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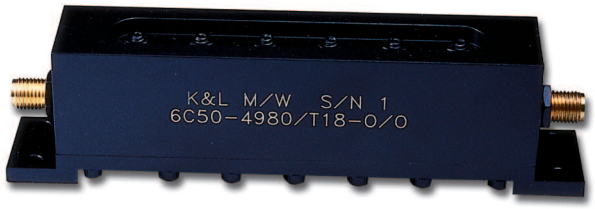
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Narrow Bandwidth — C Series

Features:

- High "Q" Design Allows Narrow Bandwidth While Offering Low Loss
- "Q" Values of up to 10,000
- 3 dB BW Available from 0.1% to 3.5% (f_0)
- Covers the 60 MHz to 30 GHz Frequency Range
- Low Ripple Chebyshev Response
- Ruggedized Package to Withstand Severe Environmental Stress



Specifications:

Model	Frequency (MHz)	3 dB % BW	VSWR	Passband Return	Avg. Power (Watts)	Impedance (Ohms)	No. of Sections	Shock	Vibration	Temperature	Relative Humidity
C20	30-140	.2-3.5	1.5:1	≥ 3.5 X f_0	5	50	3-6	Contact Factory			
C30	141-450	.2-3.5	1.5:1	≥ 3.5 X f_0	5	50	3-6				
C40	451-2000	.2-3.5	1.5:1	≥ 1.5 X f_0	5	50	3-6				
C42	800-2500	.2-3.5	1.5:1	≥ 1.5 X f_0	5	50	3-7	20 G's, 1/2 Sine, 11 Ms	10 G's, 10 Hz-2000 Hz	-20 to +50 °C	0-95%
C45	1000-3000	.2-3.5	1.5:1	≥ 1.5 X f_0	5	50	3-7				
C50	2000-10000	.2-3.0	1.5:1	≥ 2.1 X f_0	5	50	3-9				
C52	8000-12000	.2-3.0	1.5:1	≥ 2.1 X f_0	5	50	3-9				
C60	6000-30000	.1-1.8	1.5:1	≥ 1.6 X f_0	5	50	3-9				

Insertion Loss:

The following formula is used to determine the approximate insertion loss at center frequency:

$$\text{Loss at } f_0 = \left(\frac{(\text{Loss Constant})(\text{No. of Sections} + 0.5)}{\%\ 3\ \text{dB BW}}\right) + 0.2$$

Example:

Model = 6C40-1000/T20-O/O
Center Frequency = 1000 MHz
3 dB Bandwidth = 20 MHz
Number of Sections = 6

$$\text{The \% 3 dB BW} = \frac{20 \times 100}{1000} = 2\%$$

Loss constant from table = 0.35

$$\text{Insertion Loss} = \left(\frac{(0.35)(6+.50)}{2}\right) + 0.2 = 1.4 \text{ dB}$$

Loss Constant:

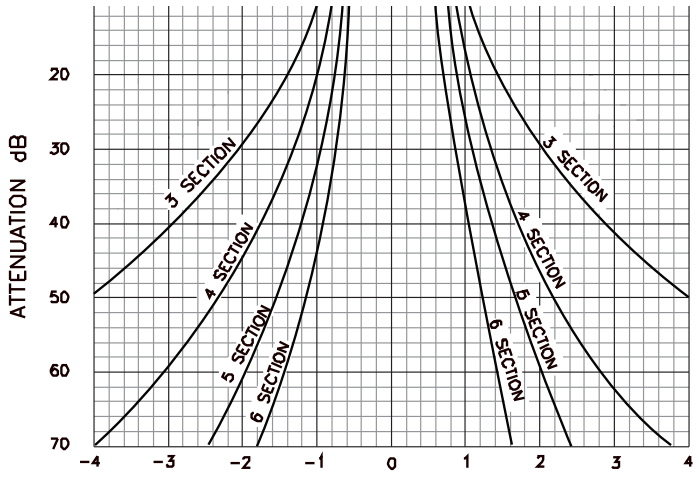
Center Frequency (MHz)	Series							
	C20	C30	C40	C42	C45	C50	C52	C60
30-50	1.7							
51-65	1.6							
66-100	1.5							
101-400	1.4	1.2						
401-600		1.0	0.70					
601-900			0.40	0.25				
901-1300			0.35	0.20	0.25			
1301-1800			0.30	0.20	0.22			
1801-3000			0.30	0.20	0.20	0.30		
3001-30000						0.25	0.27	0.10

