

**Collins Radio**  
**Mechanical Filters Specification**  
**526-9605 (May 20, 1982)**



**1 ELECTRICAL REQUIREMENTS:**

**NOTE 1**

REV **E**

1.1	ELECTRICAL CHARACTERISTICS (25°C NOM)		VALUE	TOLERANCE
1.1.1	CENTER FREQUENCY	(kHz)	456.45	NOM
1.1.2	PASSBAND		NOTE 2	
	RESPONSE VARIATION		3db	MAX
	F3H-F3L	(kHz)	1.7	MIN
	F6H-F6L	(kHz)	2.3	MIN
	F60H-F60L	(kHz)	5.0	MAX
1.1.3	TRANSITION BANDS		NOTE 3	
	From F3L to F60L			
	From F3H to F60H			
1.1.4	STOP BANDS		NOTE 4	
	From F60L to 430kHz		60db	MIN
	From F60H to 470kHz		60db	MIN
1.1.5	ADDITIONAL SELECTIVITY POINTS			
	F20L	(kHz)	455.00	MIN
	F6L	(kHz)	455.30	MAX
	F3L	(kHz)	455.45	MAX
	F3H	(kHz)	457.15	MIN
	F6H	(kHz)	457.60	MIN
	F20H	(kHz)	458.30	MAX
1.1.6	IMPEDANCE		NOTE 5	
	TRANSFER		5.0 KΩ	NOM
1.1.7	LOSS		NOTE 6	
	INSERTION		21DB	±4

2.1.1	OPERATING TEMPERATURE RANGE		VALUE	TOLERANCE
2.1.1.1			456.45	NOM
2.1.1.2			NOTE 2	
			4db	MAX
F4H-F4L			1.615	MIN
			2.185	MIN
			5.25	MAX
2.1.1.3			NOTE 3	
			F4L to F60L	
			F3H to F60H	
2.1.1.4			NOTE 4	
			60db	MIN
			60db	MIN
2.1.1.5				
			454.80	MIN
			455.50	MAX
F4L			455.65	MAX
F4H			456.95	MIN
			457.40	MIN
			458.50	MAX
2.1.1.6			NOTE 5	
			5.0 KΩ	NOM
2.1.1.7			NOTE 6	
			21DB	±5

1.1.8 DIELECTRIC STRENGTH: MIL-STD-202, METHOD 301 100 VDC APPLIED BETWEEN TERMINAL AND CASE

**2 ENVIRONMENTAL REQUIREMENTS**

**NOTE 7**

- 2.1 OPERATING TEMPERATURE RANGE: -20°C to +65°C
- 2.1.1 ELECTRICAL CHARACTERISTICS (SEE TABLE ABOVE)
- 2.2 NON-OPERATING TEMPERATURE RANGE: -65°C to +100°C
- 2.3 VIBRATION: MIL-STD-202, METHOD 201
- 2.4 SHOCK: MIL-STD-202, METHOD 202

**NOTE 8**

**3 TEST CONDITIONS**

	VALUE	TOL
SIGNAL INPUT VOLTAGE (RMS)	3	MAX
SOURCE RESISTANCE (OHMS)	100k	±5k
LOAD RESISTANCE (OHMS)	100k	±5k
C1 (pf)	Short Circuit	
C2 (pf)	130	±20
C3 (pf)	130	±20
C4 (pf)	Short Circuit	

NOTE 9

THE INPUT AND OUTPUT CAPACITORS ARE RESONATED TO OBTAIN BEST response.

**4 MECHANICAL REQUIREMENTS**

- 4.1 CONSTRUCTION: Epoxy resin sealed
- 4.2 CASE: Molded phenolic
- 4.3 FINISH: Smooth plastic
- 4.4 MARKING: The filter shall be suitably marked such that the marking shall remain legible after being subjected to the environmental requirements.

