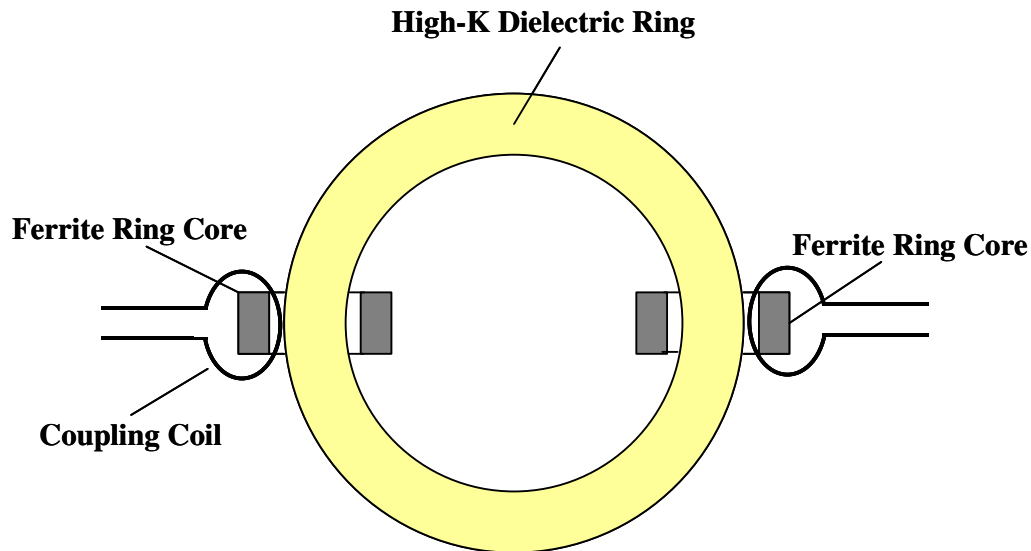


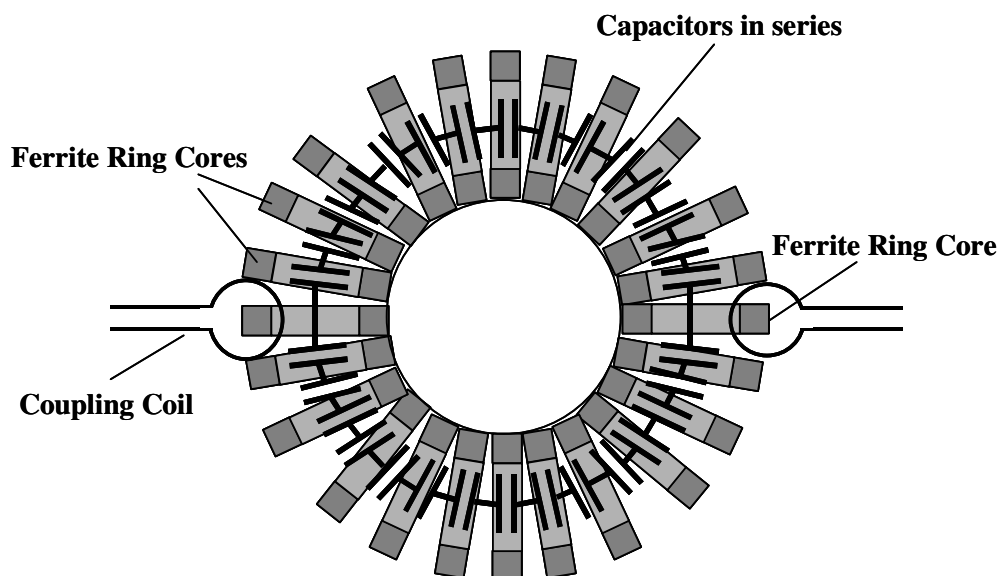
## Another Form of Delay Transformer

©Cyril Smith March 2015

Here is another form of transformer that uses longitudinal waves propagating along a “core”, only this time the wave is electric and the core material is a high K dielectric. Ferrite ring cores are used to couple to the dielectric core.



This offers more potential for obtaining a propagation delay if the dielectric core were immersed in a ferromagnetic material. This can be achieved by replacing the core with a closed circuit ring of capacitors connected in series, and the surrounding ferromagnetic material can be a series of ferrite ring cores.



The transmission path from input to output is a longitudinal electric wave surrounded by circular magnetic waves in the ferrite, and is a direct analogue to the normal transformer where the transmission is a longitudinal magnetic wave surrounded by a circular electric wave. As in the transformer core the wave impedance is imaginary (reactive), and can be likened to a channelled near-field propagation. This variation offers potential for obtaining significant time or phase delay across the device that should allow the OU possibilities of reactive near fields to be explored.