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Email: sales@klmicrowave.com

www.klfilterwizard.com
2250 Northwood Drive
Salisbury, MD 21801

Attenuation

The adjacent curve is used to determine the out-of-band or stopband attenuation for K&L's cavity filters. This curve shows the attenuation as multiples of the 3 dB bandwidth for filters with 2 to 6 sections.



The following formula is used to determine the approximate stopband attenuation:

$$\text{3 dB BW from } f_0 = \frac{\text{Reject Frequency-Center Frequency}}{\text{3 dB BW}}$$

Center frequency = 300 MHz
3 dB Bandwidth = 6 MHz
Number of sections = 4

Find the attenuation at 288 MHz and 312 MHz by substituting in the formula:

$$\text{3 dB BW from } f_0 = \frac{288-300}{6} = -2 \text{ BW}$$

$$\text{3dB BW from } f_0 = \frac{312-300}{6} = +2 \text{ BW}$$

Referring to the attenuation curves, we find the attenuation in dB for a 4-section response +2 bandwidths from f_0 to yield 48 dB and -2 bandwidths from f_0 to yield 44 dB.

To Order:

5 C 20 — 140 / U 4 - N / NP
1 2 3 4 5 6 7 8

Code	Description
1	Number of Sections
2	Series
3	Package Designator
4	Center Frequency
5	Supplemental Codes (See Page 13)
6	Bandwidth (MHz)
7	Input Connector
8	Output Connector

Connectors:

Connector	Code	Length
SMA Female	O	.34-.38" / 8.64-9.65mm
SMA Male	OP	.51" / 12.95mm
N Female	N	.75" / 19.05mm
N Male	NP	.79" / 20.06mm
TNC Female	T	.75" / 19.05mm
TNC Male	TP	.85" / 21.59mm
BNC Female	B	.72" / 18.29mm
BNC Male	BP	.88" / 22.35mm
2.92 mm Female	K	
2.92 mm Male	KP	

Narrow Bandwidth — C Series

Mechanical:

Series	Frequency (MHz)	W Inches / mm	H- Max. Inches / mm	Length vs. Number of Sections (Inches / mm)				Fig.
				3	4	5	6	
C20	30-50	1.24 / 31.50	3.88 / 98.55	3.63 / 92.20	4.75 / 120.65	5.88 / 149.35	7.00 / 177.80	1
	51-65	1.24 / 31.50	2.88 / 73.15					
	66-100	1.24 / 31.50	2.38 / 60.45					
	101-140	1.24 / 31.50	1.88 / 47.75					
C30	141-450	1.24 / 31.50	1.88 / 47.75	3.63 / 92.2	4.75 / 120.65	5.88 / 149.35	7.00 / 177.8	1
C40	451-600	1.24 / 31.50	5.28 / 134.11	3.63 / 92.20	4.75 / 120.65	5.88 / 149.35	7.00 / 177.80	1
	601-900	1.24 / 31.50	4.28 / 108.71					
	901-1300	1.24 / 31.50	3.28 / 83.31					
	1301-1800	1.24 / 31.50	2.78 / 70.61					
	1801-2000	1.24 / 31.50	2.28 / 57.91					

Figure 1:

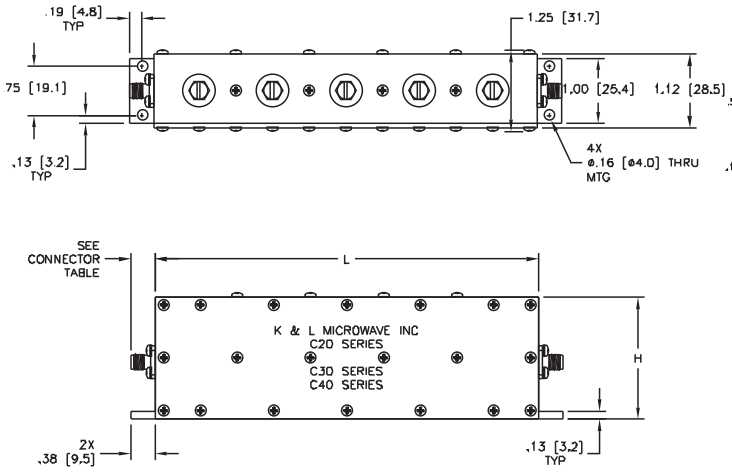
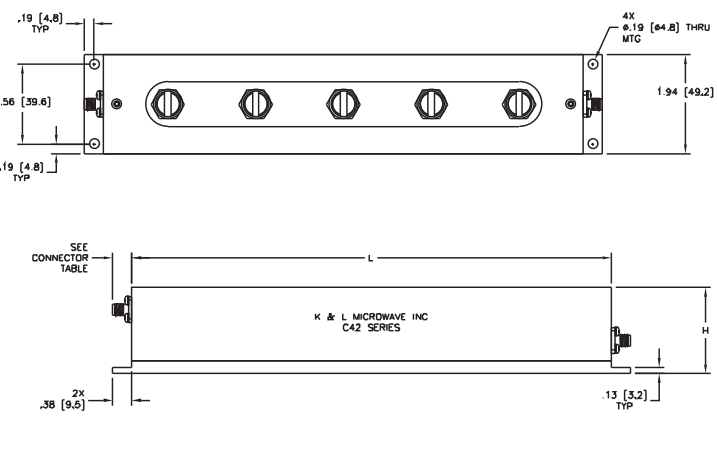


Figure 2:



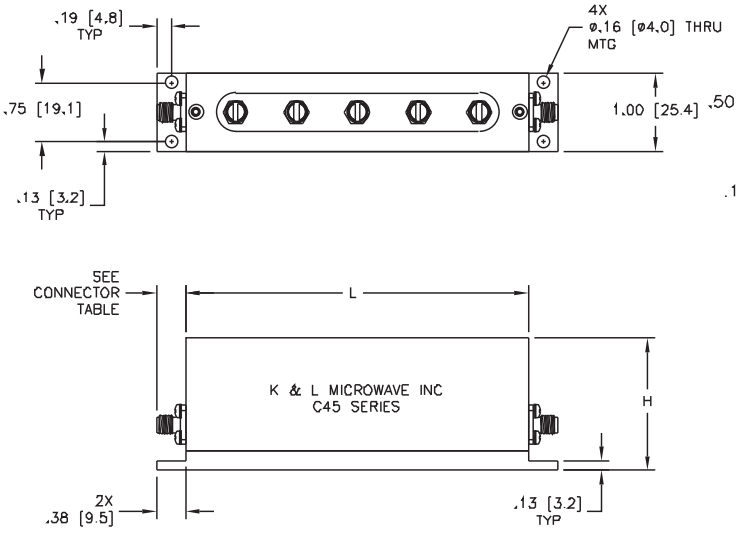
Series	Frequency (MHz)	W Inches / mm	H- Max. Inches / mm	Length vs. Number of Sections (Inches / mm)				Fig.
				3	4	5	6	
C42	801-1000	1.94 / 49.28	4.25 / 107.95	5.63 / 143.00	7.50 / 190.50	9.38 / 238.25	11.25 / 285.75	2
	1001-1300	1.94 / 49.28	3.5 / 88.90					
	1301-1600	1.94 / 49.28	2.8 / 71.12					
	1601-1900	1.94 / 49.28	2.4 / 60.96					
	1901-2300	1.94 / 49.28	2.1 / 53.34					
	2301-2500	1.94 / 49.28	1.85 / 46.99					

