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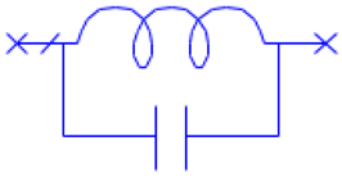
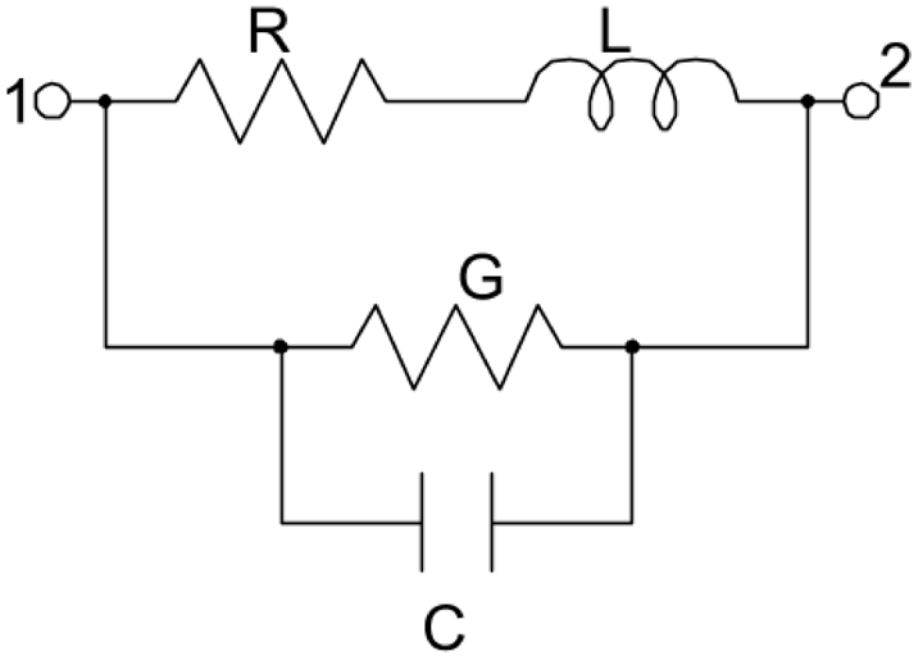
Parallel LC with Q (Closed Form): PLCQ

Symbol



Topology



Parameters

Name	Description	Unit Type	Default

Name	Description	Unit Type	Default
ID	Element ID	Text	LC1
C	Capacitance	Capacitance	1 pF
QC	Quality factor for capacitor		0
FQC	Reference frequency for QC	Frequency	0 GHz
ALPHC	Scaling factor for Qc		1
L	Inductance	Inductance	1 nH
QL	Quality factor for inductor		0
FQL	Reference frequency for QL	Frequency	0 GHz
ALPHL	Scaling factor for QL		1
DCMod	DC modeling	Vector text (pull-down)	Lossless

Parameter Details

DCMod. Specifies the DC behavior of the model. **Lossless** indicates that the model is modeled as an ideal capacitor in parallel with an ideal inductor at DC. **Lossy** indicates that loss is taken into account at DC.

Implementation Details

$$\mathrm{QL}(f) = Q\left(\frac{f}{\mathrm{FQL}}\right)^{\mathrm{ALPHL}}$$

$$\mathrm{QC}(f) = Q\left(\frac{f}{\mathrm{FQC}}\right)^{\mathrm{ALPHC}}$$

The admittance of the resonant circuit is given by:

$$Y = 2\pi f C\left(\frac{1}{\mathrm{QC}(f)} + j\right) + \frac{1}{2\pi f L\left(\frac{1}{\mathrm{QL}(f)} + j\right)}$$

Layout

This element does not have an assigned layout cell. You can assign artwork cells to any element. See "Assigning Artwork Cells to Layout of Schematic Elements" for details.

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