

# rechnung\_nichtinvertierender\_verstaerker

## Student Group

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|------------|---------|--------------|
|            |         |              |
|            |         |              |
|            |         |              |

## Table of Contents

### $\S 1.$ Betrachtung der Ströme

|                 |                                                             |                                                                   |
|-----------------|-------------------------------------------------------------|-------------------------------------------------------------------|
| aus (2+3)       | $\textcolor{blue}{l_p} = \textcolor{blue}{l_m} = 0$         | $\$l_p$ und $\$l_m$ sind damit definiert                          |
| $\frac{1}{2}$   | $\frac{1}{2}$                                               | $\frac{1}{2}$                                                     |
| aus (7)         | $\textcolor{blue}{l_o} = l_1$                               | $\$l_o$ ist damit bekannt, wenn $\$l_1$ bekannt ist               |
| $\frac{1}{2}$   | $\frac{1}{2}$                                               | $\frac{1}{2}$                                                     |
| aus (8) und (3) | $\$l_1 - l_2 - \textcolor{blue}{0} = 0$                     | $\$l_{quad}$                                                      |
| $\frac{1}{2}$   | $\frac{1}{2}$                                               | $\frac{1}{2}$                                                     |
| $\frac{1}{2}$   | $\$l_1 = l_2$                                               | $\$l_{quad}$                                                      |
| $\frac{1}{2}$   | $\frac{1}{2}$                                               | $\frac{1}{2}$                                                     |
| $\frac{1}{2}$   | $\textcolor{blue}{l_1} = \textcolor{blue}{l_2}$             | mit (9) und (10): $\$l_{boxed} = \frac{\$l_{boxed}}{\$l_{boxed}}$ |
| $\frac{1}{2}$   | $\frac{1}{2}$                                               | $\frac{1}{2}$                                                     |
| (11)            | $\frac{\$l_{U_1}}{\$l_{R_1}} = \frac{\$l_{U_2}}{\$l_{R_2}}$ | $\$l_{quad}$                                                      |
| $\frac{1}{2}$   | $\frac{1}{2}$                                               | $\frac{1}{2}$                                                     |

## \$II.\quad\$ Betrachtung der Spannungsverstärkung

|                            |                                                                                                                                                                                     |                                                   |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| aus (0)                    | $\{\textcolor{blue}\{A_V\}=\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{U_A\}\{\textcolor{blue}\{U_E\}}{\}$                                                                                                                                    | mit (4)                                           |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{U_A\}\{\textcolor{blue}\{U_{A+U_D}\}}{\}$                                                                                                                              | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{\textcolor{blue}\{U_A\}\}\{\textcolor{blue}\{U_{A+U_D}\}}{\}$                                                                                                          | mit (1)                                           |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{\textcolor{blue}\{A_{D\cdot U_D}\}\{\textcolor{blue}\{A_{D\cdot U_D}\}+U_D\}}{\}$                                                                                      | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{A_{D\cdot U_D}\}\{A_{D\cdot U_D}+U_D\}}{\}$                                                                                                                            | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\textcolor{blue}\{\frac{\{A_{D\cdot U_D}\}\{A_{D\cdot U_D}+U_D\}}{\}$                                                                                                          | Erweitern mit $\frac{\{1\}\{A_{D\cdot U_D}\}}{\}$ |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\textcolor{blue}\{\frac{\{A_{D\cdot U_D\cdot U_D\cdot \frac{\{1\}\{A_{D\cdot U_D}\}}{\}\}\{A_{D\cdot U_D}\}}{\{A_{D\cdot U_D}+U_D\}\cdot \frac{\{1\}\{A_{D\cdot U_D}\}}{\}}\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\textcolor{blue}\{\frac{\{1\}\{1+\frac{\{1\}\{A_D\}}{\}}\}}{\}$                                                                                                                | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{1\}\{1+\frac{\{1\}\{A_D\}}{\}}\}}{\}$                                                                                                                                  | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{1\}\{1+\textcolor{blue}\{\frac{\{1\}\{A_D\}}{\}}\}}{\}$                                                                                                                | mit (4)                                           |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{1\}\{1+\textcolor{blue}\{0\}\}}{\}$                                                                                                                                    | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $A_V=\frac{\{1\}\{1\}=1\$}$                                                                                                                                                         | $\frac{\{U_A\}\{U_E\}}{\}$                        |
| $\frac{\{U_A\}\{U_E\}}{\}$ | $\frac{\{U_A\}\{U_E\}}{\}$                                                                                                                                                          | $\frac{\{U_A\}\{U_E\}}{\}$                        |

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