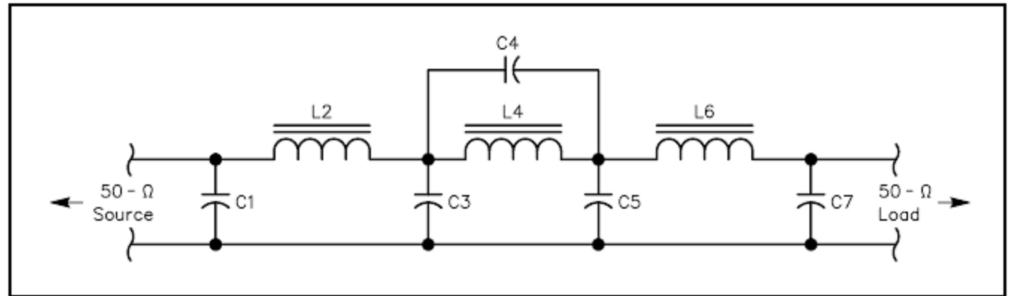




W3NQN NEW IMPROVED FILTERS.



Schematic diagram of a CWAZ low pass filter designed for maximum second harmonic attenuation. For QRP filtering, use Philips 680 low K (high Q), 100 V dc ceramic capacitors, mainly for their close tolerance (2%). The Micrometals T37, T44 or T50 cores of materials (red), (yellow) or —17 (blue/yellow) are suitable.

CWAZ 50-Ω Low-Pass Filters

Designed for second-harmonic attenuation in amateur bands below 30 MHz.

Band (m)	Start Frequency (MHz)	C1,7 (pF)	C3,5 (pF)	C4 (pF)	L2,6 (μH)	L4 (μH)	F4 (MHz)
—	1.00	2986	4556	680.1	9.377	8.516	2.091
160	1.80	1659	2531	378	5.21	4.73	3.76
		1450 + 220	2100 + 470	330 + 47			3.78
80	3.50	853	1302	194	2.68	2.43	7.32
		470 + 390	1150 + 150	150 + 47			7.27
40	7.00	427	651	97.2	1.34	1.22	14.6
		330 + 100	330 + 330	100			14.4
30	10.1	296	451	67.3	0.928	0.843	21.1
		150 + 150	470	68			21.0
20	14.0	213	325	48.6	0.670	0.608	29.3
		220	330	47			29.8
17	18.068	165	252	37.6	0.519	0.471	37.8
		82 + 82	100 + 150	39			37.1
15	21.0	142	217	32.4	0.447	0.406	43.9
		150	220	33			43.5
12	24.89	120	183	27.3	0.377	0.342	52.0
		120	180	27			52.4
10	28.0	107	163	24.3	0.335	0.304	58.5
		100	82 + 82	27			55.6

GQRP Club Data Sheet



Inductor winding information.

Band	L2/L6 turns and core.	L4 turns and core.
160m	33t T50-2	31t T50-2
80m	26t T37-2	25t T37-2
40m	21t T37-6	20t T37-6
30m	18t T37-6	17t T37-6
20m	15t T37-6	14t T37-6
17m	13t T37-6	13t T37-6
15m	12t T37-6	12t T37-6
12m	11t T37-6	11t T37-6
10m	11t T37-6	10t T37-6

Note :

The CWAZ low-pass filters are designed for a single amateur band to provide more than 50 dB attenuation to the second harmonic of the fundamental frequency and to the higher harmonics. All component values for any particular band are calculated by dividing the 1-MHz values in the first row (included for reference only) by the start frequency of the selected band. The upper capacitor values in each row show the calculated design values obtained by dividing the 1-MHz capacitor values by the amateur-band start frequency in megahertz. The lower standard-capacitor values are suggested as a convenient way to realize the design values. The middle capacitor values in the 160- and 80-meter-band designs are suggested values when the high-value capacitors (greater than 1000 pF) are on the low side of their tolerance range. The design F4 frequency (see upper value in the F4 column) is calculated by multiplying the 1-MHz F4 value by the start frequency of the band. The lower number in the F4 column is the F4 frequency based on the suggested lower capacitor value and the listed L4 value.

Wire gauge is not critical. Use size to comfortably fill the core about three-quarters of full circumference.

The number of turns has been rounded to the nearest whole number from the calculated value.

Suitable for powers of 10 watts or less.

See QST February 1999 for more details.