TABLE I

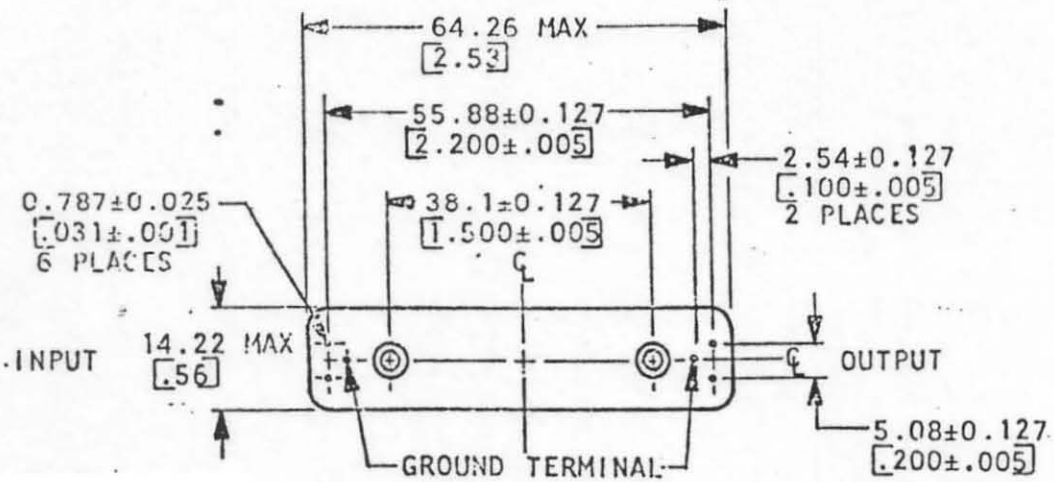
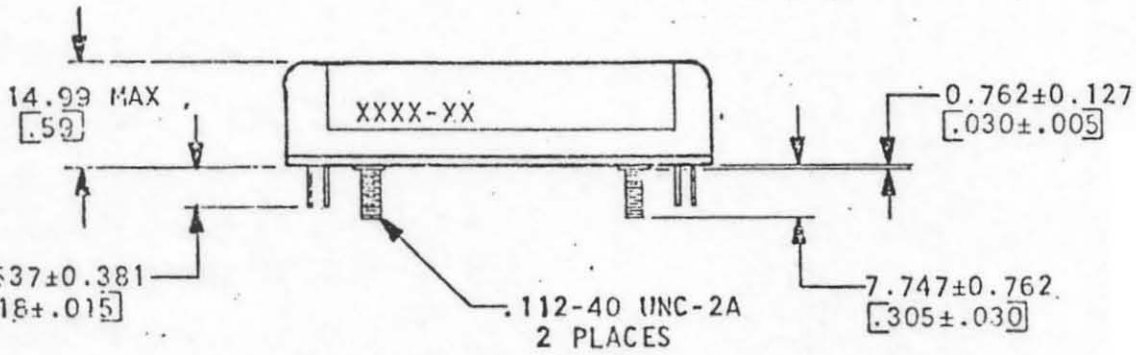
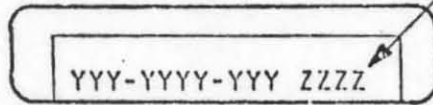
Dash No.	Case Style	Marking Information	Additional Changes
-010	I	526-9605-010 Date Code	None
-020	II	526-9605-020 Date Code	None
-030	I	526-9605-030 532-1002-001 Date Code	None

NOTES:

1. DIMENSIONS ARE IN MILLIMETRES [INCHES].
2. STUDS AND TERMINAL DIMENSIONS ARE SYMMETRICAL ABOUT CENTERLINE WITHIN 0.787 [03] TOTAL.

CASE STYLE I

DATE CODE PER MIL-STD-1285



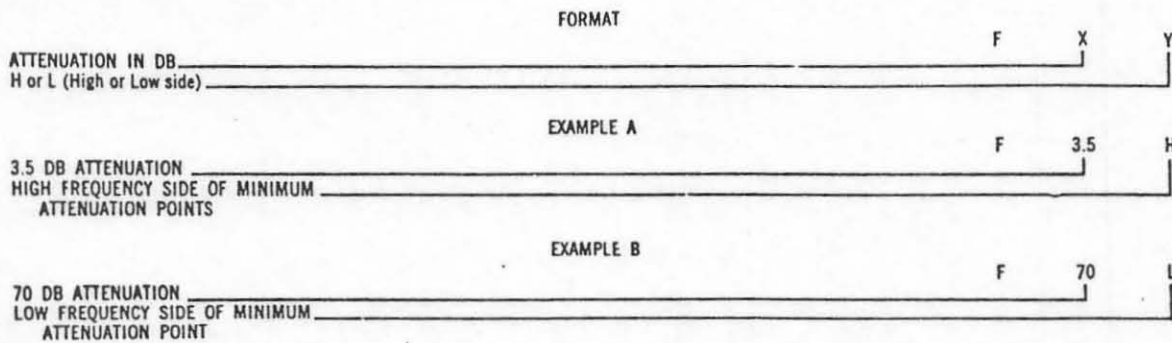
SIZE A	CODE IDENT 13499	DWG NO. 526-9605
SCALE NONE	REV G	SHEET 4

