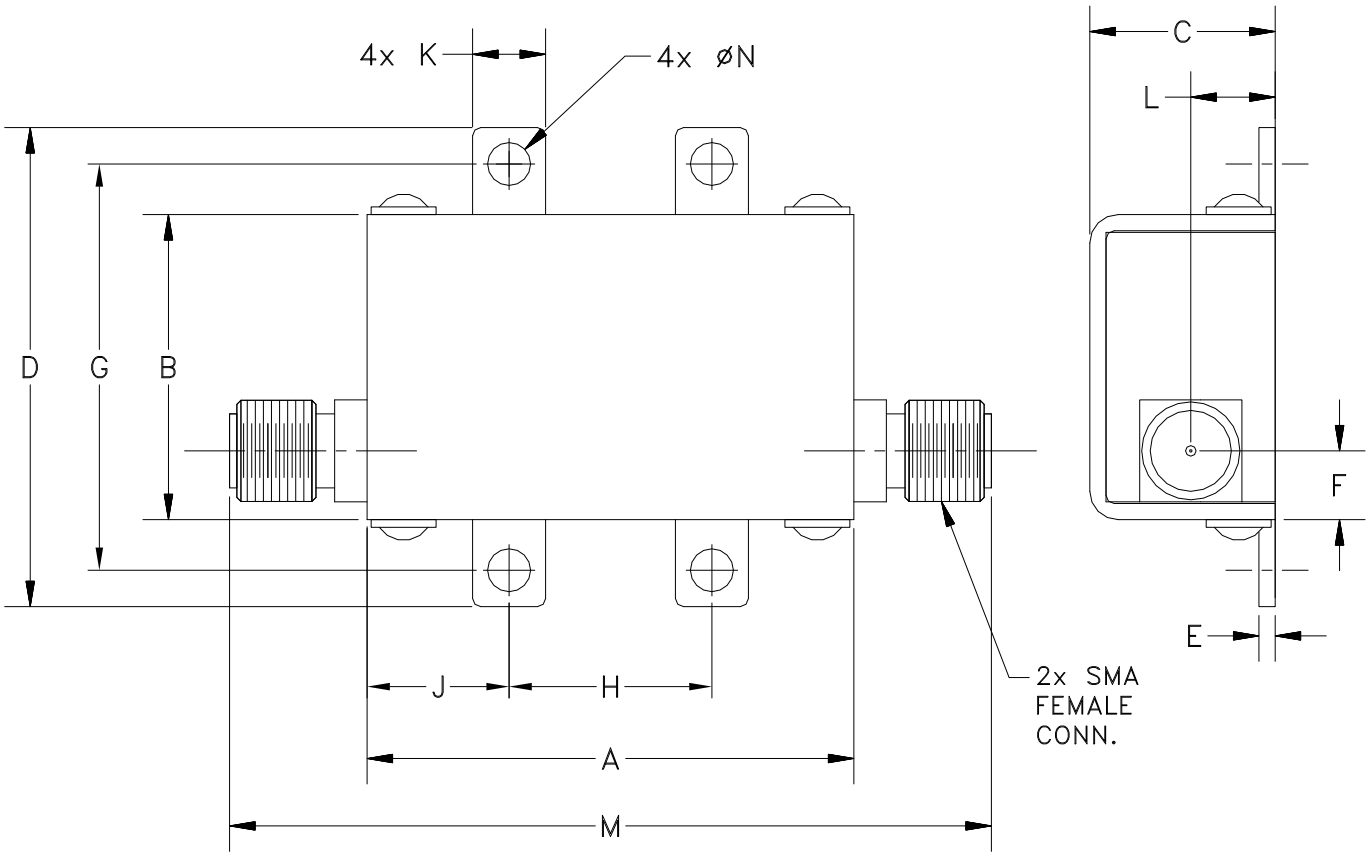
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



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. ± .03; 3Pl. ± .015
Tolerance on hole size and interaxes dimensions to be ± .005.

Note:

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

Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

This document and its contents are the property of Mini-Circuits.

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

This document and its contents are the property of Mini-Circuits.