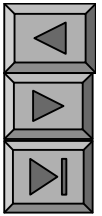
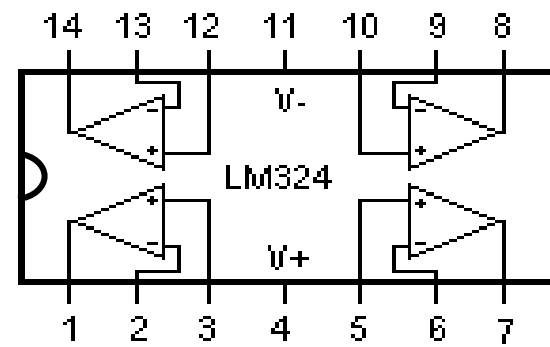
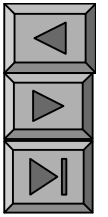


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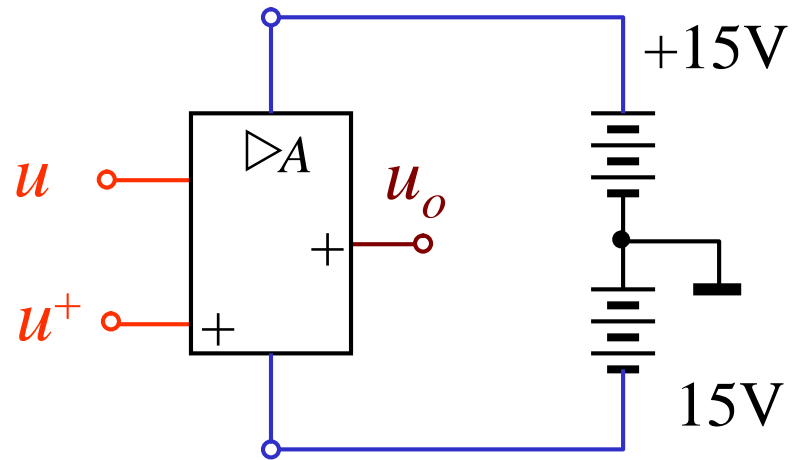
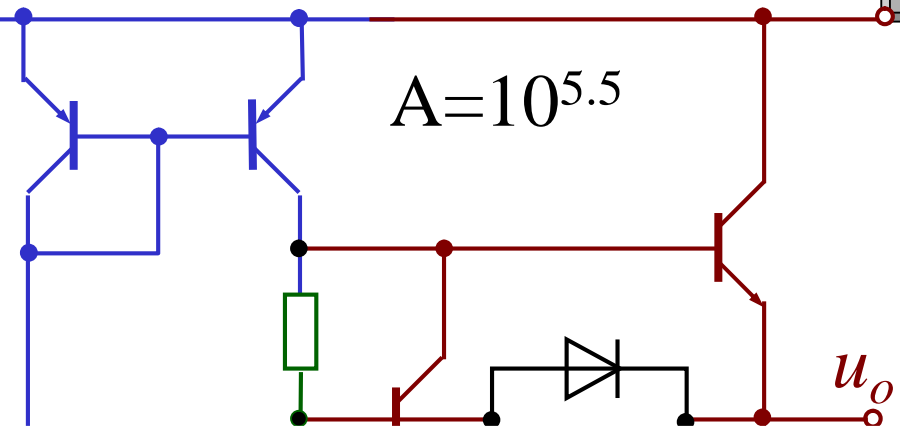
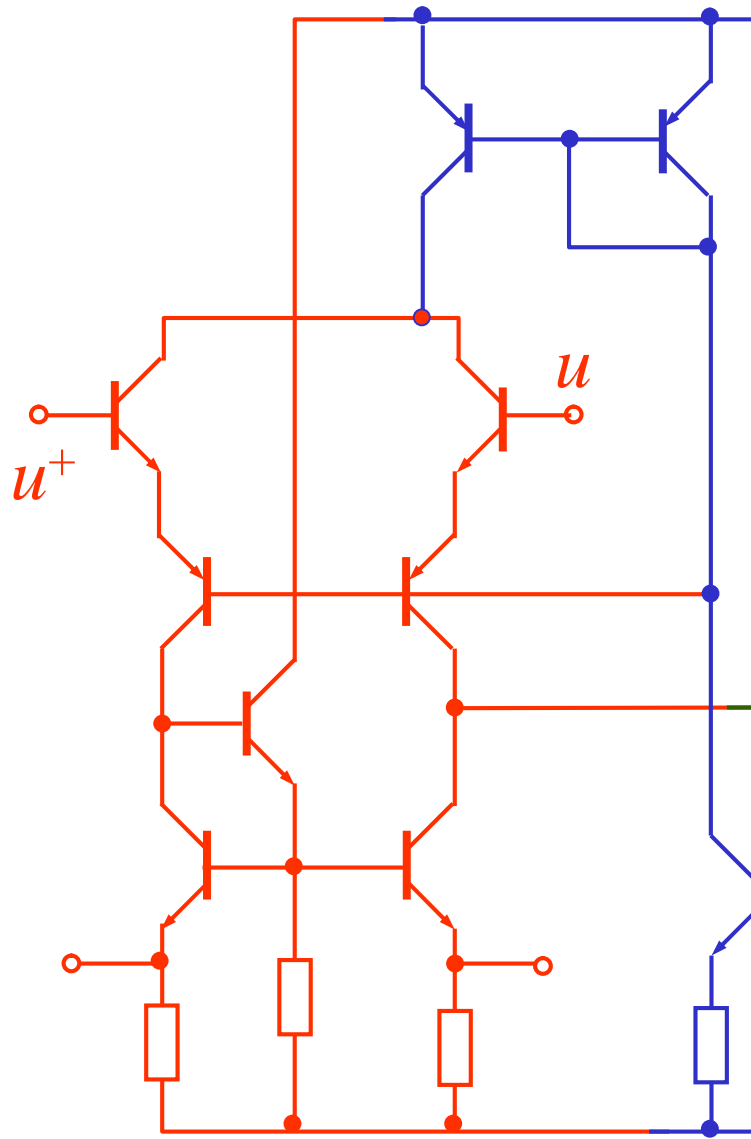
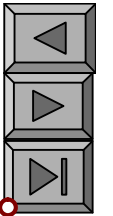