NOTES

**NOTE 1:** When values are shown in this specification with a "NOM" (nominal) tolerance, these values are not measured but are for reference use only.

The frequency band within which the filter characteristics are specified is defined as the application band. All amplitude-frequency response characteristics are measured with reference to the point of minimum attenuation in the application band, unless otherwise specified.

A frequency point is that specified frequency which has an associated attenuation requirement. A frequency point may be specified symbolically according to the following:



**NOTE 2:** A Pass Band is defined as the widest frequency within which the attenuation is equal to or less than the values specified at the band edges.

Response variation is defined as the difference in amplitude between the point of minimum attenuation in the pass band and the point of maximum attenuation in the pass band.

**NOTE 3:** A transition band is defined as a frequency range within which the attenuation changes from a specified value at one edge of the band to a different specified value at the other edge of the band without a reversal in the sign of the slope.

**NOTE 4:** A Stop Band is defined as the widest frequency range within which the attenuation is greater than or equal to the attenuation value specified at the band edges.

**NOTE 5:** Transfer impedance is defined as the scalar ratio of the load voltage to the short circuit generator current. The measurement is made at nominal center frequency with the filter operating under the specified test conditions.

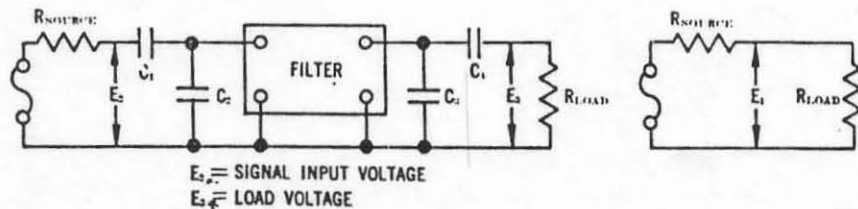
**NOTE 6:** Insertion loss is defined as  $20 \log E_1/E_2$  and shall be measured at the lowest loss point in the application band, unless otherwise specified.

Transmission loss is defined as  $20 \log E_2/E_1$  and shall be measured at the lowest loss point in the application band.

**NOTE 7:** Combined testing of the environmental requirements is not a requirement of this specification. The filter will meet the electrical performance requirements of this specification subsequent to the environmental testing.

**NOTE 8:** Shock testing shall be performed in accordance with MIL-STD-202, Method 202. The filter shall be mounted using the normal means provided and three impact shocks of 15 G's magnitude shall be applied in each direction perpendicular to the three principal axes for a total of 18 shocks.

**NOTE 9:** The capacity specified in paragraph 3 includes circuit stray capacitance. The test conditions are as shown in the following test circuits. Termination circuits designed to eliminate D.C. from the filter terminals are required.



## Low Frequency/Narrowband Mechanical Filters

*This table lists some of Collins standard low frequency, narrowband mechanical filters.*

