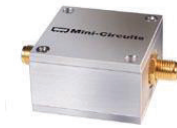


Coaxial High Pass Filter

ZFHP-0R60-S+

50Ω 0.60 to 800 MHz



Generic photo used for illustration purposes only

CASE STYLE: H16

The Big Deal

- Low insertion loss
- High rejection
- Connectorized package

Product Overview

ZFHP-0R60-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

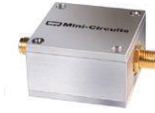
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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



Coaxial High Pass Filter

50Ω 0.60 to 800 MHz

ZFHP-0R60-S+



Generic photo used for illustration purposes only

CASE STYLE: H16

Connectors Model
SMA-FEMALE ZFHP-0R60-S+
BRACKET (OPTION "B")

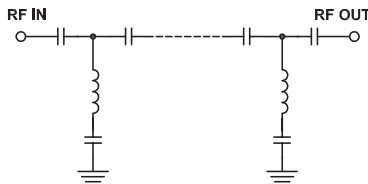
Features

- Wide band, 0.60 MHz to 800 MHz
- High rejection
- Connectorized package

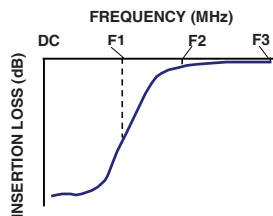
Applications

- Wire-line broad band access
- Fiber optic networks
- Receivers \ transmitters
- Electrical equipment noise elimination

Functional Schematic



Typical Frequency Response



Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Stop Band	Rejection Loss	DC-F1	DC-0.3	25	45	dB
	VSWR	DC-F1	DC-0.3	-	50	:1
Pass Band	Insertion Loss	F2-F3	0.60-800	-	1	dB
	VSWR	F2-F3	0.60-800	-	1.3	:1

Maximum Ratings

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

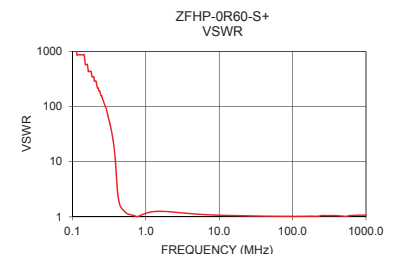
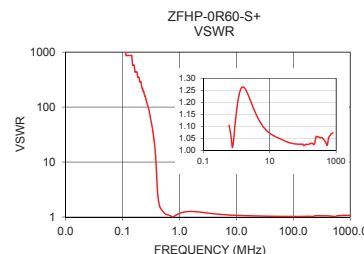
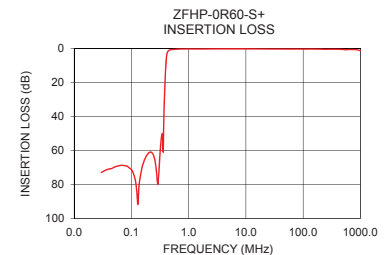
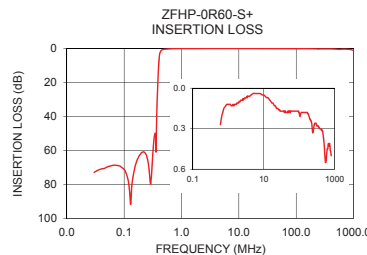
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
0.030	72.86	1737.18
0.300	74.40	75.53
0.350	50.19	29.96
0.365	47.84	20.95
0.370	38.79	18.11
0.390	17.12	8.43
0.400	9.53	4.92
0.405	6.82	3.83
0.415	3.59	2.65
0.435	1.46	1.79
0.600	0.27	1.10
1.000	0.12	1.16
5.000	0.04	1.12
10.000	0.05	1.07
100.000	0.18	1.03
250.000	0.32	1.06
500.000	0.40	1.03
600.000	0.48	1.05
700.000	0.42	1.07
800.000	0.50	1.07

