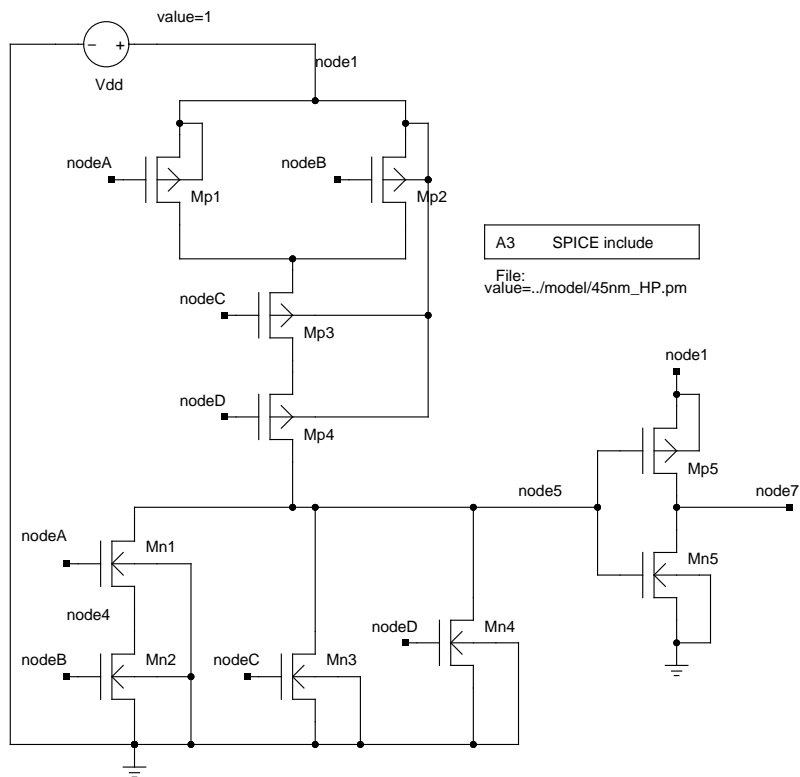
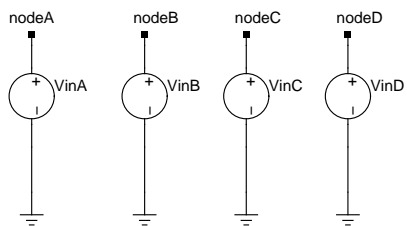


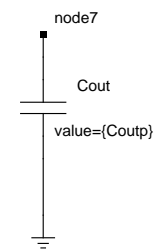
A1 SPICE directive  
PARAM Lmin=45n

.PARAM Wmin=45n

.PARAM Coutp=1f



A3 SPICE include  
File:  
value=../model/45nm\_HP.pm



A2 SPICE directive

.TRAN 0.1p 3600p

.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(node7)

.meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node7) val=0.5 rise=1

.meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node7) val=0.5 fall=1

HS65\_GH\_A0112.sch

TITLE

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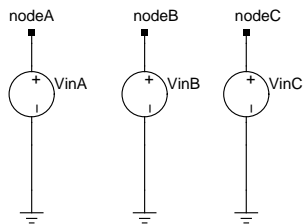
REVISION:

DRAWN BY:

Antonio Mastrandrea

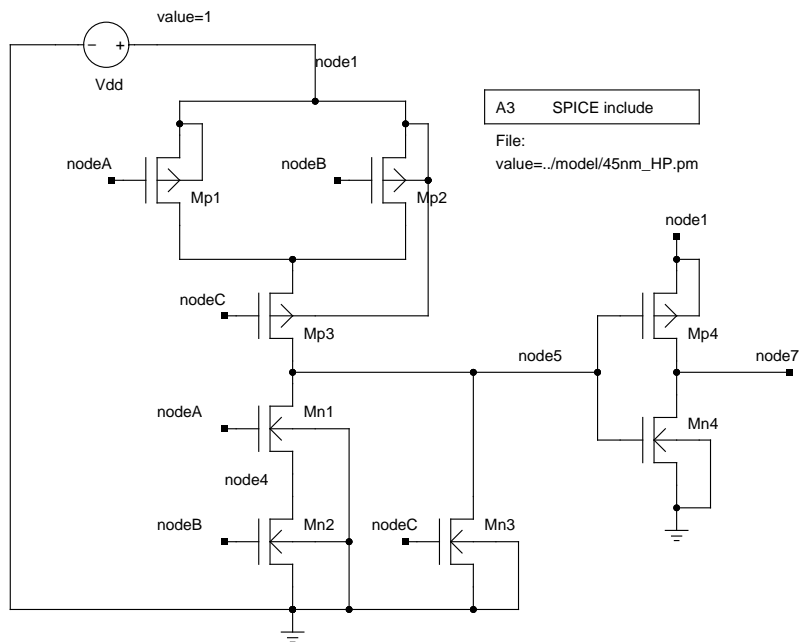
A1 SPICE directive

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.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
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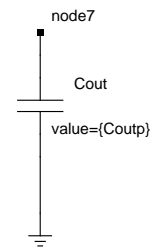
A2 SPICE directive

```
.TRAN 0.1p 3600p
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(node7)
.meas tran delay_LH trig v(nodeA) val=0.5 rise=1 targ v(node7) val=0.5 rise=1
.meas tran delay_HL trig v(nodeA) val=0.5 fall=1 targ v(node7) val=0.5 fall=1
```



A3 SPICE include

File:  
value=../model/45nm\_HP.pm



## HS65\_GH\_A012.sch

TITLE

FILE:

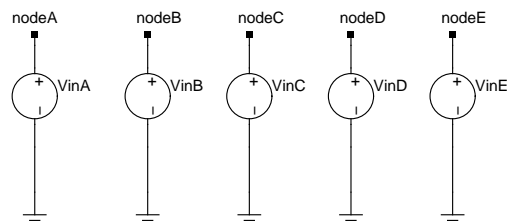
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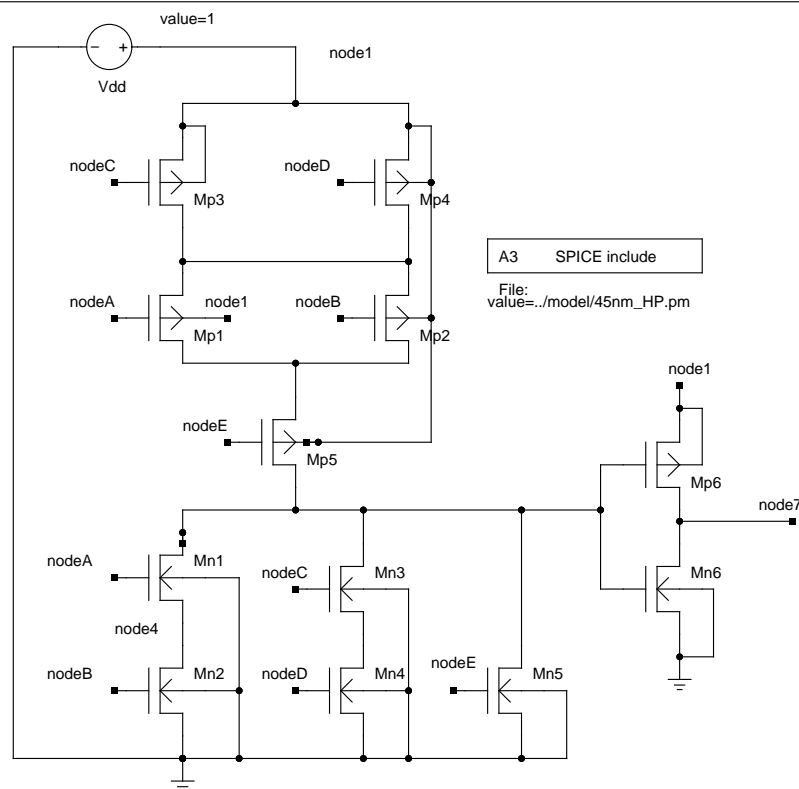
REVISION:

DRAWN BY:

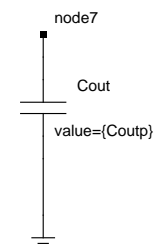
Antonio Mastrandrea



A1 SPICE directive  
 .PARAM Lmin=45n  
 .PARAM Wmin=45n  
 .PARAM Cout=1f



A3 SPICE include  
 File:  
 value=../model/45nm\_HP.pm



A2 SPICE directive

.TRAN 0.1p 3600p  
 .PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(nodeE) V(node7)  
 .meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node7) val=0.5 rise=1  
 .meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node7) val=0.5 fall=1

HS65\_GH\_A0212.sch

TITLE

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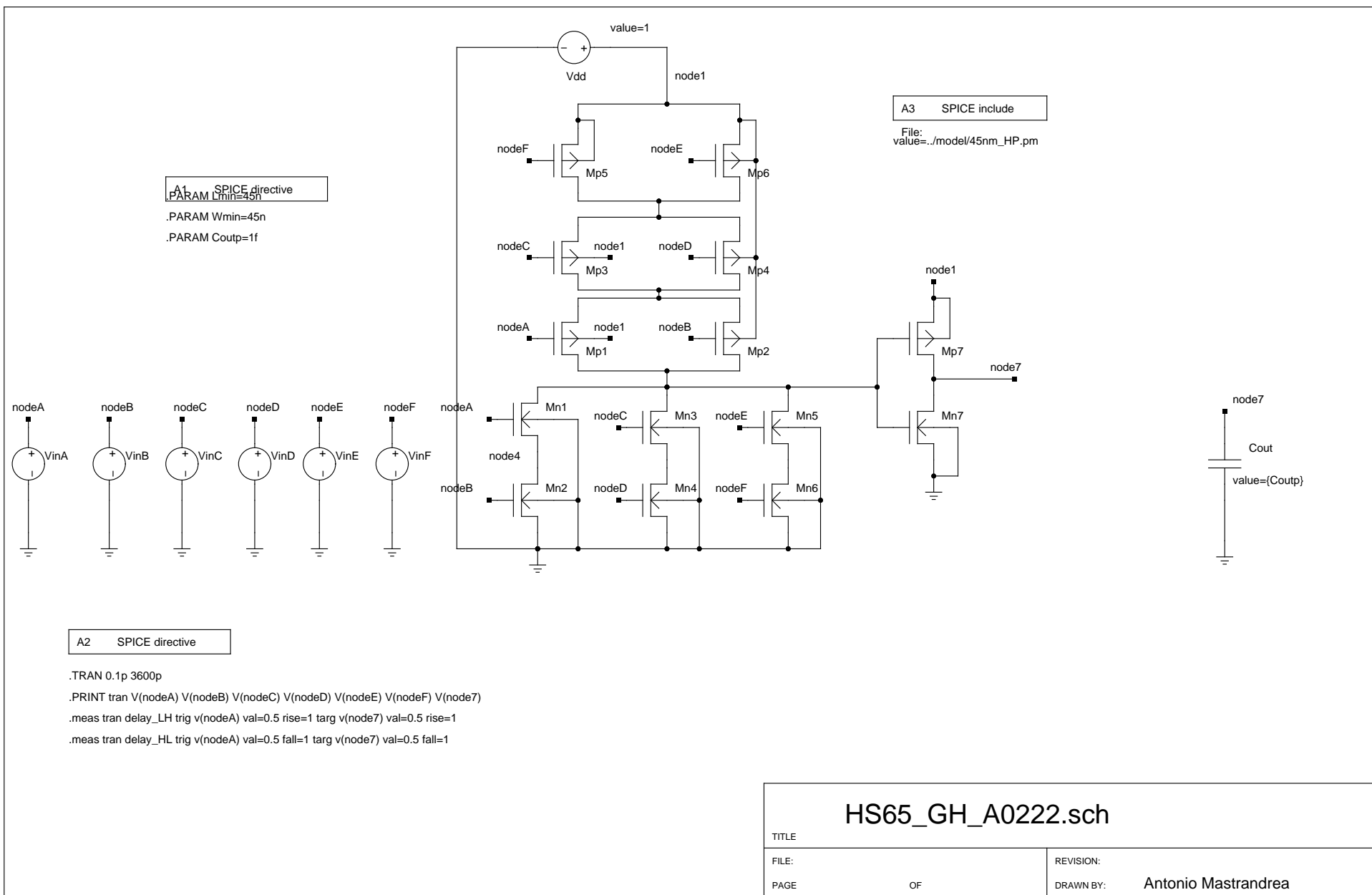
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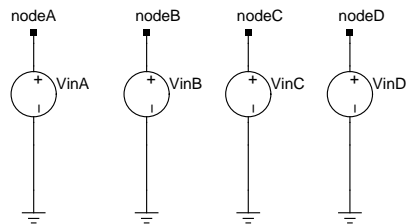
DRAWN BY:

Antonio Mastrandrea



A1 SPICE directive

.PARAM Lmin=45n  
.PARAM Wmin=45n  
.PARAM Coutp=1f

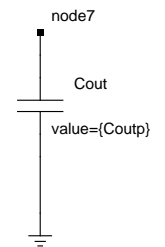
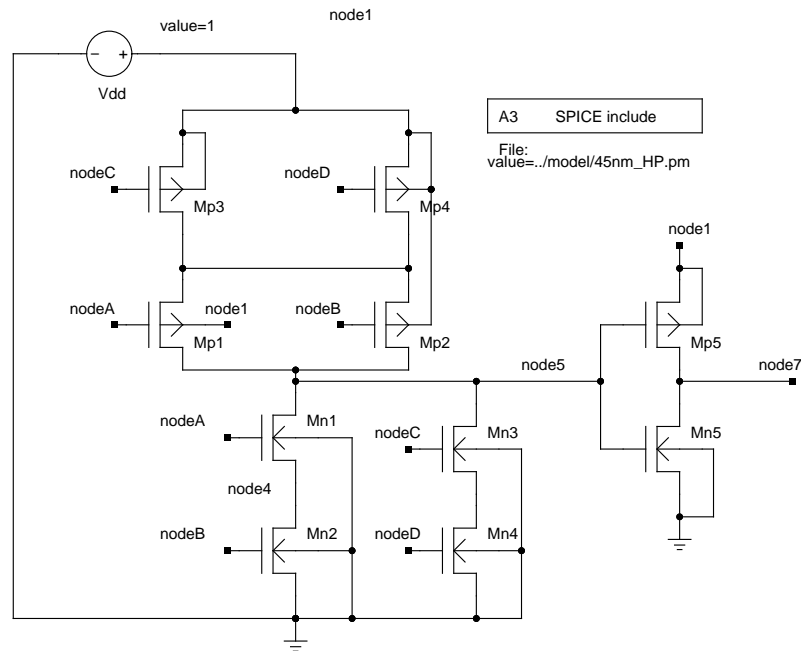


A2 SPICE directive

.TRAN 0.1p 3600p  
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(node7)  
.meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node7) val=0.5 rise=1  
.meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node7) val=0.5 fall=1

A3 SPICE include

File:  
value=../model/45nm\_HP.pm



HS65\_GH\_A022.sch

TITLE

FILE:

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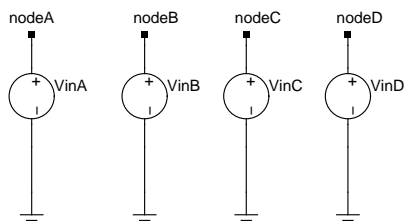
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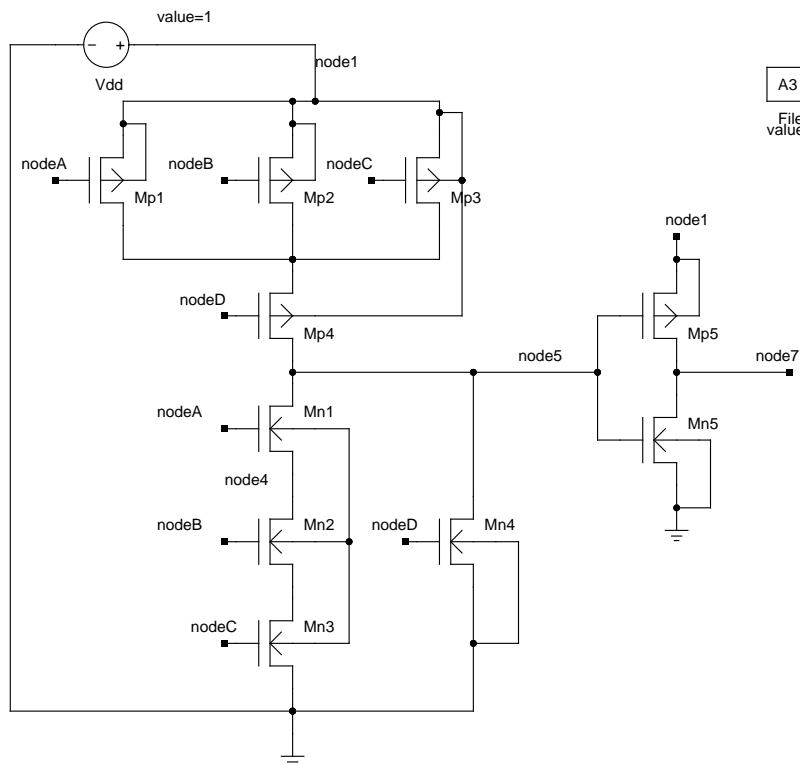
Antonio Mastrandrea

A1 SPICE directive  
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.PARAM Wmin=45n  
.PARAM Coutp=1f

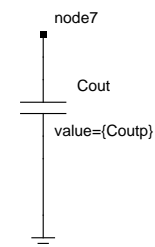


A2 SPICE directive

.TRAN 0.1p 3600p  
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(node7)  
.meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node7) val=0.5 rise=1  
.meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node7) val=0.5 fall=1



A3 SPICE include  
File:  
value=../model/45nm\_HP.pm



## HS65\_GH\_A031.sch

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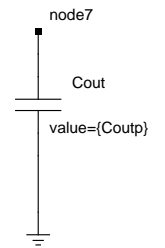
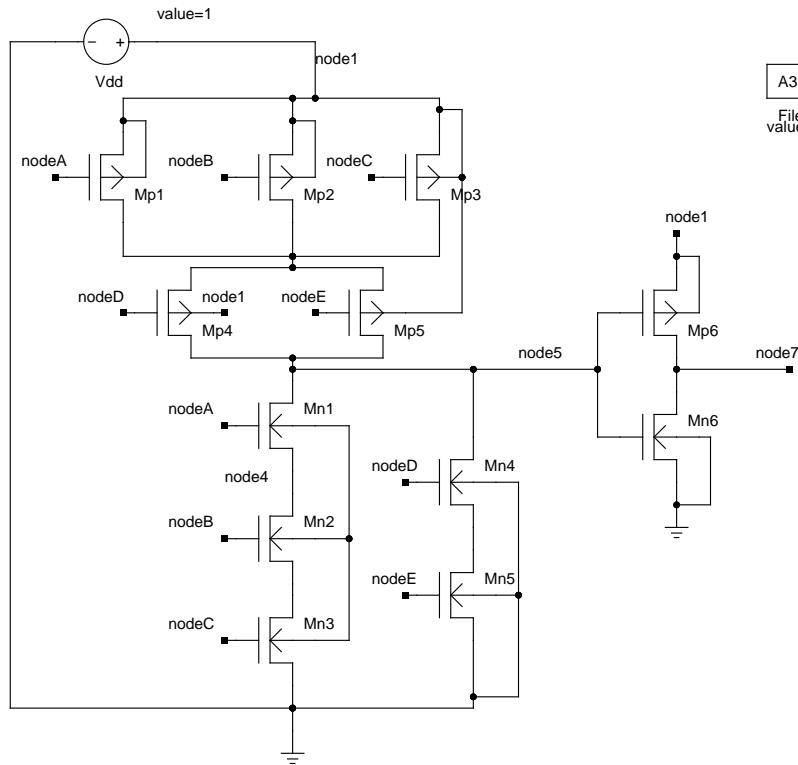
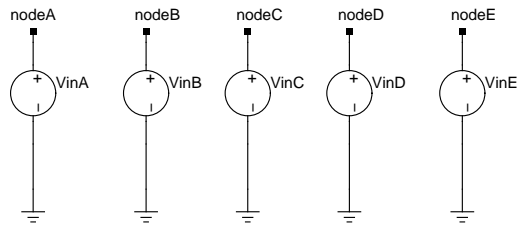
A1 SPICE directive  
PARAM Lmin=45n

.PARAM Wmin=45n

.PARAM Coutp=1f

A3 SPICE include

File:  
value=../model/45nm\_HP.pm



A2 SPICE directive

.TRAN 0.1p 3600p

.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(nodeE) V(node7)

.meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node7) val=0.5 rise=1

.meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node7) val=0.5 fall=1

HS65\_GH\_A032.sch

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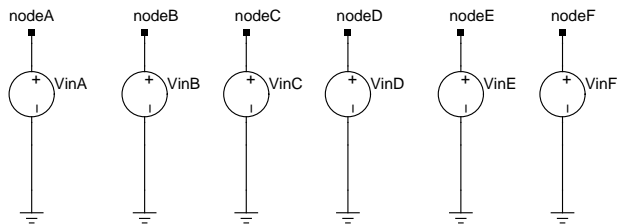
Antonio Mastrandrea

A1 SPICE directive

.PARAM Lmin=45n

.PARAM Wmin=45n

.PARAM Coutp=1f



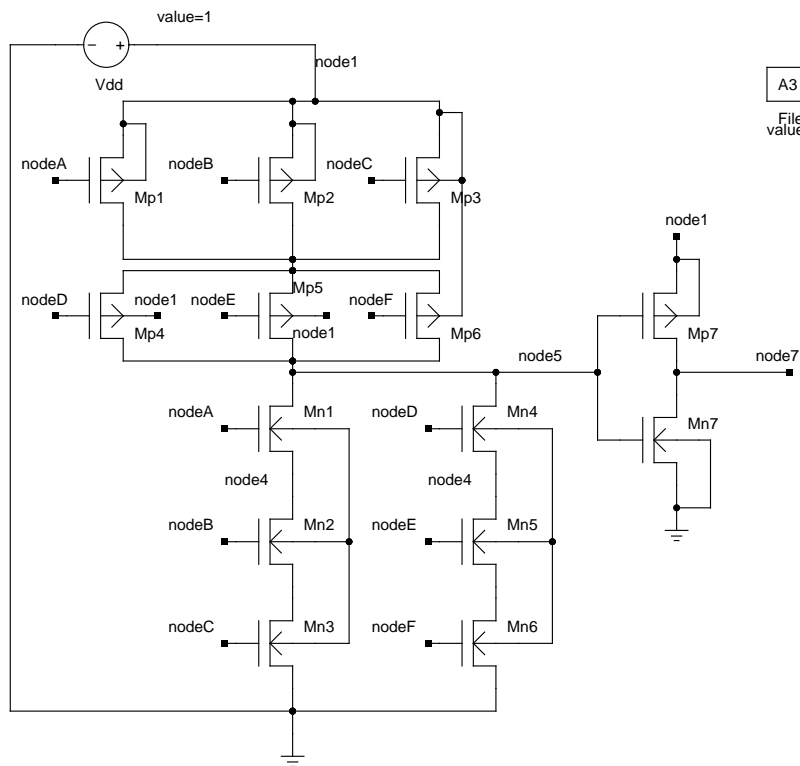
A2 SPICE directive

.TRAN 0.1p 3600p

.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(nodeE) V(nodeF) V(node7)