Part Number	Center Freq. (kHz)	Nominal Pass BW (Hz/dB)	Max Stop Bandwidth (Hz/dB)	Max Ripple (dB)	Nominal Insertion Loss—dB	Resonators Per Section	Number Of Sections	Source & Load (K ohms)	Case Style
526-9714-010	3.82	50/3	204/23	1.0	5.0	2	1	33	PA
526-9918-010	3.82	50/3	204/23	1.0	5.0	2	1	33	LC
526-9886-010	3.84	40/3	163/20	1.0	5.0	2	1	33	PA
526-9727-010	10.2	23/3	172/30	0.5	3.5	2	1	20	FP
526-9861-010	10.2	66/3	350/25	0.5	3.0	2	1	20	FP
526-9935-010	10.2	66/3	350/25	0.5	3.0	2	1	20	LC
526-9919-010	10.2	100/3	800/30	1.0	3.5	2	1	20	LC
526-9916-010	10.2	110/3	800/30	0.5	3.5	2	1	20	FP
526-9727-040	11.333	22/3	172/30	0.5	3.5	2	1	20	FP
526-9727-030	11.333	46/3	344/30	0.5	3.5	2	1	20	FP
526-9861-020	11.333	66/3	350/25	0.5	3.0	2	1	20	FP
526-9935-020	11.333	66/3	350/25	0.5	3.0	2	1	20	LC
526-9919-020	11.333	100/3	800/30	1.0	3.5	2	1	20	FP
526-9916-020	11.333	110/3	800/30	0.5	3.5	2	1	20	LC
526-9727-020	13.60	28/3	210/30	0.5	3.5	2	1	20	FP
526-9861-030	13.60	66/3	350/25	0.5	3.0	2	1	20	FP
526-9935-030	13.60	66/3	350/25	0.5	3.0	2	1	20	LC
526-9919-030	13.60	100/3	800/30	1.0	3.5	2	1	20	LC
526-9916-030	13.60	110/3	800/30	0.5	3.5	2	1	20	FP