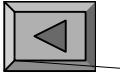


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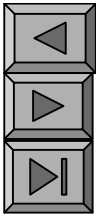
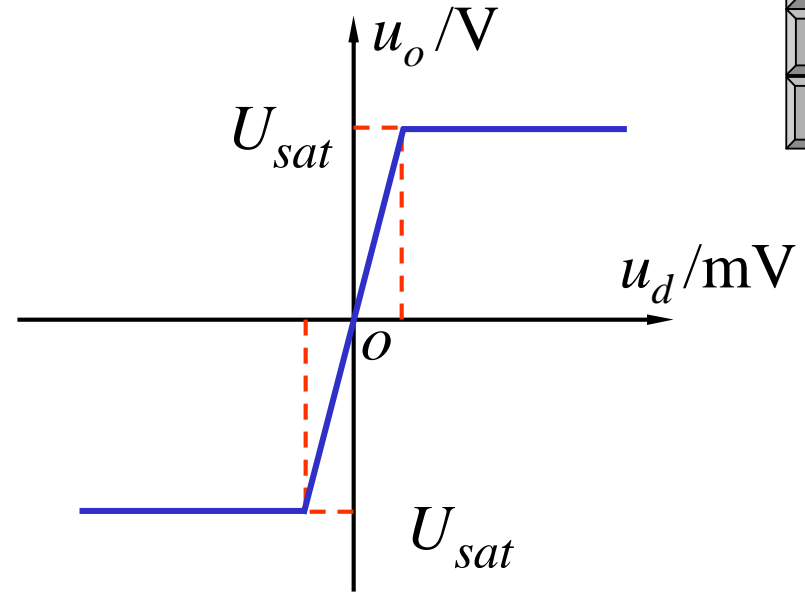
2. ()

(1) $|u_d|$
 $u_o = A u_d$

$$|u_d| \quad \left| \frac{u_o}{A} \right| \quad \left| \frac{13}{10^{5.5}} \right|$$

