# Structured Electronic Design

## EE4109

## Design of the small-signal dynamic behavior of the active antenna

*Anton J.M. Montagne*

# Active antenna with two-stage controller

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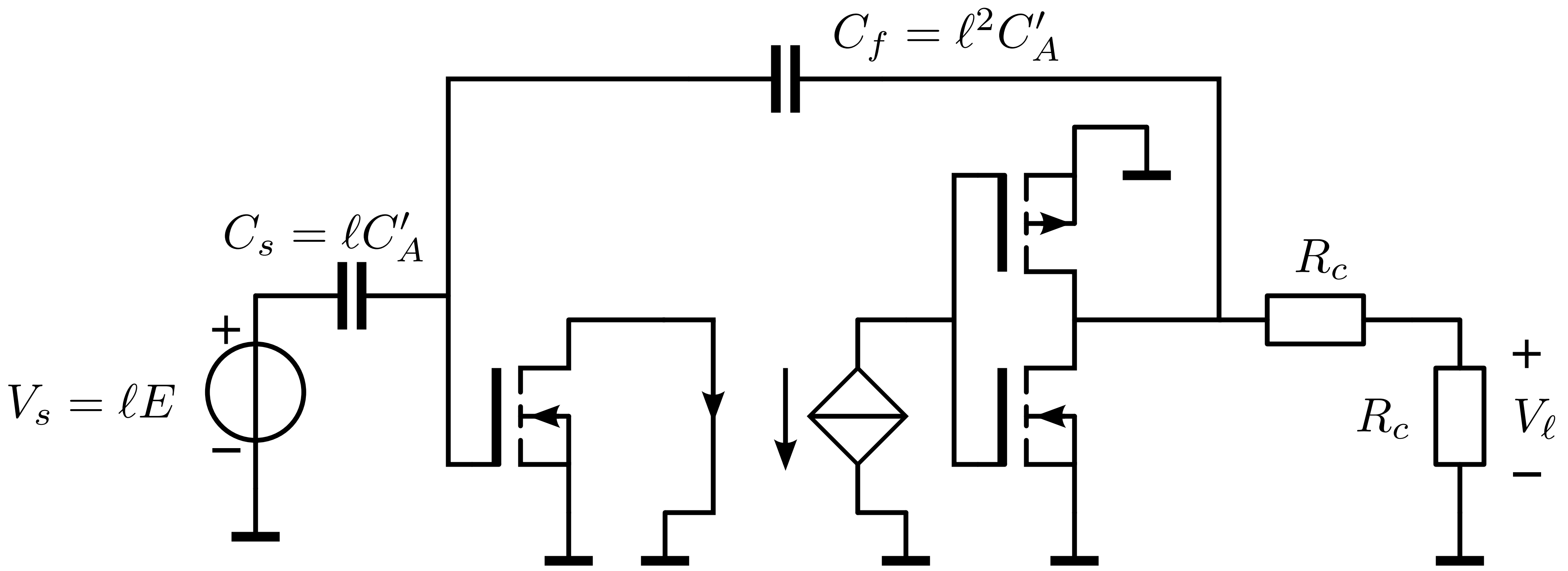

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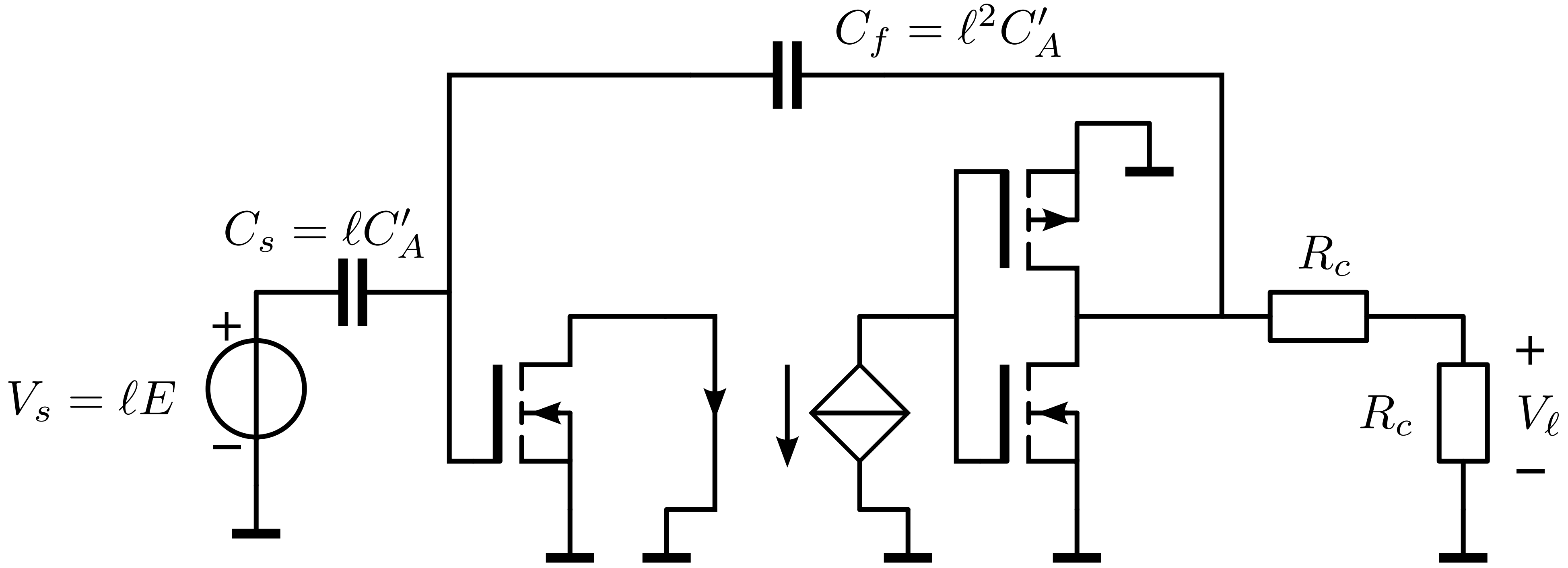

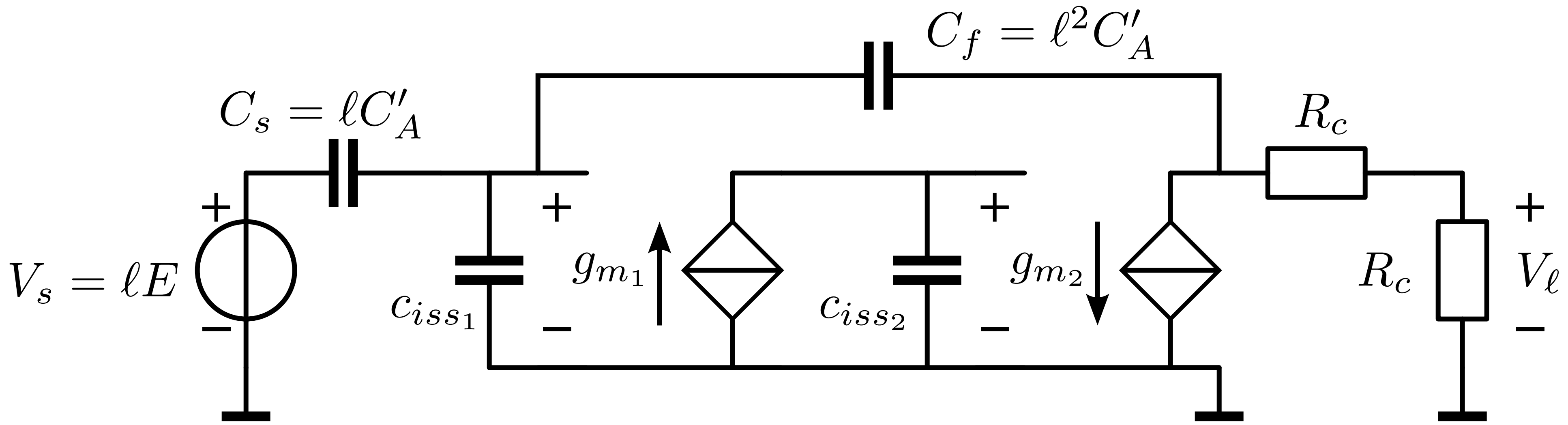

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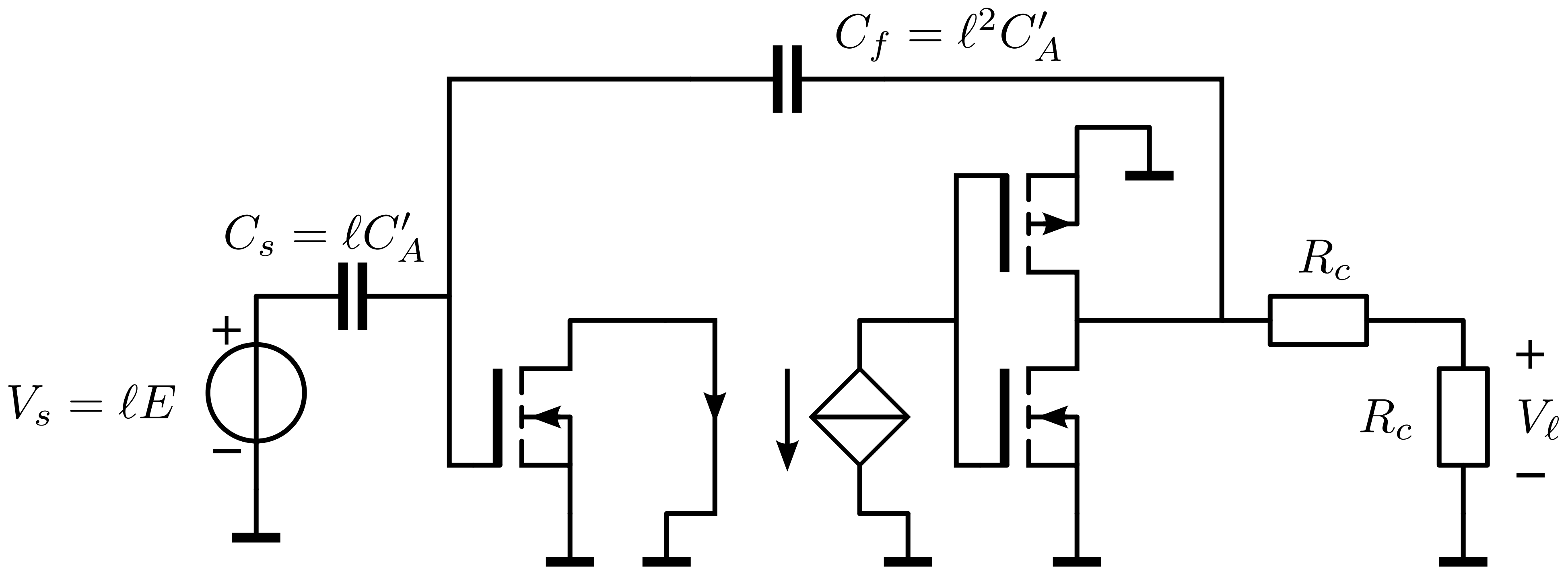

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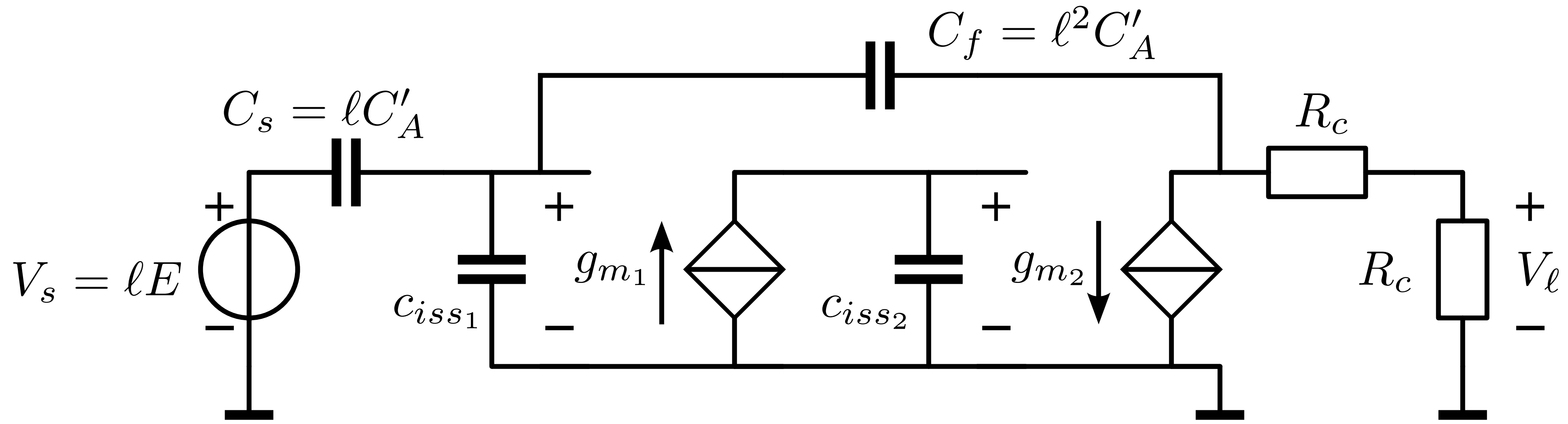

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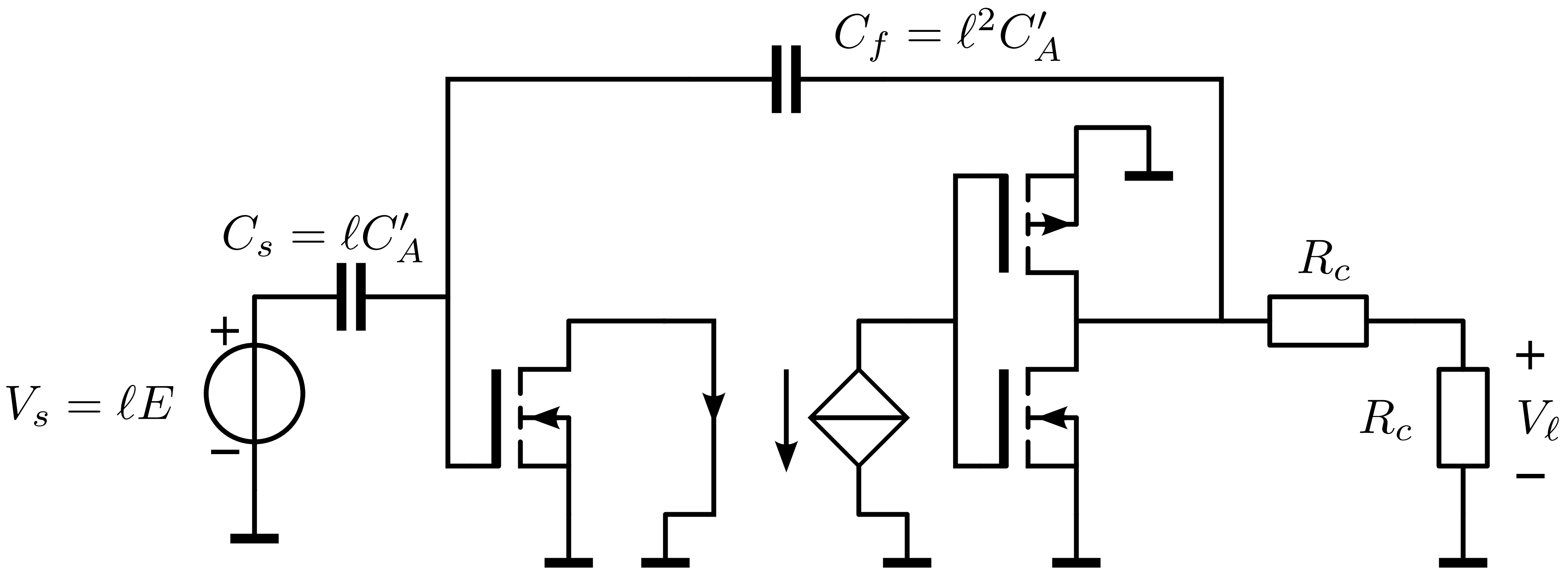

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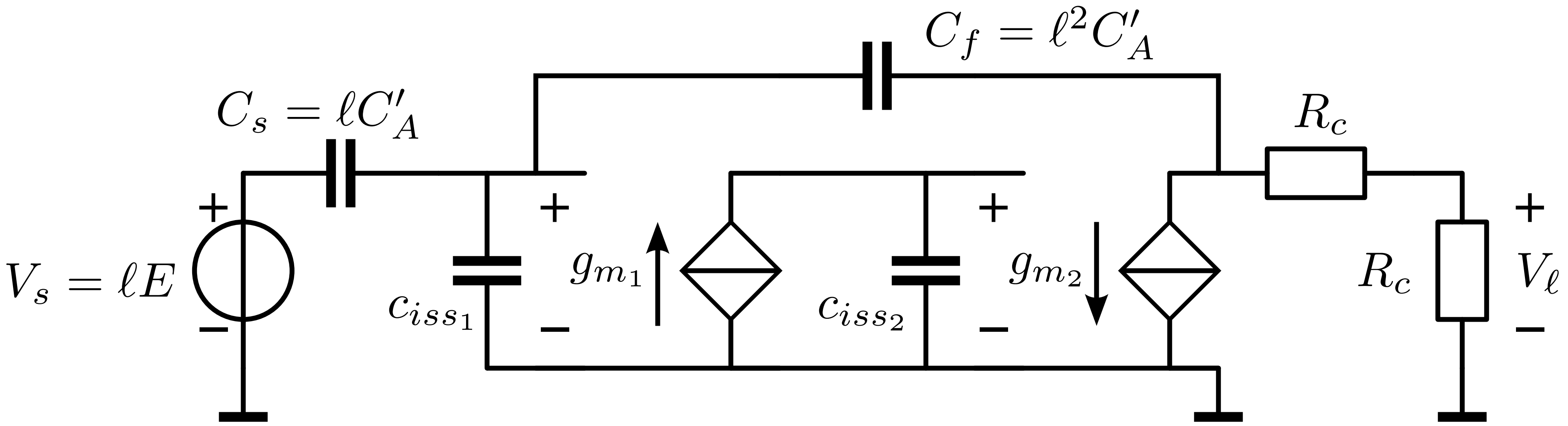

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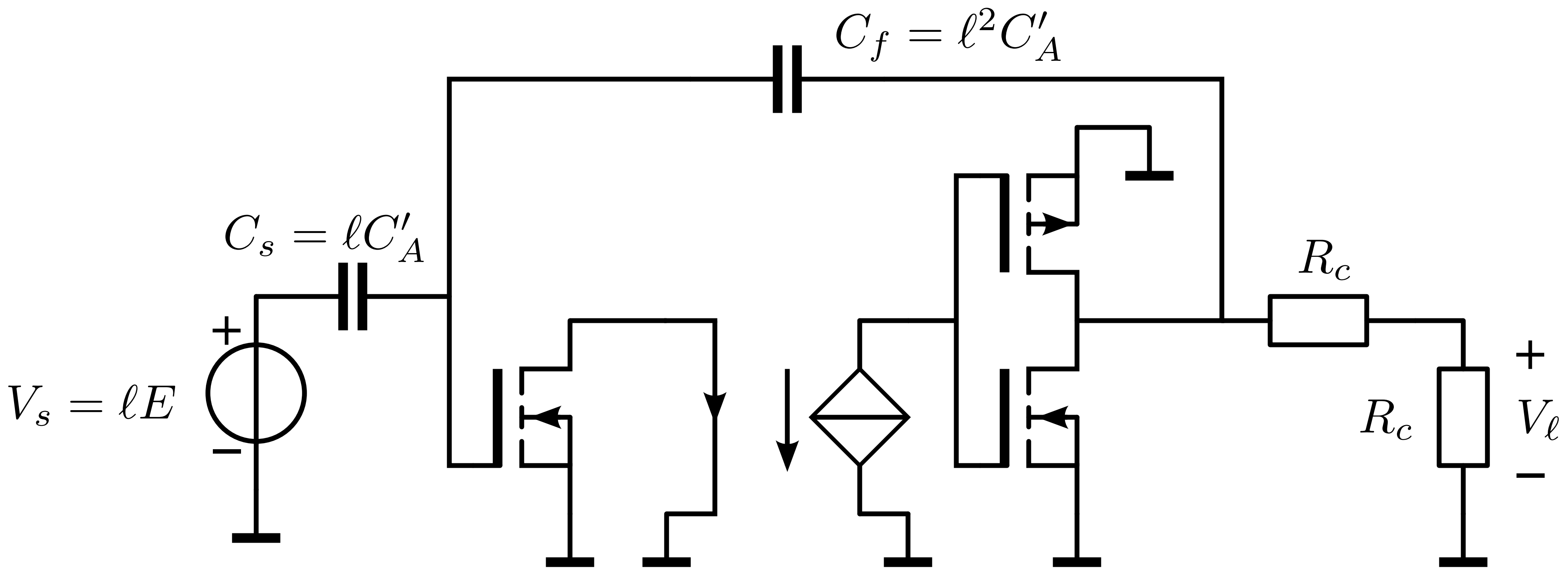