### Mechanical Filters/Low Frequency Narrowband Case Styles

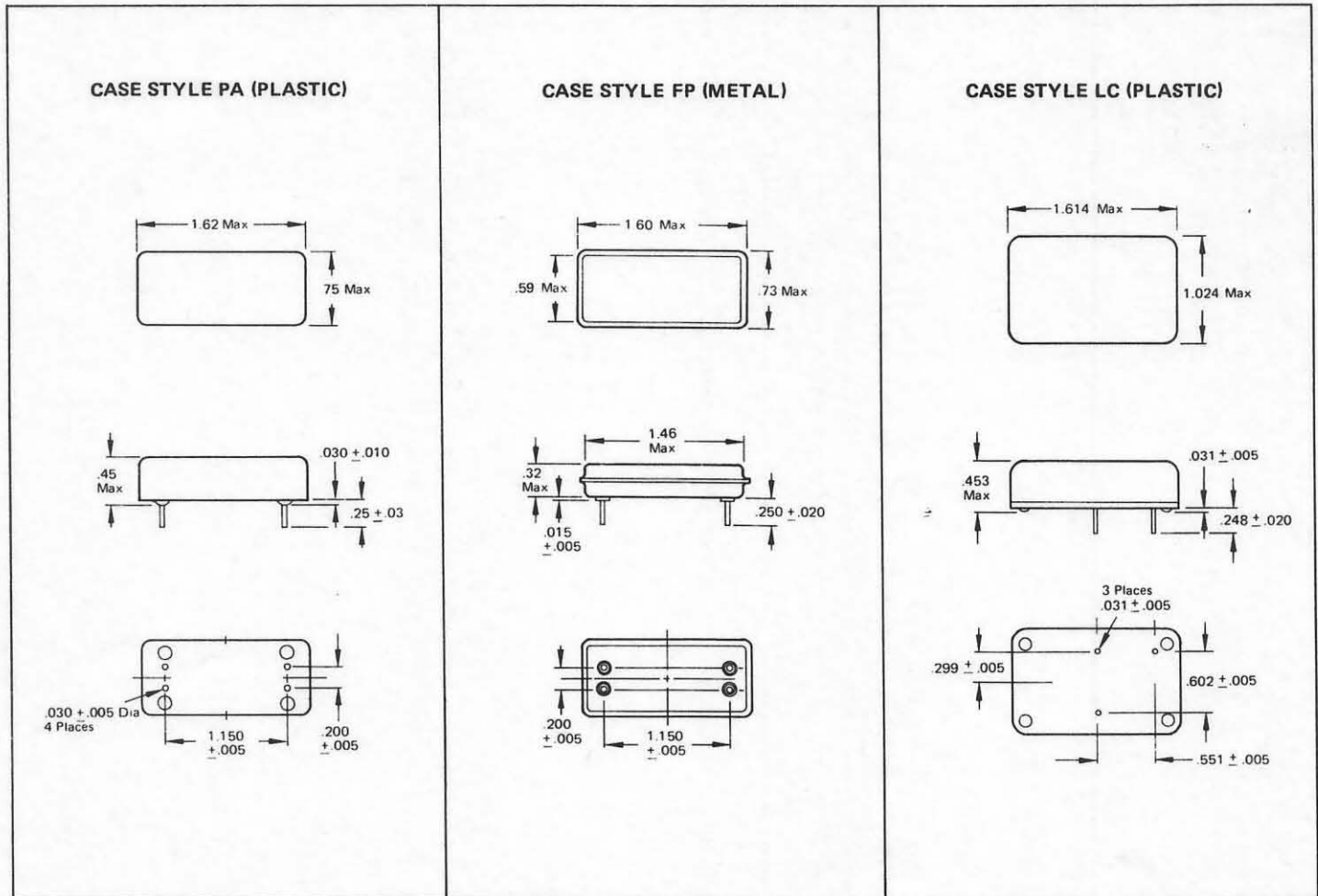


Figure 12. Low Frequency Narrowband Mechanical Filter Flatpack Dimensions.

For special designs to your specifications, contact your nearest Collins Engineering Sales Representative or Rockwell International, Collins Radio Group, Newport Beach, CA 92663. Telephone: 714/833-4632.



### SINGLE-SIDEBAND FILTERS

CARRIER FREQ.	TYPE	PART NO.	SIDEBAND	MINIMUM BANDWIDTH	CASE STYLE
250 kc	F250Z-4	526-9130-00	Upper	2.85 kc @ 3 db	C
250 kc	F250Z-4	526-9130-021	Upper	2.90 kc @ 3 db	C
250 kc	F250Z-4	526-9130-031	Upper	3.40 kc @ 3 db	C
250 kc	F250-Z5	526-9131-00	Lower	2.85 kc @ 3 db	C
300 kc	F300Z-4	526-9312-00	Upper	2.65 kc @ 2.5 db	X
300 kc	F300Z-5	526-9311-00	Lower	2.65 kc @ 2.5 db	X
300 kc	F300Z-6	526-9363-00	Upper	5.65 kc @ 2.5 db	X
300 kc	F300Z-7	526-9362-00	Lower	5.65 kc @ 2.5 db	X
300 kc	F300Z-10	526-9428-00	Upper	2.7 kc @ 1.5 db	X
300 kc	F300Z-11	526-9429-00	Lower	2.7 kc @ 1.5 db	X
455 kc	F455Z-1	526-9095-00	Upper	2.7 kc @ 3 db	H
455 kc	F455Z-2	526-9096-00	Lower	2.7 kc @ 3 db	H
455 kc	F455Z-4	526-9364-00	Upper	2.7 kc @ 3 db	Y (Long)
455 kc	F455Z-4	526-9364-011	Upper	2.7 kc @ 3 db	F
455 kc	F455Z-4	526-9364-021	Upper	2.6 kc @ 3 db	(Y Long)
455 kc	F455Z-4	526-9364-031	Upper	3.4 kc @ 3 db	(Y Long)
455 kc	F455Z-4	526-9364-041	Upper	2.7 kc @ 3 db	E
455 kc	F455Z-5	526-9365-00	Lower	2.7 kc @ 3 db	Y (Long)
455 kc	F455Z-5	526-9365-011	Lower	2.7 kc @ 3 db	F
455 kc	F455Z-5	526-9365-021	Lower	3.4 kc @ 3 db	Y (Long)
455 kc	F455Z-5	526-9365-031	Lower	3.1 kc @ 3 db	Y (Long)
455 kc	F455Z-5	526-9365-041	Lower	2.7 kc @ 3 db	E
455 kc	F455Z-6	526-9368-00	Upper	1.7 kc @ 3 db	Y (Long)
455 kc	F455Z-7	526-9395-00	Lower	1.7 kc @ 3 db	Y (Long)
455 kc	F455Z-10	526-9445-00	Upper	3.3 kc @ 3 db	Y
455 kc	F455Z-12	526-9486-00	Upper	1.2 kc @ 3 db	Y
455 kc	F455Z-14	526-9527-001	Upper	5.46 kc @ 3 db	F
455 kc	F455Z-15	526-9528-001	Lower	5.46 kc @ 3 db	F
500 kc	F500Z-4	526-9377-00	Upper	2.7 kc @ 3 db	Y
500 kc	F500Z-5	526-9376-00	Lower	2.7 kc @ 3 db	Y
500 kc	F500Z-6	526-9412-00	Upper	2.75 kc @ 1.5 db	Y
500 kc	F500Z-7	526-9413-00	Lower	2.75 kc @ 1.5 db	Y
500 kc	F500Z-8	526-9414-00	Upper	2.4 kc @ 3 db	Y
500 kc	F500Z-9	526-9415-00	Lower	2.4 kc @ 3 db	Y
500 kc	F500Z-10	526-9420-00	Upper	3.2 kc @ 3 db	Y (Flanged)
500 kc	F500Z-11	526-9419-00	Lower	3.2 kc @ 3 db	Y (Flanged)
500 kc	F500Z-12	526-9422-00	Upper	2.75 kc @ 3 db	Y
500 kc	F500Z-13	526-9423-00	Lower	2.75 kc @ 3 db	Y
500 kc	F500Z-14	526-9424-00	Upper	2.4 kc @ 4 db	Y
500 kc	F500Z-15	526-9425-00	Lower	2.4 kc @ 4 db	Y
500 kc	F500Z-16	526-9481-00	Upper	8.0 kc @ 3 db	Y
500 kc	F500Z-17	526-9480-00	Lower	8.0 kc @ 3 db	Y