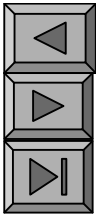
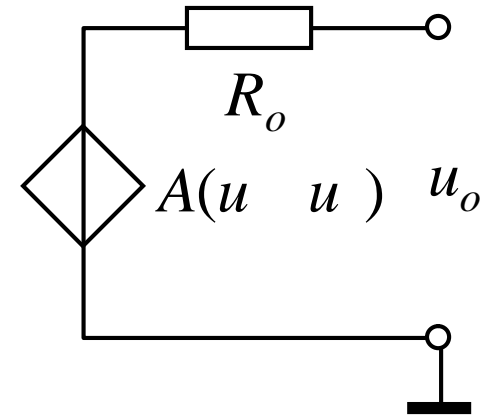
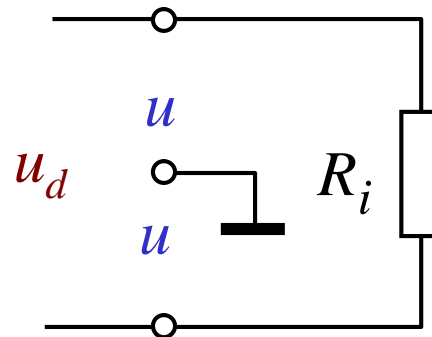
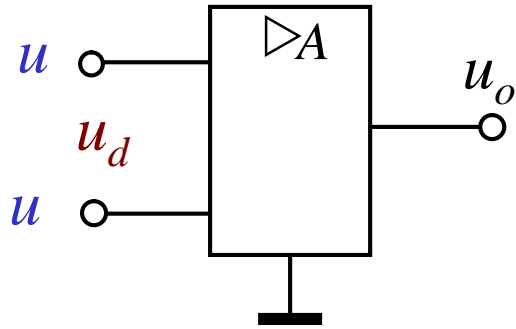
F007	A	$10^{5.5}$
	E_C	15V
	U_{sat}	13V

A



(2) $|u_d|$
 $u_o \quad U_{sat}$
 u_d

3.



R_i

$10^3 \quad 10^{12}$

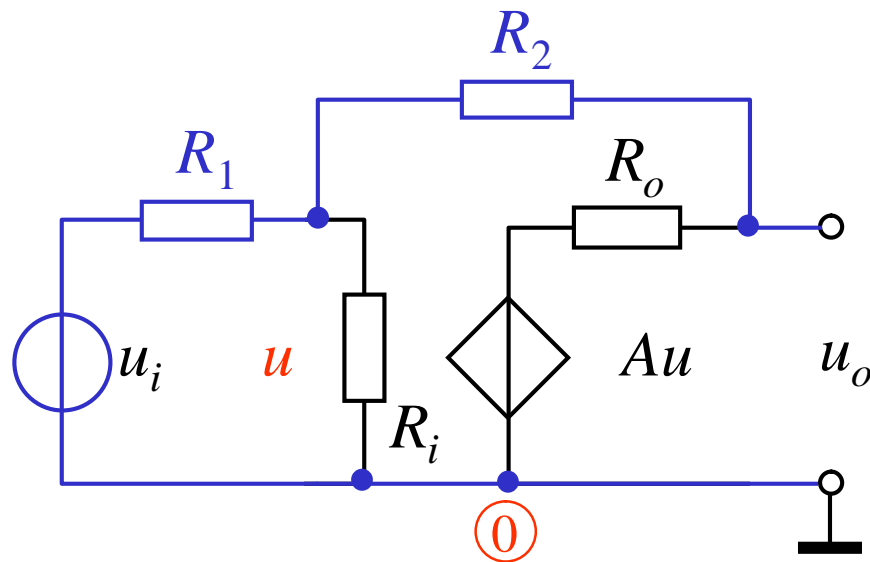
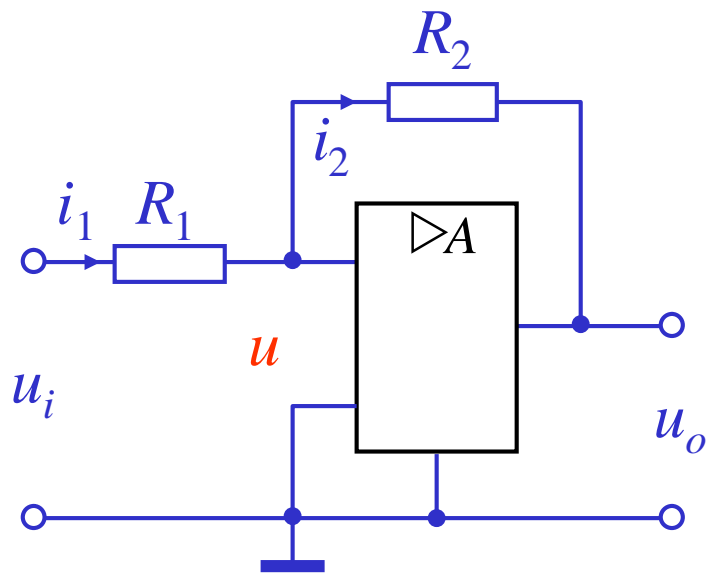
VCVS

