MOSFET circuits

1)

2)

FET Variants

MOSFET pros & cons (vs BJT's)

+ +

+
MOSFET analysis example

Suggestions

- This biasing is called

1. Find $Q$-pt.

Approximately
2) Small-signal equivalent

KVL & KCL:

Input impedance: \( R_I = \frac{V_{in}}{I_{in}} \)

Output impedance: \( R_{out} = \frac{V_{out}}{I_{out, sc}} \)

Choosing caps:
Lecture 23

Analog signals

Digital signals
<table>
<thead>
<tr>
<th>Original Signal (vs. time)</th>
<th>Analog</th>
<th>Digital</th>
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<tbody>
<tr>
<td>Signal + Noise</td>
<td><img src="image" alt="Waveform" /></td>
<td>0101</td>
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<td>Recovered?</td>
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<tr>
<td>Arbitrary Shapes?</td>
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Digital representation of info

1

2

a)
<table>
<thead>
<tr>
<th>decimal</th>
<th>binary</th>
<th>Gray code</th>
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Types of digital circuits

Truth table
Lecture 24

Boolean operations & gates

All digital operations can be reduced to

Gates =

- NOT

- AND
Multiple inputs AND

OR

Multiple inputs OR

Application of time dependent signal

\[ X = A \cdot B = A \bar{A} = 0 \]
any complicated function

Universal gates

NAND

NOR
De Morgan Theorem

Alternatively

Rules of Boolean algebra