

Coaxial High Pass Filter

ZFHP-0R12-S+

50Ω 0.12 to 1000 MHz



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CASE STYLE: H16

The Big Deal

- Low insertion loss
- High rejection
- Connectorized package

Product Overview

ZFHP-0R12-S+ is a High pass filter in a connectorized package. This low frequency cut-off high pass filter eliminates noise that feed into RF / base band circuits from low frequency sources.

Key Features

Feature	Advantages
Low insertion loss	Can be used in high performance applications.
Excellent low frequency rejection	Filters out low frequency noise from sources such as electric motors and generators. SMDS noise filtering and IF noise filtering.
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups.

Notes

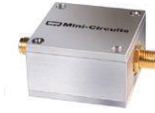
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B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document 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



Coaxial High Pass Filter

50Ω 0.12 to 1000 MHz

ZFHP-0R12-S+



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Features

- Wide band, 0.12 MHz to 1000 MHz
- High rejection
- Connectorized package

CASE STYLE: H16

Connectors	Model
SMA-FEMALE	ZFHP-0R12-S+
BRACKET (OPTION "B")	

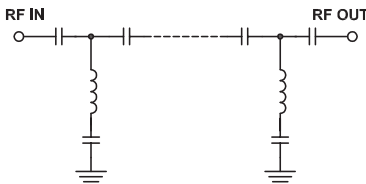
Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Stop Band	Rejection Loss	DC-F1	DC-0.050	25	40	dB
	VSWR	DC-F1	DC-0.050	-	54	:1
Pass Band	Insertion Loss	F2-F3	0.12-500	-	1.4	dB
	VSWR	F3-F4	500-1000	-	2.2	:1
		F2-F4	0.12-1000	-	1.5	:1

Applications

- Wire-line broad band access
- Fiber optic networks
- Receivers \ transmitters
- Radio navigation
- Fixed maritime mobile
- Electrical equipment noise elimination

Functional Schematic



Maximum Ratings

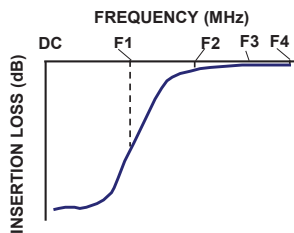
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	+5 dBm max.

Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

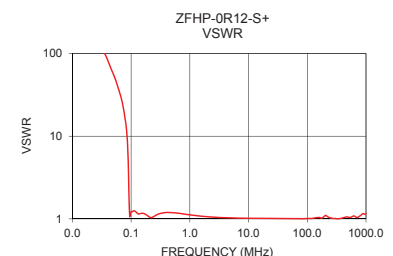
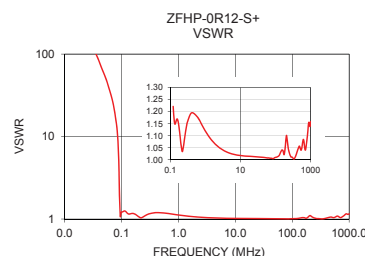
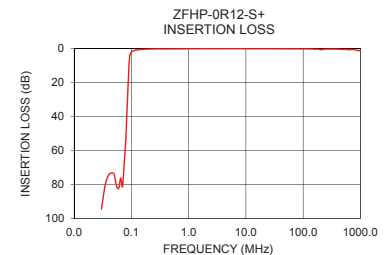
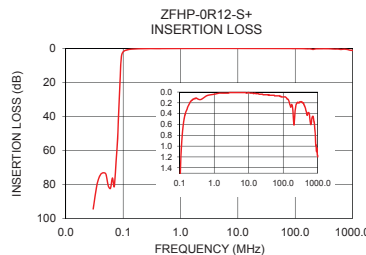
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
0.030	94.42	124.09
0.050	73.93	56.04
0.082	44.09	13.70
0.085	31.66	10.37
0.087	24.11	8.01
0.090	12.63	4.02
0.092	6.54	1.92
0.096	2.96	1.09
0.100	2.00	1.22
0.120	0.75	1.22
0.600	0.07	1.18
1.000	0.04	1.12
10.000	0.01	1.02
50.000	0.06	1.01
100.000	0.09	1.01
250.000	0.20	1.03
500.000	0.42	1.05
800.000	0.58	1.09
900.000	1.01	1.16
1000.000	1.20	1.16

