I bought a TV interference filter at Radio Shack. Let's see what it does:

(a) How do I know that the input and output are on the top and bottom, instead of the left and right?

HINT: What do inductors and capacitors look like at very low and high freqs?

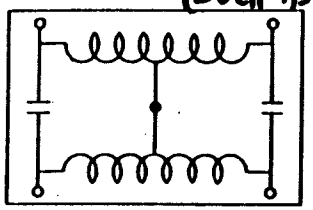
(b) Assume both ends of the filter are connected to the usual twin-lead TV connections, which have a characteristic impedance of 300 ohms.

Using symmetry, we can redraw the circuit as shown below (why?). Using phasors, compute the transfer function $Y(\omega)/U(\omega)$.

(c) If R=150 ohm, L=0.434 μH, and C=9.65 pF, draw the Bode plot for $Y(\omega)/U(\omega)$.

## Technical Data

(SUCH AS IT IS)



Radio Shack's TV Interference Filter is specially designed to offer excellent attenuation characteristics for all television sets. The filter consists of a high pass (NEGLECT constant K-type) filter which has an attenuation band from 0 to 54 MHz. Passes all signals above 55 MHz without loss. Stop band attenuation throughout the critical frequencies is greater than 40 dB.