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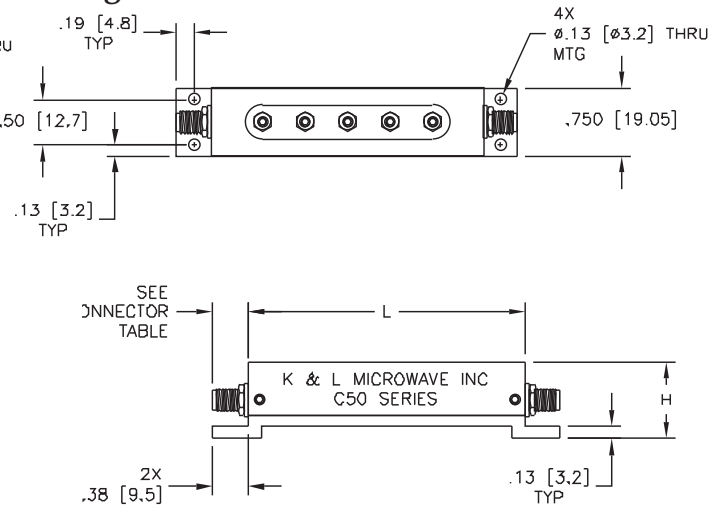
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Series	Frequency (MHz)	W Inches / mm	H- Max. Inches / mm	Length vs. Number of Sections (Inches / mm)				Fig.
				3	4	5	6	
C45	1000-1200	1.0 / 25.40	3.5 / 88.90	2.80 / 71.12	3.60 / 91.44	4.40 / 111.76	5.20 / 132.08	3
	1201-1500	1.0 / 25.40	2.95 / 74.93					
	1501-1800	1.0 / 25.40	2.5 / 63.50					
	1801-2100	1.0 / 25.40	2.2 / 55.88					
	2101-2400	1.0 / 25.40	1.95 /49.53					
	2401-2700	1.0 / 25.40	1.8 / 45.72					
	2701-3000	1.0 / 25.40	1.65 / 41.91					