u_o

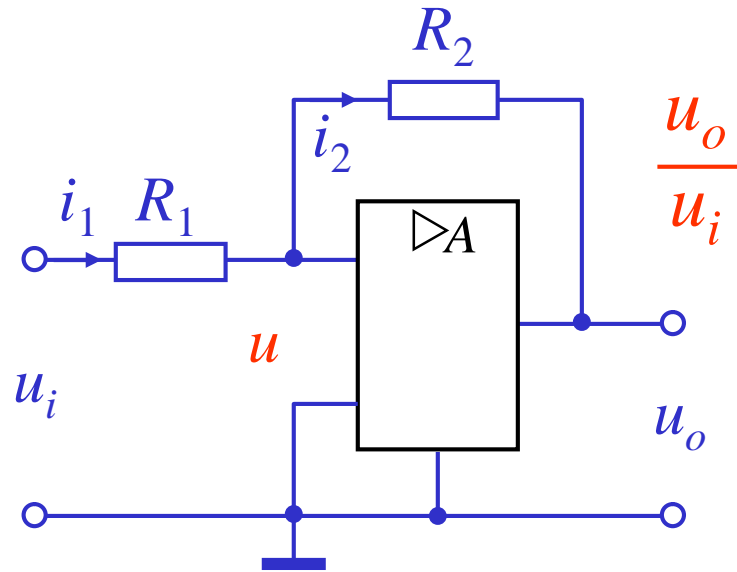
R_o

()

5 2



$$\left\{ \begin{array}{l} \left[\begin{array}{cc} \frac{1}{R_1} & \frac{1}{R_i} \\ \frac{1}{R_2} & \frac{1}{R_o} \end{array} \right] u \quad \frac{1}{R_2} u_o \quad \frac{u_i}{R_1} \\ \frac{1}{R_2} u \quad \left[\begin{array}{cc} \frac{1}{R_o} & \frac{1}{R_2} \end{array} \right] u_o \quad \frac{Au}{R_o} \end{array} \right. \quad u$$



$$\frac{R_2}{R_1} \frac{1}{1 - \frac{\begin{bmatrix} 1 & \frac{R_2}{R_o} \end{bmatrix} \begin{bmatrix} 1 & \frac{R_2}{R_1} & \frac{R_2}{R_i} \end{bmatrix}}{A \frac{R_o}{R_2}}}$$

