Real Coil

Table of Contents

[Rs, Ls, fres]=real_coil(L,R,C,f)

Author: JCCopyrights Summer 2019 This function takes the inductance, resistivity and resistance of a real coil model(C//RL) and returns the Series resistance and inductance of the series model (RL), and the resonance frecuency. Use this function to take into acount the resonance effects over the impedance after creating a model with FastHenry

Parameters

- @param **L** Inductance
- @param **R** Winding resistivity (Copper Losses)
- @param **C** Parasitic capacitance
- @param **f** Working frecuency
- @retval **Rs** Series Real Impedance
- @retval **Ls** Series Inductance
- @retval **fres** LC resonance frecuency

Code

```
function [Rs, Ls, fres]=real_coil(L,R,C,f)
 w=2*pi*f;
 Zre=R./(w.^2.*R.^2*C^2+(1-L*C*w.^2).^2);
 Zim=(w.*L.*(1-w.^2.*L.*C-(C.*R.^2)./L))./(w.^2.*R.^2.*C^2+(1-
L.*C.*w.^2).^2);
 Z=sqrt(Zre.^2+Zim.^2);
 Rs=Zre;
 Ls=Zim/w;
 fres=1/(2*pi*sqrt(L*C));
```

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