+RoHS Compliant

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



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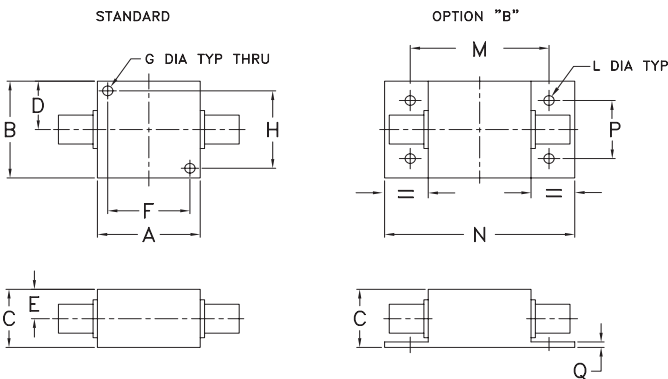
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ZFHP-0R60-S+
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Page 2 of 3

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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Coaxial High Pass Filter

ZFHP-0R60-S+

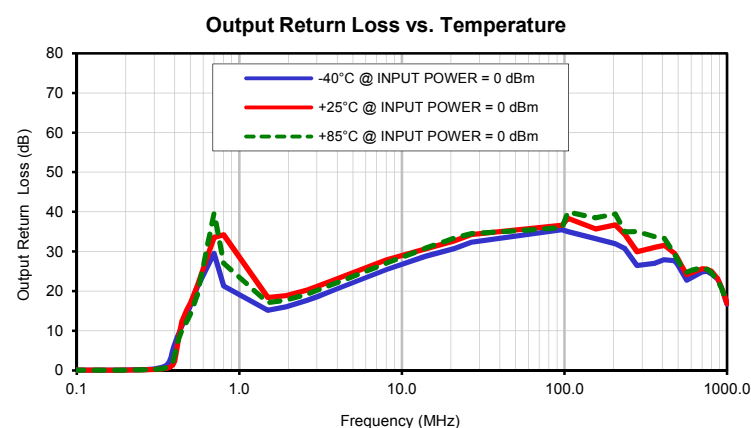
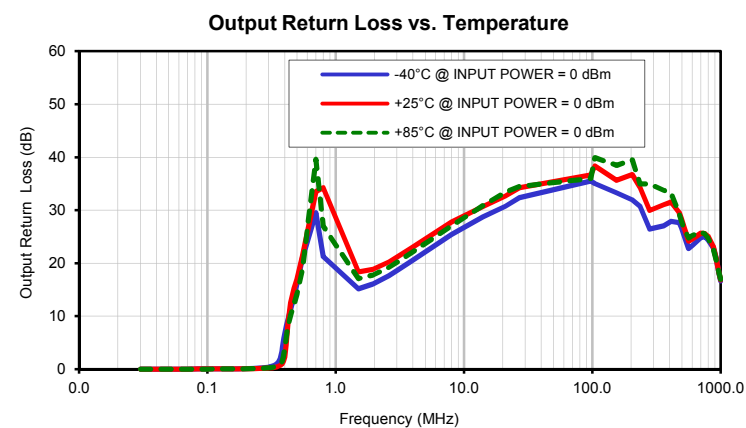
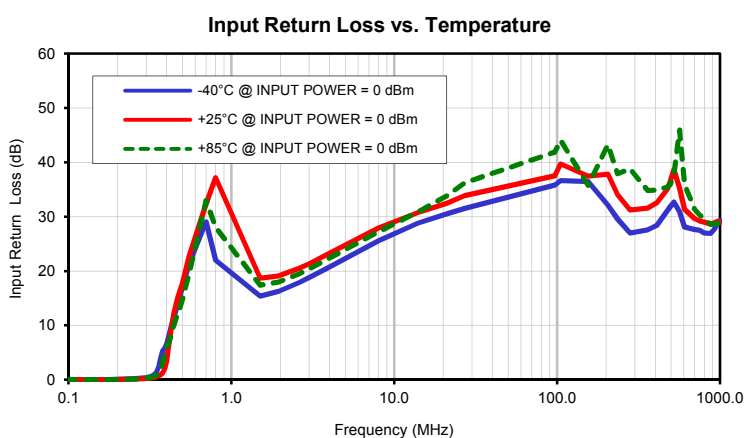
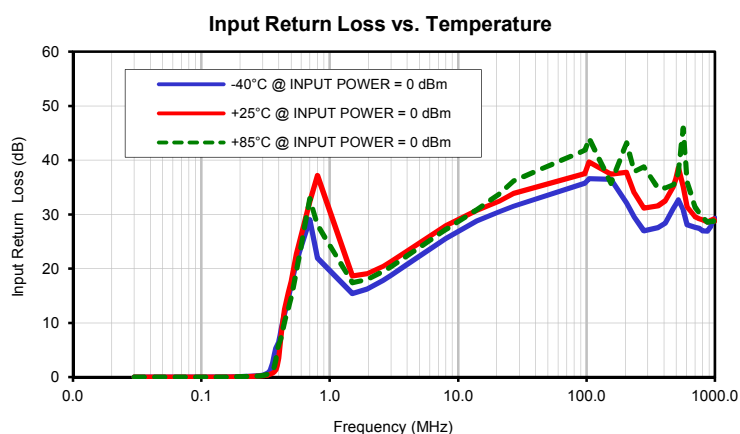
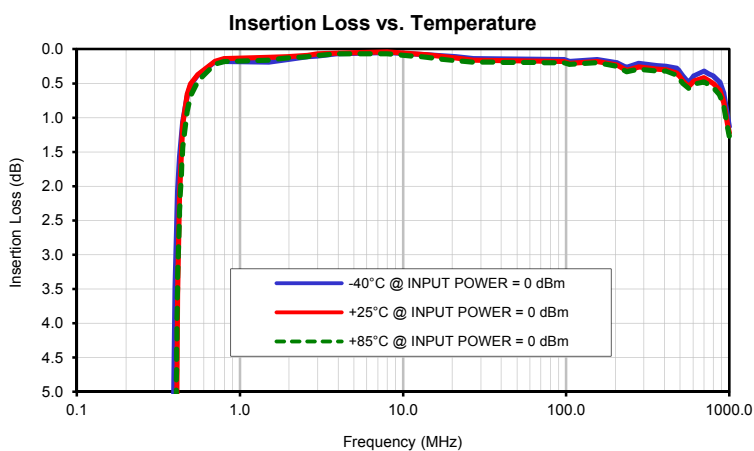
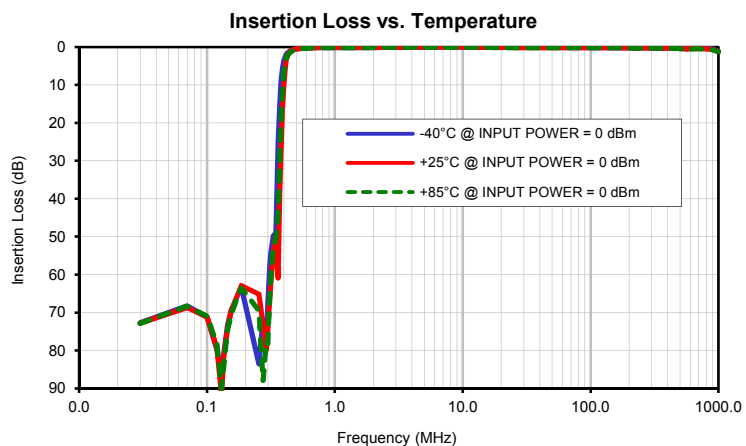
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
0.030	72.75	72.86	72.95	0.00	0.00	0.00	0.00	0.00	0.00
0.070	68.27	68.69	68.34	0.01	0.01	0.00	0.01	0.01	0.01
0.100	71.10	71.20	70.95	0.02	0.01	0.01	0.03	0.02	0.01
0.120	79.82	79.50	78.30	0.02	0.02	0.01	0.03	0.02	0.02
0.130	87.56	91.75	90.01	0.02	0.02	0.02	0.04	0.03	0.02
0.135	81.03	81.96	84.29	0.03	0.02	0.02	0.04	0.03	0.03
0.145	73.29	74.19	74.68	0.03	0.02	0.02	0.05	0.03	0.03
0.155	69.22	69.40	70.17	0.04	0.03	0.03	0.05	0.03	0.03
0.185	63.27	62.88	63.55	0.06	0.05	0.05	0.08	0.05	0.05
0.255	83.51	65.12	69.49	0.17	0.12	0.15	0.18	0.12	0.13
0.275	71.85	73.13	87.92	0.23	0.16	0.19	0.23	0.15	0.17
0.290	77.83	79.83	77.70	0.30	0.19	0.24	0.29	0.18	0.21