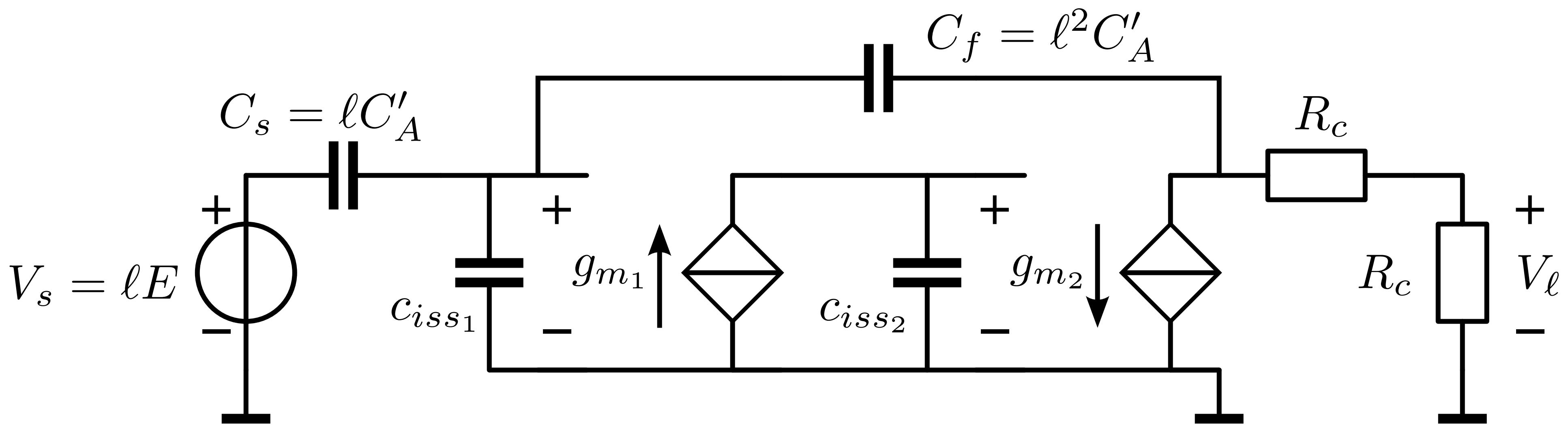

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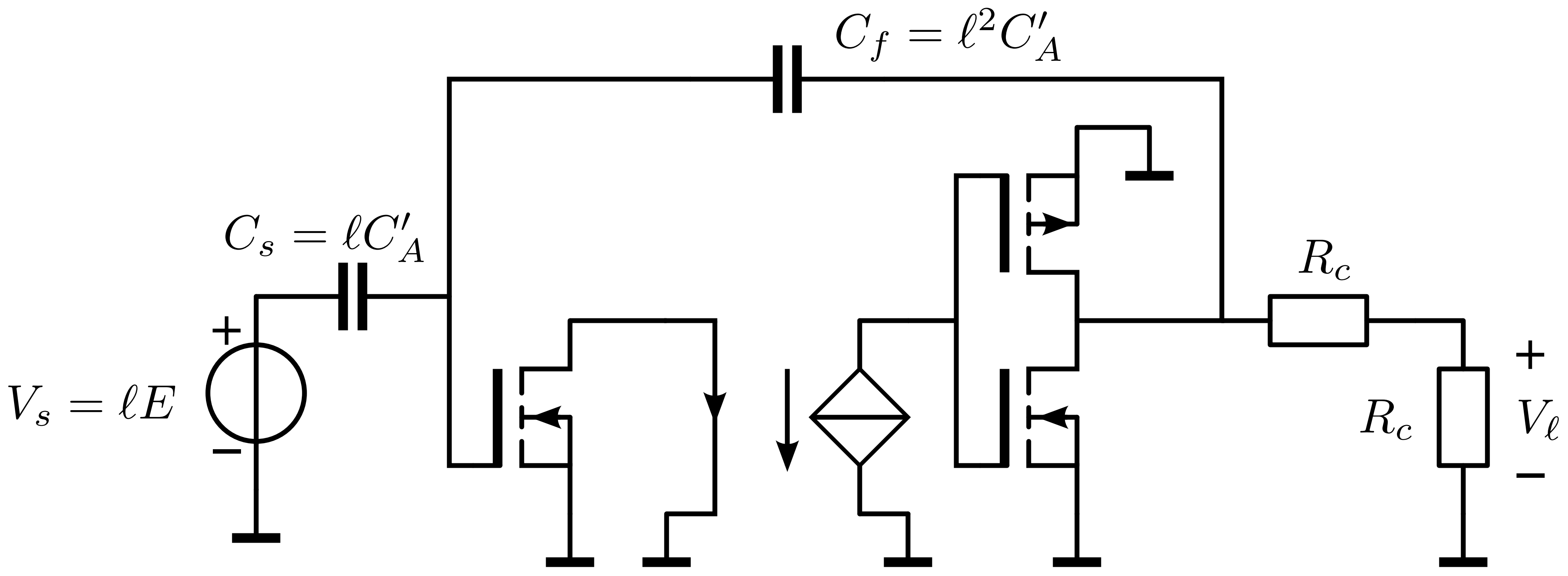

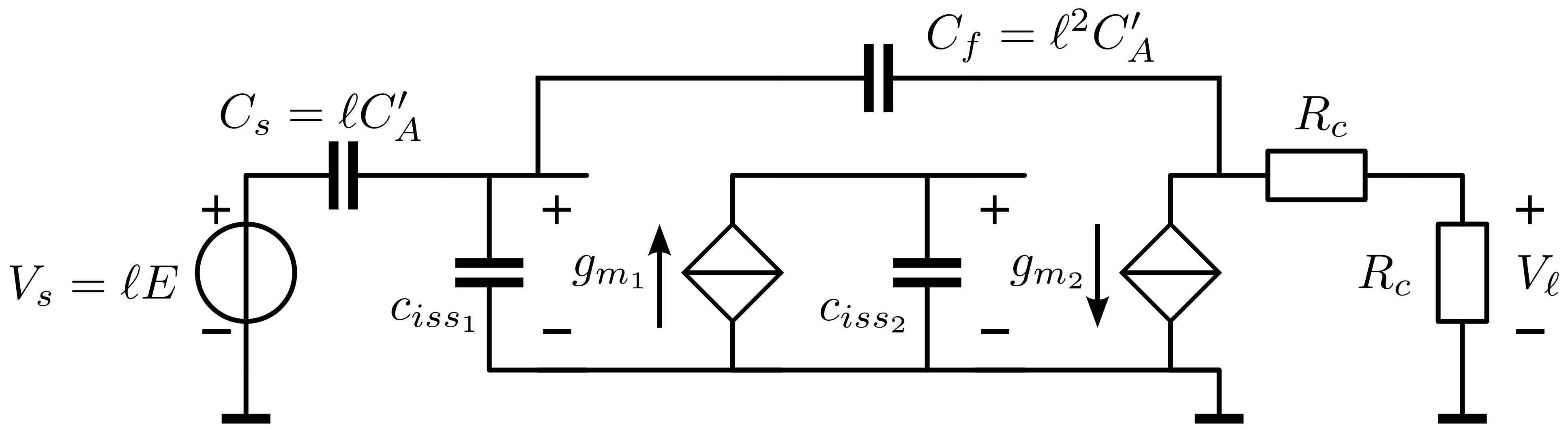

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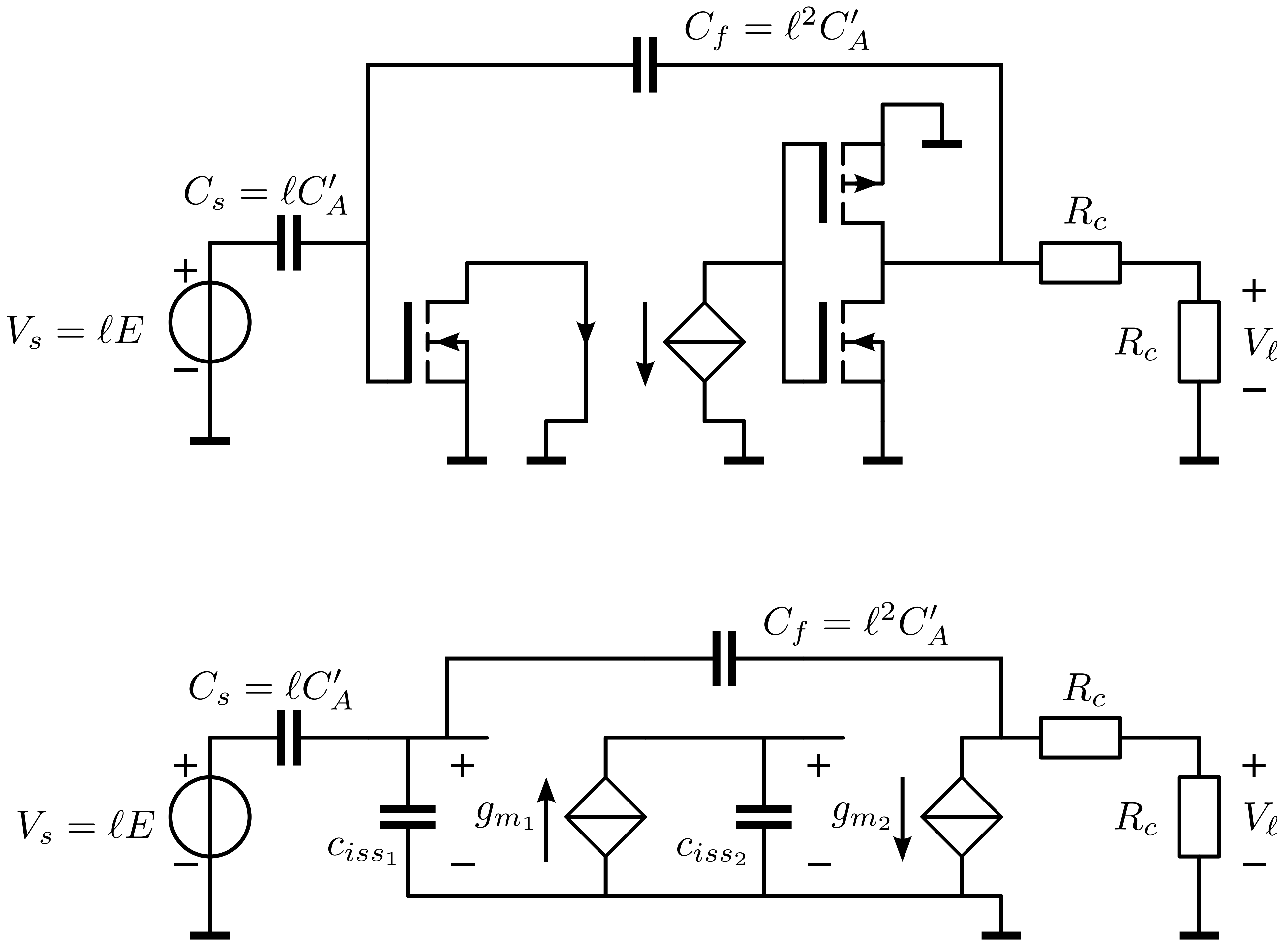

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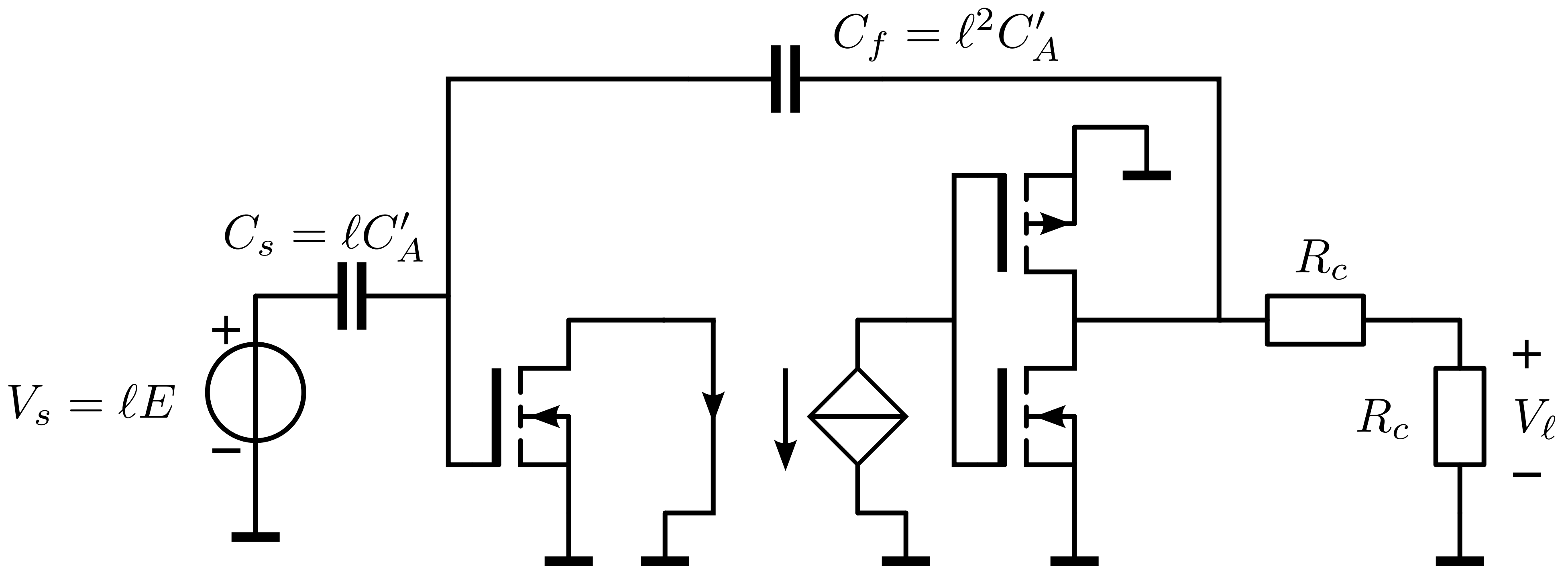

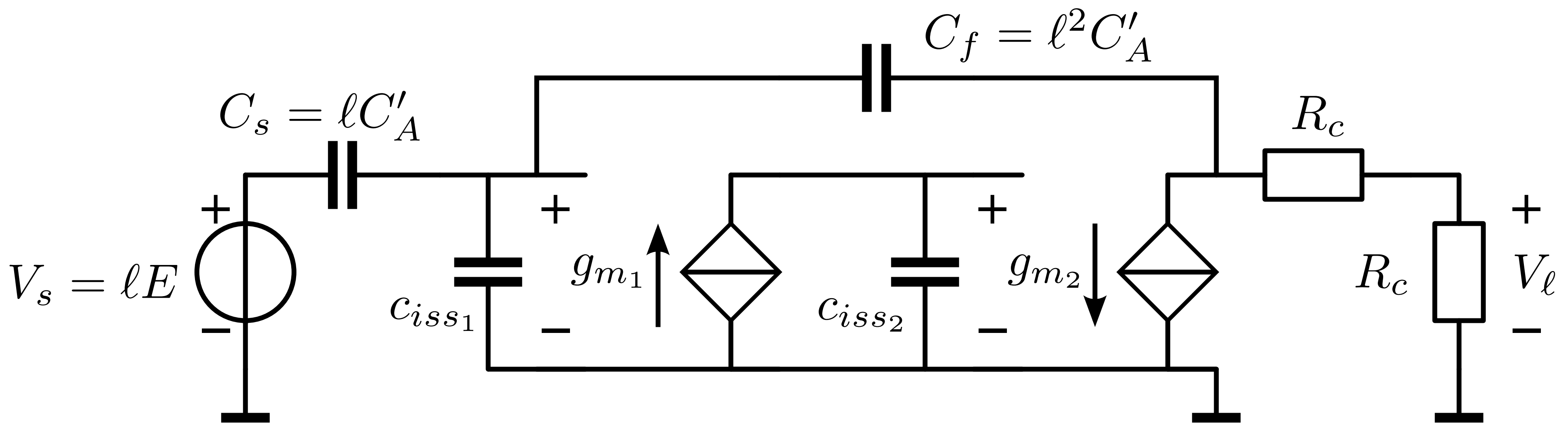

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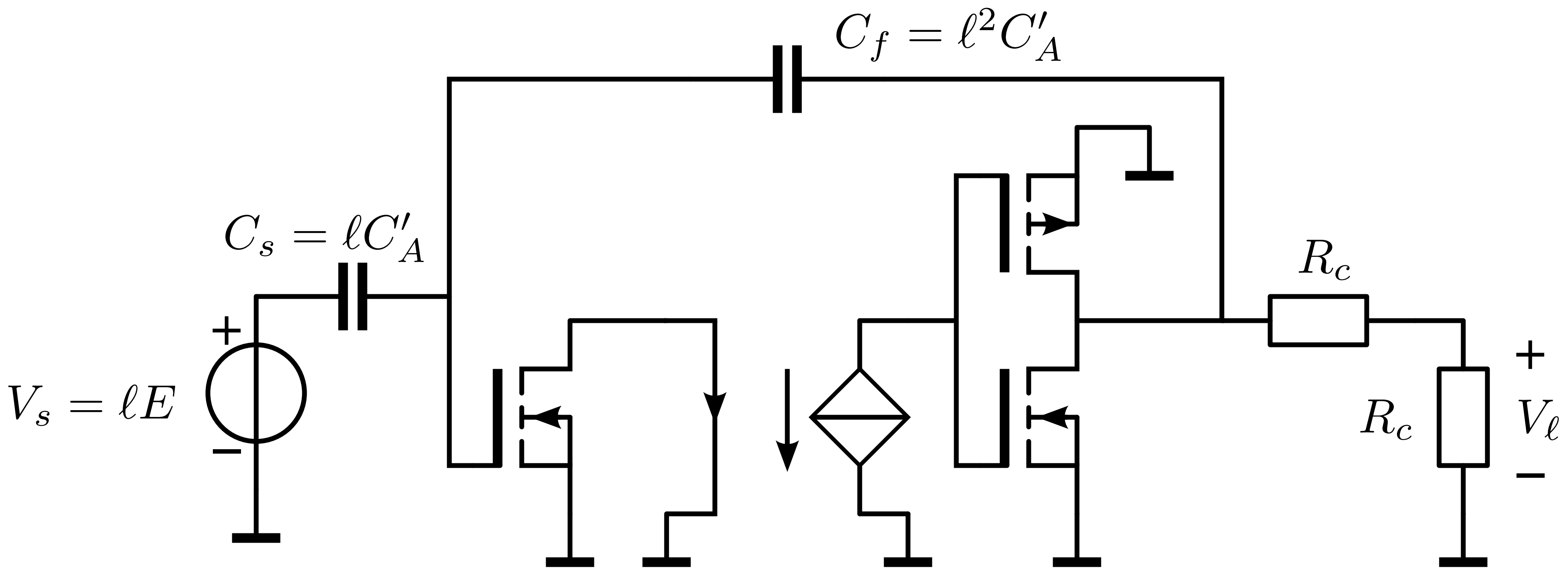

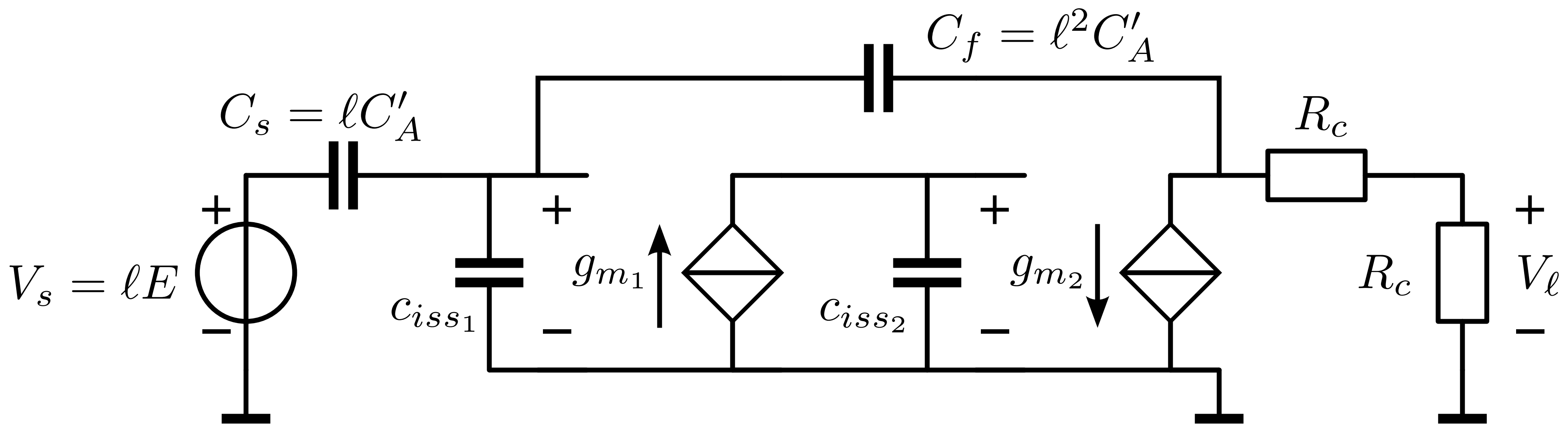

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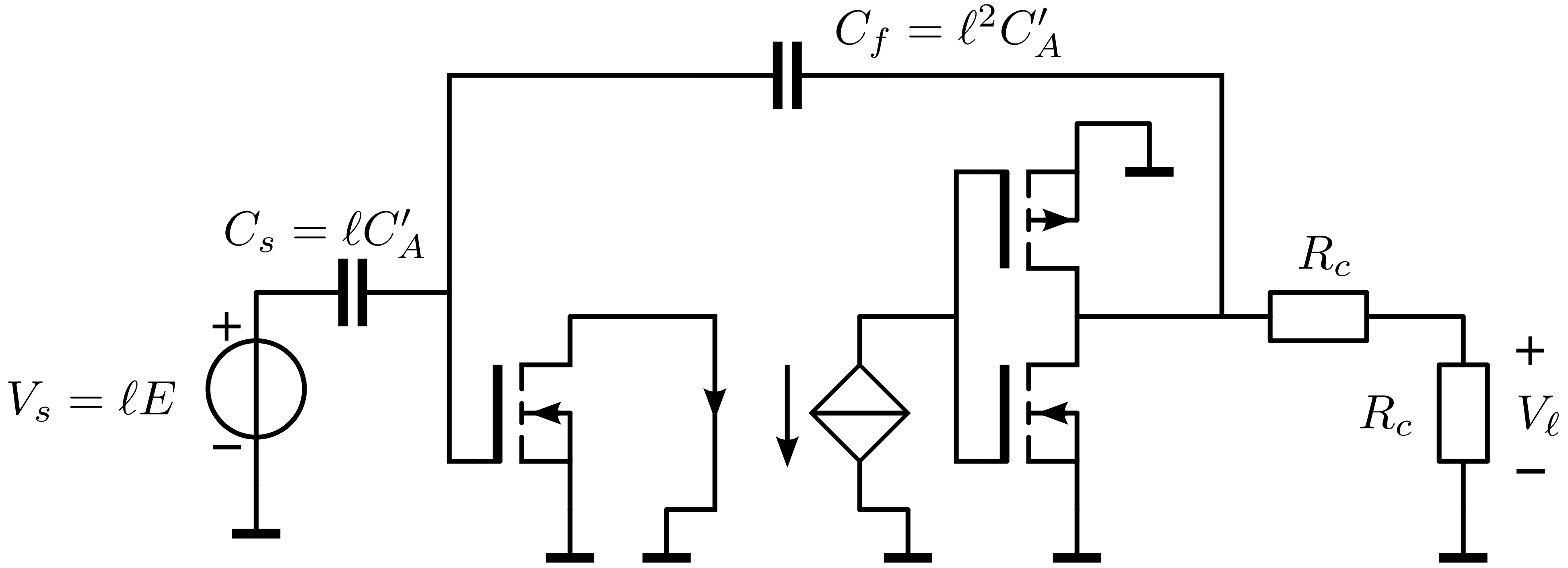