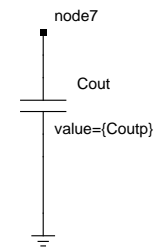
.meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node7) val=0.5 rise=1

.meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node7) val=0.5 fall=1



A3 SPICE include

File:  
value=../model/45nm\_HP.pm



## HS65\_GH\_A033sch

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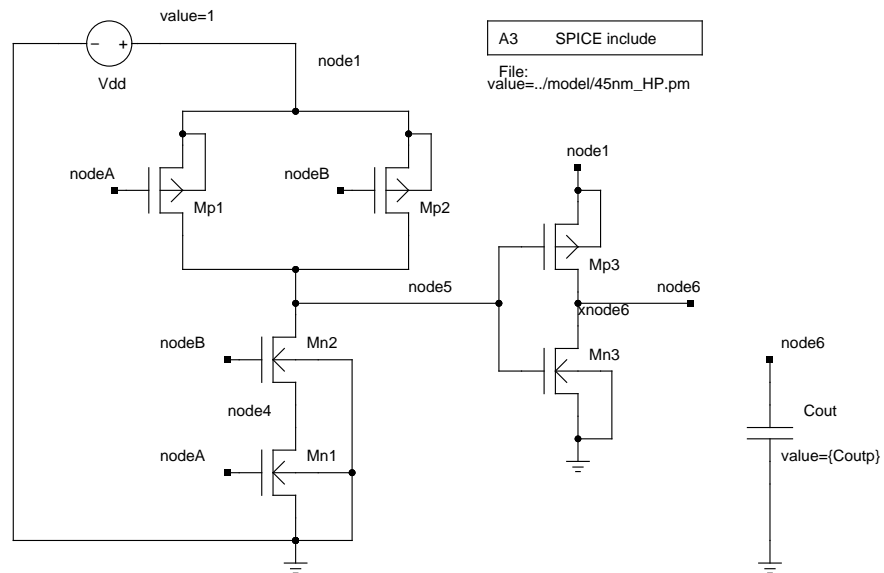
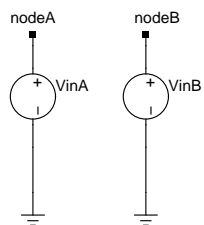
Antonio Mastrandrea



A1 SPICE directive  
PARAM Lmin=45n

.PARAM Wmin=45n

.PARAM Coutp=1f



A3 SPICE include  
File:  
value=../model/45nm\_HP.pm

A2 SPICE directive

.TRAN 0.1p 3600p

.PRINT tran V(nodeA) V(nodeB) V(node6)

.meas tran delay\_LH trig v(nodeB) val=0.5 rise=1 targ v(node6) val=0.5 rise=1

.meas tran delay\_HL trig v(nodeB) val=0.5 fall=1 targ v(node6) val=0.5 fall=1

HS65\_GH\_AND2.sch

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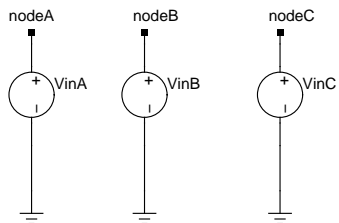
DRAWN BY:

Antonio Mastrandrea

A1 SPICE directive  
PARAM Cmin=45n

.PARAM Wmin=45n

.PARAM Coutp=1f



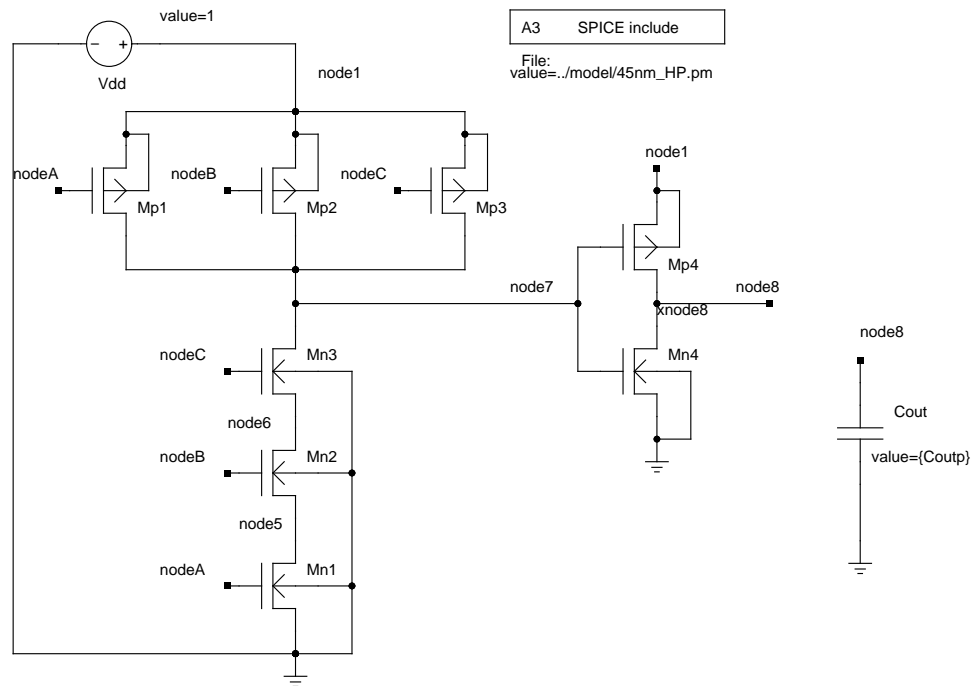
A2 SPICE directive

.TRAN 0.1p 3600p

.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(node8)

.meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node8) val=0.5 rise=1

.meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node8) val=0.5 fall=1



A3 SPICE include

File:  
value=../model/45nm\_HP.pm

## HS65\_GH\_AND3.sch

TITLE

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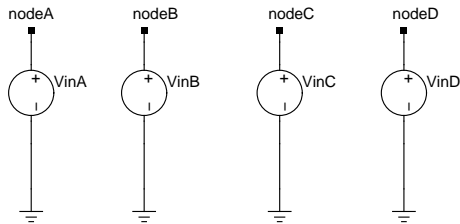
DRAWN BY:

Antonio Mastrandrea

A1 SPICE directive  
.PARAM Lmin=45n

.PARAM Wmin=45n

.PARAM Coutp=1f



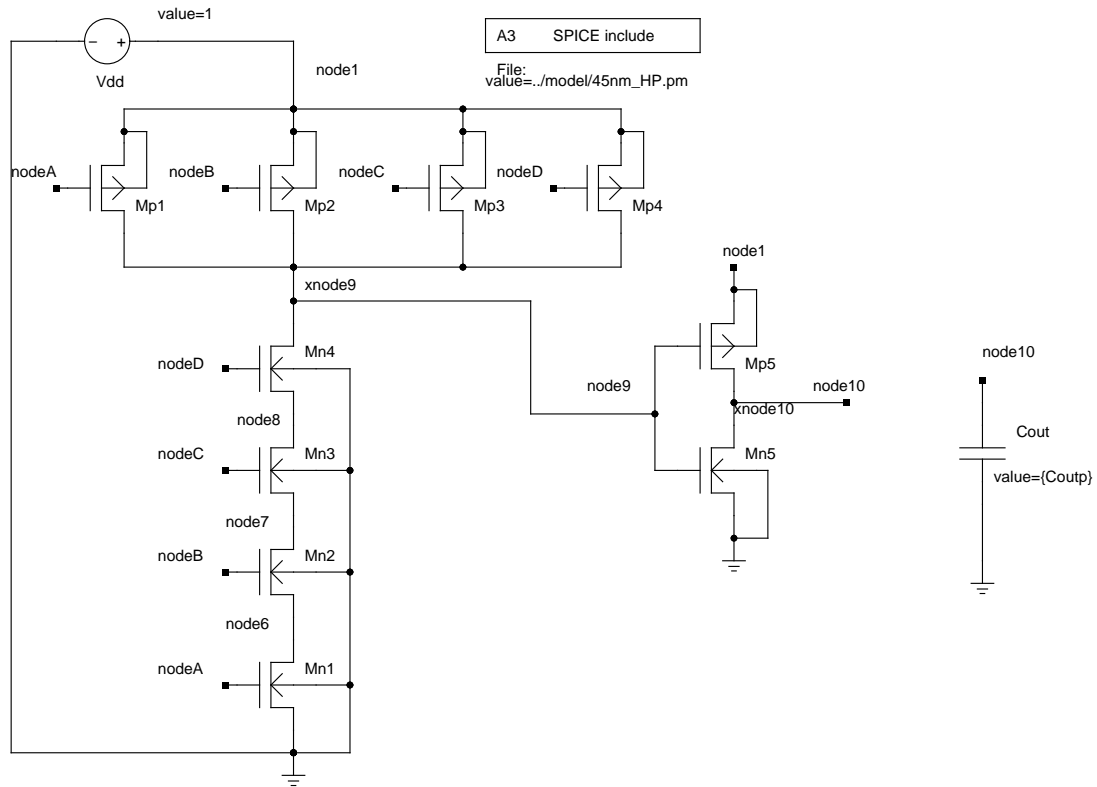
A2 SPICE directive

.TRAN 0.1p 3600p

.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(node10)

.meas tran delay\_LH trig v(nodeA) val=0.5 rise=1 targ v(node10) val=0.5 rise=1

.meas tran delay\_HL trig v(nodeA) val=0.5 fall=1 targ v(node10) val=0.5 fall=1



## HS65\_GH\_AND4.sch

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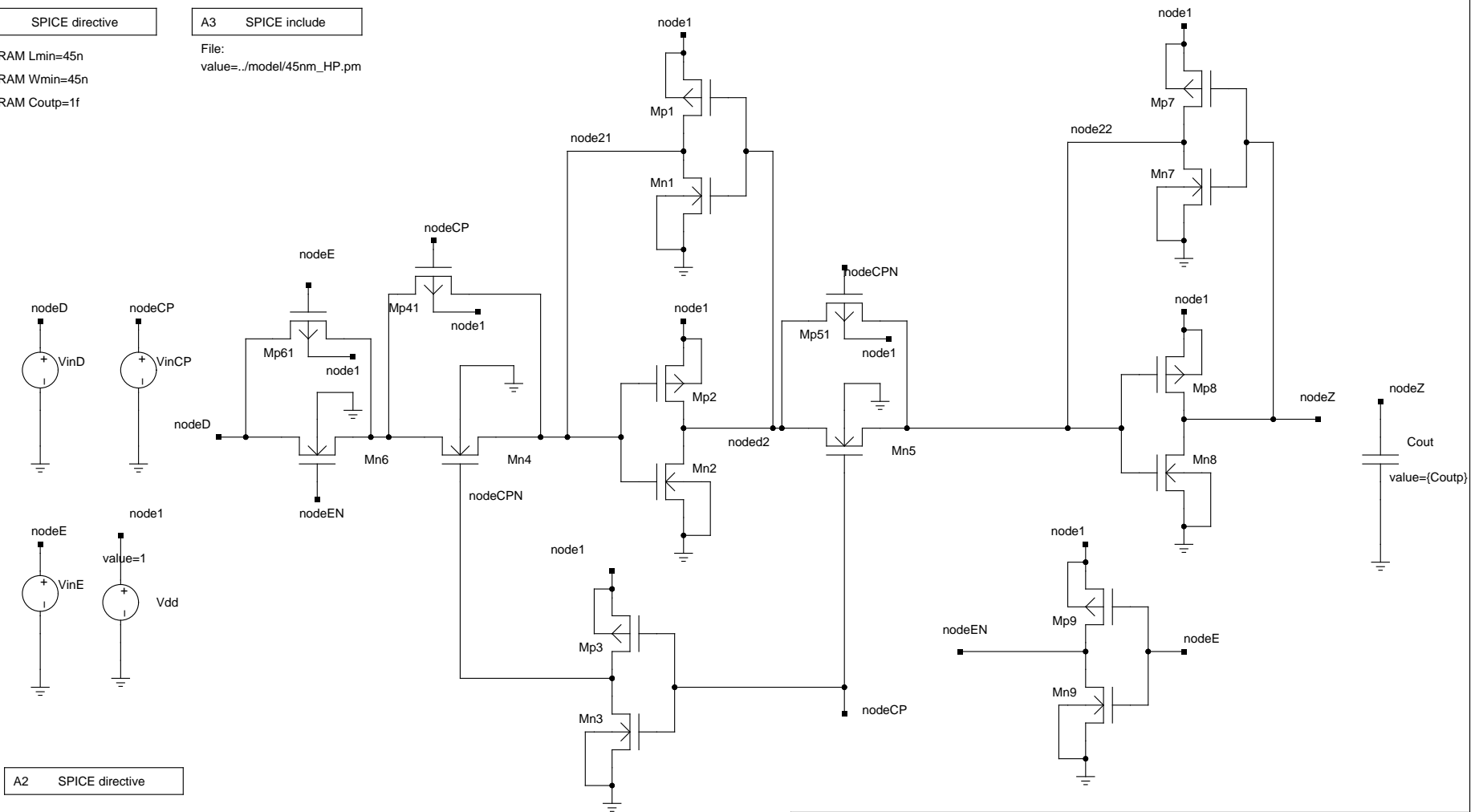
Antonio Mastrandrea

# A1 SPICE directive

.PARAM Lmin=45n  
.PARAM Wmin=45n  
.PARAM Coutp=1f

# A3 SPICE include

File:  
value=../model/45nm\_HP.pm



# A2 SPICE directive

.TRAN 0.1p 8400p  
.PRINT tran V(nodeD) V(nodeCP) V(nodeE) V(nodeZ)  
.meas tran delay\_LH trig v(nodeCP) val=0.5 rise=2 targ v(nodeZ) val=0.5 rise=1  
.meas tran delay\_HL trig v(nodeCP) val=0.5 rise=3 targ v(nodeZ) val=0.5 fall=2

# HS65\_GH\_DFPHQ.sch

TITLE

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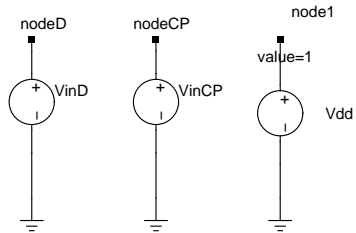
Antonio Mastrandrea