0.300	67.28	74.40	78.22	0.38	0.23	0.30	0.38	0.20	0.24
0.310	57.53	66.29	65.73	0.47	0.28	0.36	0.45	0.23	0.29
0.315	54.39	62.50	61.25	0.52	0.30	0.39	0.50	0.26	0.31
0.330	49.76	54.13	52.60	0.77	0.39	0.54	0.68	0.32	0.41
0.345	48.91	49.97	50.49	1.28	0.52	0.78	0.96	0.42	0.55
0.360	24.96	60.93	44.17	2.56	0.73	1.26	1.42	0.57	0.78
0.370	15.34	38.79	29.45	4.15	0.96	1.92	2.04	0.72	1.01
0.380	8.95	26.65	19.08	5.37	1.33	3.19	3.30	0.95	1.40
0.390	5.38	17.12	11.35	5.84	2.07	4.99	5.05	1.36	2.23
0.400	3.48	9.53	6.62	6.54	3.58	6.05	6.63	2.35	3.87
0.410	2.41	4.89	4.12	7.65	5.77	6.64	7.92	4.54	5.80
0.415	2.06	3.59	3.35	8.27	6.90	7.04	8.48	5.96	6.66
0.425	1.57	2.14	2.36	9.50	9.03	8.05	9.47	8.73	8.10
0.445	1.06	1.10	1.44	11.70	12.54	10.15	11.22	12.57	10.13
0.475	0.69	0.66	0.91	14.63	15.61	12.62	13.81	15.24	12.26
0.500	0.52	0.50	0.68	17.03	17.67	14.73	16.16	16.97	14.17
0.550	0.38	0.37	0.47	21.33	22.67	19.45	20.97	21.31	18.77
0.700	0.19	0.18	0.22	29.04	32.33	32.95	29.53	33.53	39.59
0.800	0.18	0.14	0.18	21.96	37.17	28.02	21.27	34.21	26.99
1.500	0.19	0.12	0.16	15.41	18.68	17.40	15.14	18.37	17.06
1.950	0.15	0.11	0.13	16.26	19.08	18.00	16.03	18.84	17.72
2.600	0.11	0.09	0.11	17.84	20.44	19.47	17.65	20.23	19.22
3.000	0.10	0.07	0.09	18.77	21.31	20.37	18.57	21.11	20.14
3.900	0.07	0.06	0.07	20.58	23.08	22.18	20.41	22.89	21.96
8.000	0.05	0.04	0.07	25.54	27.94	27.22	25.39	27.79	27.06