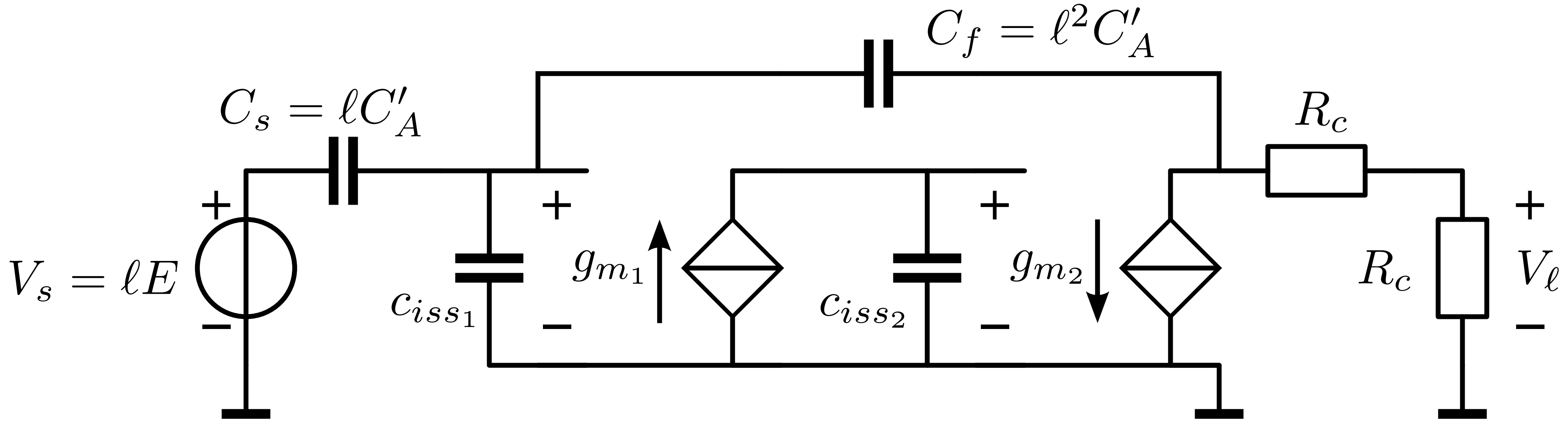

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# Structured Electronic Design

## EE4109
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*Anton J.M. Montagne*

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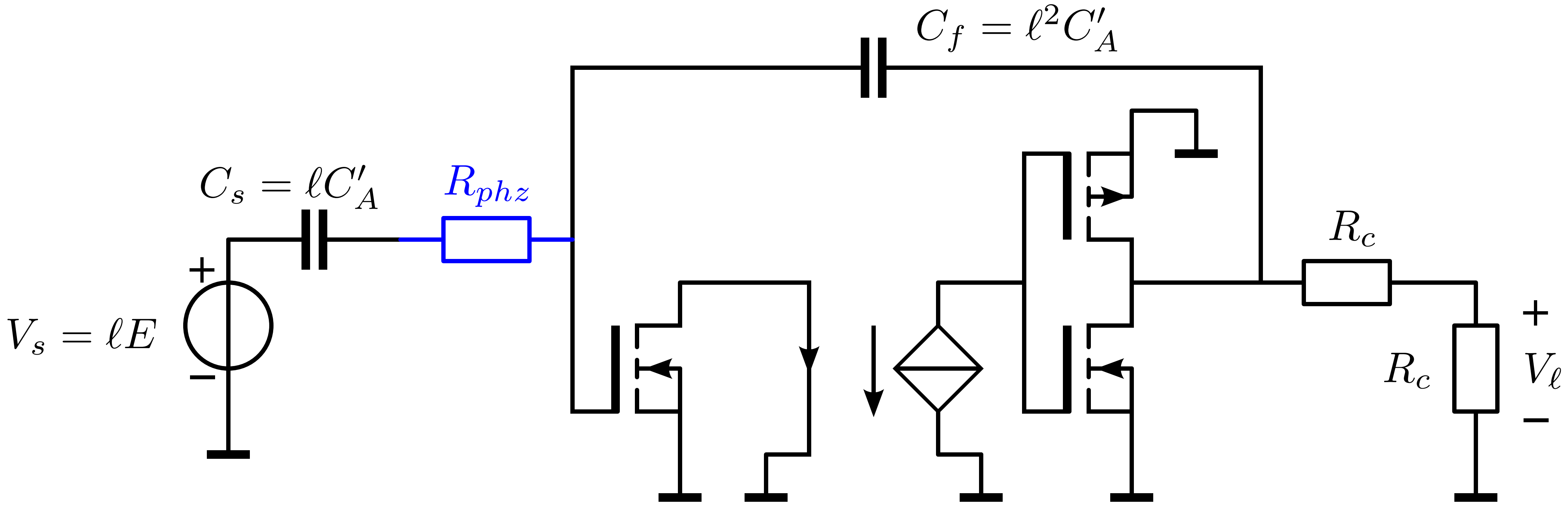

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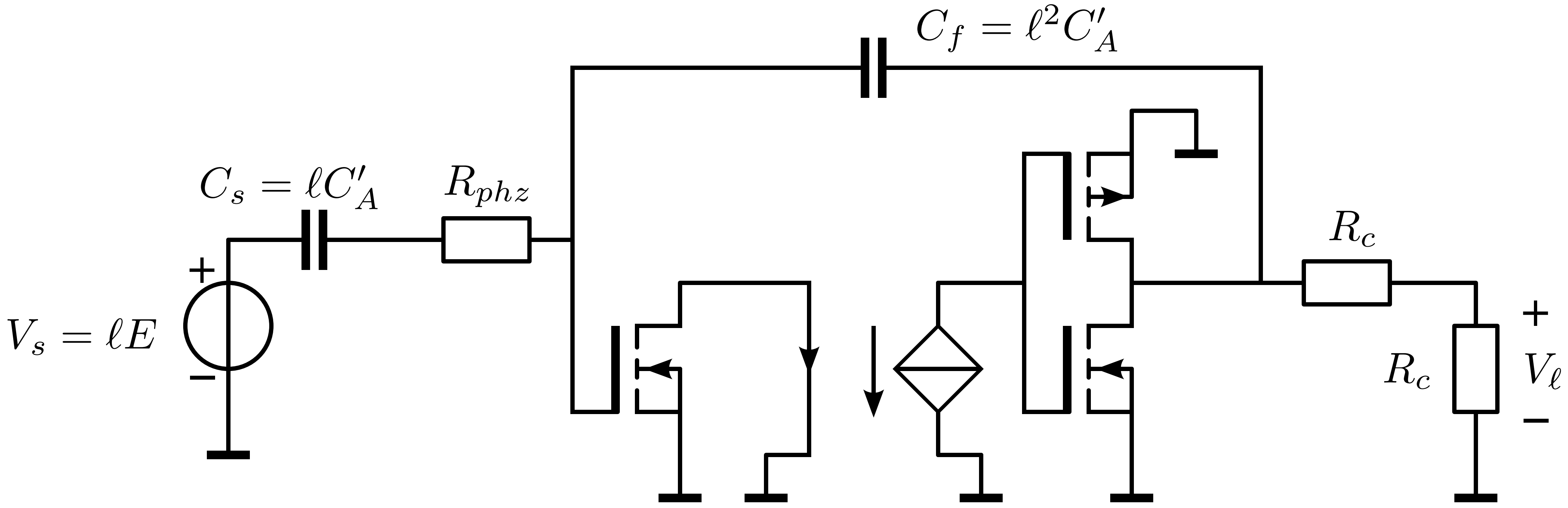

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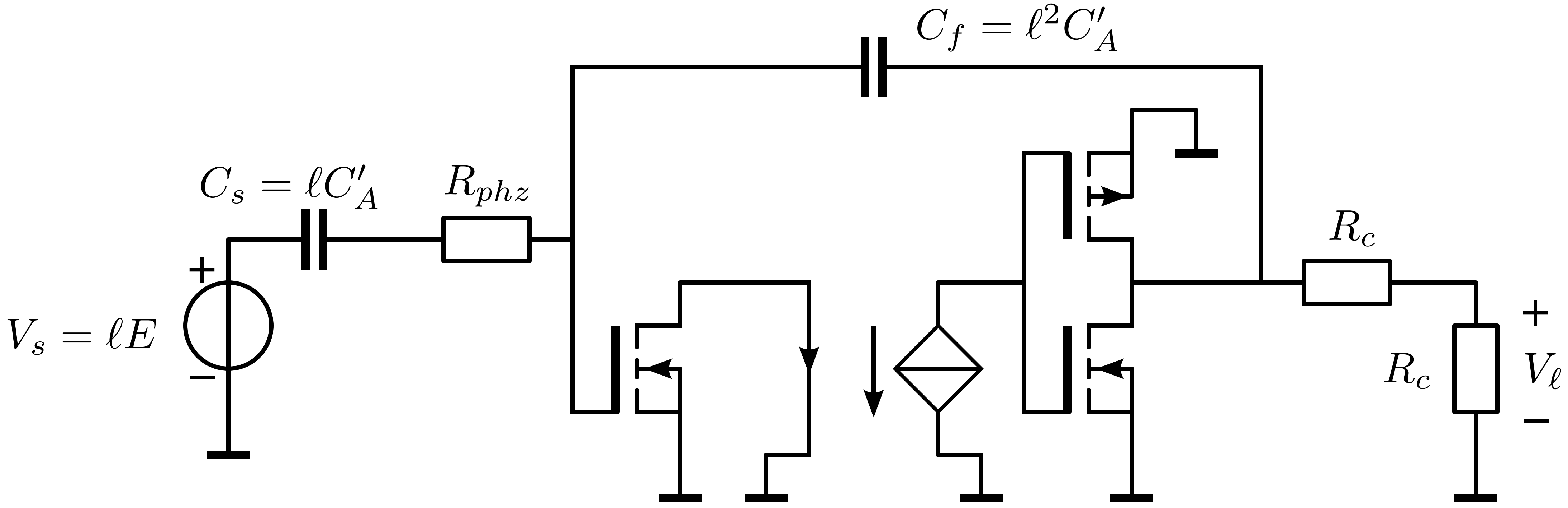

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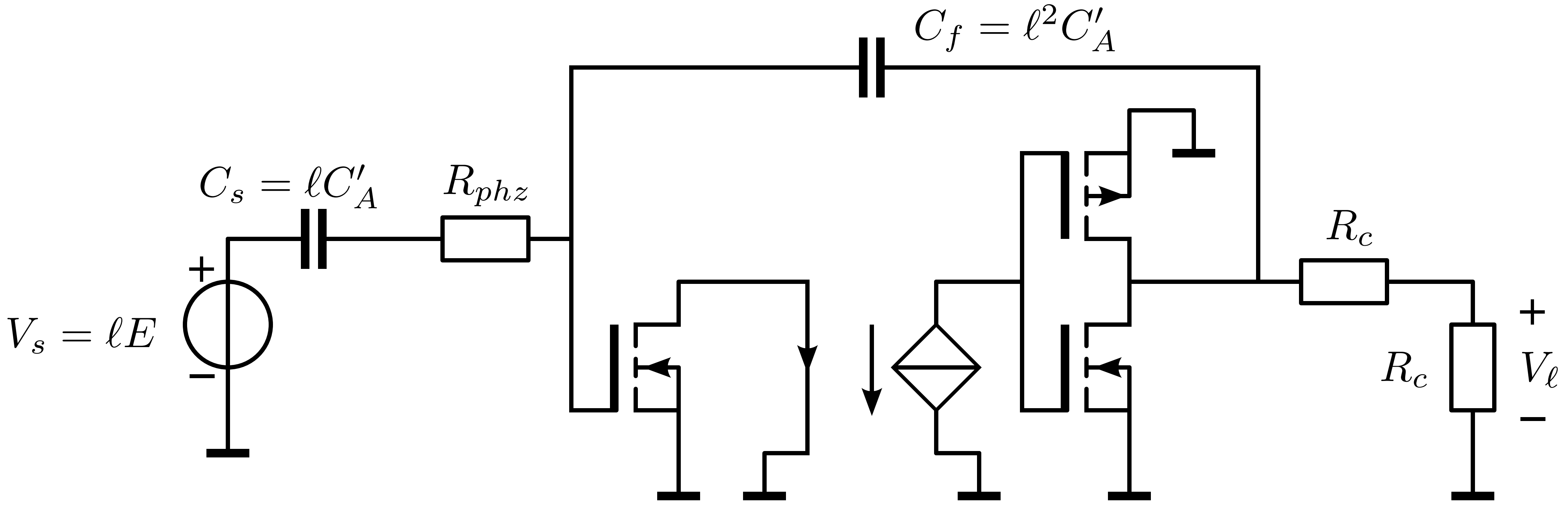

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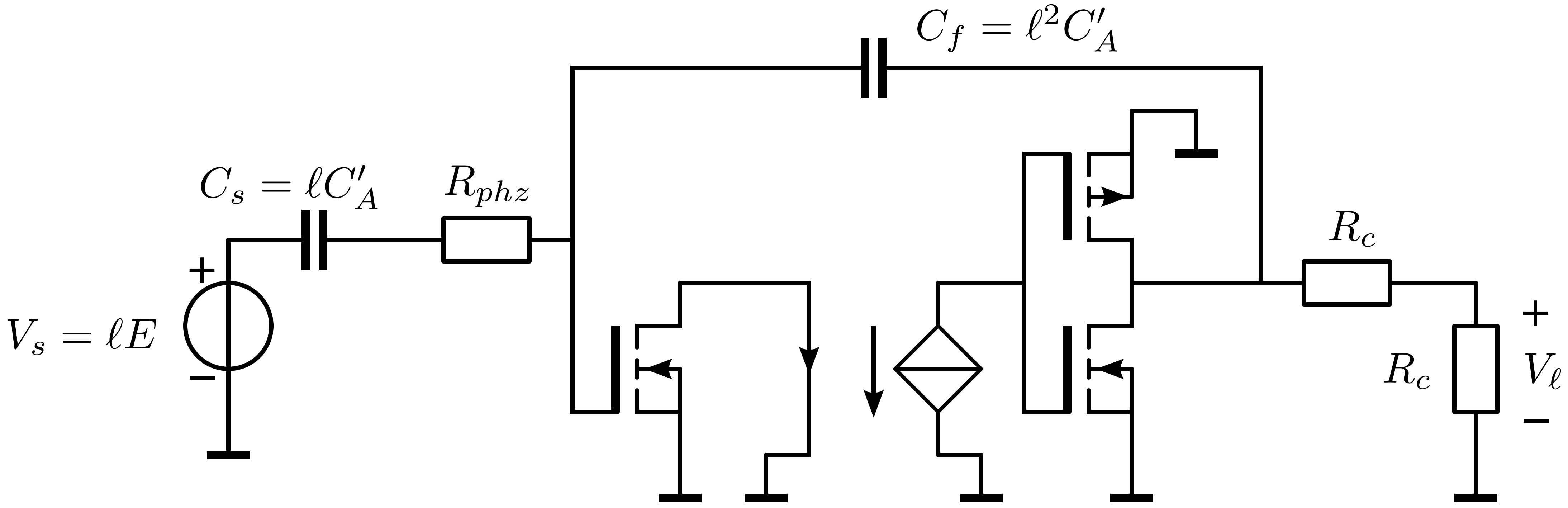

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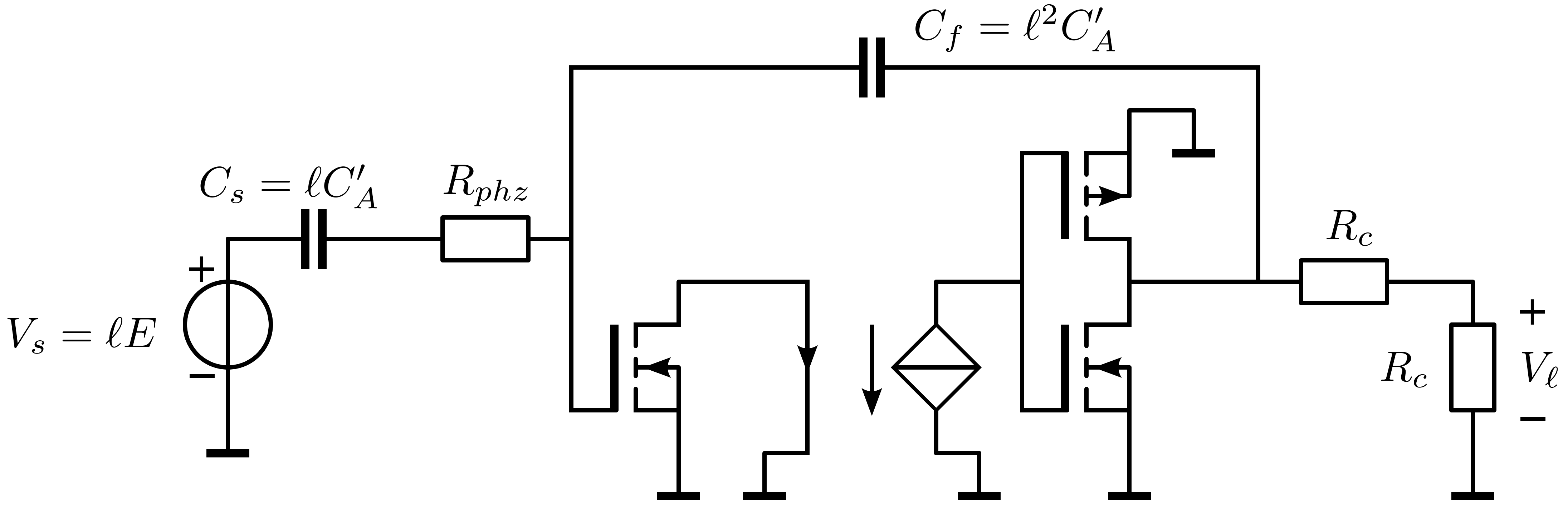

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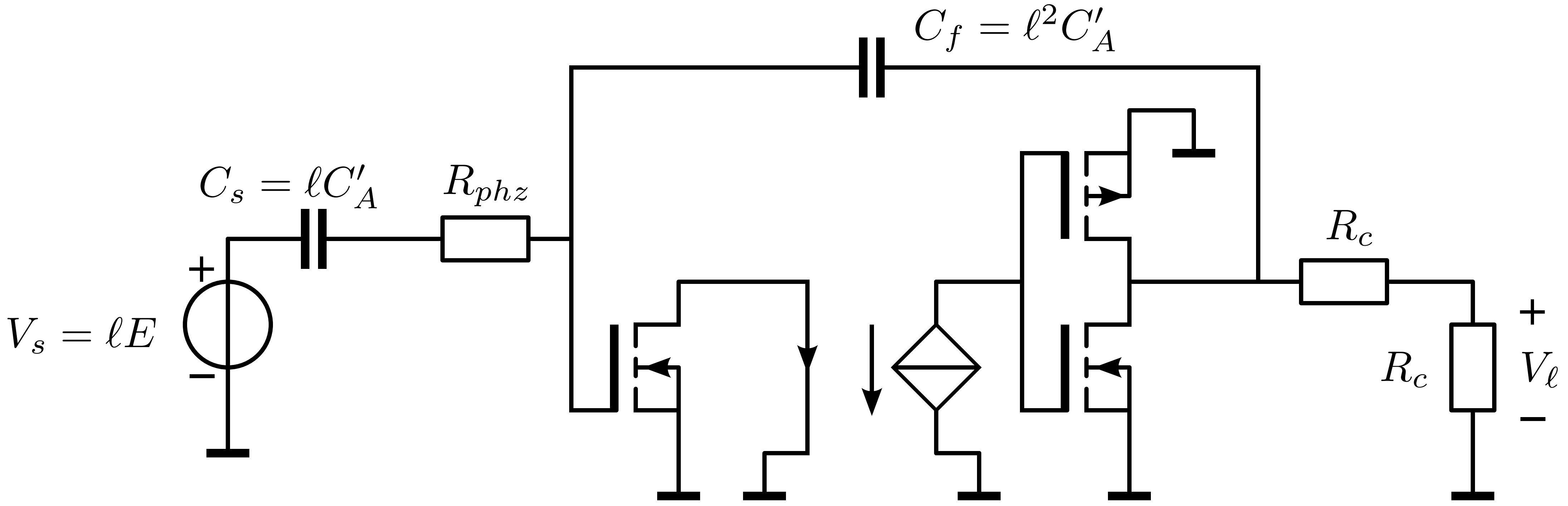

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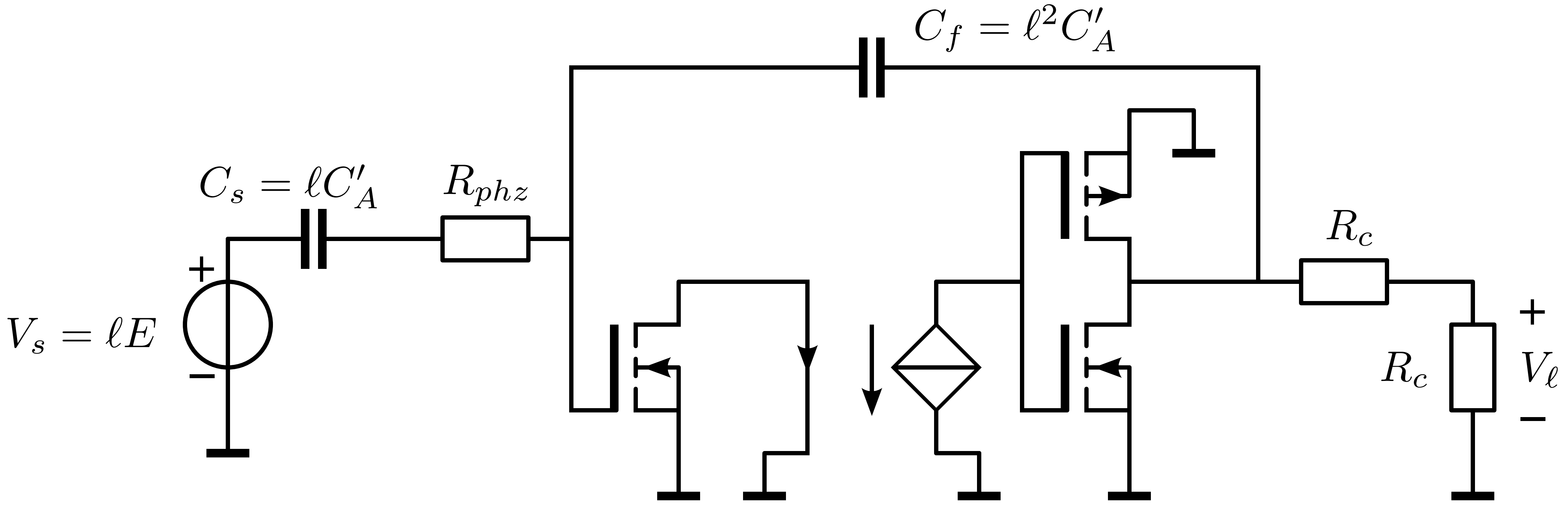

