

rechnung_spannungsfolger

Student Group

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\$I.\quad\$ Analysis of the Currents

by (2+3)	$\textcolor{blue}\{l_p\} = \textcolor{blue}\{l_m\} = 0\$$	Therefore, $\$l_p\$$ and $\$l_m\$$ are defined
$\$$	$\$$	$\$$
by (3) and (5)	$\textcolor{blue}\{l_o\} = l_m = 0\$$	By this, $\$l_o\$$ is defined
$\$$	$\$$	$\$$

Analysis of the Voltage Amplification

by (0)	$\{\color{blue}\{A_V\}=\frac{\{U_O\}}{\{U_I\}}\}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{U_O\}}{\{\color{blue}\{U_I\}\}}$	mit (4)
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{U_O\}}{\{\color{blue}\{U_{O+U_D}\}\}}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{\color{blue}\{U_O\}\}}{\{\color{blue}\{U_O\} + U_D\}}$	with (1)
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{\color{blue}\{A_{D\cdot D}\}}{\{\color{blue}\{A_{D\cdot D} + U_D\}\}}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{A_{D\cdot D}\}}{\{A_{D\cdot D} + U_D\}}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \{\color{blue}\}\{\frac{\{A_{D\cdot D}\}}{\{A_{D\cdot D} + U_D\}}\}$	Expand with $\frac{\{1\}}{\{A_{D\cdot D}\}}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \{\color{blue}\}\{\frac{\{A_{D\cdot D}\}}{\{(A_{D\cdot D} + U_D)\cdot \frac{\{1\}}{\{A_{D\cdot D}\}}\}}\}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \{\color{blue}\}\{1 + \frac{\{1\}}{\{A_D\}}\}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{1\}}{\{1 + \frac{\{1\}}{\{A_D\}}\}}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{1\}}{\{1 + \color{blue}\}\{\frac{\{1\}}{\{A_D\}}\}}\}$	with $\frac{\{1\}}{\{A_D\}} \rightarrow 0$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{1\}}{\{1 + \color{blue}\{0\}\}}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$A_V = \frac{\{1\}}{\{1\}} = 1$	$\$ \text{quad\$}$
$\$ \text{quad\$}$	$\$ \text{quad\$}$	$\$ \text{quad\$}$

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