

In[1]:= **CPlatt** =  $4.0008 \times 10^{-9}$

Out[1]=  $4.0008 \times 10^{-9}$

In[2]:= **sCPlatt** =  $1.38 \times 10^{-10}$

Out[2]=  $1.38 \times 10^{-10}$

In[3]:= **LAMBDA1** =  $1 / 361.418181595329 \times 54.10$

Out[3]= 0.149688

In[4]:= **sLAMBDA1** =  
 $\text{Sqrt}[(1.78469497261536 / 361.418181595329^2 \times 54.10)^2 + (1 / 361.418181595329 \times 0.1)^2]$

Out[4]= 0.000789253

In[5]:= **T1** =  $54.1 / 1000000$

Out[5]= 0.0000541

In[6]:= **sT1** =  $0.1 / 1000000$

Out[6]=  $1. \times 10^{-7}$

In[7]:= **LAMBDA2** =  $1 / 4.01578696789016 \times 1.43382352941176$

Out[7]= 0.357047

In[8]:= **sLAMBDA2** =  $\text{Sqrt}[(0.175386270547065 / 4.01578696789016^2 \times 1.43382352941176)^2 + (1 / 4.01578696789016 \times 0.05)^2]$

Out[8]= 0.0199547

In[9]:= **T2** =  $1.43382352941176 / 1000$

Out[9]= 0.00143382

In[10]:= **sT2** =  $0.05 / 1000$

Out[10]= 0.00005

## Induktivität/Widerstand der Luftspule

In[11]:= **L1** =  $\frac{1}{\text{CPlatt}} \frac{T1^2}{4\pi^2 + \text{LAMBDA1}^2}$

Out[11]= 0.01852

In[12]:= **sL1** =  $\text{Sqrt}\left[\left(\frac{1}{\text{CPlatt}} \frac{2 * T1 * \text{sT1}}{4\pi^2 + \text{LAMBDA1}^2}\right)^2 + \left(\frac{\text{sCPlatt}}{\text{CPlatt}^2} \frac{T1^2}{4\pi^2 + \text{LAMBDA1}^2}\right)^2 + \left(\frac{1}{\text{CPlatt}} \frac{T1^2 * 2 * \text{LAMBDA1} * \text{sLAMBDA1}}{(4\pi^2 + \text{LAMBDA1}^2)^2}\right)^2\right]$

Out[12]= 0.000642472

In[13]:= **RL1** =  $\text{LAMBDA1} / T1 * 2 * L1$

Out[13]= 102.485

In[14]:= **sRL1** =  $\text{Sqrt}[(\text{sLAMBDA1} / T1 * 2 * L1)^2 + (\text{LAMBDA1} / T1 * 2 * \text{sL1})^2 + (\text{LAMBDA1} * \text{sT1} / T1^2 * 2 * L1)^2]$

Out[14]= 3.6011

## Induktivität/Widerstand der Drosselspule

In[15]:= **L2** =  $\frac{1}{\text{CPlatt}} \frac{T2^2}{4\pi^2 + \text{LAMBDA2}^2}$

Out[15]= 12.9743

$$\text{In[16]:= } \mathbf{sL2} = \text{Sqrt} \left[ \left( \frac{1}{\mathbf{CPlatt}} \frac{2 * \mathbf{T2} * \mathbf{sT2}}{4 \pi^2 + \mathbf{LAMBDA2}^2} \right)^2 + \left( \frac{\mathbf{sCPlatt}}{\mathbf{CPlatt}^2} \frac{\mathbf{T2}^2}{4 \pi^2 + \mathbf{LAMBDA2}^2} \right)^2 + \left( \frac{1}{\mathbf{CPlatt}} \frac{\mathbf{T2}^2 * 2 * \mathbf{LAMBDA2} * \mathbf{sLAMBDA2}}{(4 \pi^2 + \mathbf{LAMBDA2}^2)^2} \right)^2 \right]$$

Out[16]= 1.0095

$$\text{In[17]:= } \mathbf{RL2} = \mathbf{LAMBDA2} / \mathbf{T2} * 2 * \mathbf{L2}$$

Out[17]= 6461.66

$$\text{In[18]:= } \mathbf{sRL2} = \text{Sqrt} [ (\mathbf{sLAMBDA2} / \mathbf{T2} * 2 * \mathbf{L2})^2 + (\mathbf{LAMBDA2} / \mathbf{T2} * 2 * \mathbf{sL2})^2 + (\mathbf{LAMBDA2} * \mathbf{sT2} / \mathbf{T2}^2 * 2 * \mathbf{L2})^2 ]$$

Out[18]= 658.759

$$\text{In[19]:= } \mathbf{d} = \mathbf{0.0508}$$

$$\mathbf{l} = \mathbf{1.0}$$

Out[19]= 0.0508

Out[20]= 1.

## Theoretische Induktivität der Luftspule

$$\text{In[21]:= } \mathbf{L} = \frac{4 \pi * 2800^2 * \pi / 4 * \mathbf{d}^2}{1} * 10^{-7}$$

Out[21]= 0.0199684