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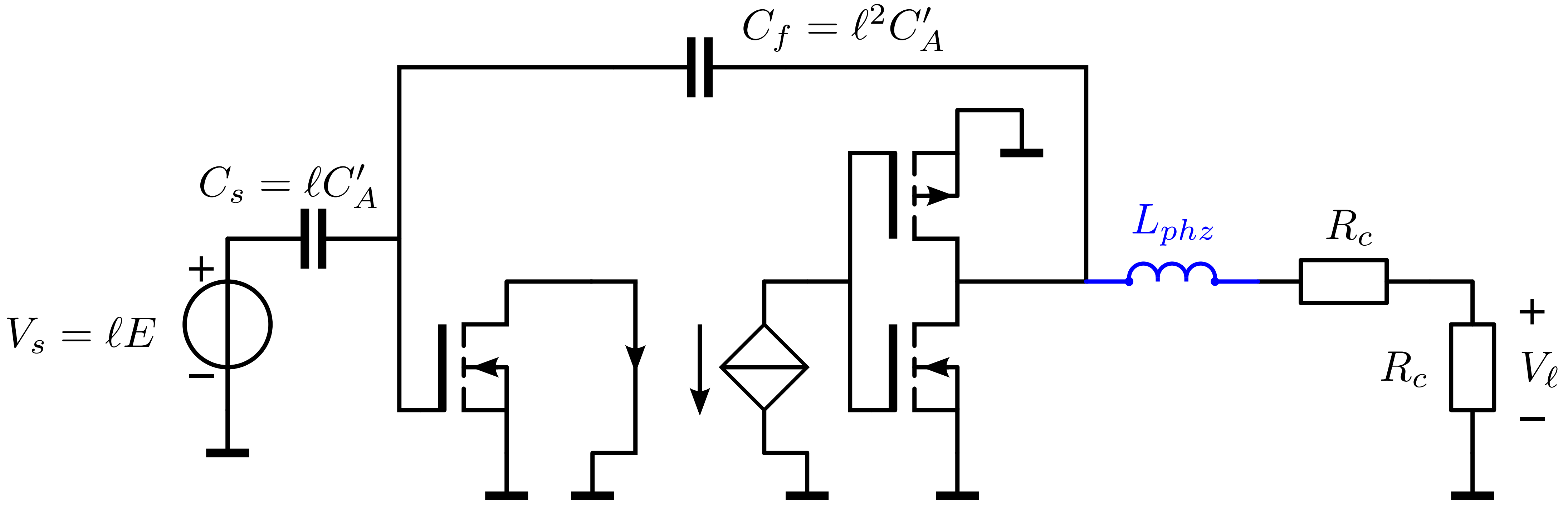

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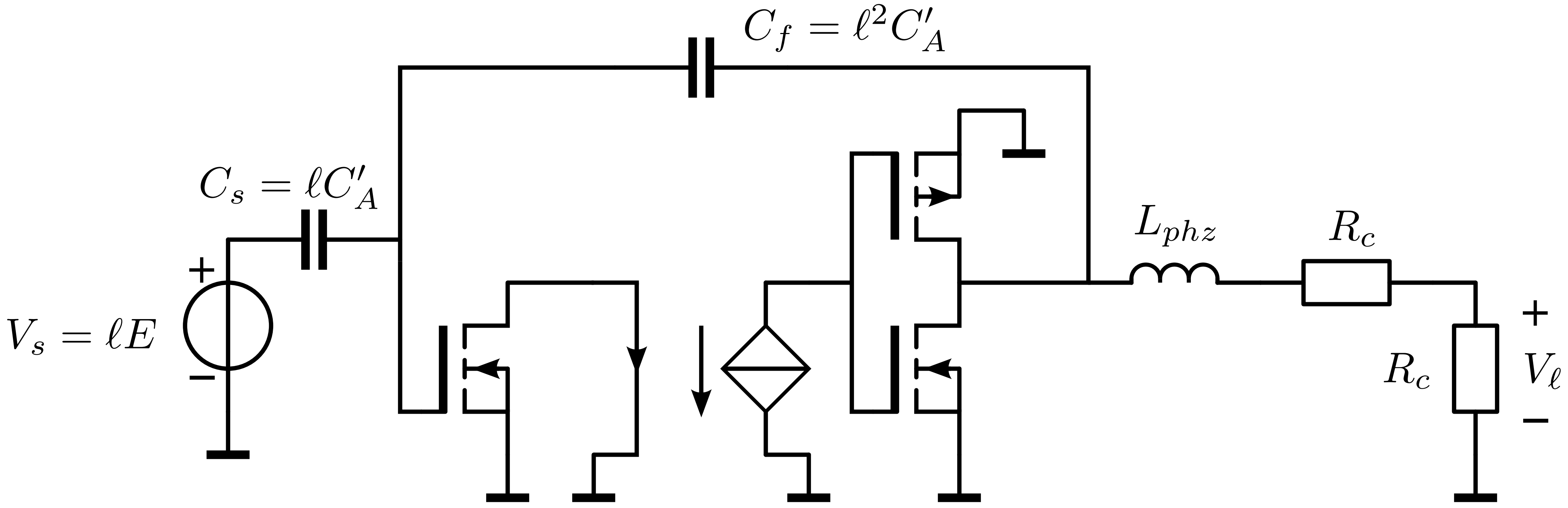

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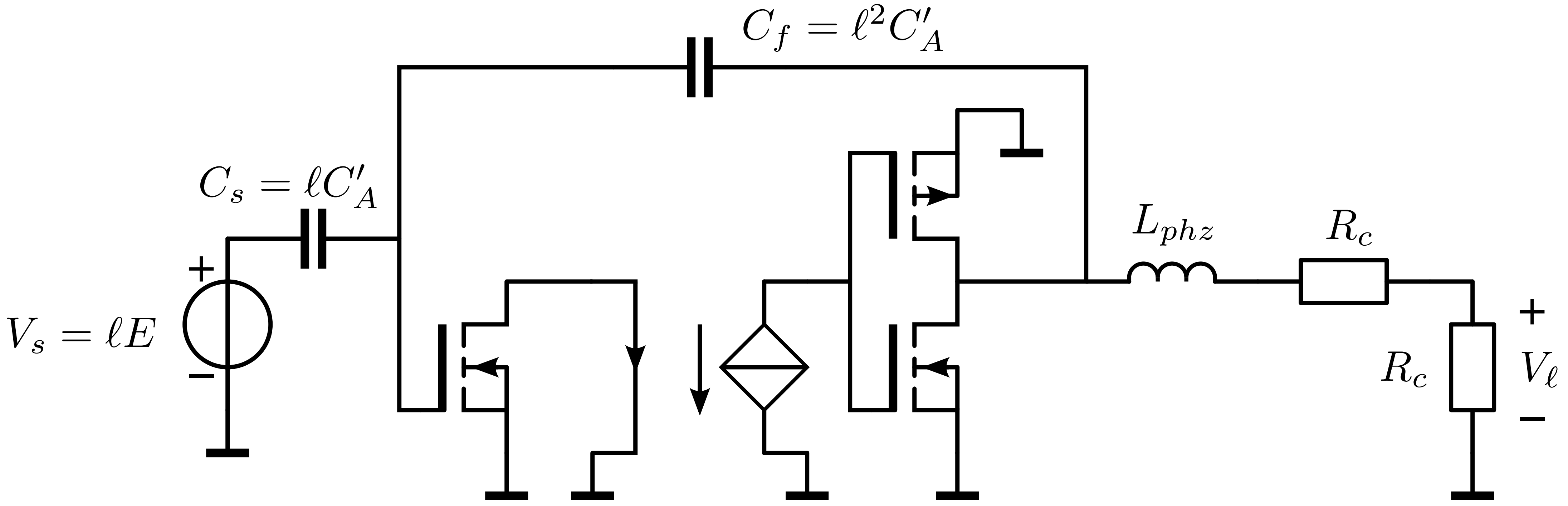

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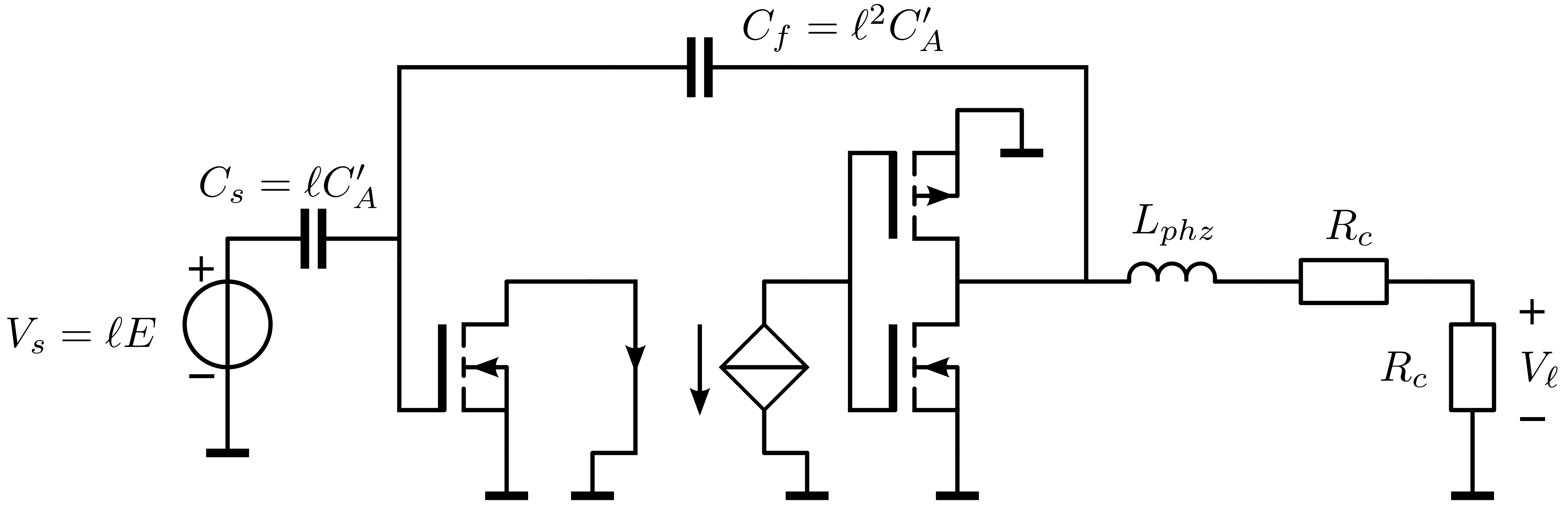

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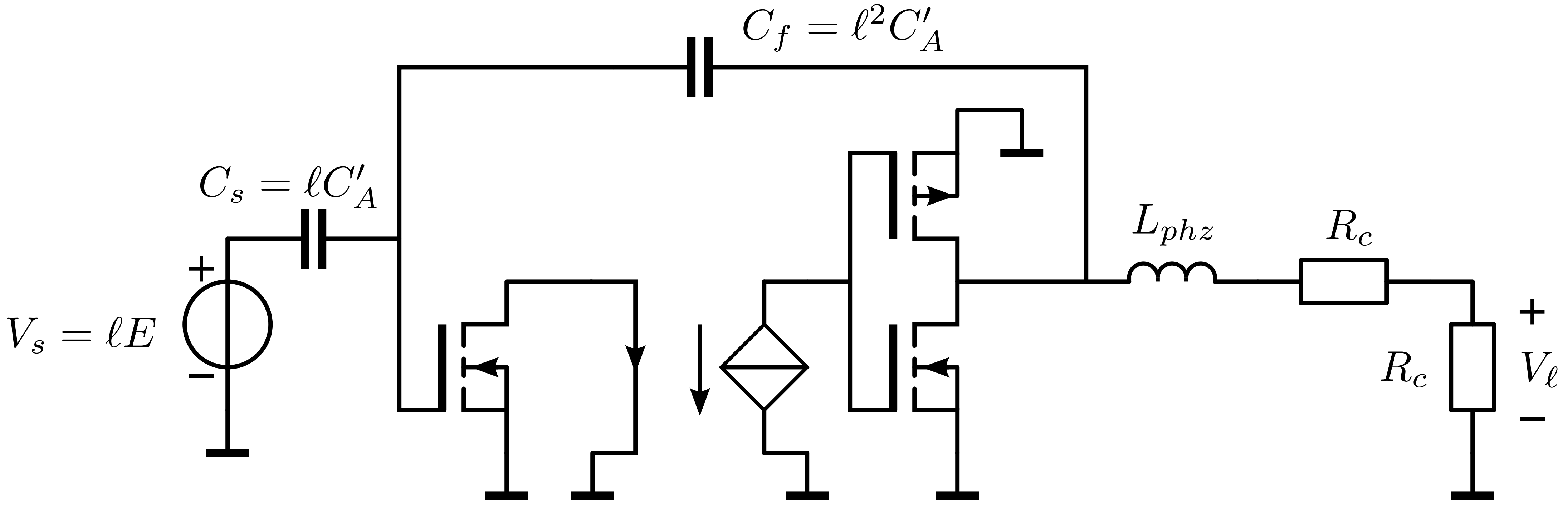

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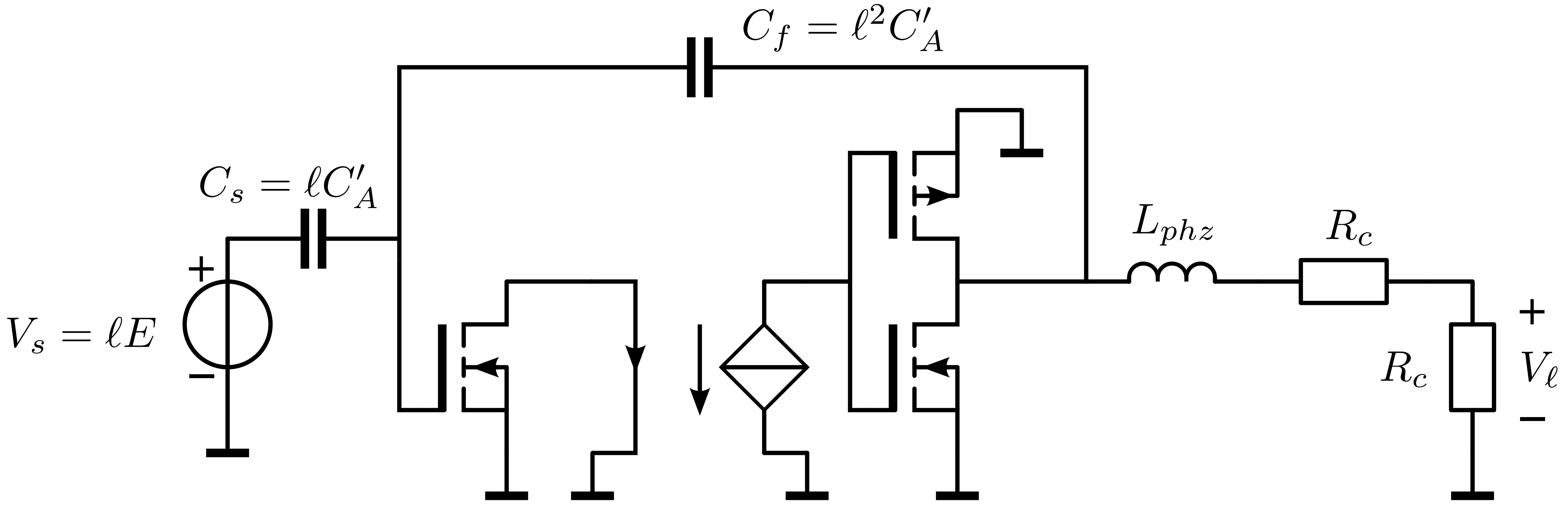

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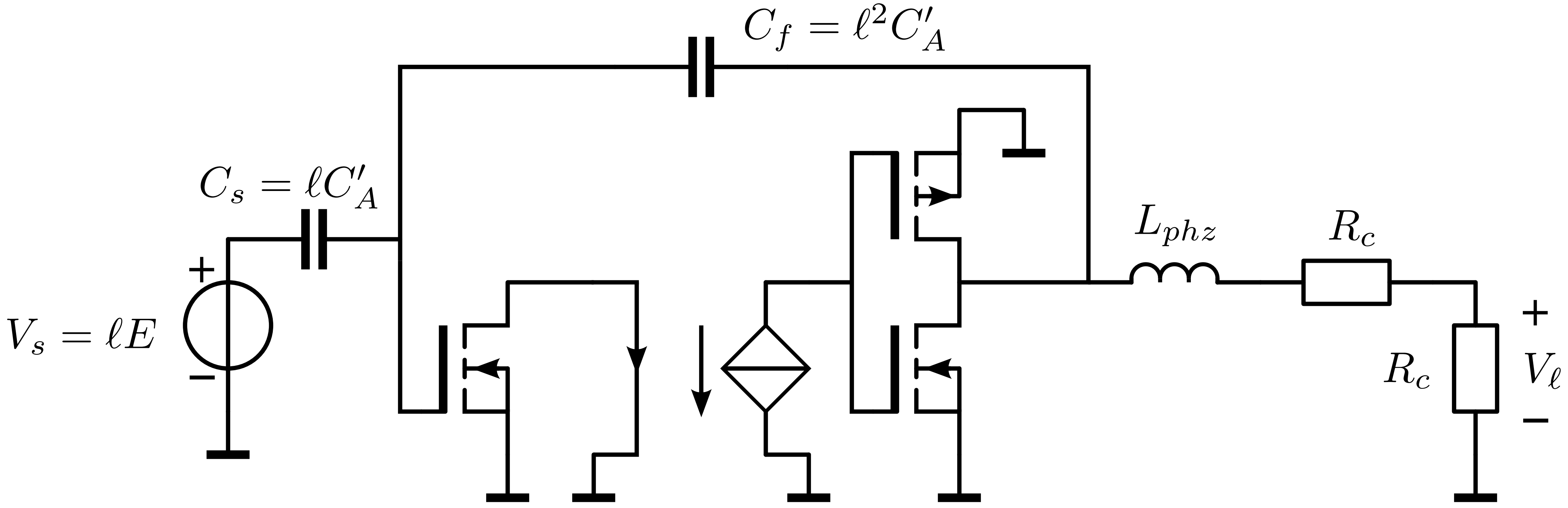

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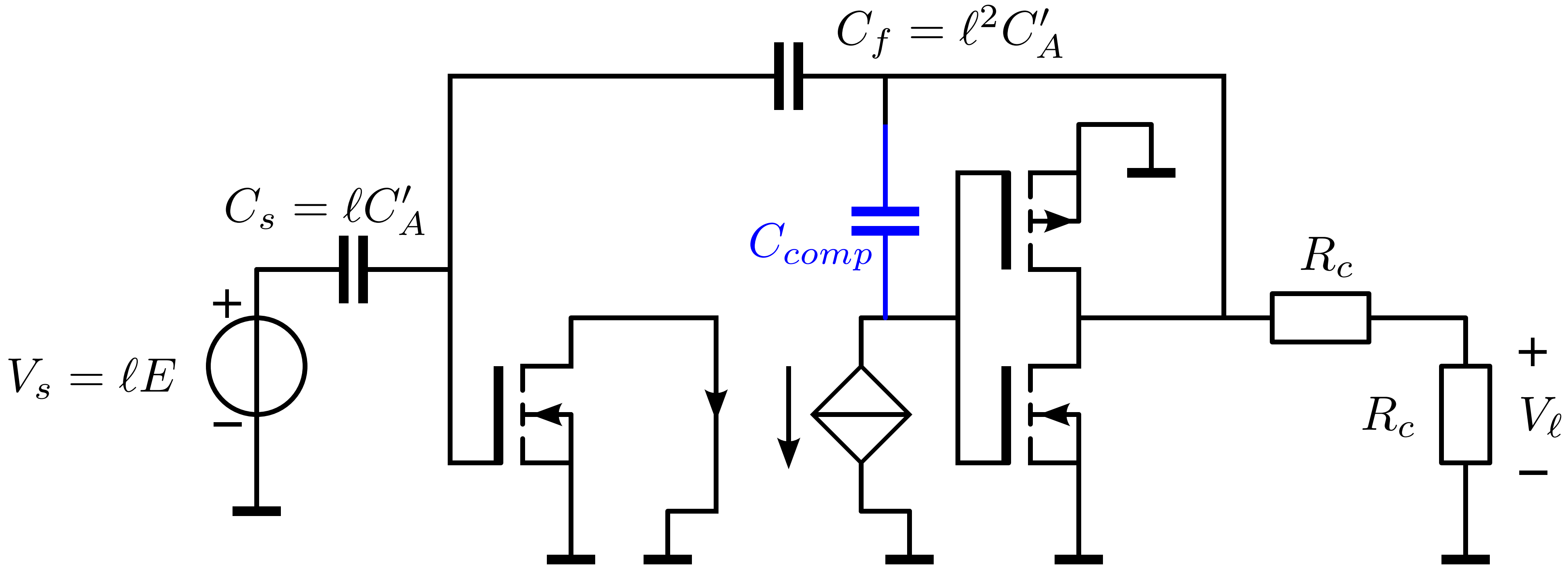

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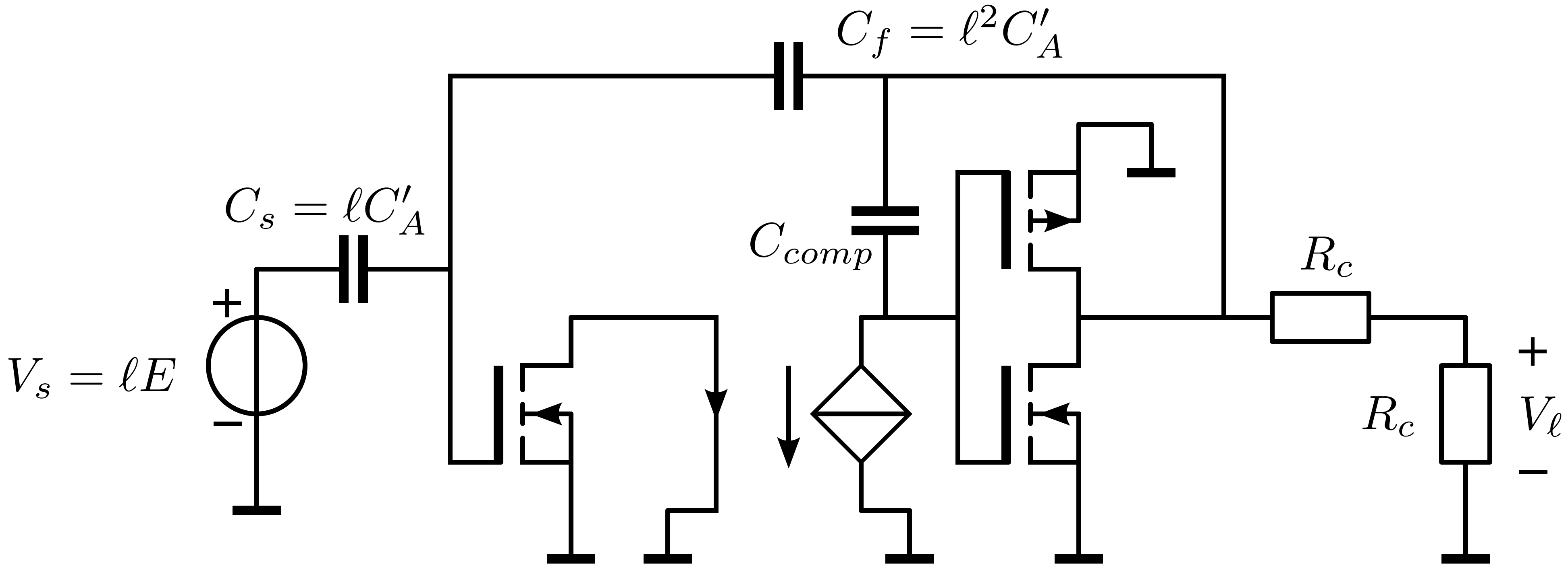