### MULTIPLEX SIDEBAND FILTERS

CARRIER FREQ. (kc)	TYPE	PART NO.	SIDEBAND	MINIMUM BANDWIDTH	CASE STYLE
60 kc	F60Z-4	526-9190-00	Upper	3.1 kc @ 2 db	L
64 kc	F64Z-4	526-9191-00	Upper	3.1 kc @ 2 db	L
68 kc	F68Z-4	526-9192-00	Upper	3.1 kc @ 2 db	L
72 kc	F72Z-4	526-9193-00	Upper	3.1 kc @ 2 db	L
76 kc	F76Z-4	526-9194-00	Upper	3.1 kc @ 2 db	L
80 kc	F80Z-4	526-9195-00	Upper	3.1 kc @ 2 db	L
84 kc	F84Z-4	526-9196-00	Upper	3.1 kc @ 2 db	L
88 kc	F88Z-4	526-9197-00	Upper	3.1 kc @ 2 db	L
92 kc	F92Z-4	526-9198-00	Upper	3.1 kc @ 2 db	L
96 kc	F96Z-4	526-9199-00	Upper	3.1 kc @ 2 db	L
100 kc	F100Z-4	526-9139-00	Upper	3.1 kc @ 2 db	L
104 kc	F104Z-4	526-9140-00	Upper	3.1 kc @ 2 db	L
64 kc	F64Z-7	526-9396-00	Lower	2.9 kc @ 1.5 db	L
68 kc	F68Z-7	526-9397-00	Lower	2.9 kc @ 1.5 db	L
72 kc	F72Z-7	526-9398-00	Lower	2.9 kc @ 1.5 db	L
76 kc	F76Z-7	526-9399-00	Lower	2.9 kc @ 1.5 db	L
80 kc	F80Z-7	526-9400-00	Lower	2.9 kc @ 1.5 db	L
84 kc	F84Z-7	526-9401-00	Lower	2.9 kc @ 1.5 db	L
88 kc	F88Z-7	526-9402-00	Lower	2.9 kc @ 1.5 db	L
92 kc	F92Z-7	526-9403-00	Lower	2.9 kc @ 1.5 db	L
96 kc	F96Z-7	526-9404-00	Lower	2.9 kc @ 1.5 db	L
100 kc	F100Z-7	526-9405-00	Lower	2.9 kc @ 1.5 db	L
104 kc	F104Z-7	526-9406-00	Lower	2.9 kc @ 1.5 db	L
108 kc	F108Z-7	526-9407-00	Lower	2.9 kc @ 1.5 db	L
64 kc	F64Z-8A	526-9454-00	Lower	2.4 kc @ .5 db	L
68 kc	F68Z-8A	526-9455-00	Lower	2.4 kc @ .5 db	L
72 kc	F72Z-8A	526-9456-00	Lower	2.4 kc @ .5 db	L
76 kc	F76Z-8A	526-9457-00	Lower	2.4 kc @ .5 db	L
80 kc	F80Z-8A	526-9458-00	Lower	2.4 kc @ .5 db	L
84 kc	F84Z-8A	526-9459-00	Lower	2.4 kc @ .5 db	L
88 kc	F88Z-8A	526-9460-00	Lower	2.4 kc @ .5 db	L
92 kc	F92Z-8A	526-9461-00	Lower	2.4 kc @ .5 db	L
96 kc	F96Z-8A	526-9462-00	Lower	2.4 kc @ .5 db	L
100 kc	F100Z-8A	526-9463-00	Lower	2.4 kc @ .5 db	L
104 kc	F104Z-8A	526-9464-00	Lower	2.4 kc @ .5 db	L
108 kc	F108Z-8A	526-9465-00	Lower	2.4 kc @ .5 db	L