# A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```

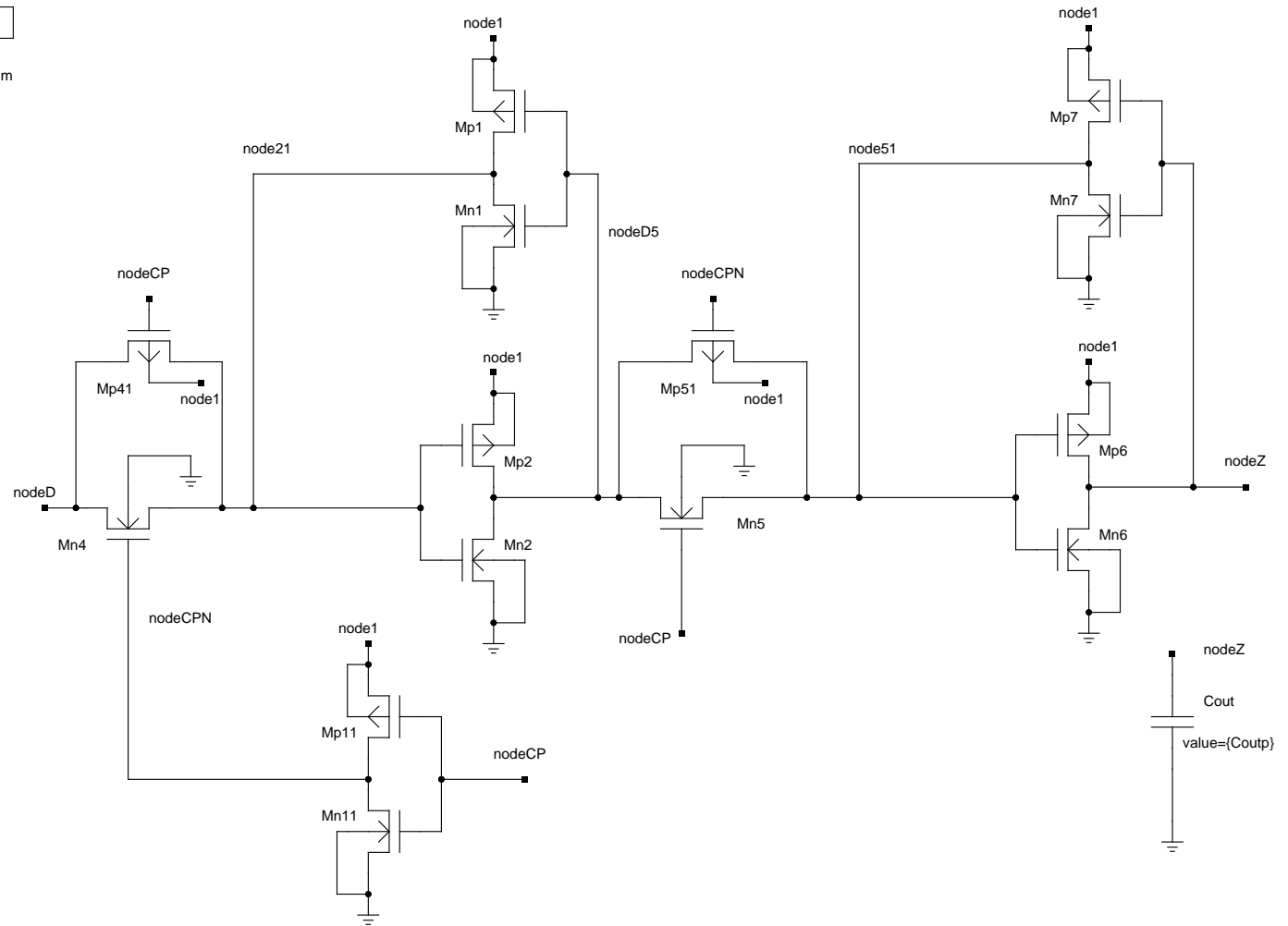
# A3 SPICE include

File:  
value=../model/45nm\_HP.pm



# A2 SPICE directive

```
.TRAN 0.1p 12000p
.PRINT tran V(nodeD) V(nodeCP) V(nodeZ)
.meas tran delay_LH trig v(nodeCP) val=0.5 rise=2 targ v(nodeZ) val=0.5 rise=1
.meas tran delay_HL trig v(nodeCP) val=0.5 rise=3 targ v(nodeZ) val=0.5 fall=1
.meas tran delay_HL trig v(nodeCP) val=0.5 rise=3 targ v(nodeZ) val=0.5 fall=2
```



## HS65\_GH\_DFPQ.sch

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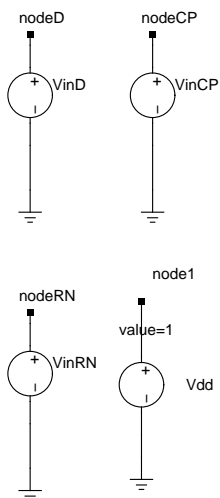
Antonio Mastrandrea

# A1 SPICE directive

.PARAM Lmin=45n  
.PARAM Wmin=45n  
.PARAM Coutp=1f

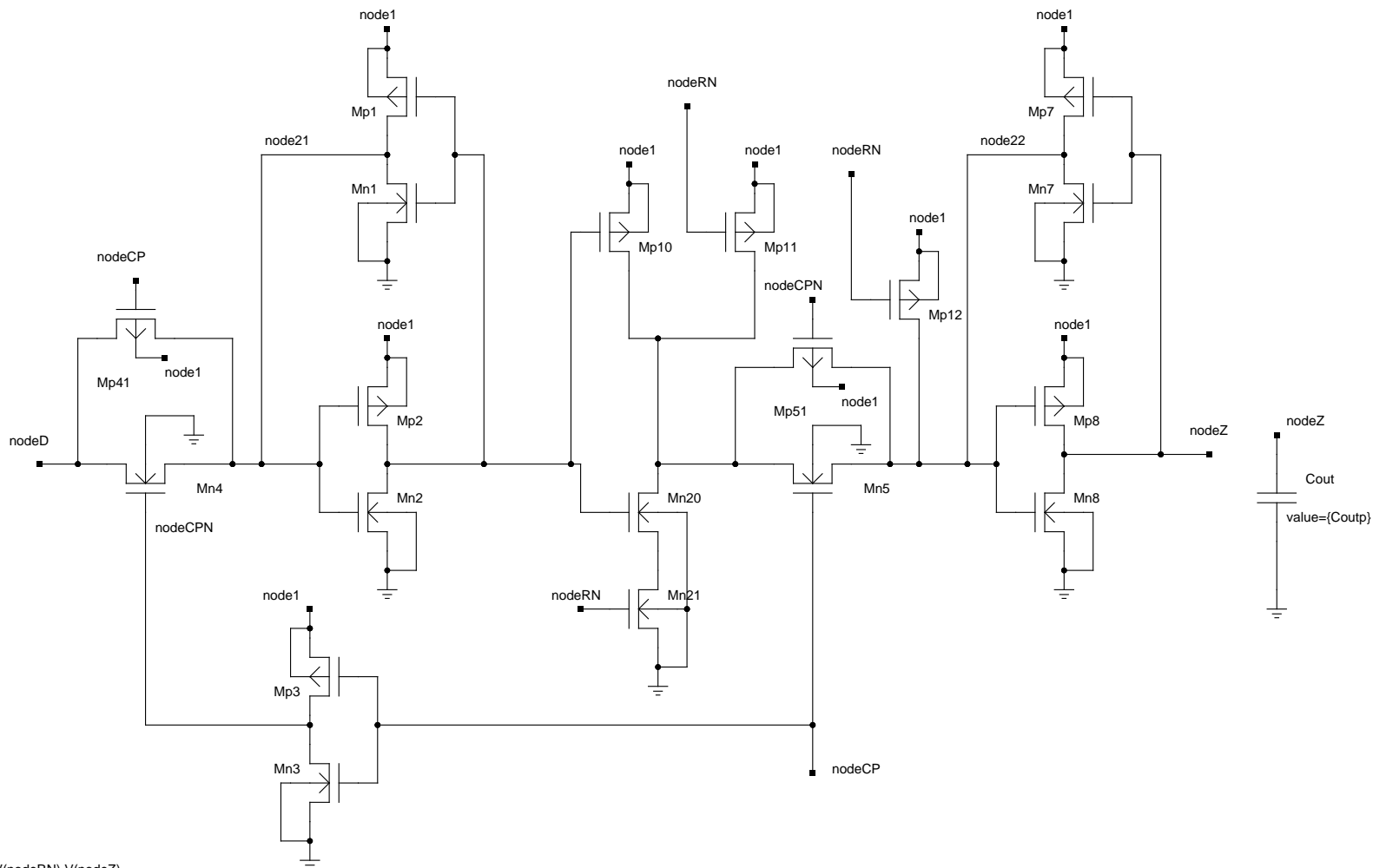
# A3 SPICE include

File:  
value=../model/45nm\_HP.pm



# A2 SPICE directive

.TRAN 0.1p 7800p  
.PRINT tran V(nodeD) V(nodeCP) V(nodeRN) V(nodeZ)  
.meas tran delay\_LH trig v(nodeCP) val=0.5 rise=1 targ v(nodeZ) val=0.5 rise=1  
.meas tran delay\_HL trig v(nodeCP) val=0.5 rise=2 targ v(nodeZ) val=0.5 fall=1  
.meas tran delay\_HL trig v(nodeCP) val=0.5 rise=2 targ v(nodeZ) val=0.5 fall=2  
.meas tran delay\_LH\_DaRN trig v(nodeRN) val=0.5 rise=2 targ v(nodeZ) val=0.5 rise=3  
.meas tran delay\_HL\_DaRN trig v(nodeRN) val=0.5 fall=1 targ v(nodeZ) val=0.5 fall=2