Typical Frequency Response



+RoHS Compliant

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



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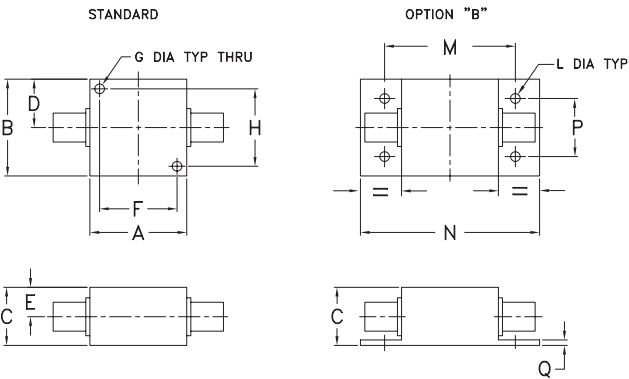
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Coaxial Connections

PORT - 1	SMA-Female
PORT - 2	SMA-Female

Outline Drawing



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

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.000	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40

J	K	L	M	N	P	Q	wt
--	--	.125	1.688	2.18	.750	.06	grams
--	--	3.18	42.88	55.37	19.05	1.52	70.0

Note: Please refer to case style drawing for details

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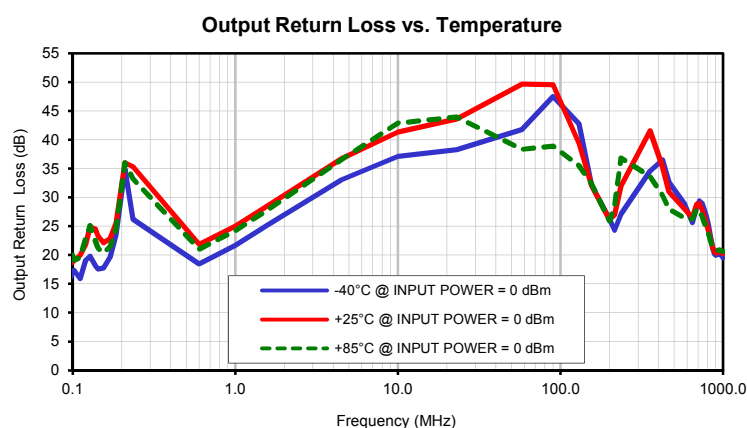
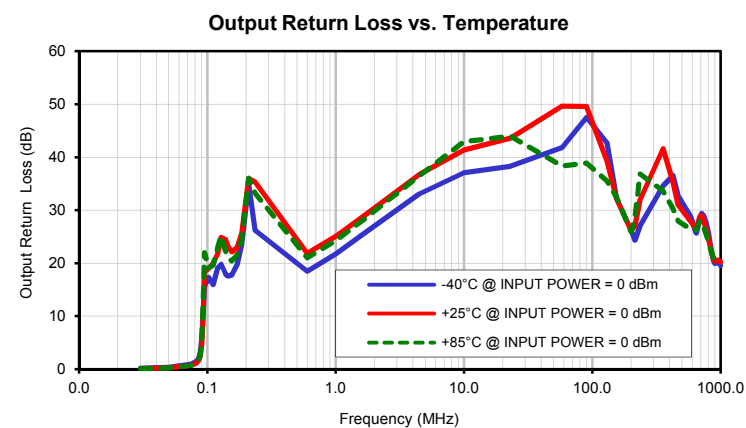
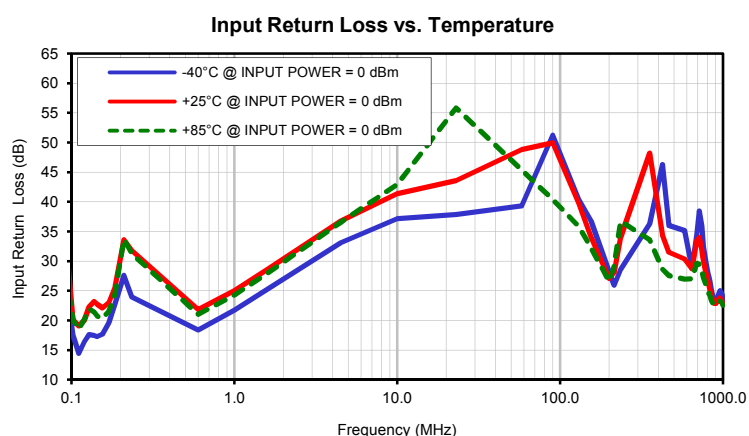
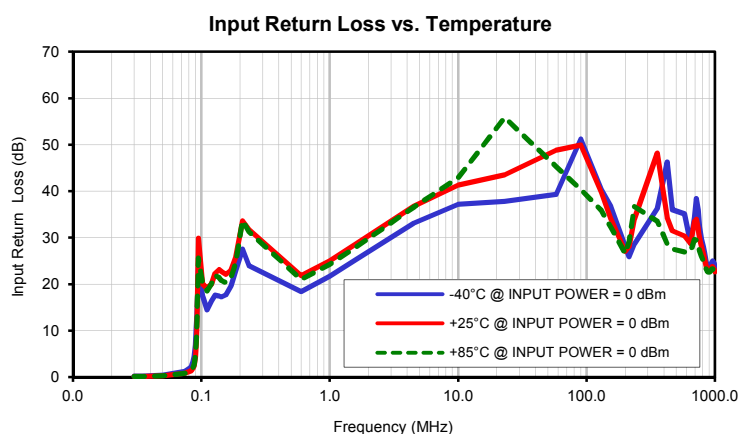
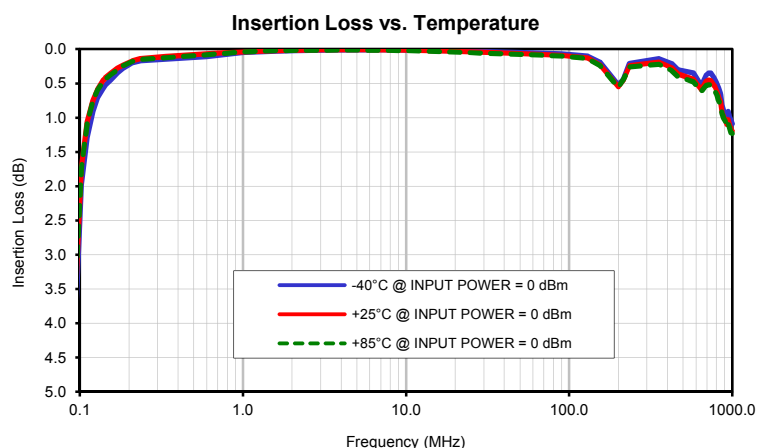
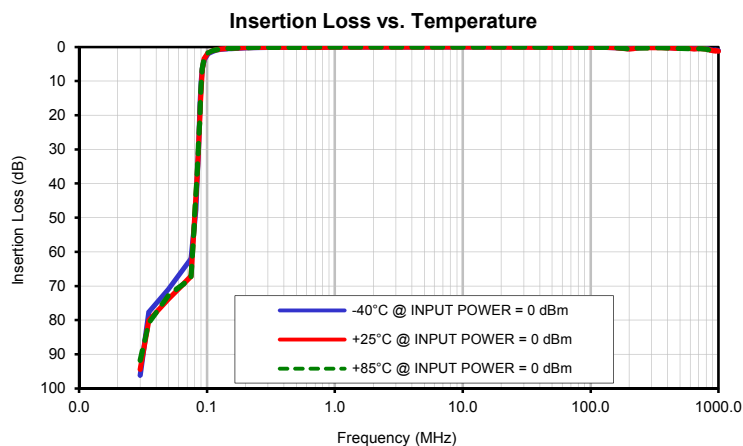
Typical Performance Data