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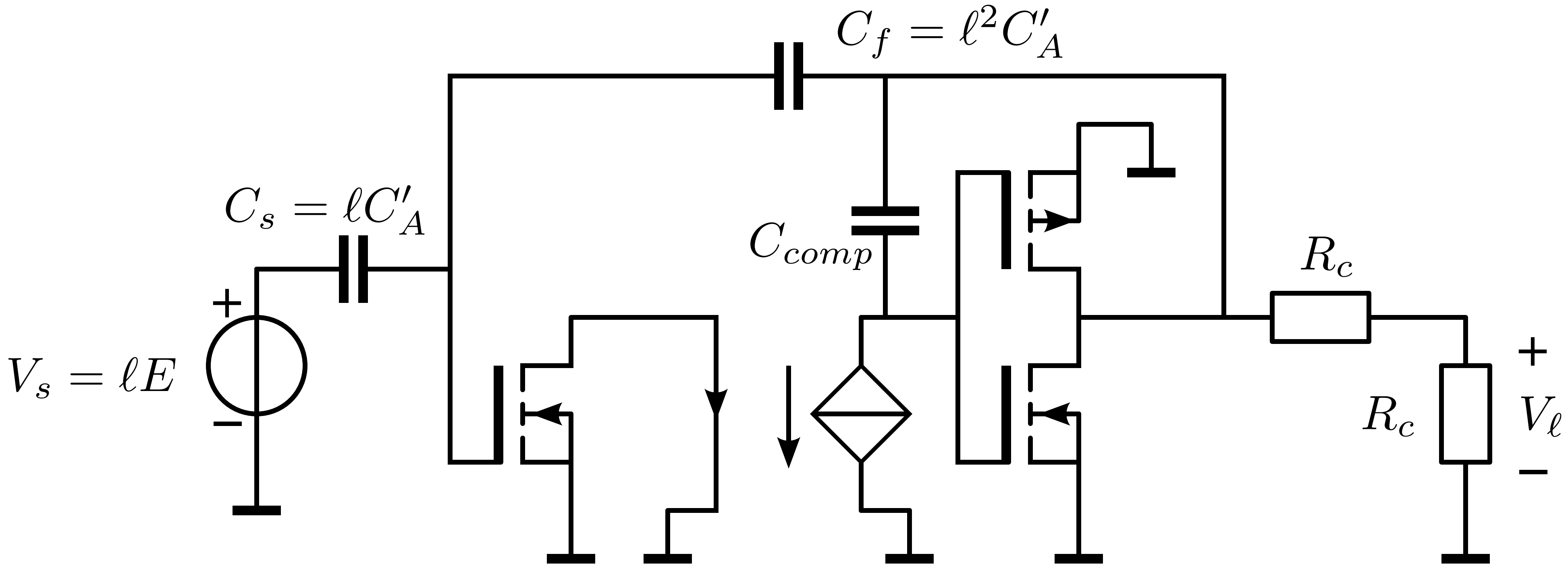

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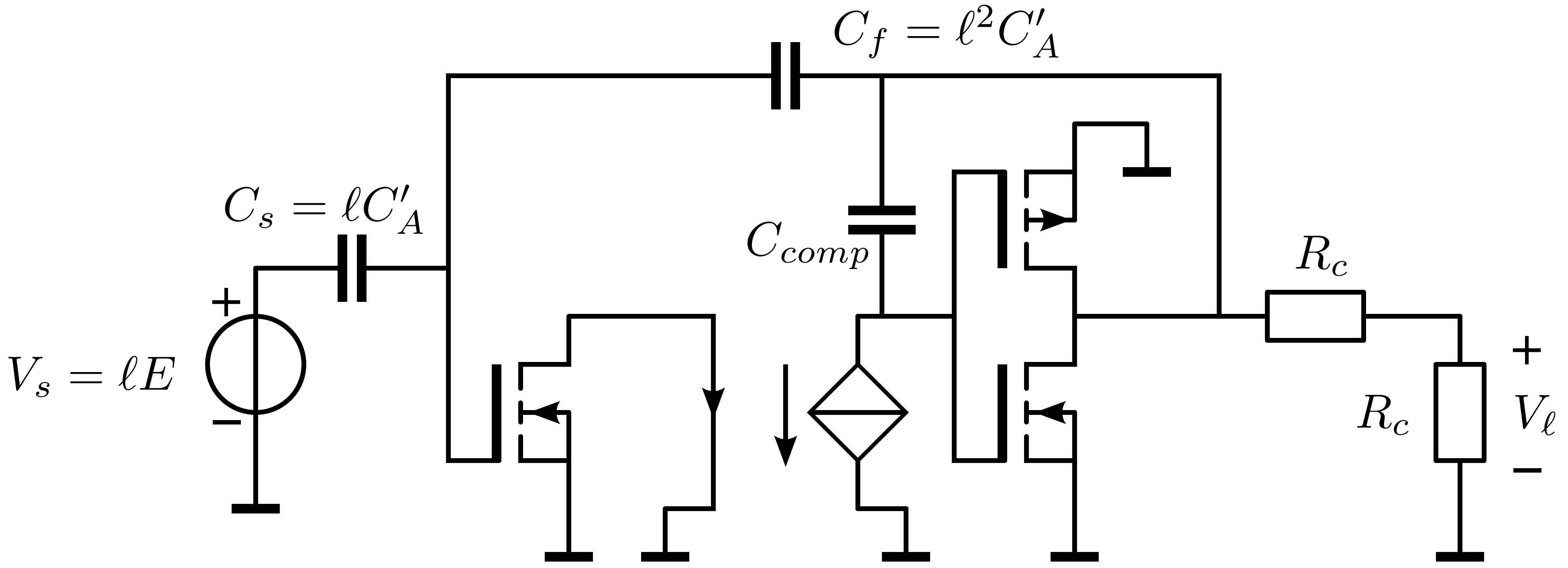
$$p_1 + p_2 = p_2 = -\sqrt{2}B_f$$

# Poles plitting



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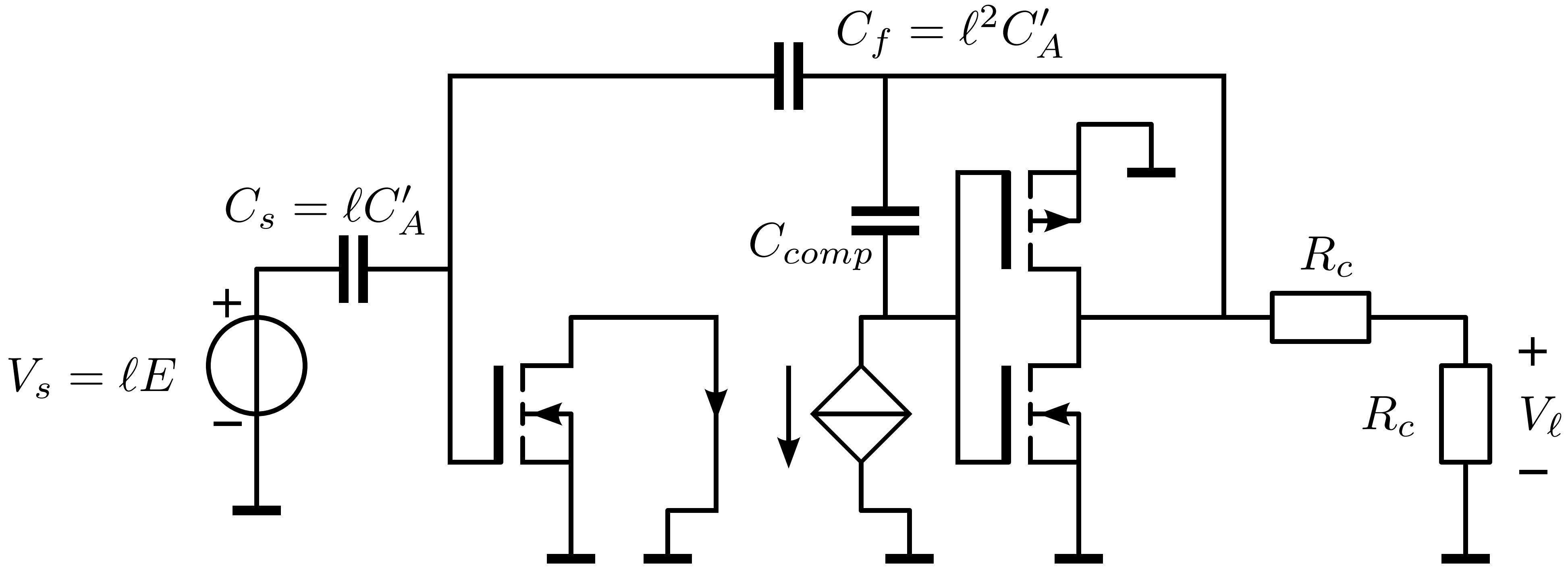

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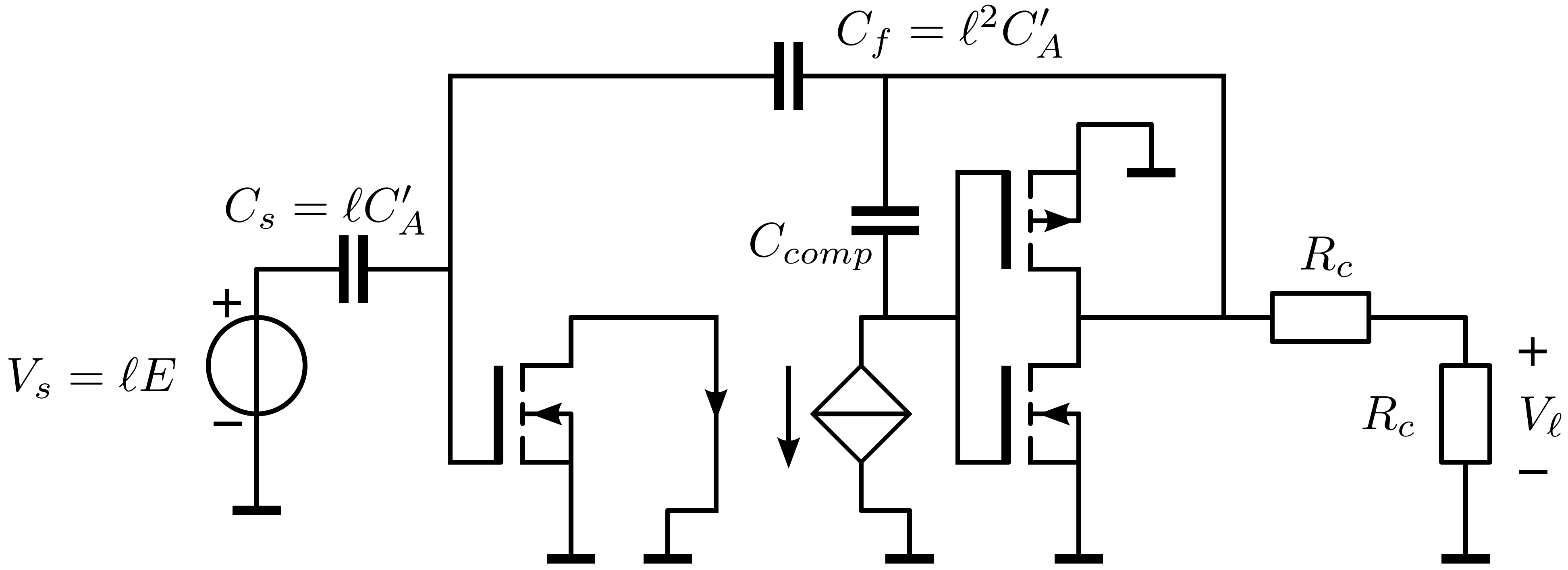

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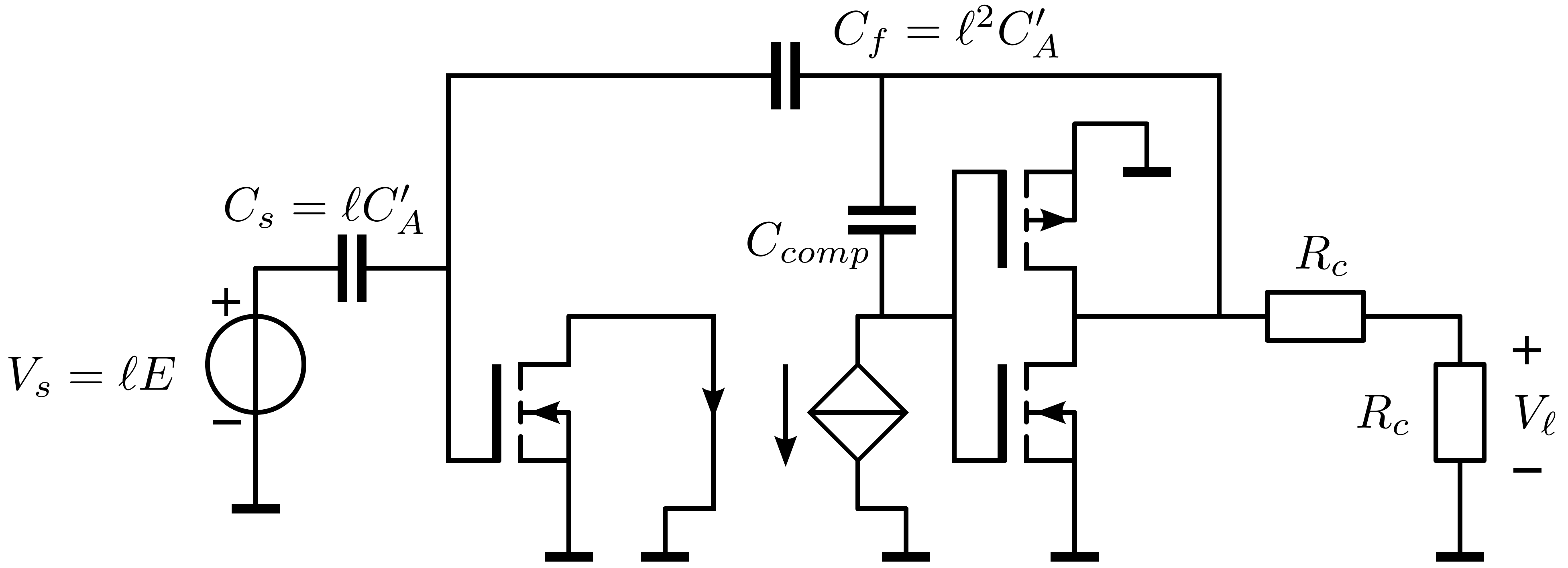

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DualStagePS.py

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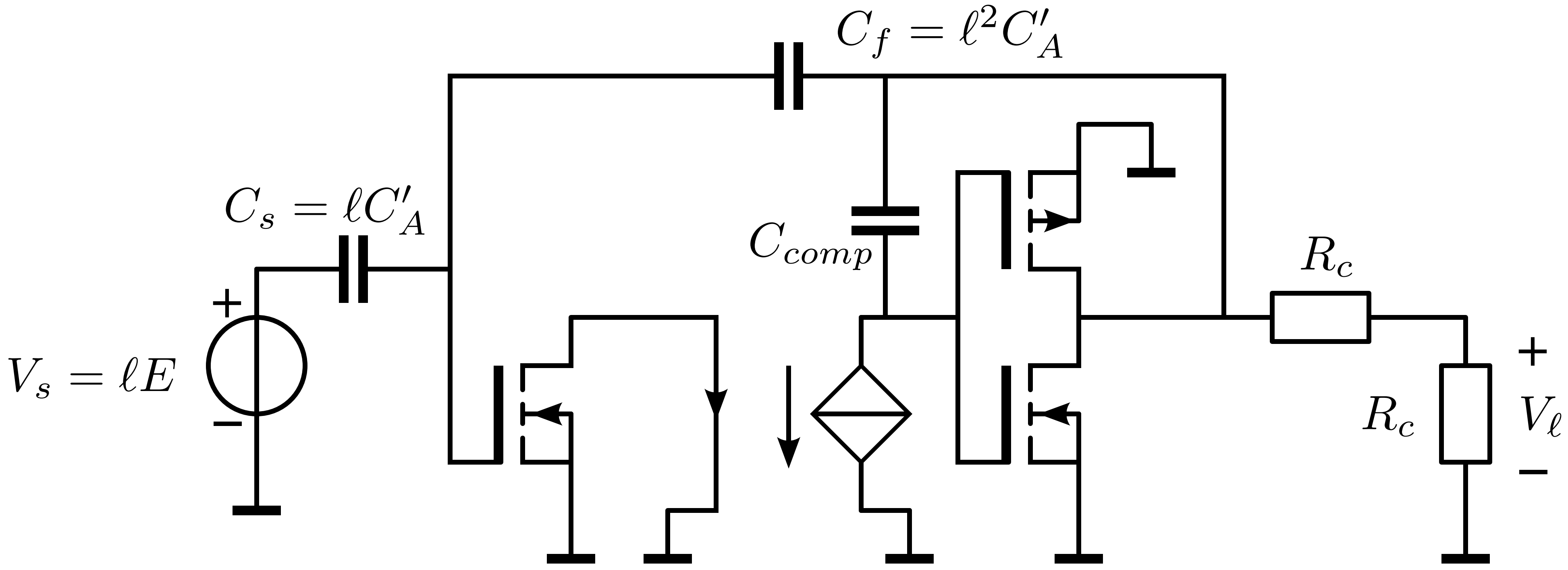

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DualStagePS.py

# Structured Electronic Design

## EE4109
## Pole-zero canceling

*Anton J.M. Montagne*

# PZ cancel

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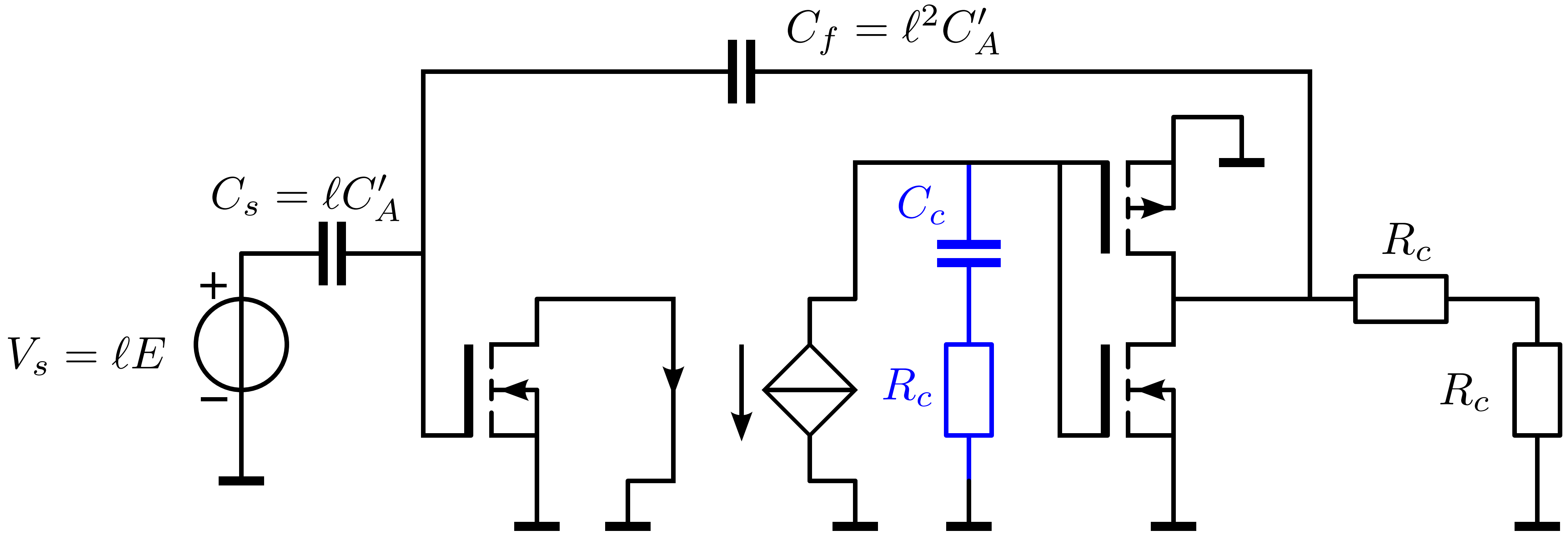