$$A = 10^7$$

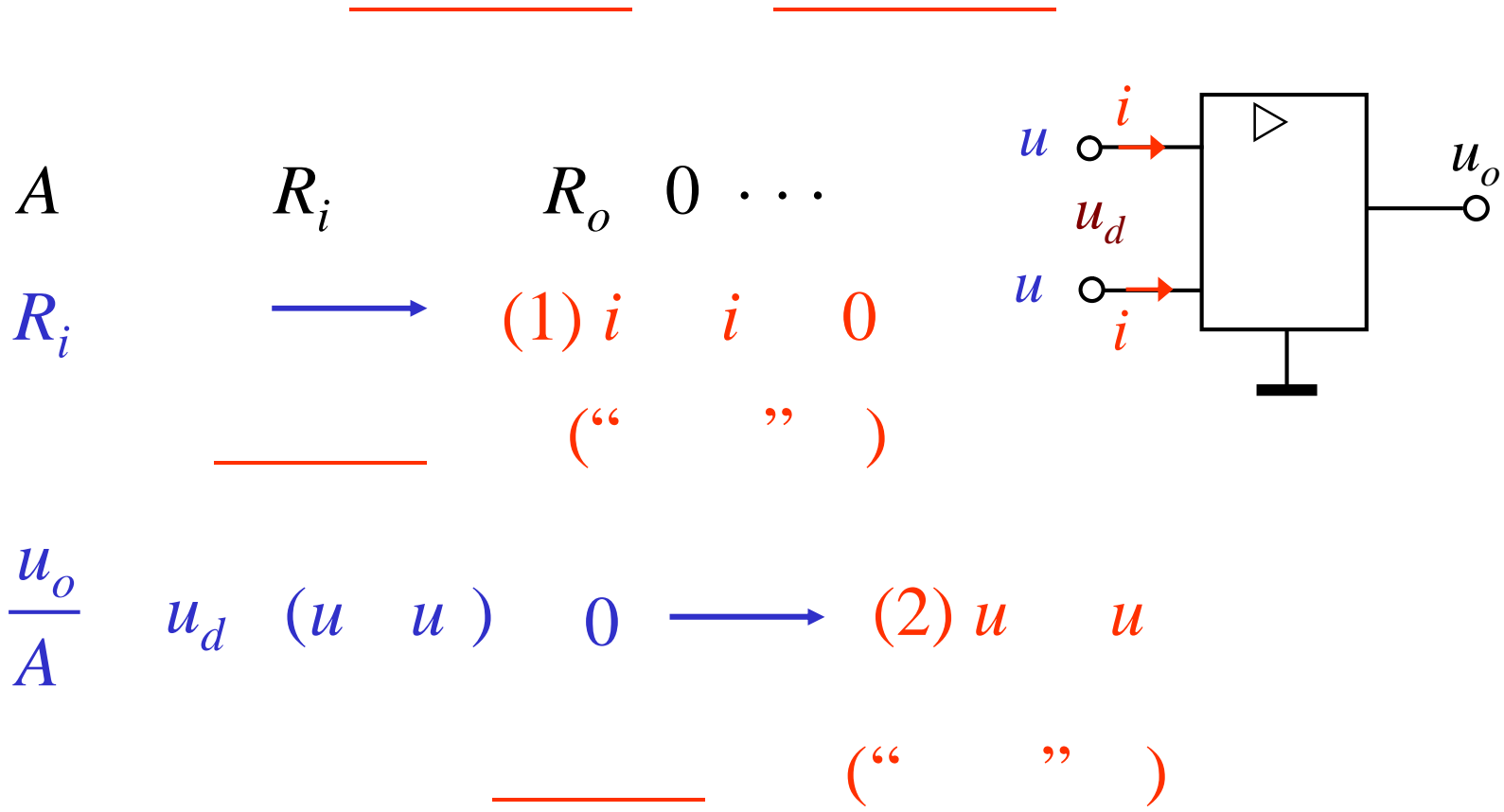
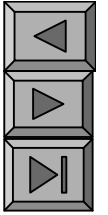
$$\frac{u_o}{u_i} = \frac{R_2}{R_1} \quad (1)$$

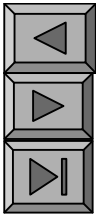
$$u_o = \frac{R_2}{R_1} u_i$$

A

R_1 R_2

5 3

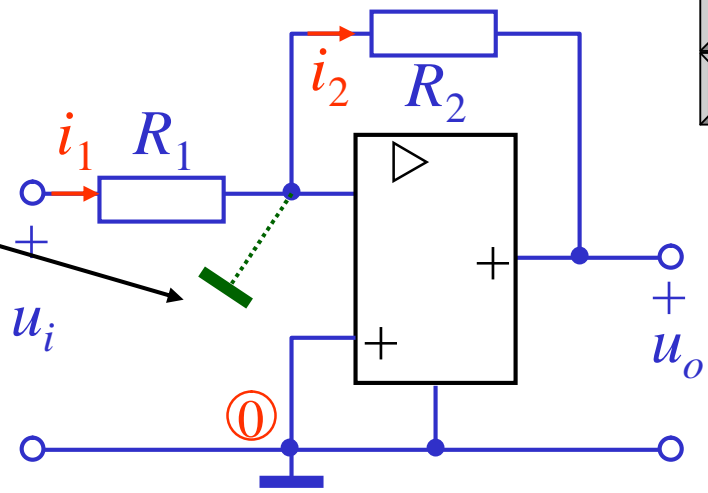




2

1 $i_1 = i_2$

$$\frac{u_i}{R_1} = - \frac{u_o}{R_2} \longrightarrow \frac{u_o}{u_i} = - \frac{R_2}{R_1}$$