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
0.030	96.23	94.42	91.76	0.19	0.14	0.12	0.17	0.13	0.11
0.035	77.61	80.08	80.79	0.23	0.17	0.15	0.20	0.15	0.13
0.050	70.94	73.93	72.73	0.42	0.31	0.29	0.33	0.26	0.23
0.075	62.02	67.16	67.68	1.22	0.84	0.85	0.93	0.74	0.72
0.082	47.64	44.09	43.52	2.01	1.27	1.35	1.47	1.16	1.21
0.084	36.33	35.58	34.99	2.49	1.51	1.62	1.78	1.41	1.51
0.086	26.84	27.87	27.21	3.26	1.89	2.05	2.28	1.81	1.99
0.087	22.38	24.11	23.40	3.86	2.18	2.36	2.68	2.11	2.37
0.088	18.07	20.33	19.59	4.71	2.59	2.82	3.28	2.55	2.92
0.090	10.56	12.63	11.89	7.90	4.41	4.86	5.61	4.37	5.23
0.091	8.03	9.11	8.52	10.34	6.59	7.20	7.50	6.31	7.65
0.092	6.31	6.54	6.18	13.13	10.06	10.73	9.62	9.23	11.16
0.095	3.74	3.39	3.32	23.77	29.88	25.65	15.50	18.26	21.97
0.102	1.98	1.72	1.74	17.42	20.08	20.10	17.33	19.00	19.06
0.111	1.29	1.06	1.08	14.47	19.07	18.54	15.94	19.95	19.59
0.120	0.91	0.75	0.76	16.38	20.02	20.14	19.05	21.80	22.88
0.128	0.71	0.59	0.60	17.63	22.29	21.92	19.78	24.90	25.14
0.138	0.58	0.46	0.48	17.45	23.17	21.40	18.13	24.52	22.41
0.142	0.54	0.43	0.45	17.32	22.86	20.92	17.71	23.64	21.48
0.144	0.52	0.41	0.43	17.30	22.68	20.72	17.58	23.25	21.13
0.155	0.45	0.35	0.37	17.70	22.13	20.35	17.74	22.15	20.38
0.170	0.35	0.28	0.30	19.61	23.03	21.58	19.71	22.85	21.49
0.185	0.28	0.23	0.24	22.83	25.61	24.44	23.51	25.45	24.40
0.210	0.20	0.17	0.18	27.58	33.59	33.68	34.94	35.99	36.03
0.235	0.17	0.14	0.15	23.95	31.75	31.24	26.23	35.34	33.22
0.600	0.11	0.07	0.08	18.40	21.82	21.01	18.46	21.88	21.01
1.000	0.05	0.04	0.04	21.70	25.02	24.27	21.71	25.03	24.24
1.600	0.03	0.02	0.02	25.31	28.64	27.96	25.30	28.64	27.93
4.500	0.01	0.01	0.01	33.13	36.76	36.57	33.09	36.74	36.54
10.000	0.01	0.01	0.02	37.18	41.34	42.91	37.10	41.33	42.92
23.000	0.03	0.04	0.05	37.83	43.55	55.84	38.27	43.62	43.94
58.000	0.05	0.07	0.08	39.32	48.82	45.33	41.77	49.65	38.34
90.000	0.07	0.09	0.10	51.25	49.94	40.38	47.50	49.58	38.89
130.000	0.10	0.13	0.14	40.45	39.75	35.85	42.71	39.33	35.53
155.000	0.19	0.23	0.24	36.70	34.06	32.20	32.13	32.12	32.41
200.000	0.52	0.55	0.56	28.19	27.05	26.59	26.28	26.11	25.89
215.000	0.44	0.45	0.44	25.92	28.10	29.22	24.32	26.97	28.48
235.000	0.21	0.24	0.26	28.57	33.96	36.74	27.05	31.96	36.85
355.000	0.14	0.19	0.22	36.29	48.19	33.57	34.58	41.58	33.65
425.000	0.21	0.27	0.31	46.26	34.38	28.64	36.52	35.30	30.32
465.000	0.30	0.36	0.40	36.01	31.48	27.55	32.70	30.95	27.98
580.000	0.35	0.44	0.48	35.16	30.36	26.94	28.90	27.98	26.43
645.000	0.53	0.59	0.62	28.80	28.69	27.03	25.63	26.44	26.26
690.000	0.38	0.47	0.53	34.39	33.47	29.63	28.42	28.78	28.03
715.000	0.35	0.45	0.52	38.43	33.96	29.46	29.43	28.95	27.80
740.000	0.35	0.46	0.52	35.94	31.87	28.31	28.99	27.94	26.78
760.000	0.39	0.50	0.56	32.39	29.88	27.15	28.00	26.90	25.87
785.000	0.44	0.55	0.62	29.75	28.08	26.04	26.76	25.69	24.89
810.000	0.51	0.63	0.68	28.01	26.53	24.96	25.34	24.41	23.78
820.000	0.55	0.68	0.74	27.34	25.90	24.55	24.62	23.82	23.33
830.000	0.58	0.71	0.77	26.63	25.28	24.15	23.81	23.21	22.87
850.000	0.67	0.78	0.82	25.09	24.07	23.35	22.15	21.99	21.94
865.000	0.82	0.92	0.94	24.12	23.38	22.88	21.13	21.26	21.39
885.000	0.90	0.98	1.01	23.35	22.86	22.57	20.25	20.60	20.93
905.000	0.97	1.04	1.05	23.29	22.88	22.59	19.94	20.37	20.75
925.000	0.99	1.10	1.13	23.84	23.25	22.84	20.05	20.45	20.81
945.000	0.91	1.03	1.08	24.69	23.71	23.20	20.21	20.61	20.92
960.000	0.98	1.10	1.14	25.03	23.79	23.27	20.14	20.59	20.87
985.000	1.03	1.17	1.22	24.45	23.21	22.89	19.77	20.37	20.71
1000.000	1.09	1.20	1.23	23.60	22.68	22.56	19.53	20.24	20.65

