# Norton Transformationen

Zusammenstellung der wichtigsten Norton-Transformationen für zwei C/L. Die Werte können direkt im Feld **Eingabe** definiert werden. Der Bereich für das mögliche Umsetzungsverhältnis **n** wird ausgewiesen. Für die möglichen Schaltungen werden die Werte direkt bestimmt. Für die T-Pi-Strukturen muss das tatsächlich zu verwendende in **Wahl** gewählt werden. Der Wert dafür muss im möglichen Bereich liegen, der zuvor ausgewiesen wurde.

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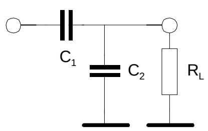
## Struktur 1:




**Eingabe:**

$C_1 := 200.16$ [pF]

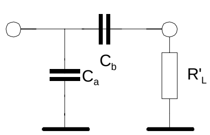
$C_2 := 4642$ [pF]

$R_L := 100$ [Ω]

$$n := \frac{C_1 + C_2}{C_1}$$

$n = 24.191$

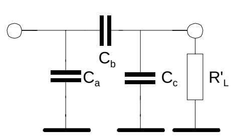
Das möglich wählbare ist in [1..n]




$$C_a := \frac{C_2}{n} \qquad C_a = 191.886 \qquad R'_L := n^2 R_L$$

$$C_b := \frac{C_1}{n} \qquad C_b = 8.274 \qquad R'_L = 5.852 \times 10^4$$

**Wahl:** $n := 2.5$



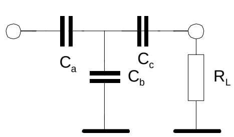

$$C_a := \frac{(n-1)\cdot C_1}{n} \qquad C_a = 120.096$$

$$C_b := \frac{C_1}{n} \qquad C_b = 80.064$$

$$C_c := \frac{C_2 - (n-1)\cdot C_1}{n^2} \qquad C_c = 694.682$$

$$R'_L := n^2 R_L$$

$$R'_L = 625$$

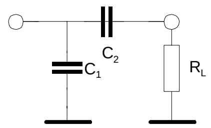



$$C_a := \frac{\frac{C_2}{n-1}\cdot C_1}{\frac{C_2}{n-1} - C_1} \qquad C_a = 214.001$$

$$C_b := \frac{C_2}{n} \qquad C_b = 1.857 \times 10^3$$

$$C_c := \frac{(n-1)\cdot C_1}{n} \qquad C_c = 120.096$$

## Struktur 2:




**Eingabe:**

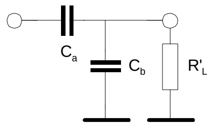
$C_1 := 694.7$ [pF]

$C_2 := 271.68$ [pF]

$R_L := 625$ [Ω]

$$n := \frac{C_2}{C_1 + C_2}$$

$n = 0.281$ Das möglich wählbare ist in [n..1]

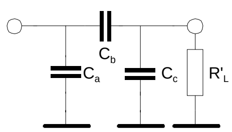



$$C_a := \frac{C_2}{n} \qquad C_a = 966.38 \qquad R'_L := n^2 R_L$$

$$C_b := \frac{C_1}{n} \qquad C_b = 2.471 \times 10^3 \qquad R'_L = 49.397$$

**Wahl:**

$n := .6$

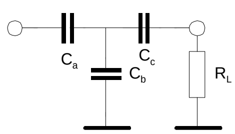



$$C_a := C_1 - \frac{1-n}{n} \cdot C_2 \qquad C_a = 513.58 \qquad R'_L := n^2 R_L$$

$$C_b := \frac{C_2}{n} \qquad C_b = 452.8$$

$R'_L = 225$

$$C_c := \frac{\frac{1-n}{n} \cdot C_2}{n} \qquad C_c = 301.867$$

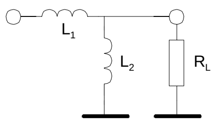



$$C_a := \frac{\frac{n}{1-n} \cdot C_1}{n} \qquad C_a = 1.737 \times 10^3$$

$$C_b := \frac{C_2}{n} \qquad C_b = 452.8$$

$$C_c := \frac{\frac{n}{1-n} \cdot C_1 \cdot C_2}{n^2 \cdot \left( \frac{n}{1-n} \cdot C_1 - C_2 \right)} \qquad C_c = 1.021 \times 10^3$$

## Struktur 3:

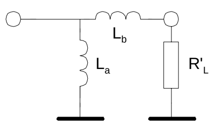



**Eingabe:** $L_1 := 69.6$ [uH]

$L_2 := 1.46$ [uH]

$R_L := 100$ [Ω]

$$n := \frac{L_1 + L_2}{L_2}$$ $n = 48.671$ Das möglich wählbare ist in [1..n]



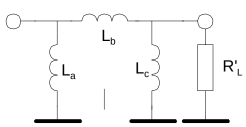

$L_a := n \cdot L_2$ $L_a = 71.06$ $R'_L := n^2 \cdot R_L$

$L_b := n \cdot L_1$ $L_b = 3.388 \times 10^3$

$R'_L = 2.369 \times 10^5$

**Wahl:**

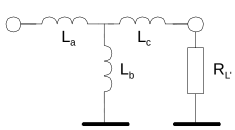
$n := 3$




$$L_a := n \cdot \left( \frac{L_1 + L_2}{L_2} \right)$$ $L_a = 146.014$ $R'_L := n^2 \cdot R_L$

$L_b = 208.8$ $R'_L = 900$

$$L_c := \frac{n^2 \cdot \left( \frac{L_1 + L_2}{L_2} \right) \cdot L_2}{\left( \frac{L_1 + L_2}{L_2} \right) - L_2}$$ $L_c = 13.546$

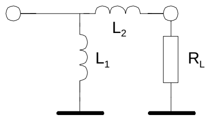



$L_a := (n - 1) \cdot L_2$ $L_a = 2.92$

$L_b := n\, L_2$ $L_b = 4.38$

$$L_c := n \cdot \left( \frac{L_1 + L_2}{L_2} \right)$$ $L_c = 146.014$

## Struktur 4:




**Eingabe:**

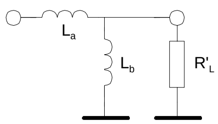
$L_{.1} := 2.069$ [uH]

$L_2 := 1175$ [uH]

$R_L := 200.916$ [Ω]

$$n := \frac{L_1}{L_1 + L_2}$$ $n = 0.056$ Das möglich wählbare ist in [n..1]

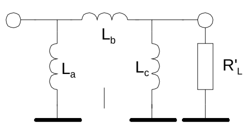
$R'_L := n^2 \cdot R_L$ $R'_L = 0.628$




$L_a := n \cdot L_2$ $L_a = 65.708$

$L_b := n \cdot L_1$ $L_b = 3.892$

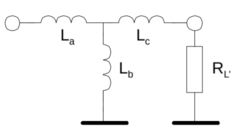
**Wahl:** $n := 0.1$




$$L_a := \frac{L_1 \cdot L_2 \cdot \frac{n}{1-n}}{L_2 \cdot \frac{n}{1-n} - L_1}$$ $L_a = 149.07$

$L_b := n\, L_2$ $L_b = 117.5$

$$L_c := n \cdot \left(L_2 \cdot \frac{n}{1-n}\right)$$ $L_c = 13.056$




$$L_a := n \cdot L_1 \cdot \frac{1-n}{n}$$ $L_a = 62.64$

$L_b := n\, L_1$ $L_b = 6.96$

$$L_c := n^2 \cdot \left(L_2 - L_1 \cdot \frac{1-n}{n}\right)$$ $L_c = 5.486$