# HS65\_GH\_DFPRQN.sch

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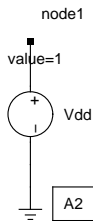
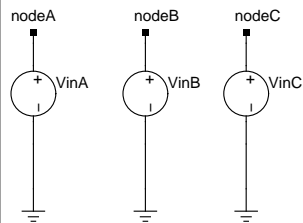
Antonio Mastrandrea

# A3 SPICE include

File:  
value=../model/45nm\_HP.pm

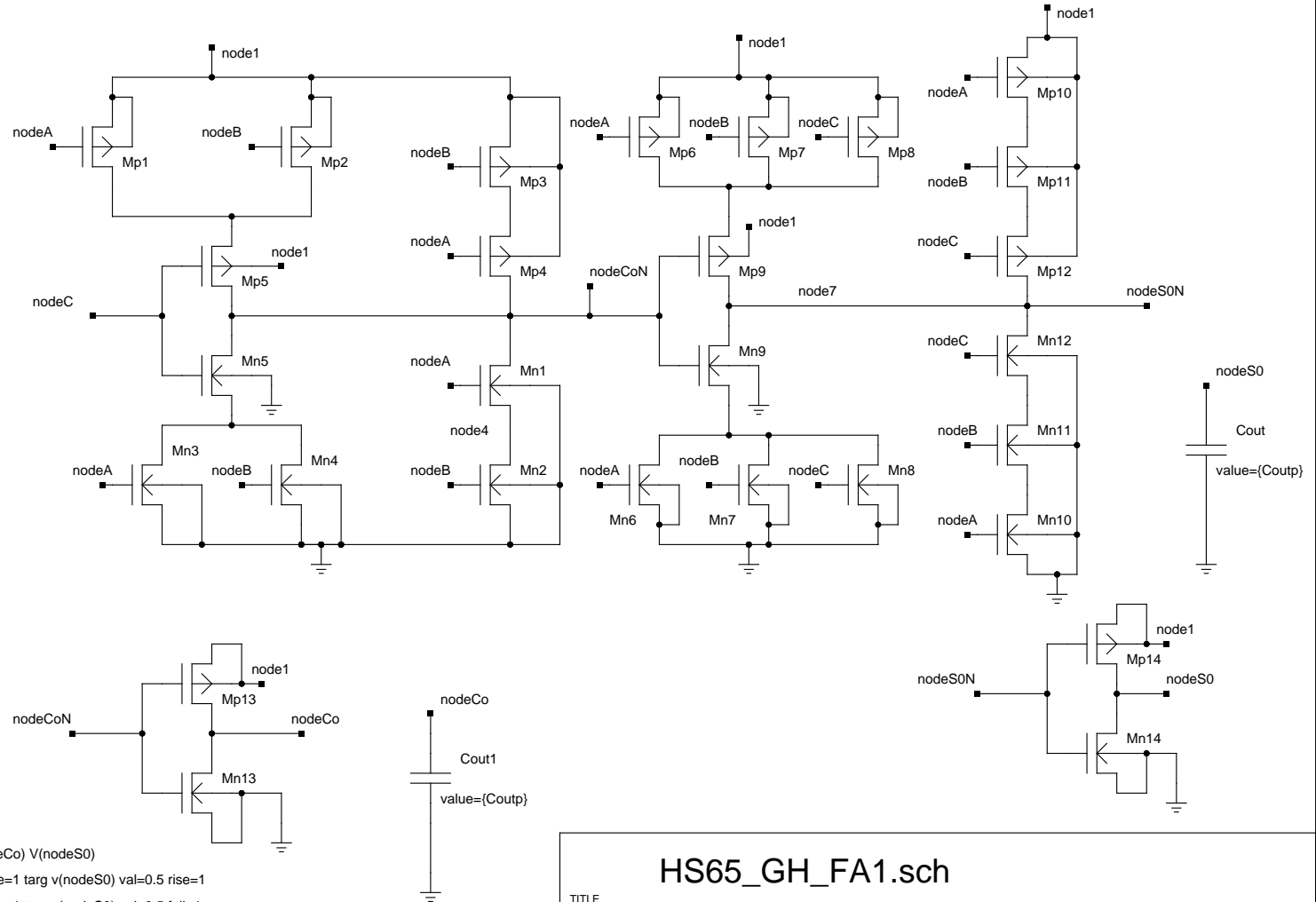
# A1 SPICE directive

.PARAM Lmin=45n  
.PARAM Wmin=45n  
.PARAM Coutp=1f



# A2 SPICE directive

.TRAN 0.1p 3600p  
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeCo) V(nodeS0)  
.meas tran delay\_LH\_S0 trig v(nodeA) val=0.5 rise=1 targ v(nodeS0) val=0.5 rise=1  
.meas tran delay\_HL\_S0 trig v(nodeB) val=0.5 rise=1 targ v(nodeS0) val=0.5 fall=1  
.meas tran delay\_LH\_Co trig v(nodeB) val=0.5 rise=1 targ v(nodeCo) val=0.5 rise=1  
.meas tran delay\_HL\_Co trig v(nodeB) val=0.5 fall=1 targ v(nodeCo) val=0.5 fall=1



# HS65\_GH\_FA1.sch

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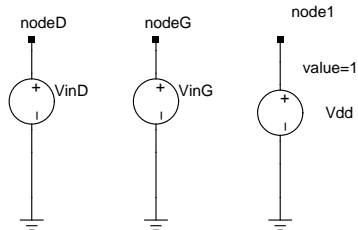
Antonio Mastrandrea