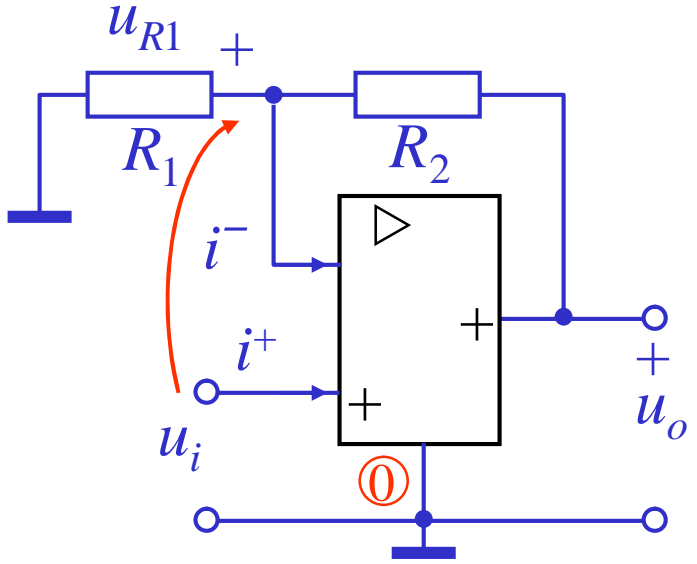


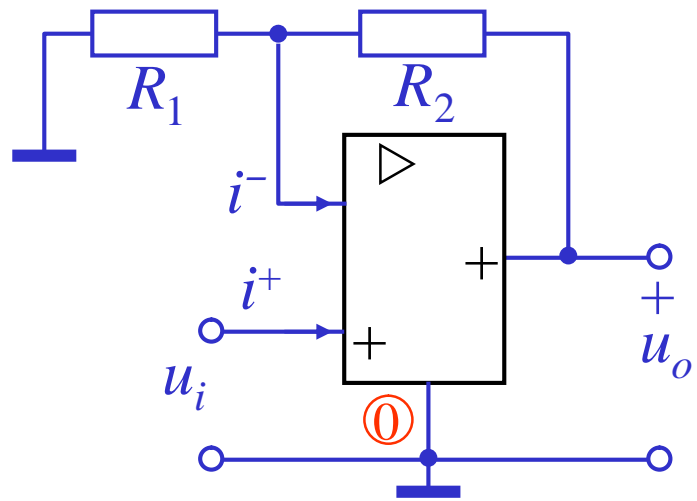
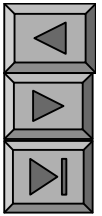
1 R_1 R_2

u_{R1} $\frac{R_1}{R_1+R_2} u_o$

2 u_{R1} u_i

$$u_o \frac{R_1+R_2}{R_1} u_i \longrightarrow \frac{u_o}{u_i} = 1 \frac{R_2}{R_1}$$