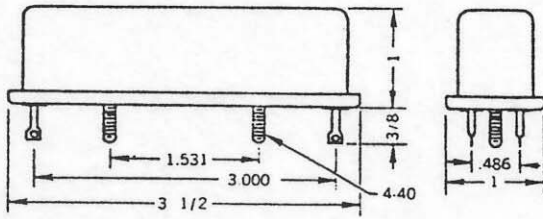
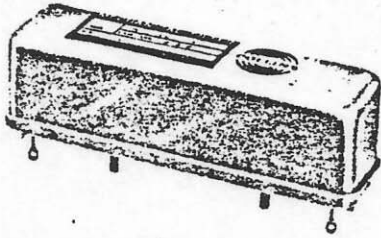
### TELEMETRY FILTERS (SELECTORS)

CENTER FREQ.	TYPE	PART NO.	MIN. BW @ -20 db	MAX. BW @ -50 db	CASE STYLE
459.74	F459.74Y-20	526-9430-00	.4 kc	9.48 kc	Y
464.48	F464.48Y-20	526-9431-00	.4 kc	9.48 kc	Y
469.22	F469.22Y-20	526-9432-00	.4 kc	9.48 kc	Y
473.96	F473.96Y-20	526-9433-00	.4 kc	9.48 kc	Y
478.70	F478.70Y-20	526-9434-00	.4 kc	9.48 kc	Y
483.44	F483.44Y-20	526-9435-00	.4 kc	9.48 kc	Y
488.18	F488.18Y-20	526-9436-00	.4 kc	9.48 kc	Y
492.92	F492.92Y-20	526-9437-00	.4 kc	9.48 kc	Y
497.66	F497.66Y-20	526-9438-00	.4 kc	9.48 kc	Y
502.40	F502.40Y-20	526-9439-00	.4 kc	9.48 kc	Y
507.14	F507.14Y-20	526-9440-00	.4 kc	9.48 kc	Y
511.88	F511.88Y-20	526-9441-00	.4 kc	9.48 kc	Y
516.62	F516.62Y-20	526-9442-00	.4 kc	9.48 kc	Y
521.36	F521.36Y-20	526-9443-00	.4 kc	9.48 kc	Y
526.10	F526.10Y-20	526-9444-00	.4 kc	9.48 kc	Y

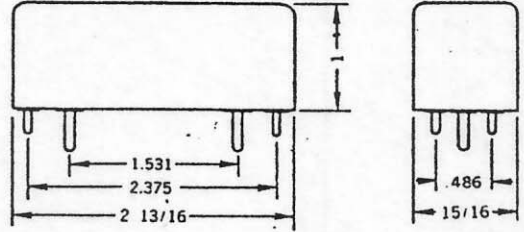
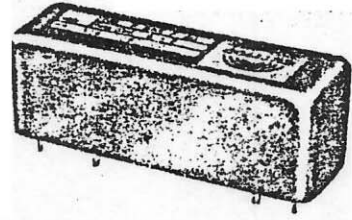


# CASE STYLES

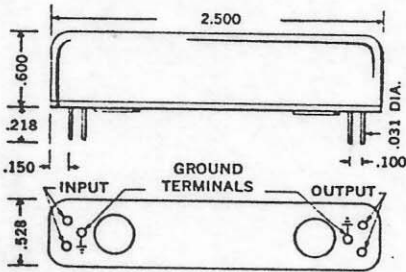
All dimensions in inches.