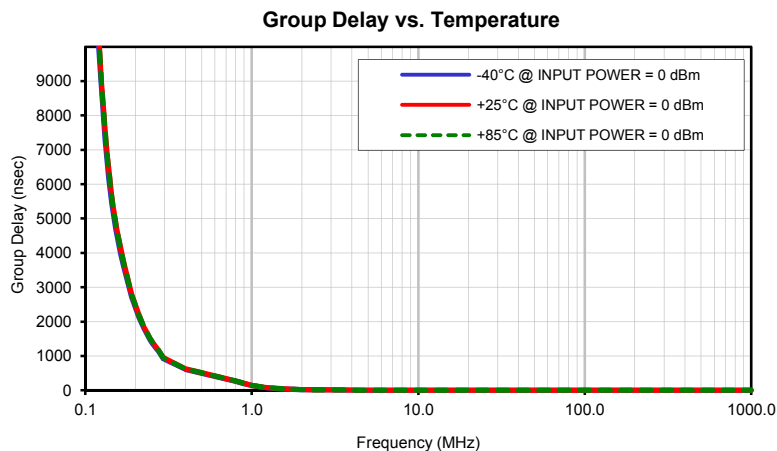
Typical Performance Data

FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
0.120	10123.90	10495.50	10434.50
0.122	9538.61	9871.55	9824.06
0.125	8762.35	9046.87	9008.68
0.128	8057.34	8330.22	8281.32
0.131	7440.10	7711.35	7658.27
0.133	7070.83	7349.30	7291.32
0.136	6576.53	6824.27	6782.36
0.140	5997.25	6242.19	6189.57
0.144	5489.91	5715.76	5664.77
0.147	5148.12	5358.83	5313.89
0.155	4492.47	4669.19	4631.23
0.170	3603.29	3729.48	3705.15
0.190	2715.74	2791.64	2777.32
0.210	2127.61	2185.00	2175.10
0.225	1804.15	1853.16	1843.73
0.245	1477.19	1520.04	1511.25
0.255	1346.29	1388.54	1380.16
0.275	1132.66	1169.57	1164.21
0.295	918.84	951.11	943.92
0.400	608.74	630.04	624.95
0.800	262.50	271.58	269.87
1.000	140.03	144.50	143.70
1.200	81.26	83.53	83.10
1.600	39.21	40.06	39.94
2.000	23.47	23.96	23.86
2.400	15.79	16.02	15.96
2.800	11.41	11.58	11.57
3.400	7.64	7.82	7.80
4.500	4.67	4.72	4.80
7.000	2.11	2.14	2.14
9.000	1.38	1.37	1.40
15.000	0.72	0.70	0.70
23.000	0.47	0.45	0.45
33.000	0.39	0.37	0.38
40.000	0.38	0.35	0.37
48.000	0.35	0.34	0.35
54.000	0.35	0.32	0.34
59.000	0.32	0.31	0.32
72.000	0.32	0.30	0.31
80.000	0.35	0.32	0.34
90.000	0.32	0.30	0.32
130.000	0.35	0.32	0.34
165.000	0.26	0.24	0.25
195.000	0.23	0.17	0.16
200.000	0.06	0.03	0.05
225.000	0.29	0.27	0.28
260.000	0.36	0.33	0.33
285.000	0.31	0.29	0.30
425.000	0.33	0.30	0.31
480.000	0.27	0.25	0.27
510.000	0.28	0.26	0.27
540.000	0.33	0.31	0.31
610.000	0.26	0.23	0.24
765.000	0.34	0.31	0.32
825.000	0.33	0.29	0.29
875.000	0.20	0.18	0.20
900.000	0.26	0.26	0.29
945.000	0.36	0.32	0.31
985.000	0.31	0.25	0.25
1000.000	0.36	0.32	0.32