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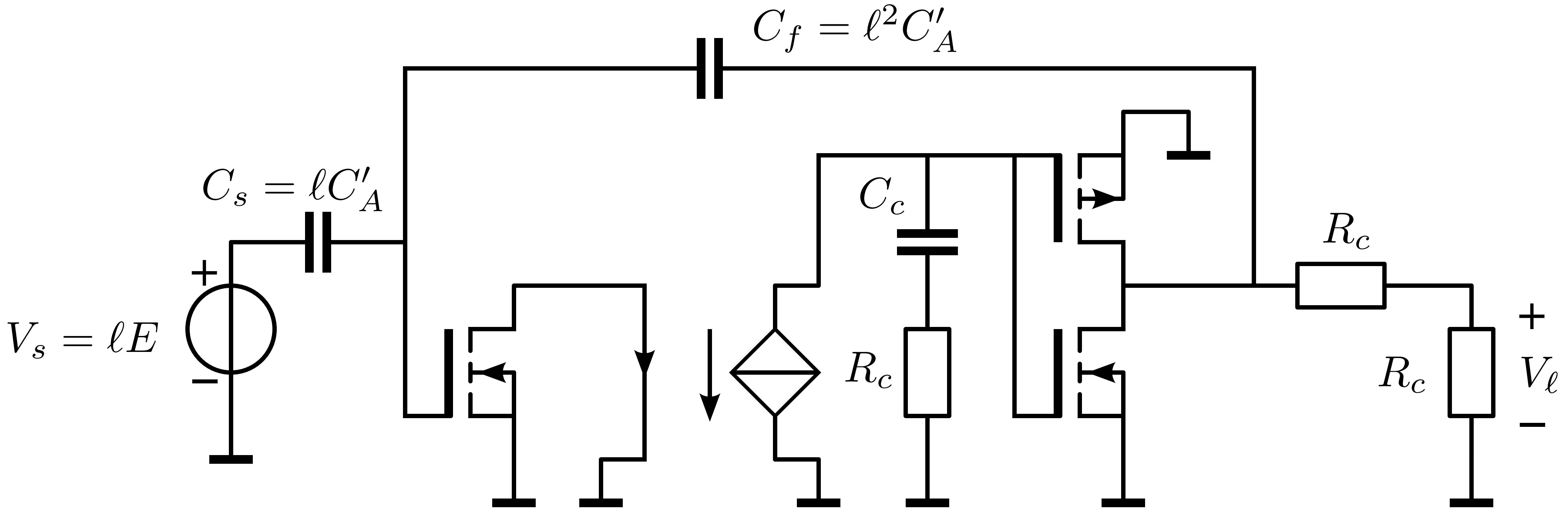
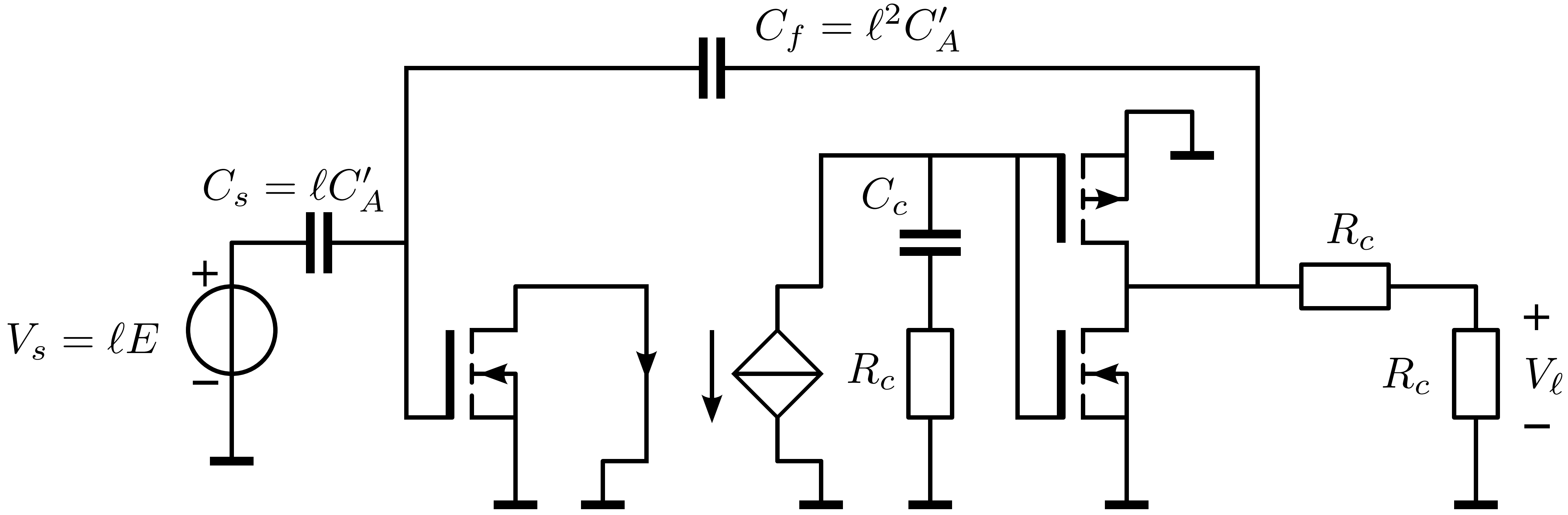


Bring the dominant pole closer to the origin

# PZ cancel



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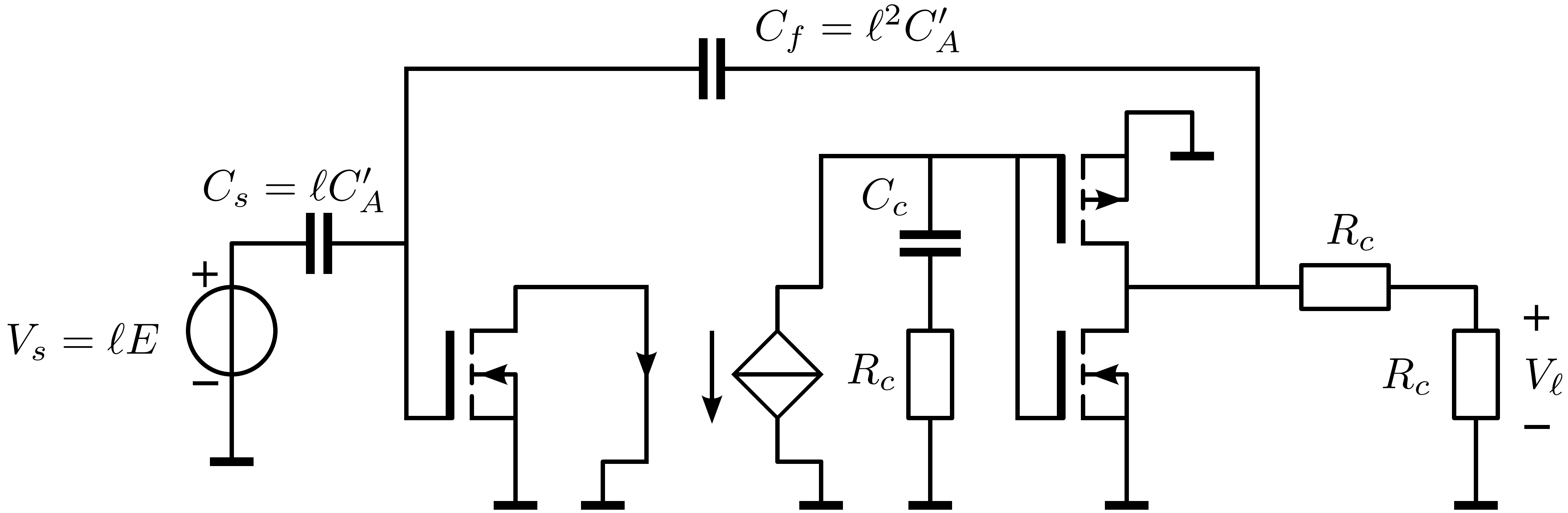

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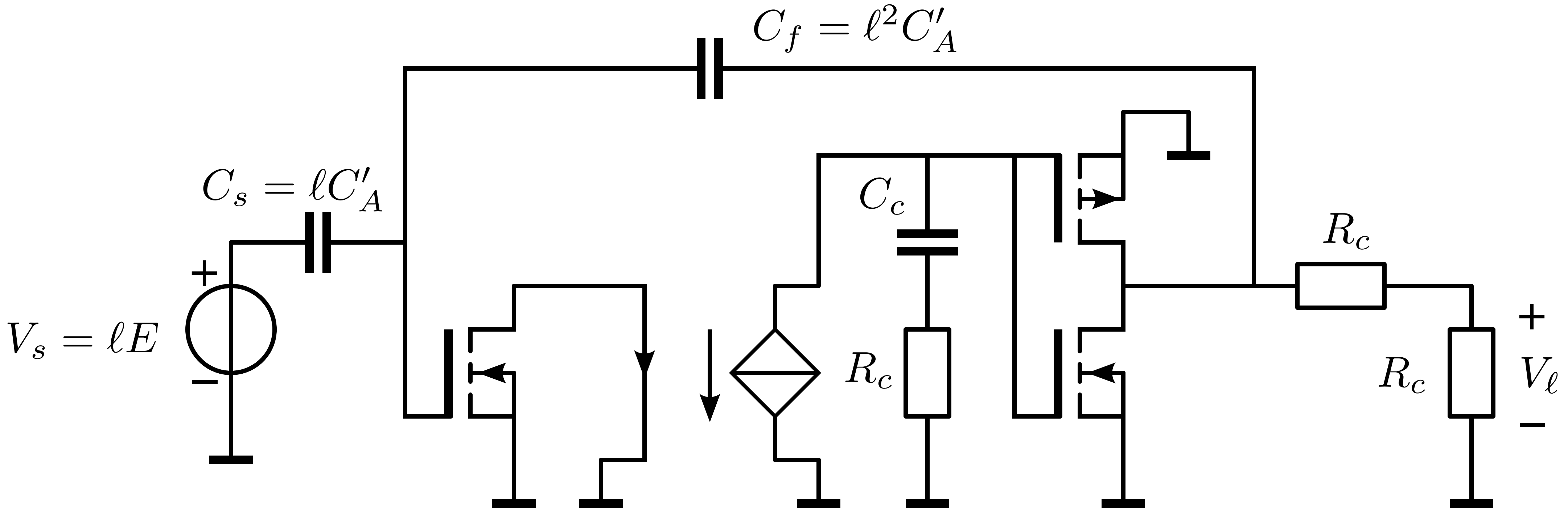

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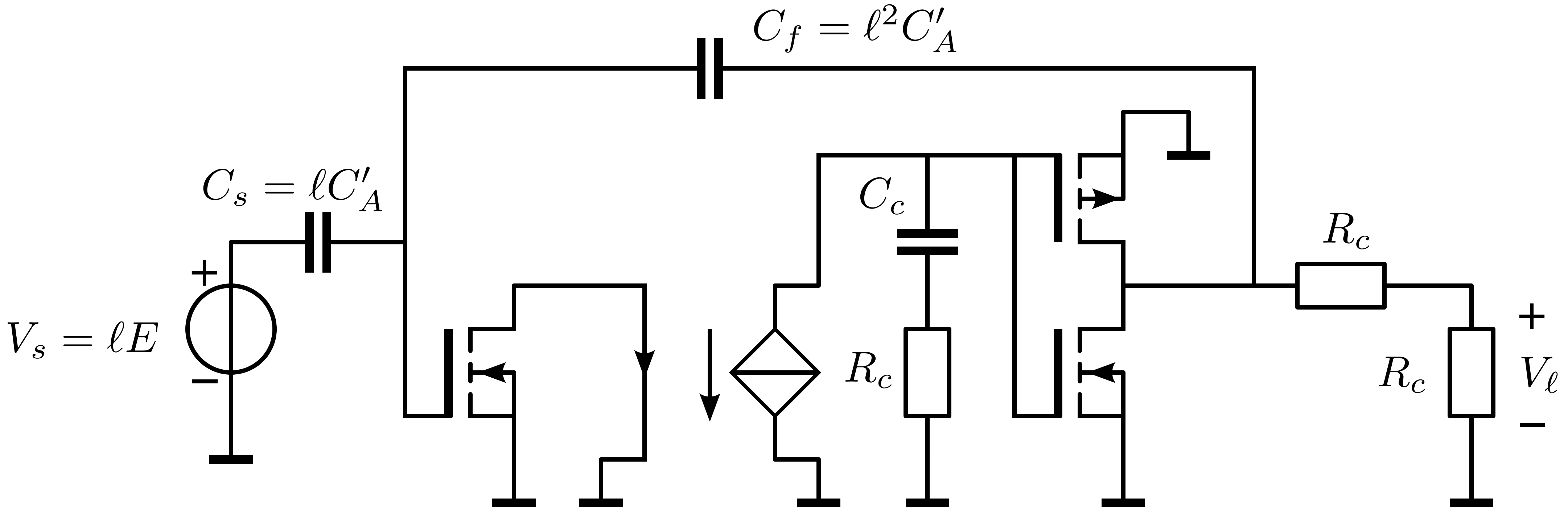

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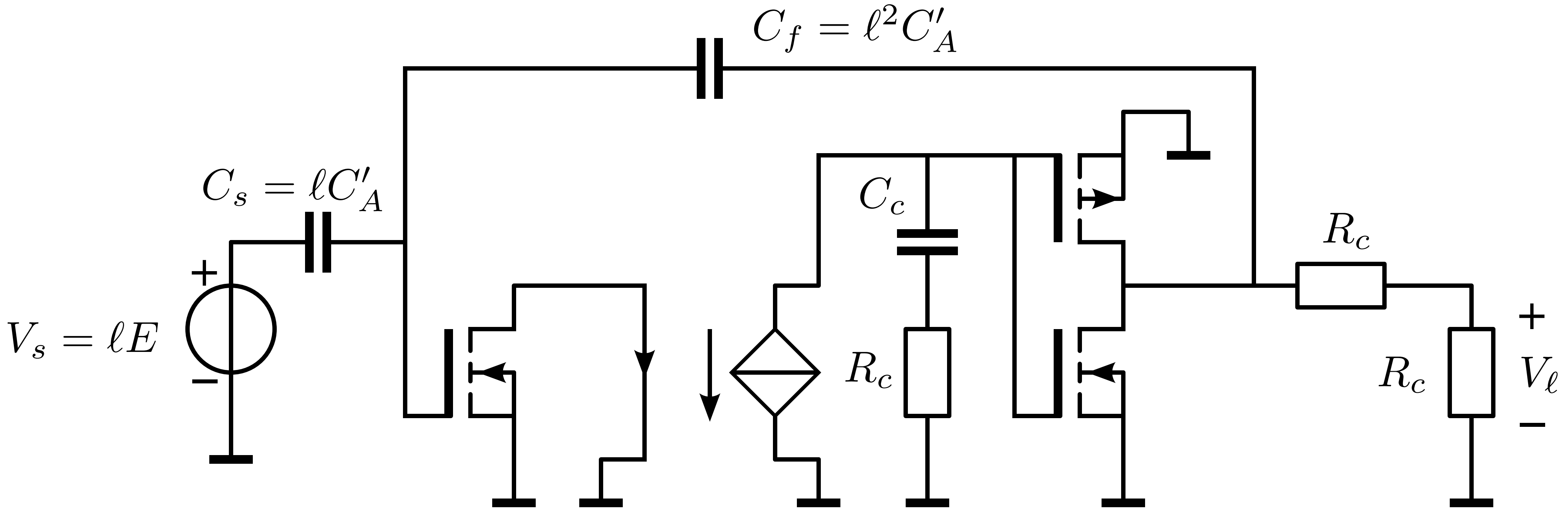

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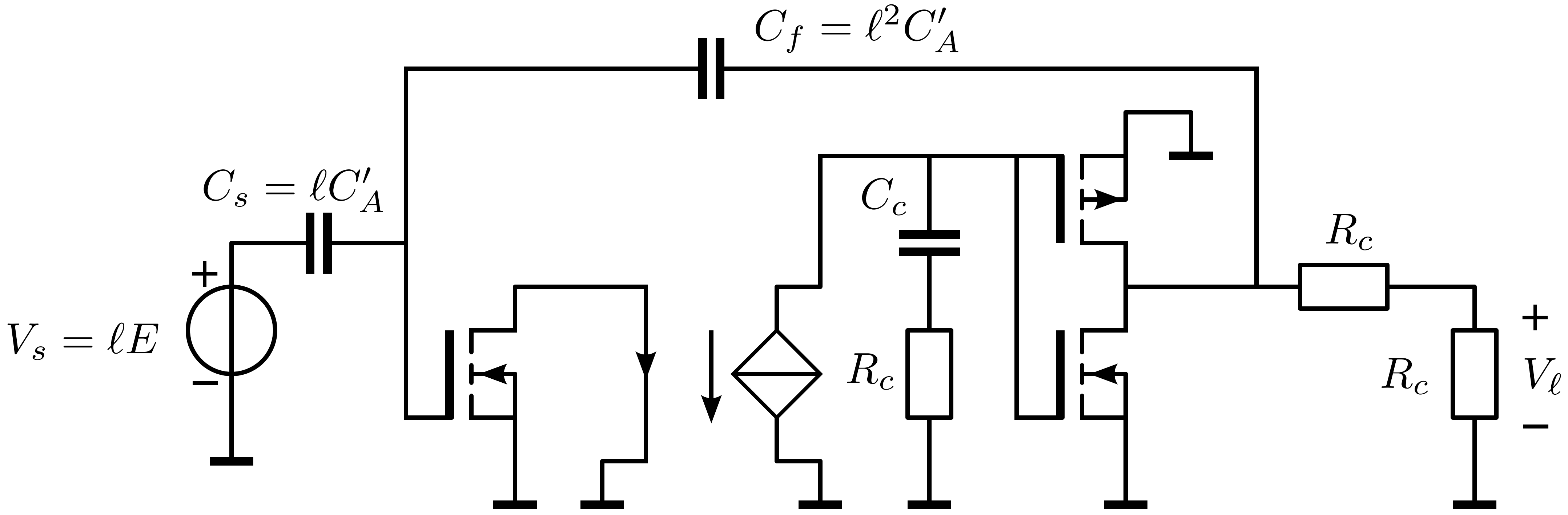

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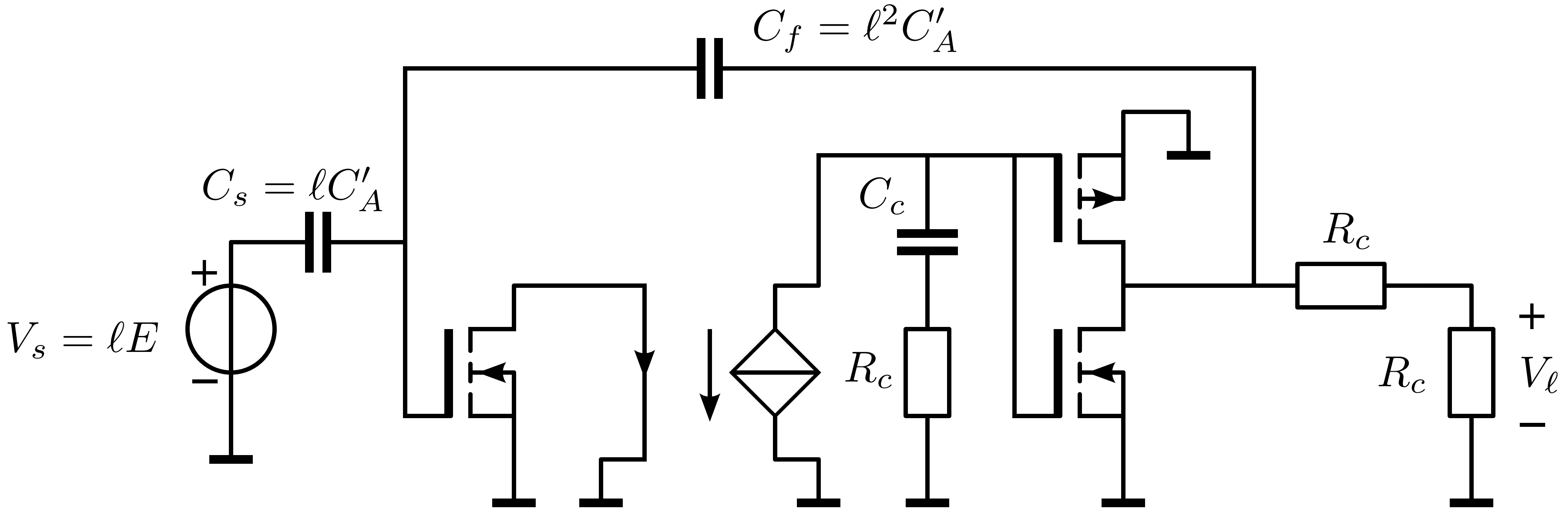

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DualStagePZcancel.py

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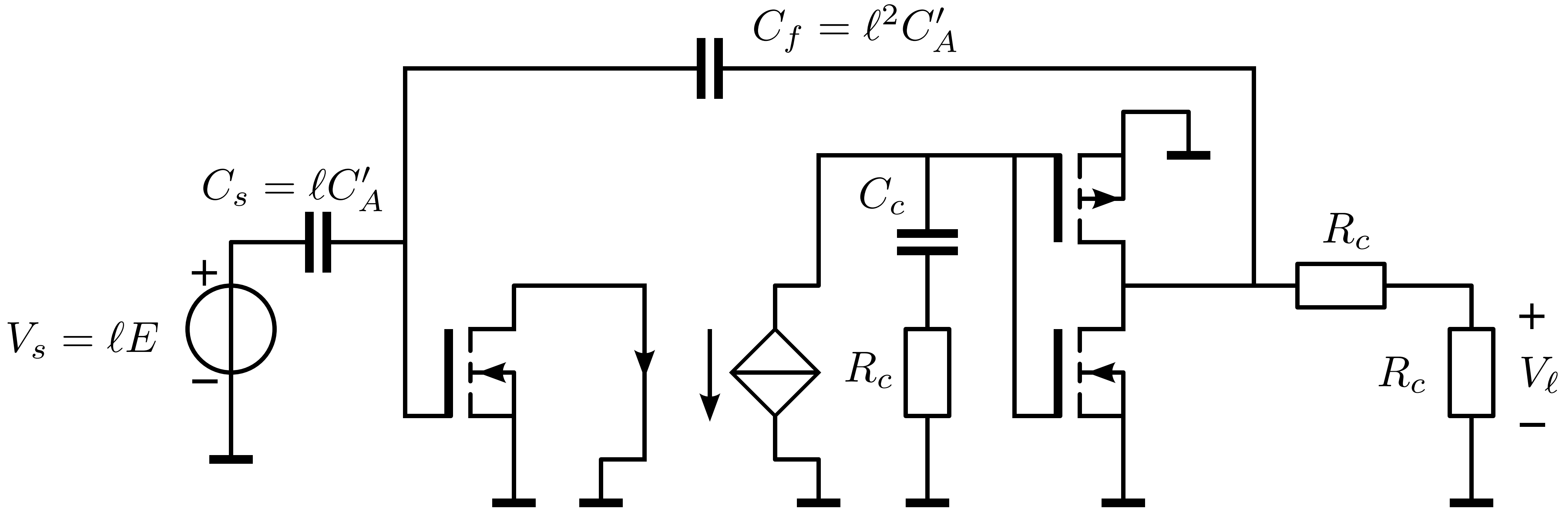

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# Structured Electronic Design