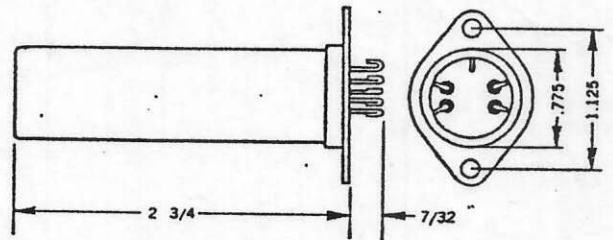
CASE STYLE C



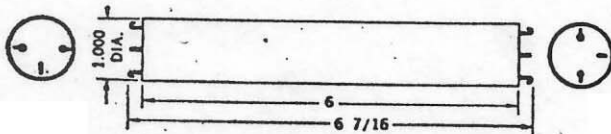
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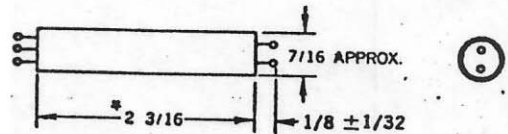
CASE STYLE FC



CASE STYLE H



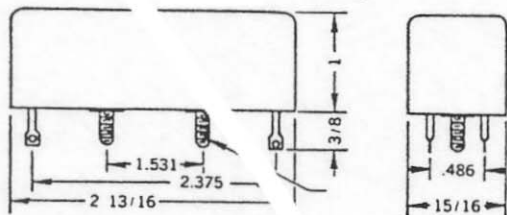
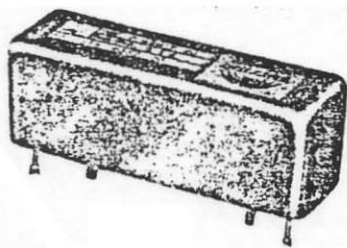
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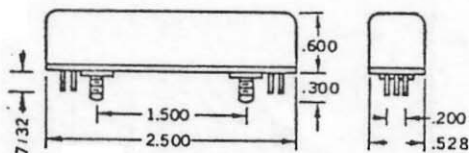
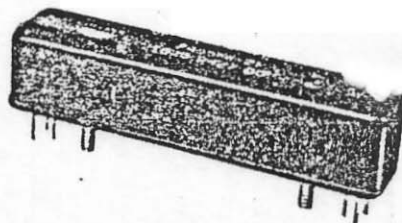
\*Y Long Length: 2 1/2"

CASE STYLE Y

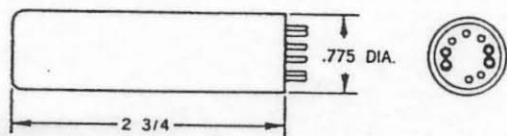
Mechanical Filters are available in a wide variety of case and mounting styles. The basic designs are shown on these pages; however, we will be pleased to discuss any special case configuration requirements you may have.



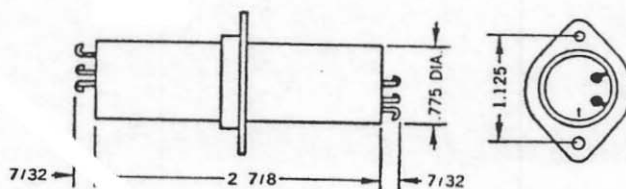
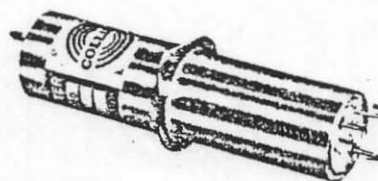
CASE STYLE



CASE STYLE FA

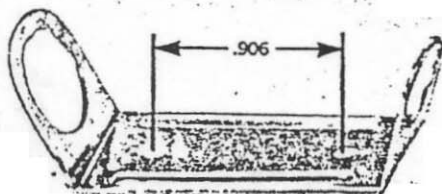


CASE STYLE J

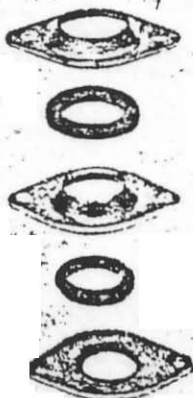


CASE STYLE K

### Y SERIES MOUNTINGS



**Flat Surface Mounting, 591-0613-002**  
 For mounting on flat surface  
 such as printed circuit board.  
 For standard Y series only.



**Feed Through, 591-0615-002**  
 For mounting through chassis or shield  
 partition. This method recommended.

**Tube Socket Adapter (Feed Through) 591-0617-002**  
 For adapting standard bracket to  
 existing tube socket hole pattern.

