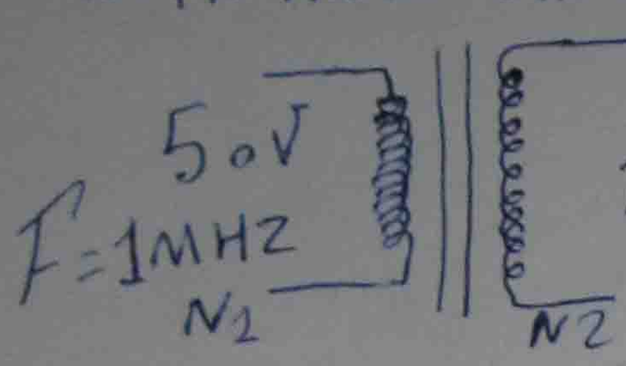
[Calculating of Ferrite transformers]

For example: we need an HF transformer with these characteristics:



So, again we need to use that Famouse Formula: $\frac{N1}{N2} = \frac{I2}{I1} = \frac{V1}{V2} = \sqrt{\frac{L1}{L2}} = \sqrt{\frac{C1}{C2}} = \sqrt{\frac{XC2}{XC1}} = \sqrt{\frac{R1}{R2}} = \sqrt{\frac{XL1}{XL2}} = \frac{E1}{E2}$

in this Application, we need this portion of formula.

we can calculate the I_1: $\frac{50}{450} = \frac{5.5}{I_1}$

$\Rightarrow I_1 = 4\,9.5\ A$

So, we should calculate an Inductance of the Primary of transformer, Per 10% of maximum Input current.

10% of 4 9.5 Ampers = 4.99 Ampers.

$\Rightarrow XL_1 = \frac{50V}{4.99A} \simeq 10\Omega$

and $XL = j\omega L \Rightarrow L = \frac{XL}{j\omega} \Rightarrow L_1 = 1.5\,\mu H$

$\sqrt{-1} \leftarrow j\omega \rightarrow 2\pi \times F$