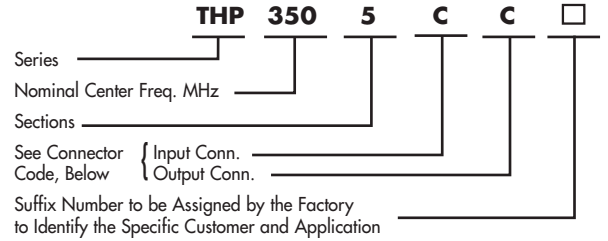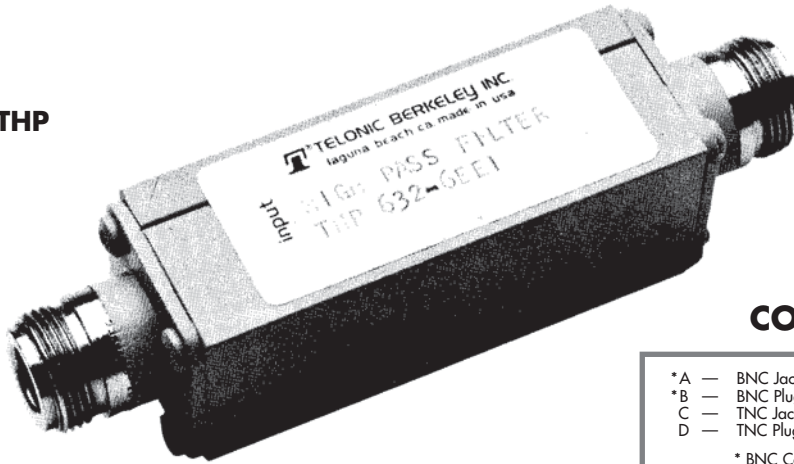# TELONIC HIGHPASS FILTERS

■ **50 TO 1500 MHz**   ■ **2 TO 10 SECTIONS**

All Highpass Series are typically of 0.1 db Chebyschev Design and are available with 2 thru 10 sections. Special designs are available on request.

THP 350 5 C C □

Series
Nominal Center Freq. MHz
Sections
See Connector { Input Conn.
Code, Below { Output Conn.
Suffix Number to be Assigned by the Factory to Identify the Specific Customer and Application

SERIES THP

CONNECTOR CODE

*A — BNC Jack	E — N Jack	S — SMA Jack
*B — BNC Plug	F — N Plug	T — SMA Plug
C — TNC Jack		X — Special
D — TNC Plug		

* BNC Connectors not standard above 1000 MHz

ELECTRICAL SPECIFICATIONS	Normal Spec. Limit	Areas of Interest
Cutoff Frequency Range	100 MHz to 500 MHz	50 MHz to 1500 MHz
Maximum Insertion Loss In Passband*	See Graph	Submit Requirements
Nominal Impedance (in and out)	50 ohms	50 to 100 ohms
Maximum VSWR In Passband	1.7:1	as low as 1.3:1
Stop Band Attenuation	See Graph	Submit Requirements
Number of Sections	3 to 7	2 to 10
Average Input Power (watts max. to 10,000 ft.)	5	12
Input Peak Power (watts max. to 10,000 ft.)	20	100

ENVIRONMENTAL SPECIFICATIONS			
OPERATING	Shock	30G	1000G
	Vibration	10G	50G
	Humidity	Up to 90%	To 100% with Condensation
	Altitude	Unlimited	Unlimited
STORAGE	Temp. Range	-20°C to + 50°C	-54°C to +125°C
	Shock	30G	1000G
	Vibration	10G	50G
	Temp. Range	– 54°C to +71°C	– 62°C to +150°C

*All highpass filters have an upper passband limit caused by distributed effects of the individual elements. This upper limit is dependent upon both frequency and number of sections, and can vary from 2x to 7x the cutoff frequency. Consult factory for further information.

The curves at right define the normal specification limits on attenuation for Telonic highpass filters. The minimum attenuation level in db is shown as a function of the relative frequency.

Calculate relative frequency as ratio of frequency to be attenuated to frequency to be passed:

$$R = \frac{'B' \text{ MHz}}{'A' \text{ MHz}}$$
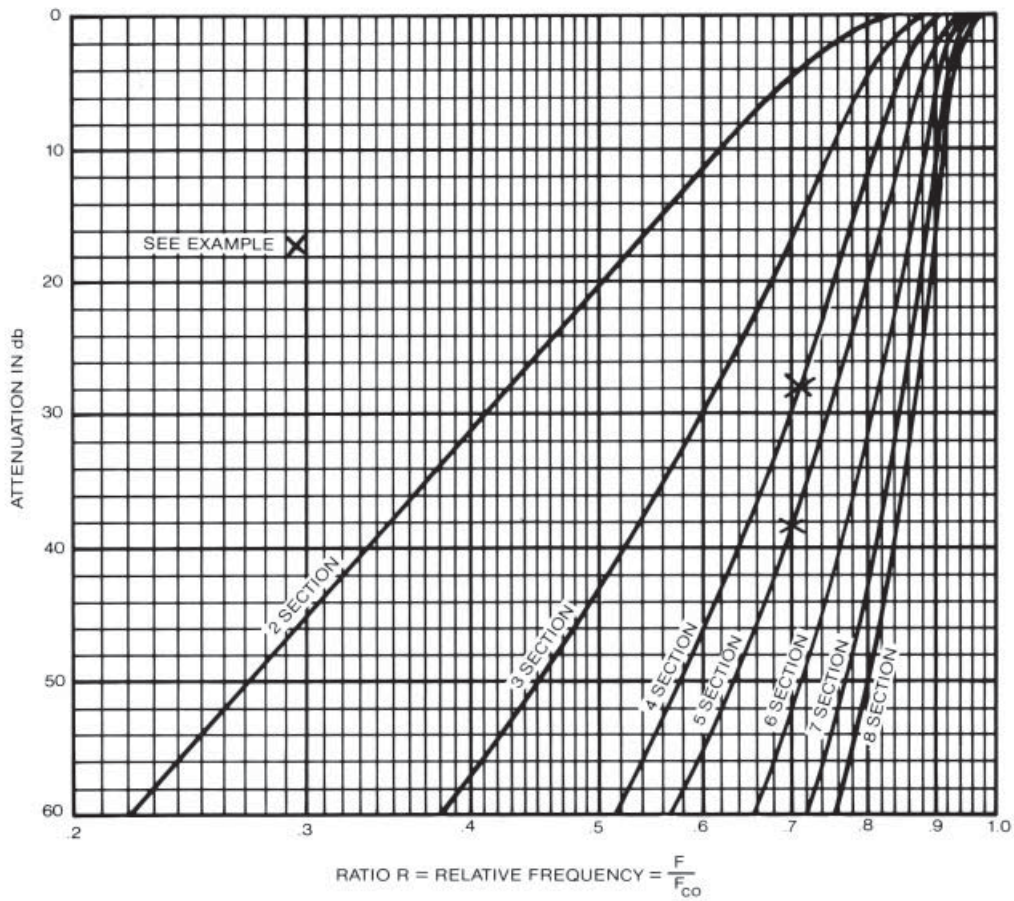
For example:

Requirements –
1. Min. cutoff frequency = 350 MHz.
2. 35 db min. attenuation at 250 MHz.
   250 MHz is at a relative frequency of .71 with respect to 350 MHz.
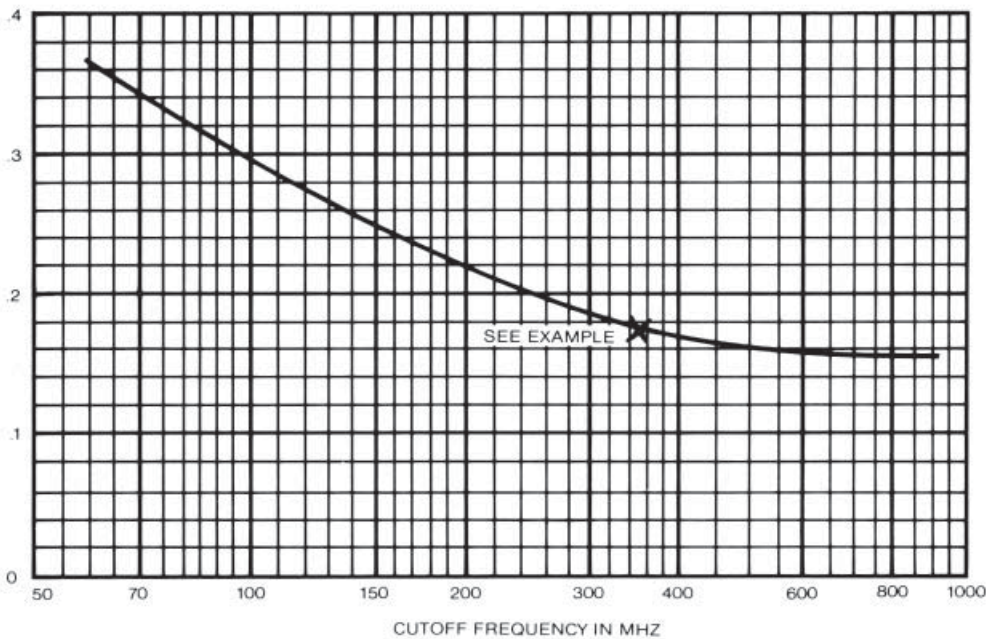
$$R = \frac{250}{350} = .71$$

Reading from the 4-sec. curve at a relative frequency of .71, we find that a four section THP has a normal specification limit of 28 db and a five section THP has a normal specification limit of 38 db. Therefore a THP of five or more sections would be required to meet the 35 db attenuation specification.
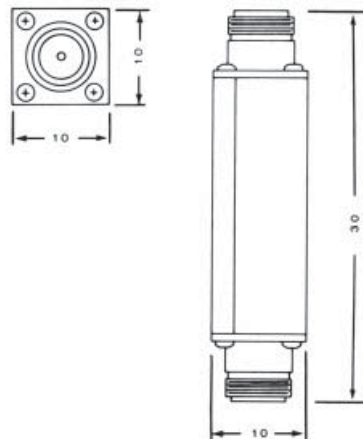
HIGHPASS ATTENUATION CURVE

INSERTION LOSS CURVES

INSERTION LOSS:

Loss = KN + .2 (in db)

Where:

K = Loss constant

N = Number of sections

The insertion loss graph defines the loss constant which must be used to calculate the insertion loss specification.

For example:

In accordance with the formula above, the maximum insertion loss specifications are as follows.

THP 350 - 5CC

KN + 0.2 = .18 x 5 + .2 =1.1db