◆ **Figure 3:**



◆ **Figure 4:**

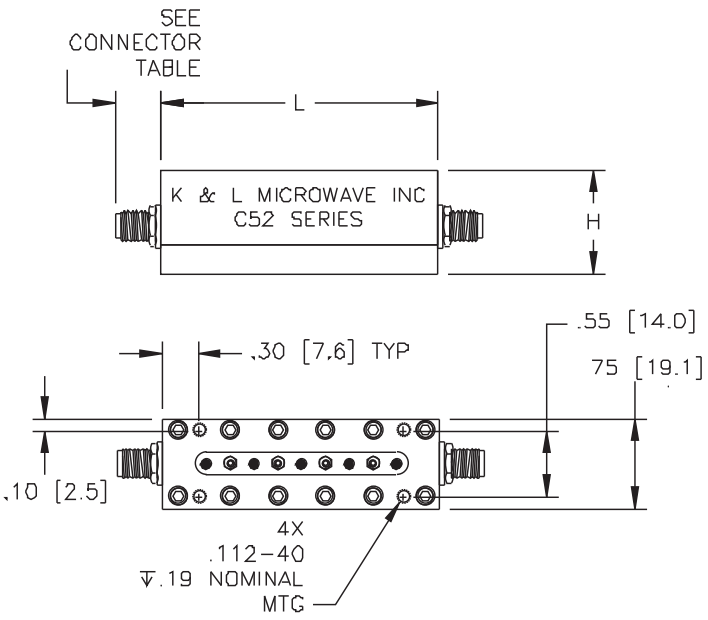


Series	Frequency (MHz)	W Inches / mm	H- Max. Inches / mm	Length vs. Number of Sections (Inches / mm)				Fig.
				3	4	5	6	
C50	2000-2500	0.75 / 19.05	2.0 / 50.80	2.00 / 50.80	2.50 / 63.50	3.00 / 76.20	3.50 / 88.90	4
	2501-3000	0.75 / 19.05	1.7 / 43.18					
	3001-4000	0.75 / 19.05	1.5 / 38.10					
	4001-6000	0.75 / 19.05	1.25 / 31.75					
	6001-10000	0.75 / 19.05	1.0 / 25.40					

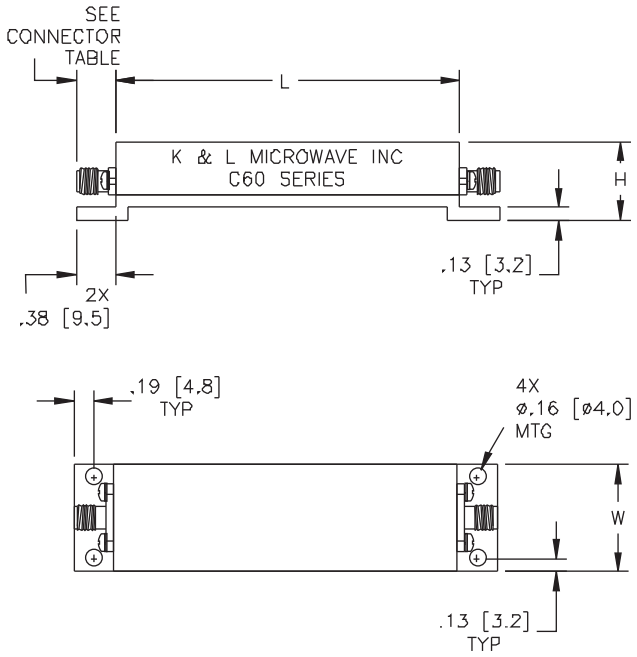
Narrow Bandwidth — C Series

Series	Frequency (MHz)	W Inches / mm	H- Max. Inches / mm	Length vs. Number of Sections (Inches / mm)				Fig.
				3	4	5	6	
C52	8000-10000	0.75 / 19.05	0.87 / 22.10	1.50 / 38.10	1.90 / 48.26	2.30 / 58.42	2.70 / 68.58	5
	10000-12000	0.75 / 19.05	0.8 / 20.32					

◆ **Figure 5:**



◆ **Figure 6:**



Series	Frequency (MHz)	W Inches / mm	H- Max. Inches / mm	Length vs. Number of Sections (Inches / mm)				Fig.
				3	4	5	6	
C60	6000	1.742 / 44.25	1.0 / 25.40	5.04 / 128	6.56 / 166.6	8.09 / 205.5	9.61 / 244.1	6
	8000	1.369 / 34.77	0.85 / 21.59	3.92 / 99.6	5.07 / 128.7	6.22 / 158	7.37 / 187.2	
	10000	1.145 / 29.08	0.75 / 19.05	3.25 / 82.6	4.18 / 106.1	5.10 / 129.4	6.03 / 153.1	
	12000	0.996 / 25.3	0.75 / 19.05	2.80 / 71.1	3.58 / 90.9	4.36 / 110.7	5.14/ 130.6	
	14000	0.889 / 22.58	0.75 / 19.05	2.48 / 63.0	3.15 / 80.0	3.82 / 97.0	4.49 / 114.1	
	18000	0.747 / 18.97	0.75 / 19.05	2.06 / 52.3	2.58 / 65.5	3.11 / 79.0	3.64 / 92.5	
	22000	0.657 / 16.69	0.75 / 19.05	1.79 / 45.5	2.22 / 56.4	2.66 / 67.6	3.10 / 78.7	
	30000	0.52 / 13.20	0.52 / 13.21	Contact Factory				

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