14.000	0.08	0.08	0.12	28.82	30.74	30.88	28.76	30.69	30.83
21.000	0.11	0.13	0.17	30.50	32.47	33.80	30.76	32.66	33.38
27.000	0.14	0.16	0.19	31.51	33.86	36.20	32.37	34.25	34.50
97.000	0.15	0.18	0.20	35.78	37.52	41.88	35.48	36.66	35.99
105.000	0.18	0.21	0.22	36.60	39.67	44.03	35.04	38.34	39.92
155.000	0.15	0.18	0.20	36.48	37.44	35.74	33.27	35.65	38.46
205.000	0.20	0.23	0.25	32.12	37.78	43.23	31.92	36.71	39.48
235.000	0.27	0.31	0.33	29.54	34.02	37.89	30.74	34.29	34.96
280.000	0.21	0.26	0.29	27.00	31.19	38.80	26.47	29.94	34.98
360.000	0.24	0.29	0.32	27.55	31.57	34.81	27.05	31.06	33.72
410.000	0.25	0.30	0.32	28.37	32.55	34.88	27.90	31.53	33.29
475.000	0.28	0.35	0.38	31.10	35.10	35.45	27.65	29.56	29.40
495.000	0.32	0.39	0.43	31.85	36.52	35.97	26.66	28.40	28.01
520.000	0.39	0.46	0.50	32.71	38.61	37.86	25.21	26.71	26.45
565.000	0.49	0.55	0.57	30.84	35.15	45.93	22.76	24.13	24.77
605.000	0.39	0.47	0.51	28.10	31.39	36.00	23.38	24.56	25.26
700.000	0.32	0.42	0.48	27.60	29.60	31.36	24.84	25.68	25.89
750.000	0.36	0.46	0.52	27.48	29.21	30.35	25.03	25.57	25.52
800.000	0.39	0.50	0.56	26.96	28.99	29.54	24.34	25.08	24.68
875.000	0.48	0.60	0.67	26.90	28.60	28.59	22.96	23.15	22.63
925.000	0.65	0.78	0.84	27.73	28.91	28.68	20.87	20.89	20.61
975.000	0.96	1.08	1.13	29.02	29.15	28.79	18.00	18.06	18.08
1000.000	1.13	1.22	1.27	29.31	28.83	28.46	16.68	16.82	16.94