## EE4109
## Resistive broadbanding

*Anton J.M. Montagne*

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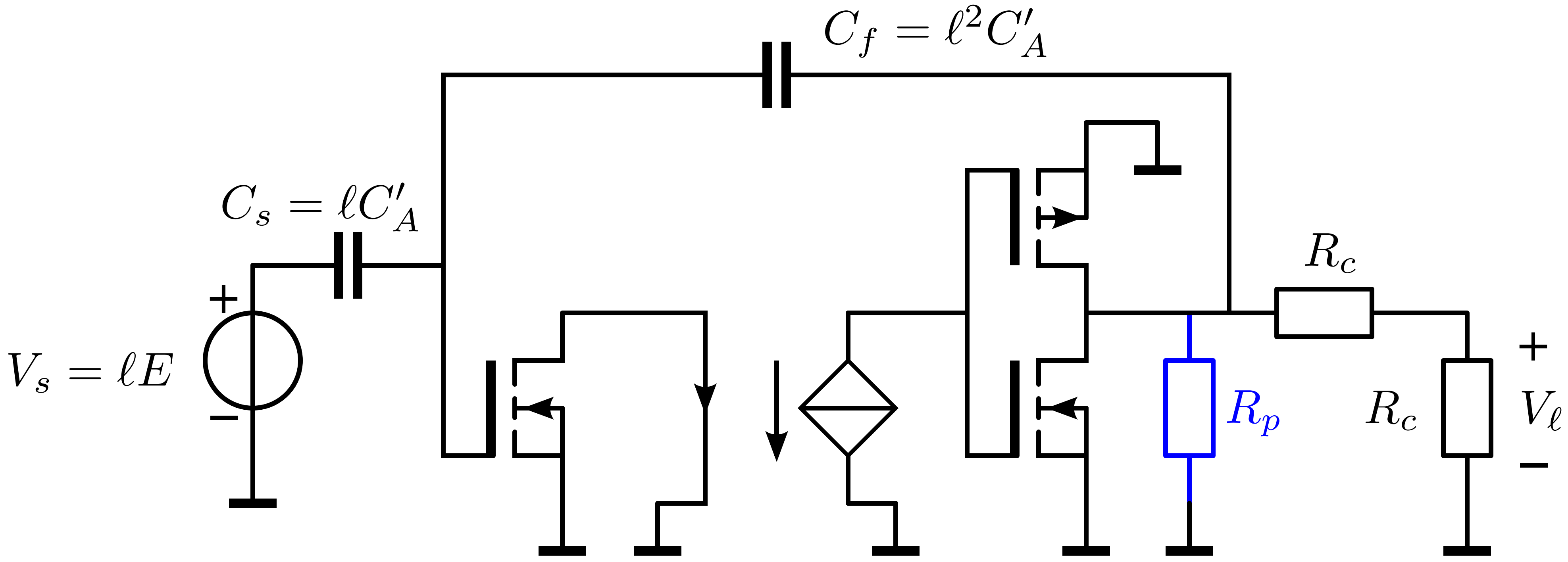

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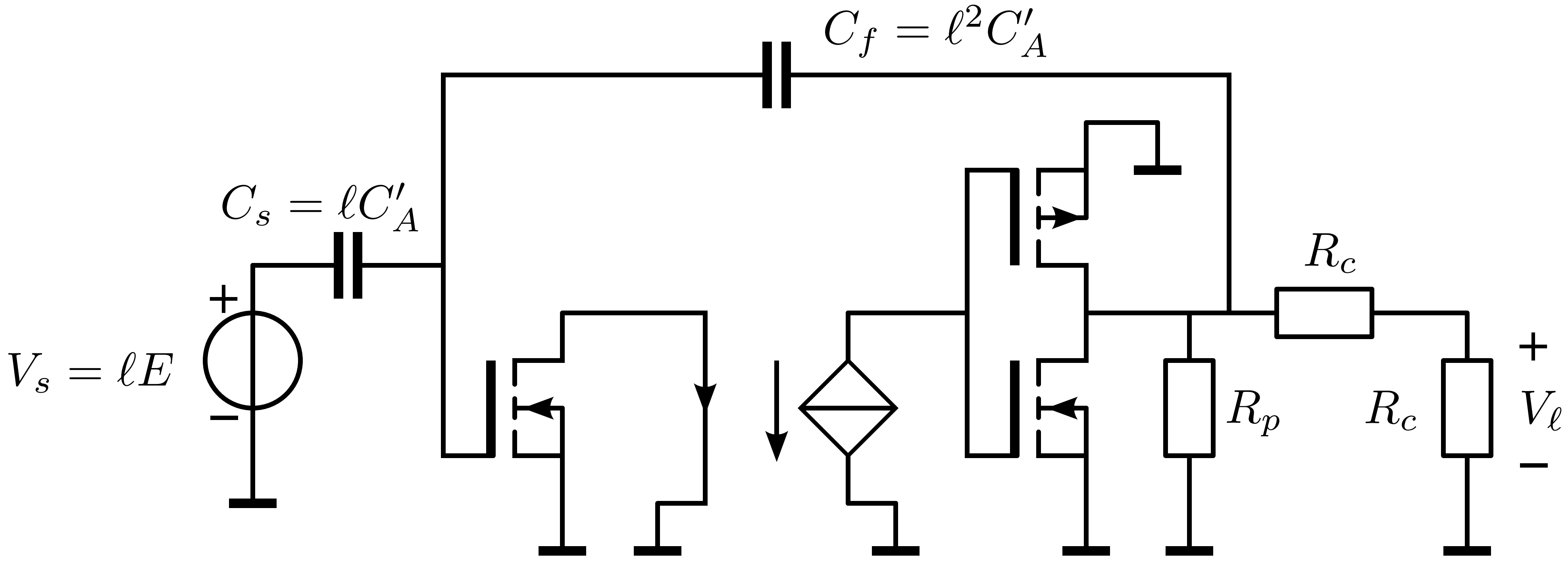

Increase frequency of the
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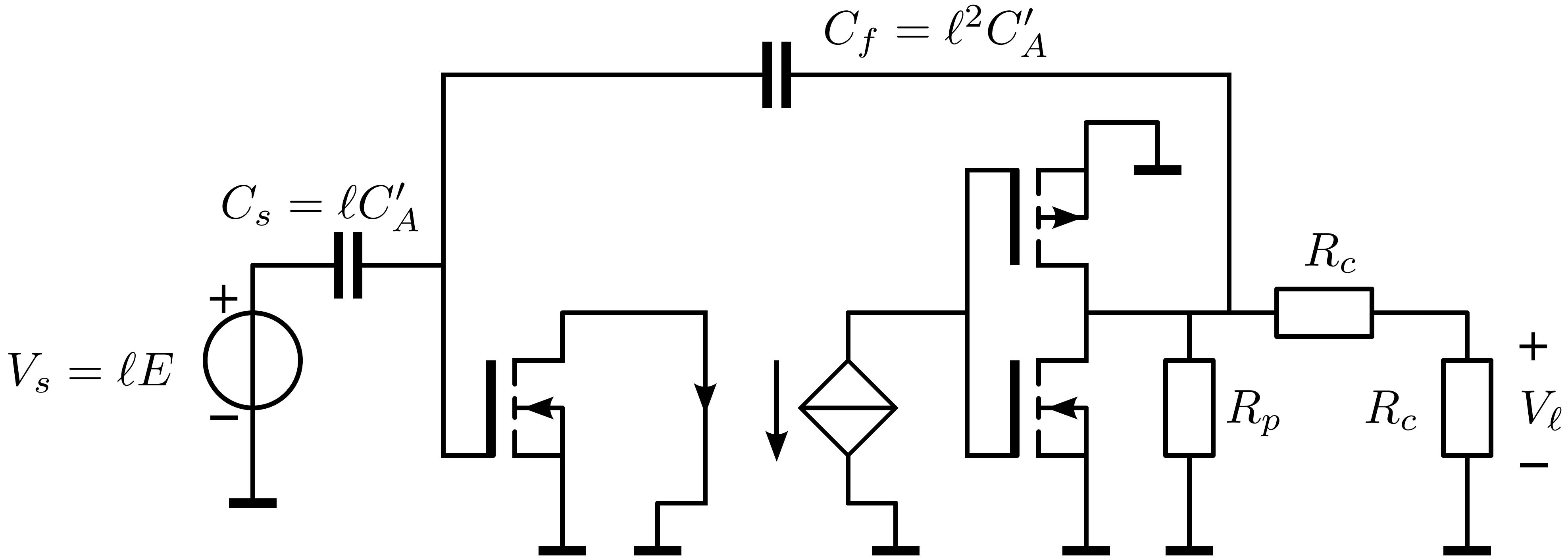

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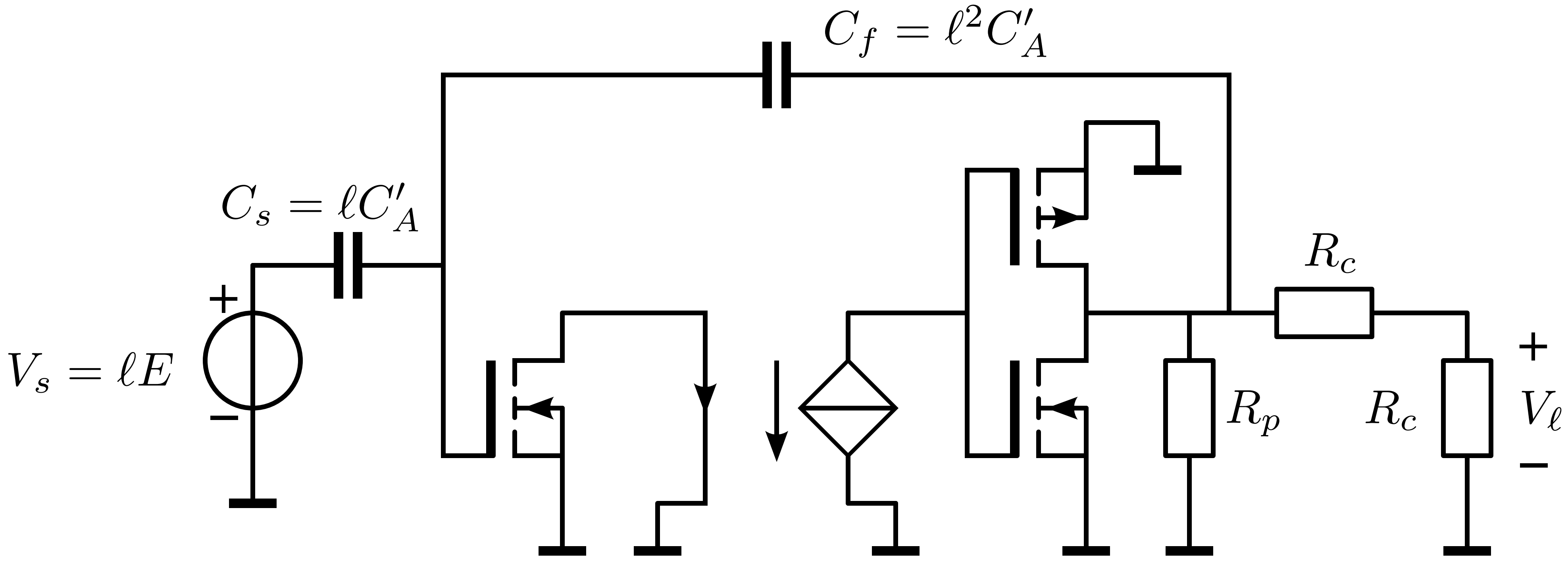

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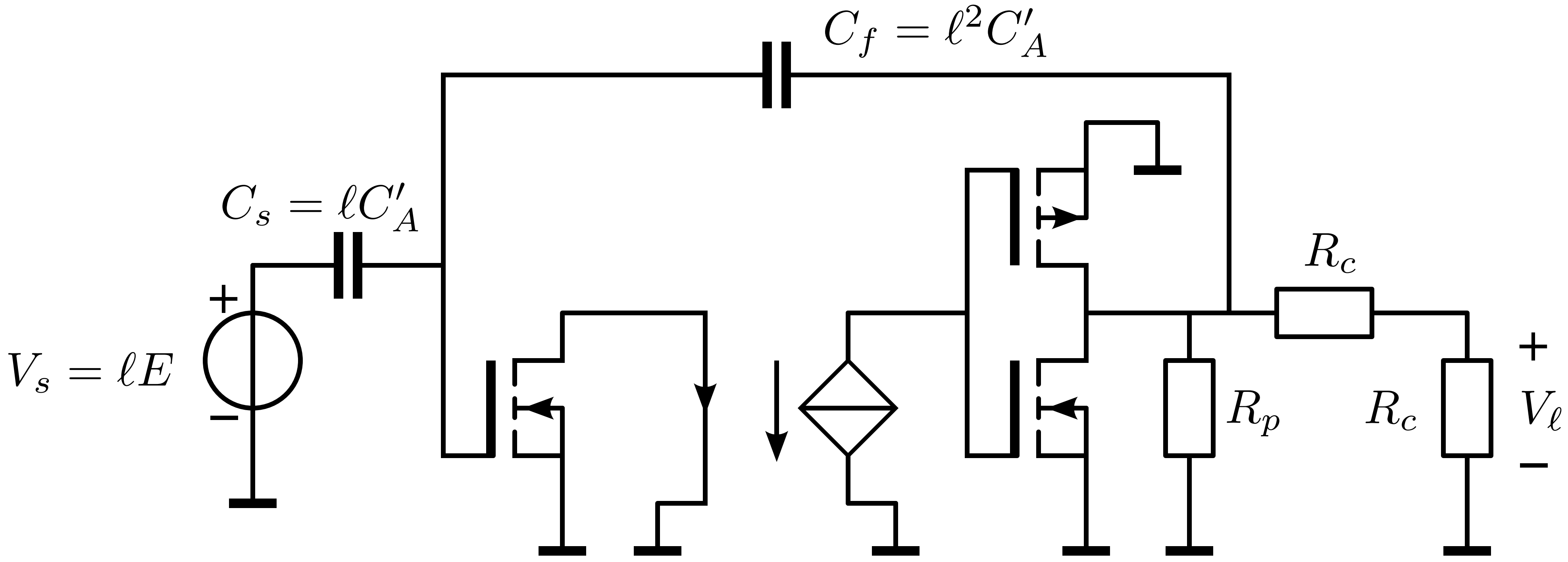

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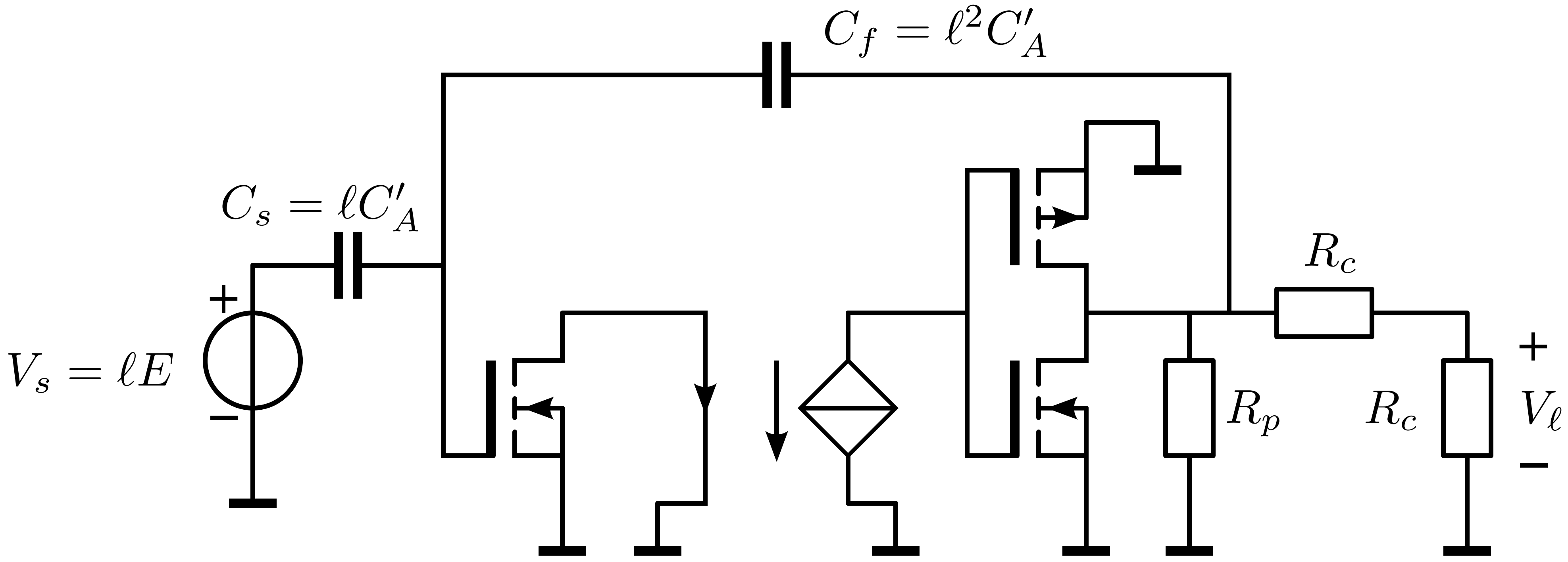

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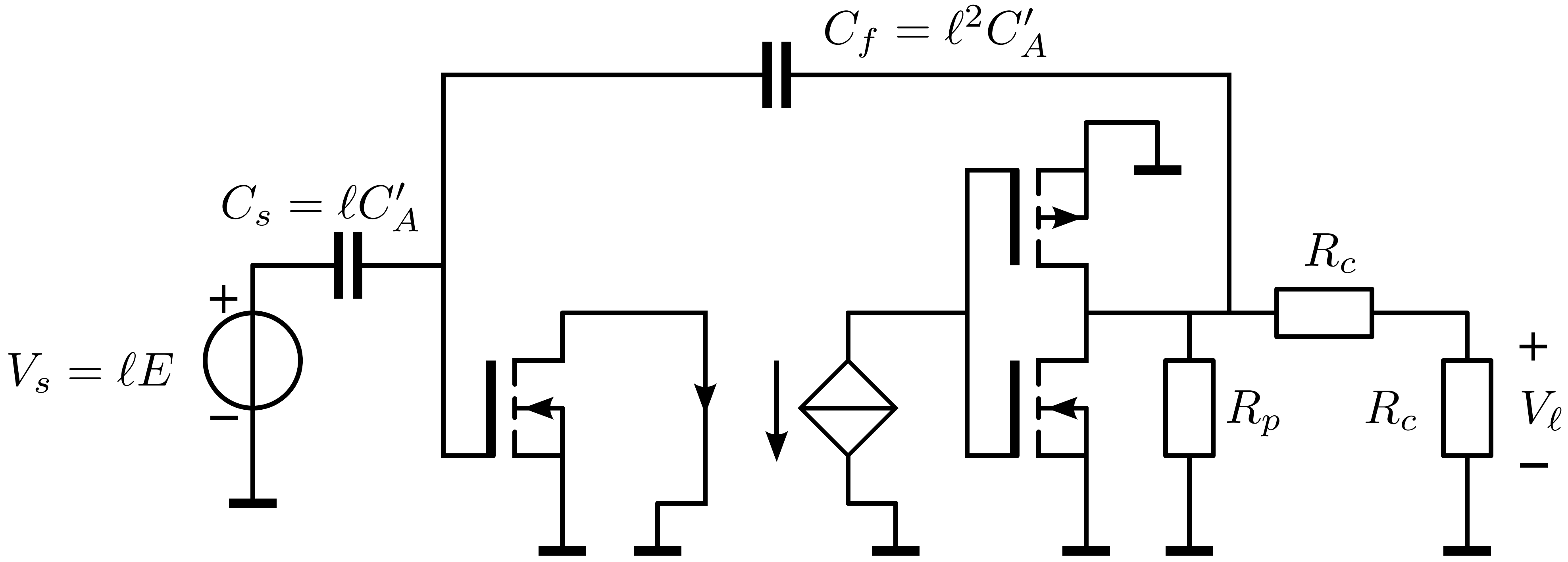

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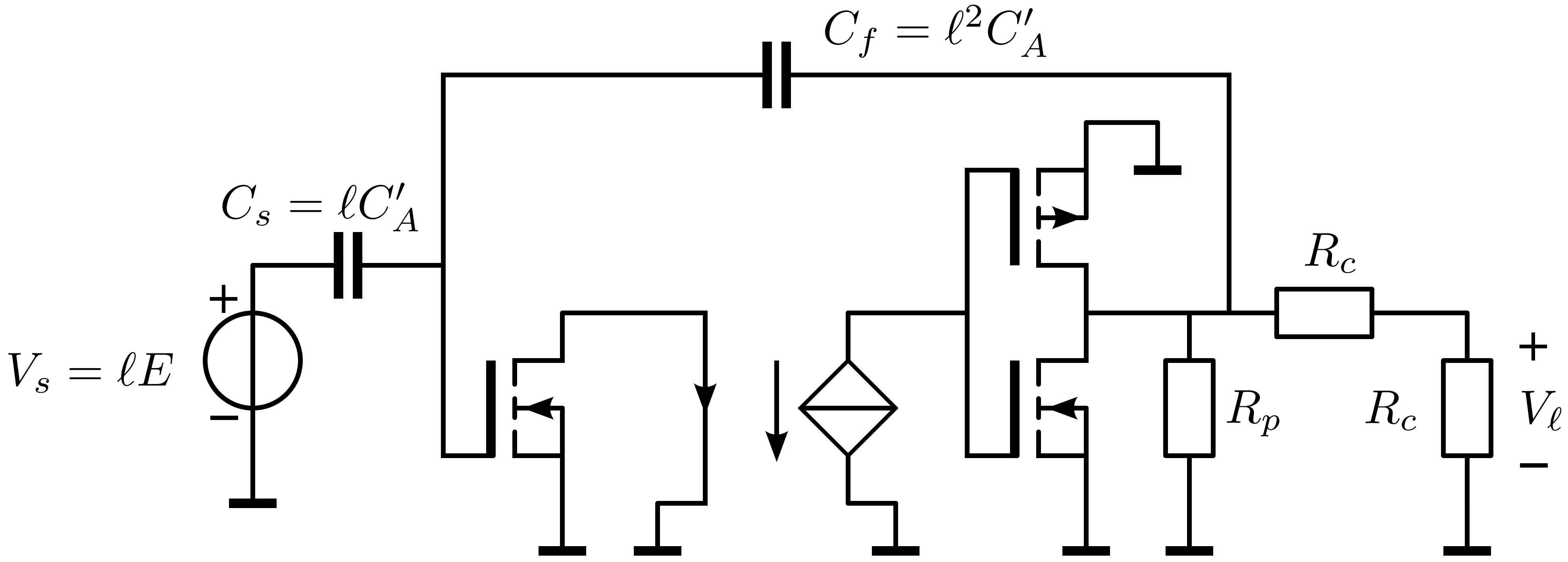