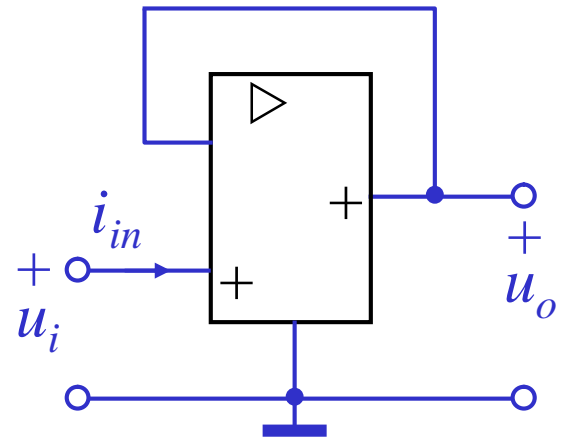




$$\frac{u_o}{u_{in}} = 1 + \frac{R_2}{R_1}$$

$\xrightarrow{R_2=0}$

$$R_1$$

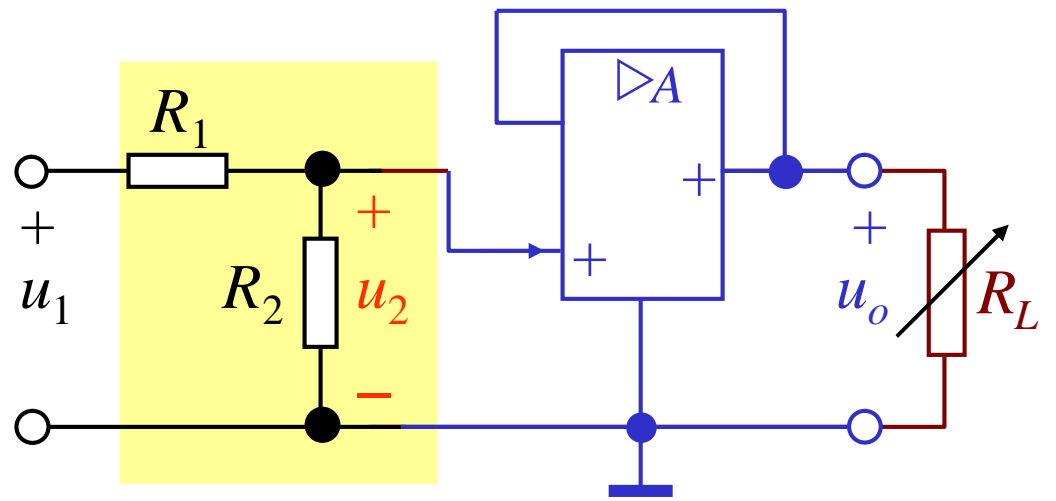


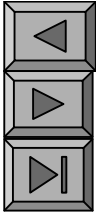
$$u_o = u_i$$

R_i “ ”

u_o

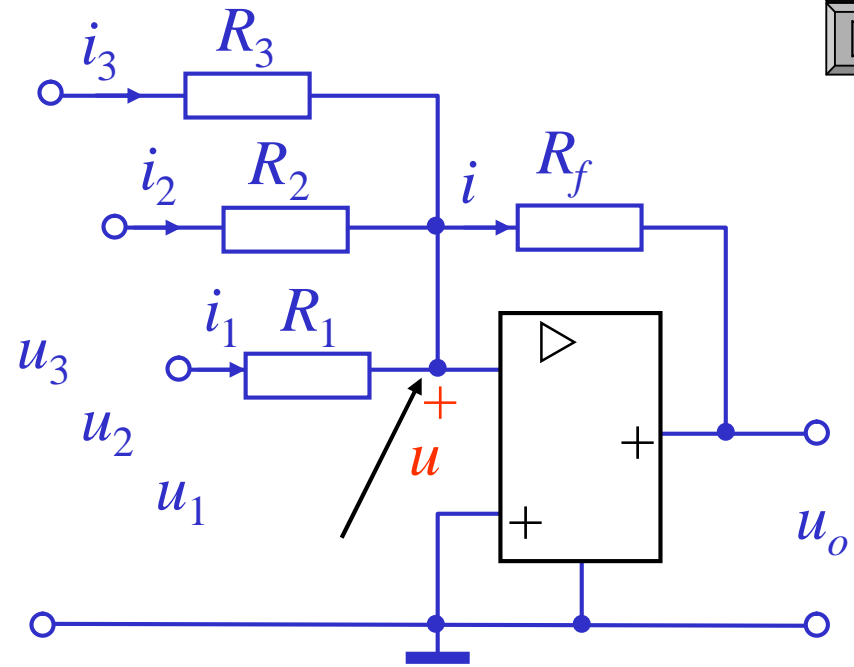
R_L
 u_2 (u_o)





$$\begin{array}{cccc}
 i & 0 & & \\
 \therefore i_1 & i_2 & i_3 & i \\
 \frac{u_1}{R_1} & \frac{u_2}{R_2} & \frac{u_3}{R_3} & \frac{u_o}{R_f}
 \end{array}$$