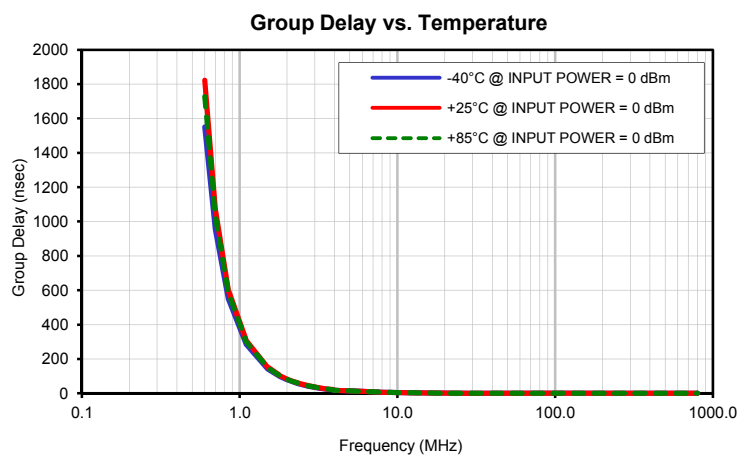
Typical Performance Data

FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
0.600	1550.59	1821.26	1726.38
0.700	954.90	1072.53	1035.40
0.850	546.25	599.28	583.21
1.100	285.42	310.68	303.16
1.500	141.87	152.99	149.56
1.800	96.78	103.45	101.48
1.950	82.04	87.30	85.82
2.100	70.69	75.14	73.93
2.300	58.31	62.19	61.22
2.450	51.46	54.39	53.72
2.600	45.77	48.24	47.55
2.700	42.08	44.81	44.12
2.950	35.52	37.43	36.90
3.200	30.01	31.63	31.18
3.350	27.52	29.06	28.68
3.600	23.80	25.05	24.80
3.850	20.98	22.12	21.83
4.000	17.20	18.08	17.93
6.000	11.64	12.35	12.12
8.000	6.38	6.74	6.64
10.000	3.92	4.17	4.06
15.000	1.79	1.88	1.81
19.000	1.19	1.20	1.14
22.000	0.93	0.92	0.87
24.000	0.81	0.81	0.76
29.000	0.63	0.62	0.60
34.000	0.53	0.52	0.50
38.000	0.48	0.48	0.47
43.000	0.45	0.43	0.41
53.000	0.39	0.38	0.36
62.000	0.37	0.36	0.34
70.000	0.35	0.35	0.32
81.000	0.36	0.34	0.32
99.000	0.35	0.33	0.30
145.000	0.32	0.31	0.29
200.000	0.31	0.29	0.27
230.000	0.29	0.27	0.25
245.000	0.22	0.22	0.20
255.000	0.24	0.24	0.22
265.000	0.29	0.28	0.26
285.000	0.32	0.30	0.28
325.000	0.29	0.28	0.27
370.000	0.30	0.29	0.27
415.000	0.31	0.29	0.28
420.000	0.30	0.29	0.28
445.000	0.32	0.30	0.28
460.000	0.33	0.31	0.29
500.000	0.31	0.29	0.27
525.000	0.28	0.26	0.24
535.000	0.25	0.23	0.22
570.000	0.23	0.23	0.22
595.000	0.28	0.26	0.24
610.000	0.32	0.29	0.27
640.000	0.30	0.28	0.27
690.000	0.31	0.29	0.27
720.000	0.34	0.32	0.30
725.000	0.33	0.32	0.30
730.000	0.32	0.31	0.29
735.000	0.31	0.30	0.28
800.000	0.33	0.31	0.29