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DualStageRBB.py

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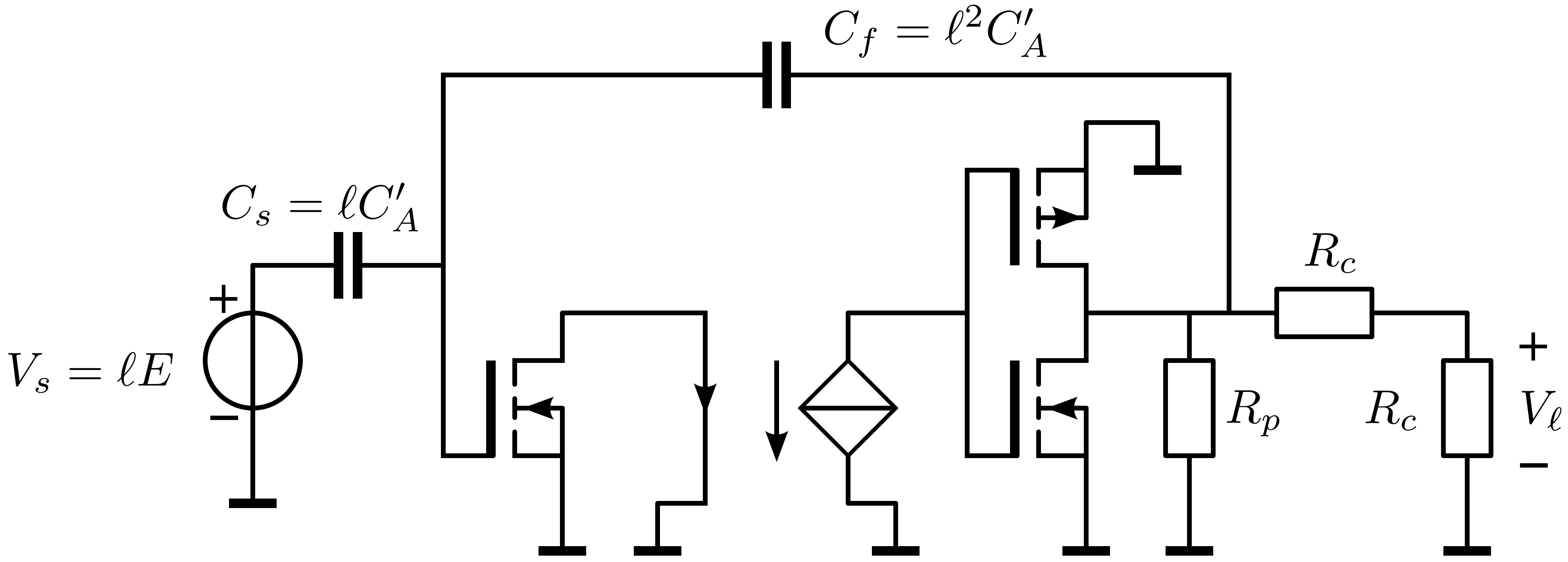

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## DualStageRBB.py

# Structured Electronic Design

## EE4109
## Bandwidth reduction

*Anton J.M. Montagne*

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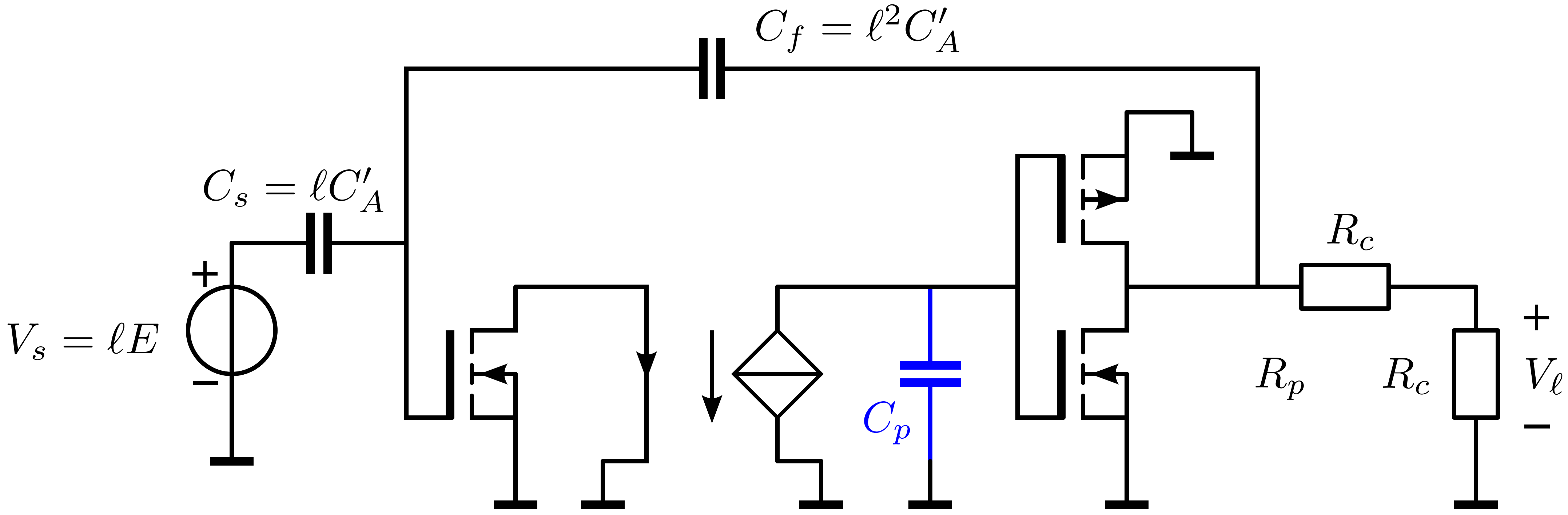

(c) 2020 A.J.M. Montagne

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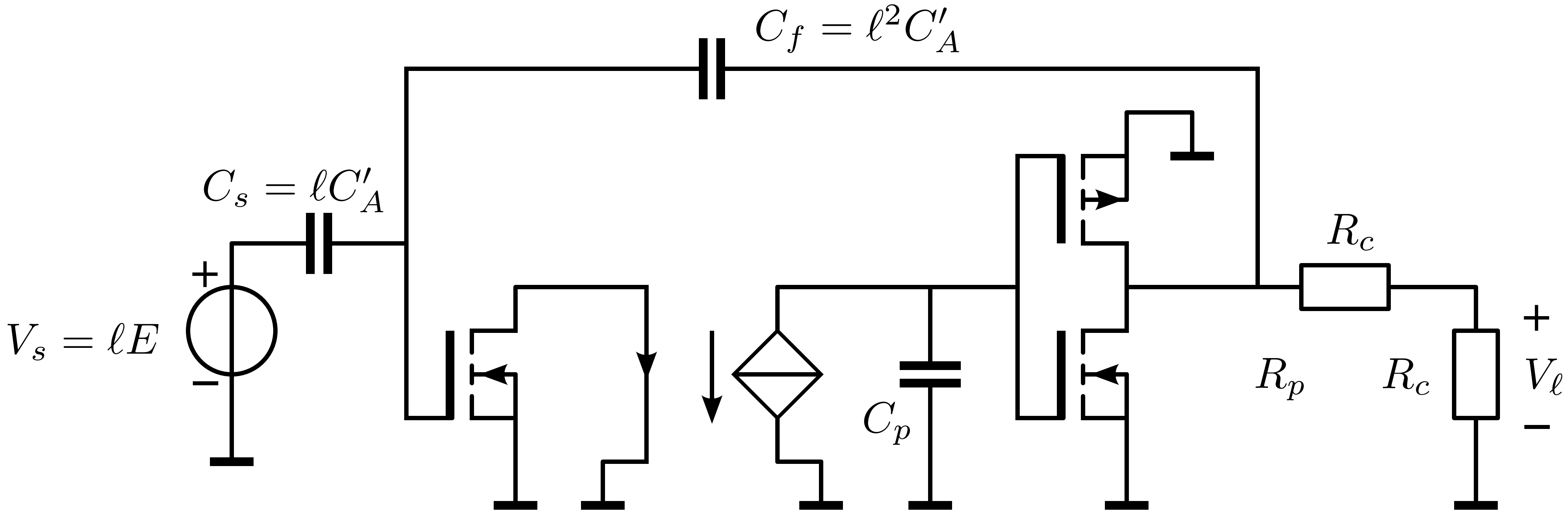

Decrease the frequency of the pole with the lowest frequency such that the second pole is at -sqrt(2) times the bandwidth.

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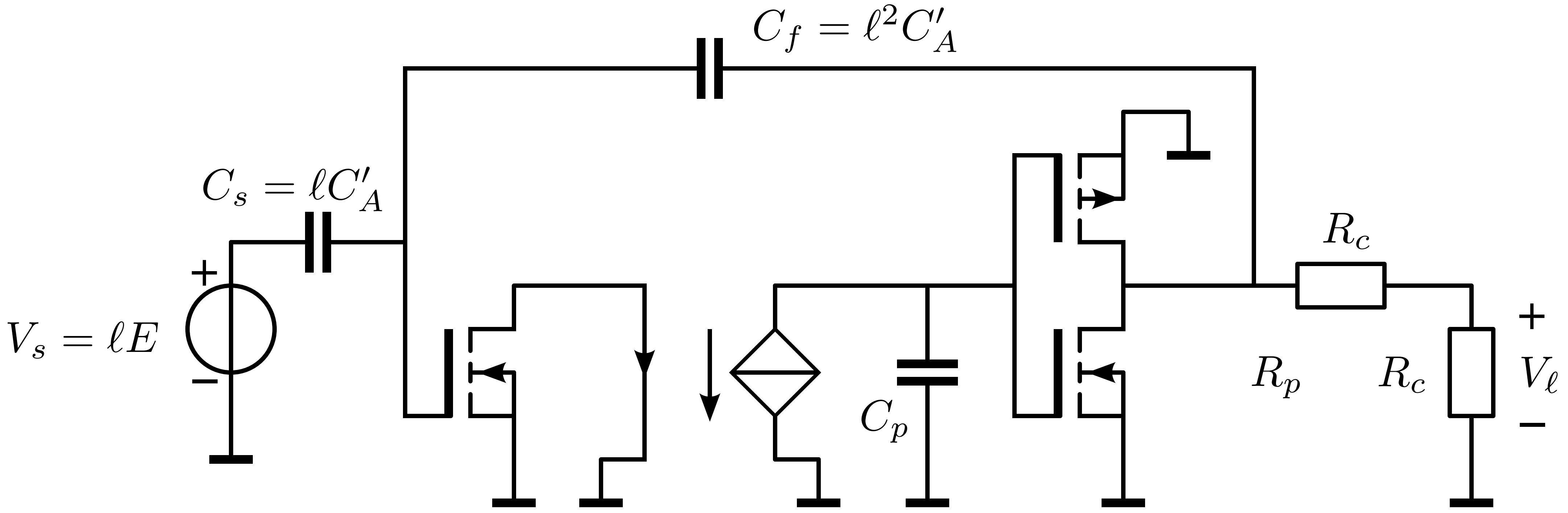

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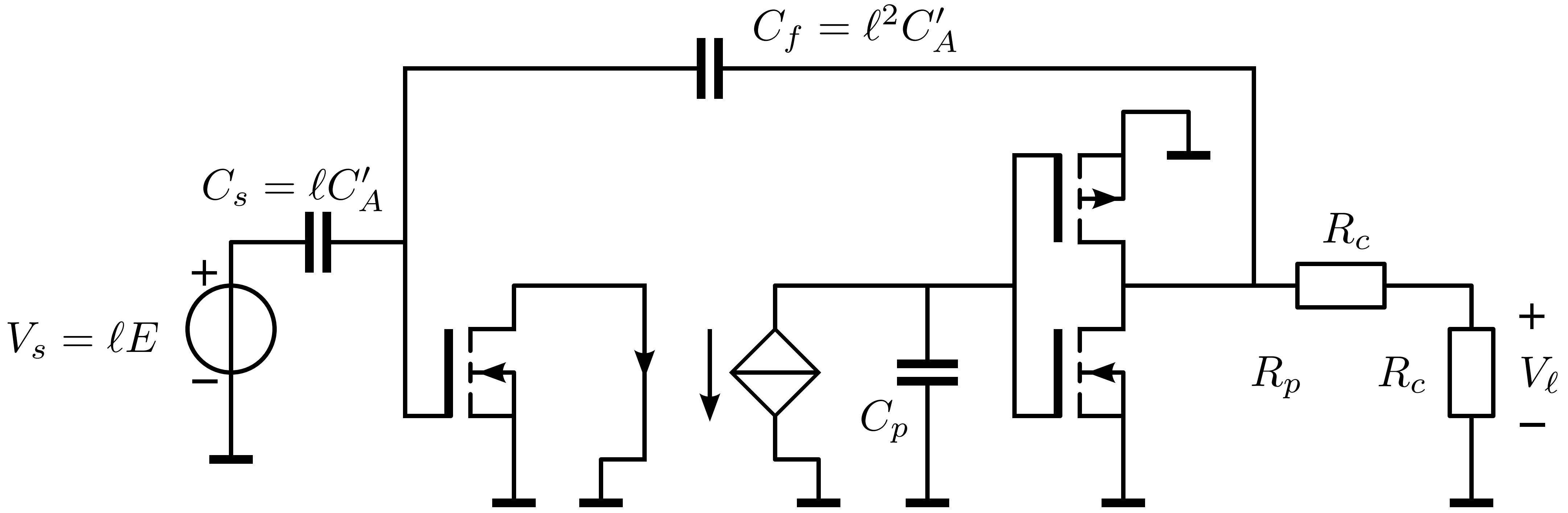

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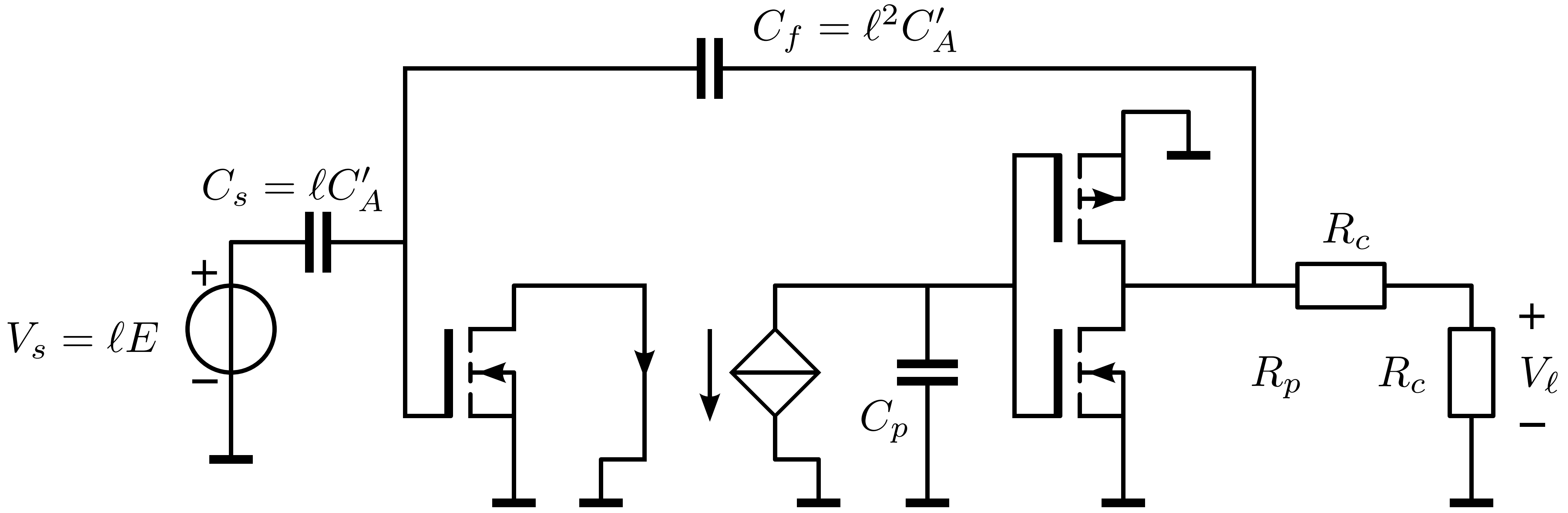

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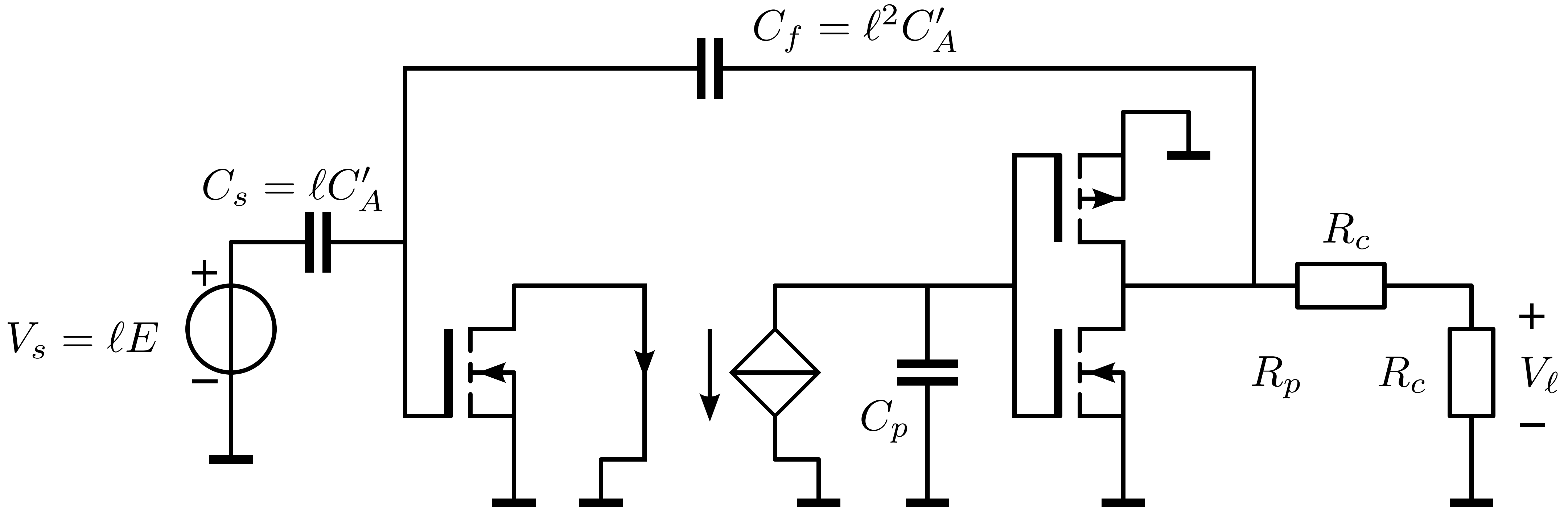

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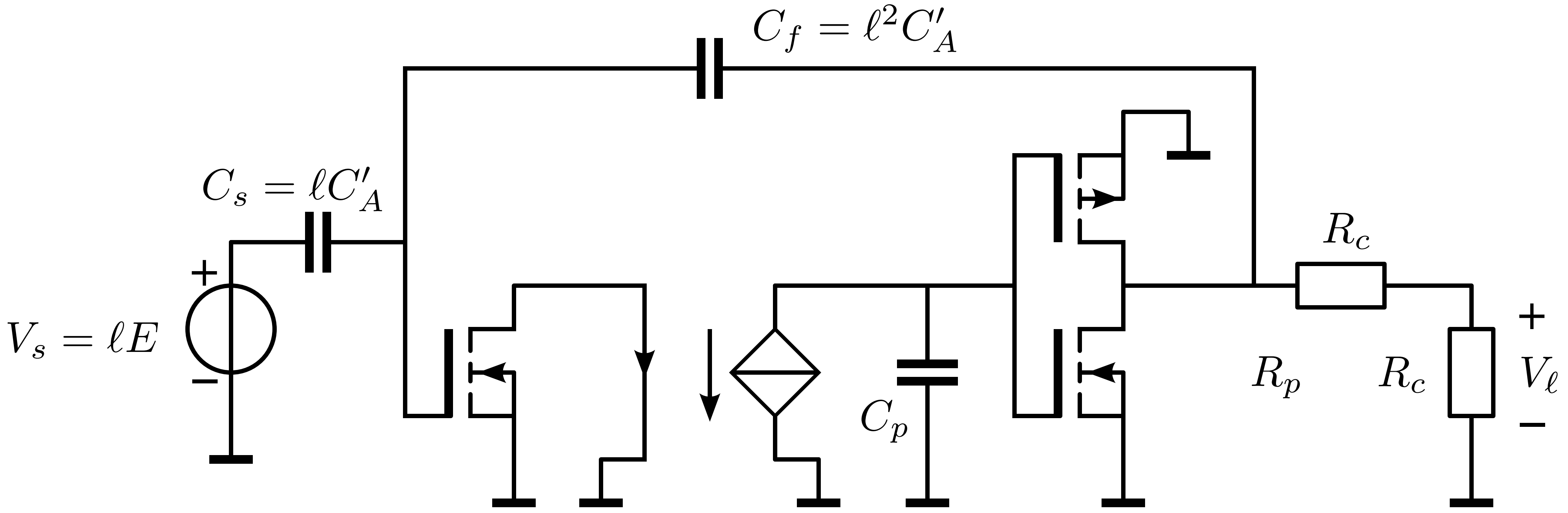

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DualStageBR.py

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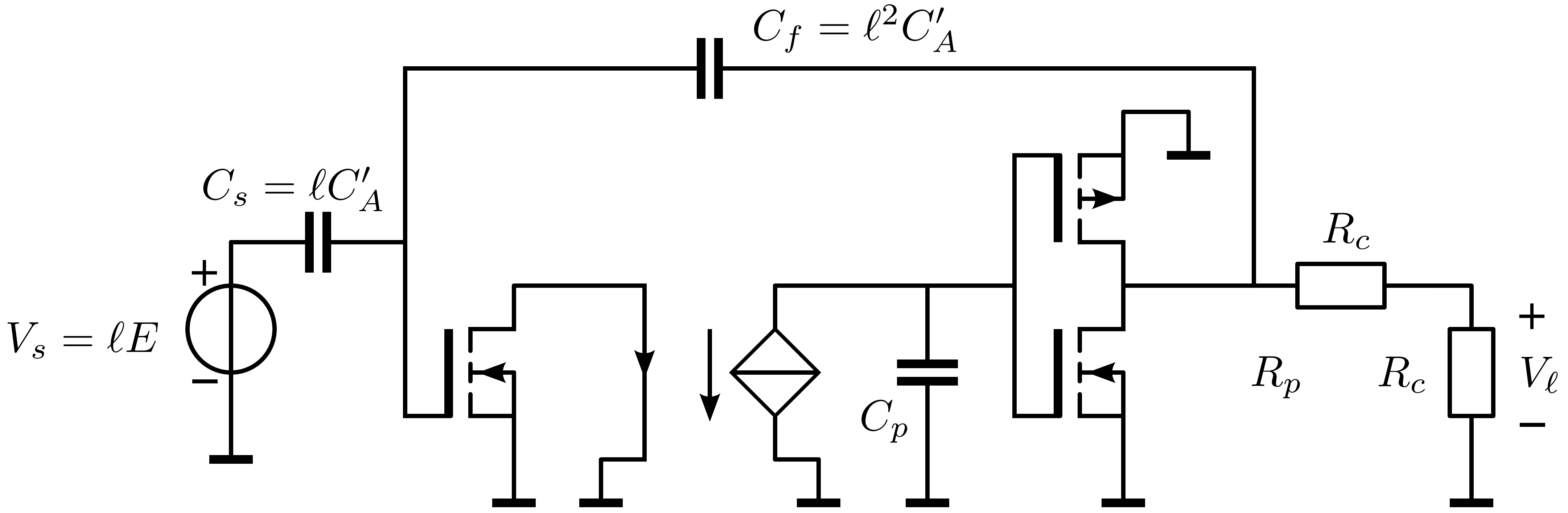

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DualStageBR.py

# Structured Electronic Design

## EE4109
## Active antenna
## frequency compensation
## conclusions

*Anton J.M. Montagne*

# Conclusions

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Bandwidth is more than required

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