Typical Performance Curves



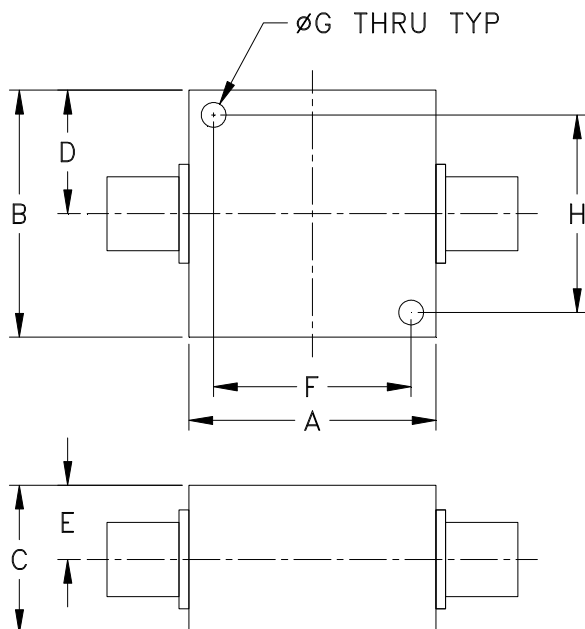
Typical Performance Curves



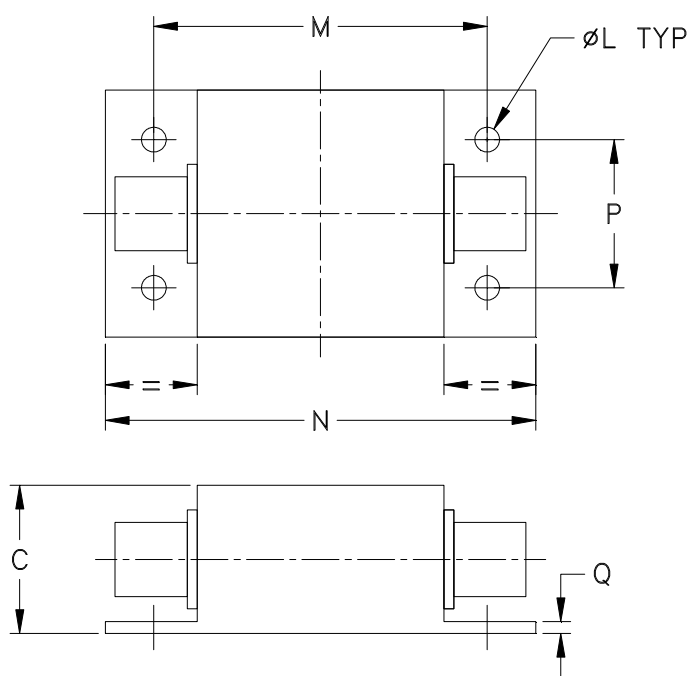
Outline Dimensions

H16

STANDARD



OPTION "B"



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
H16	1.25 (31.75)	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	--	--	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT.GRAMS
H16	.750 (19.05)	.06 (1.52)	70

Dimensions are in inches (mm). Tolerances: 2PL. $\pm .03$; 3PL. $\pm .015$

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number.
4. Bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
5. Refer to the individual model data sheet for the type of connectors available.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

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, 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