Typical Performance Curves



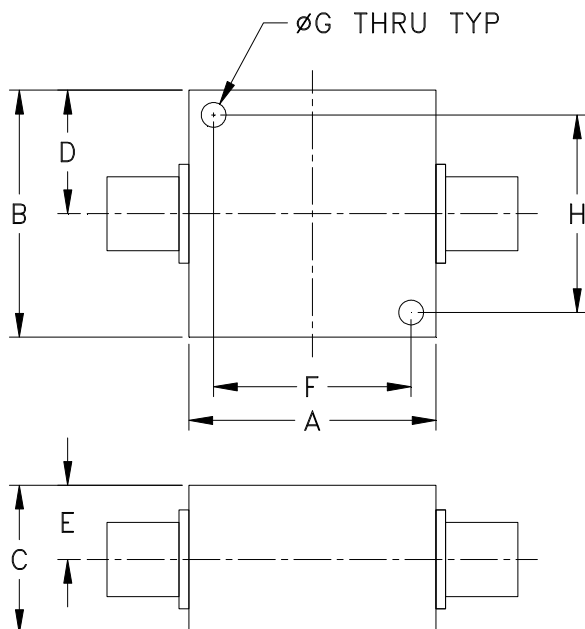
Typical Performance Curves



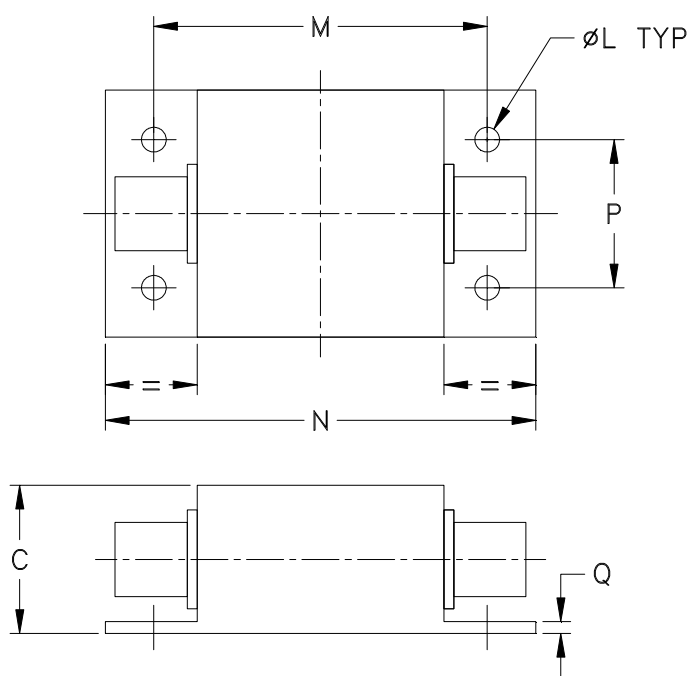
Outline Dimensions

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