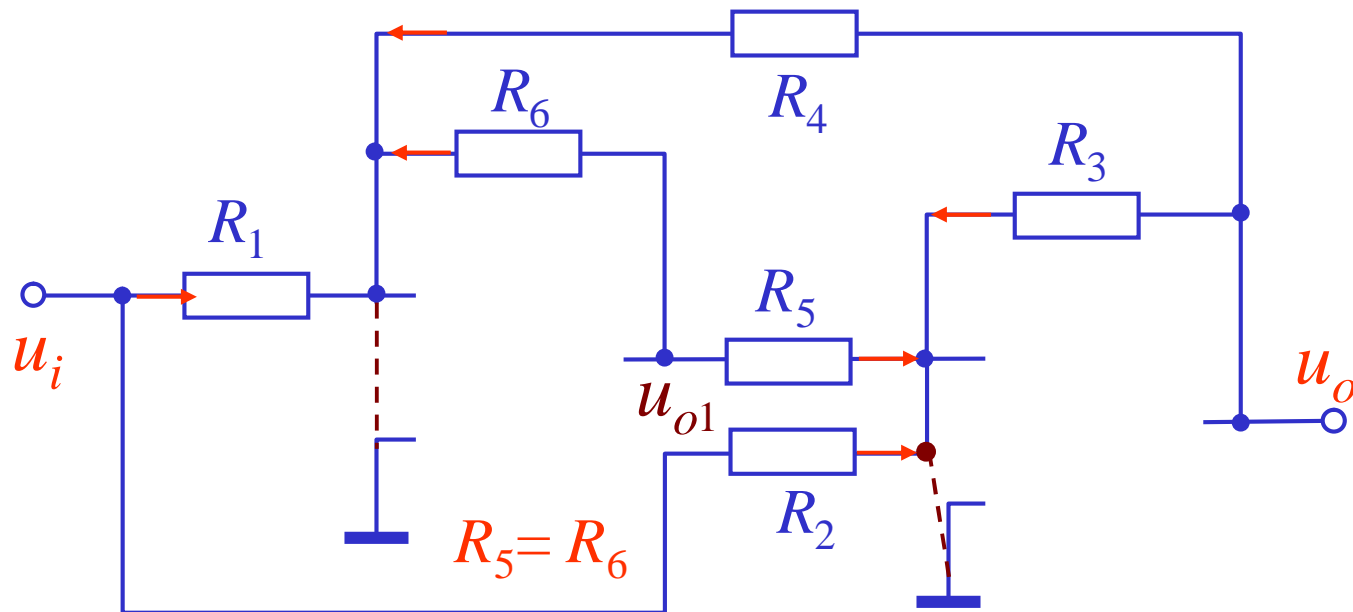
$$u_o \left(\frac{R_f}{R_1} u_1 \quad \frac{R_f}{R_2} u_2 \quad \frac{R_f}{R_3} u_3 \right)$$



:

$$\begin{array}{cccc}
 R_1 & R_2 & R_3 & R_f \\
 u_o & (u_1 & u_2 & u_3)
 \end{array}
 \left(\begin{array}{c} \\ \\ \\ \end{array} \right) u_{n1} \frac{u_1}{R_1} \quad \frac{u_2}{R_2} \quad \frac{u_3}{R_3} \quad \frac{u_o}{R_f} \quad 0$$

5-3



$$\left. \begin{array}{ccc} \frac{u_i}{R_1} & \frac{u_o}{R_4} & \frac{u_{o1}}{R_6} \\ \frac{u_i}{R_2} & \frac{u_o}{R_3} & \frac{u_{o1}}{R_5} \end{array} \right\} \longrightarrow \frac{u_i}{R_1} \quad \frac{u_i}{R_2} \quad \frac{u_o}{R_4} \quad \frac{u_o}{R_3}$$

$$(G_1 \quad G_2)u_i \quad (G_3 \quad G_4)u_o \quad \frac{u_o}{u_i} \quad \frac{(G_1 \quad G_2)}{(G_3 \quad G_4)}$$

5 7

u_{s1} u_{s2}

u_o

u_{s1}

u_o