A1 SPICE directive

.PARAM Lmin=45n  
.PARAM Wmin=45n  
.PARAM Coutp=1f

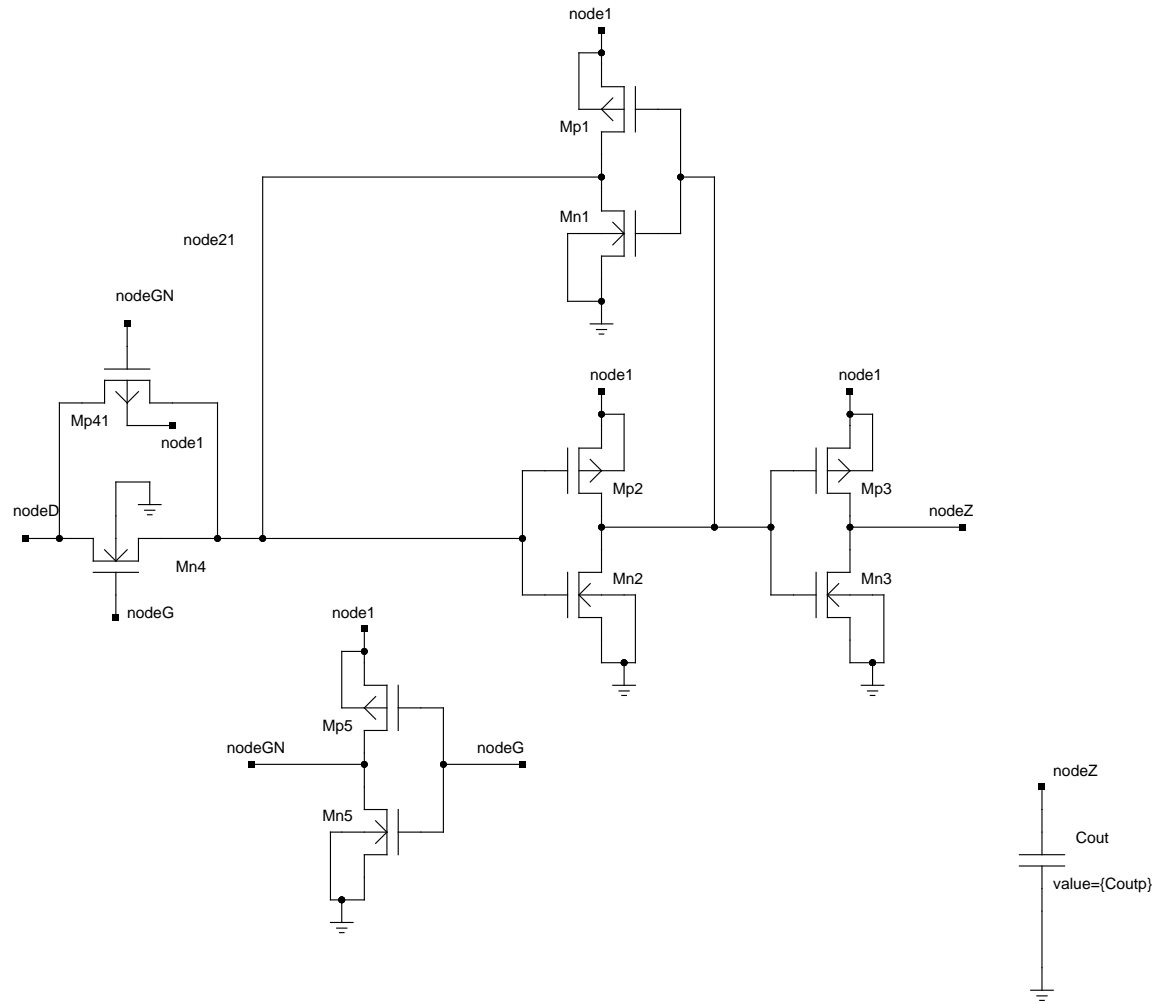
A3 SPICE include

File:  
value=../model/45nm\_HP.pm



A2 SPICE directive

.TRAN 0.1p 5400p  
.PRINT tran V(nodeD) V(nodeG) V(nodeZ)  
.meas tran delay\_LH trig v(nodeD) val=0.5 rise=2 targ v(nodeZ) val=0.5 rise=2  
.meas tran delay\_HL trig v(nodeD) val=0.5 fall=2 targ v(nodeZ) val=0.5 fall=2  
.meas tran delay\_LH\_DaG trig v(nodeG) val=0.5 rise=1 targ v(nodeZ) val=0.5 rise=1  
.meas tran delay\_HL\_DaG trig v(nodeG) val=0.5 rise=2 targ v(nodeZ) val=0.5 fall=1



## HS65\_GH\_LDHQ.sch

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Antonio Mastrandrea



A1 SPICE directive

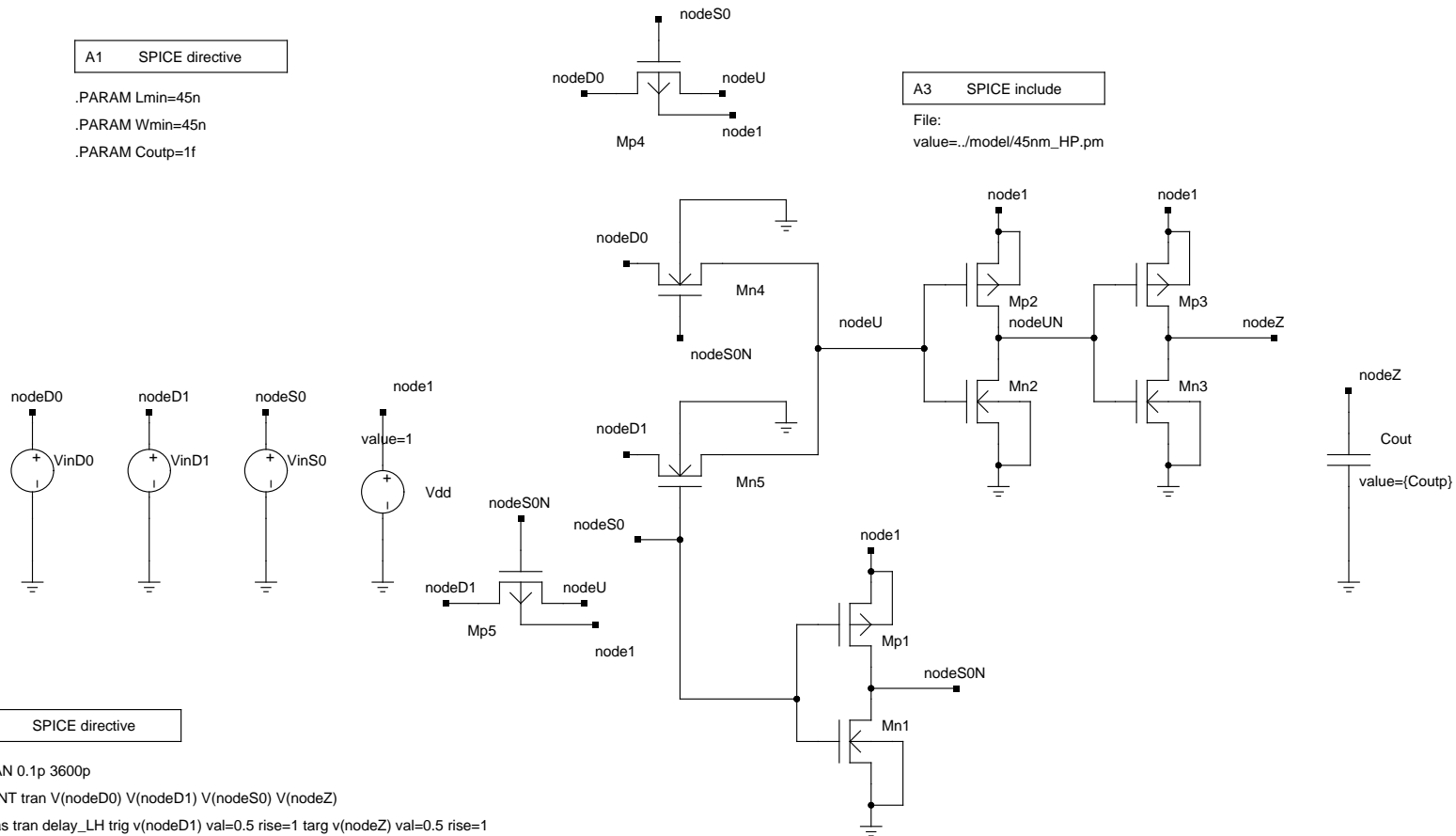
.PARAM Lmin=45n  
.PARAM Wmin=45n  
.PARAM Cout=1f

A3 SPICE include

File:  
value=../model/45nm\_HP.pm

A2 SPICE directive

.TRAN 0.1p 3600p  
.PRINT tran V(nodeD0) V(nodeD1) V(nodeS0) V(nodeZ)  
.meas tran delay\_LH trig v(nodeD1) val=0.5 rise=1 targ v(nodeZ) val=0.5 rise=1  
.meas tran delay\_HL trig v(nodeD1) val=0.5 fall=1 targ v(nodeZ) val=0.5 fall=1



## HS65\_GH\_MUX21.sch

TITLE

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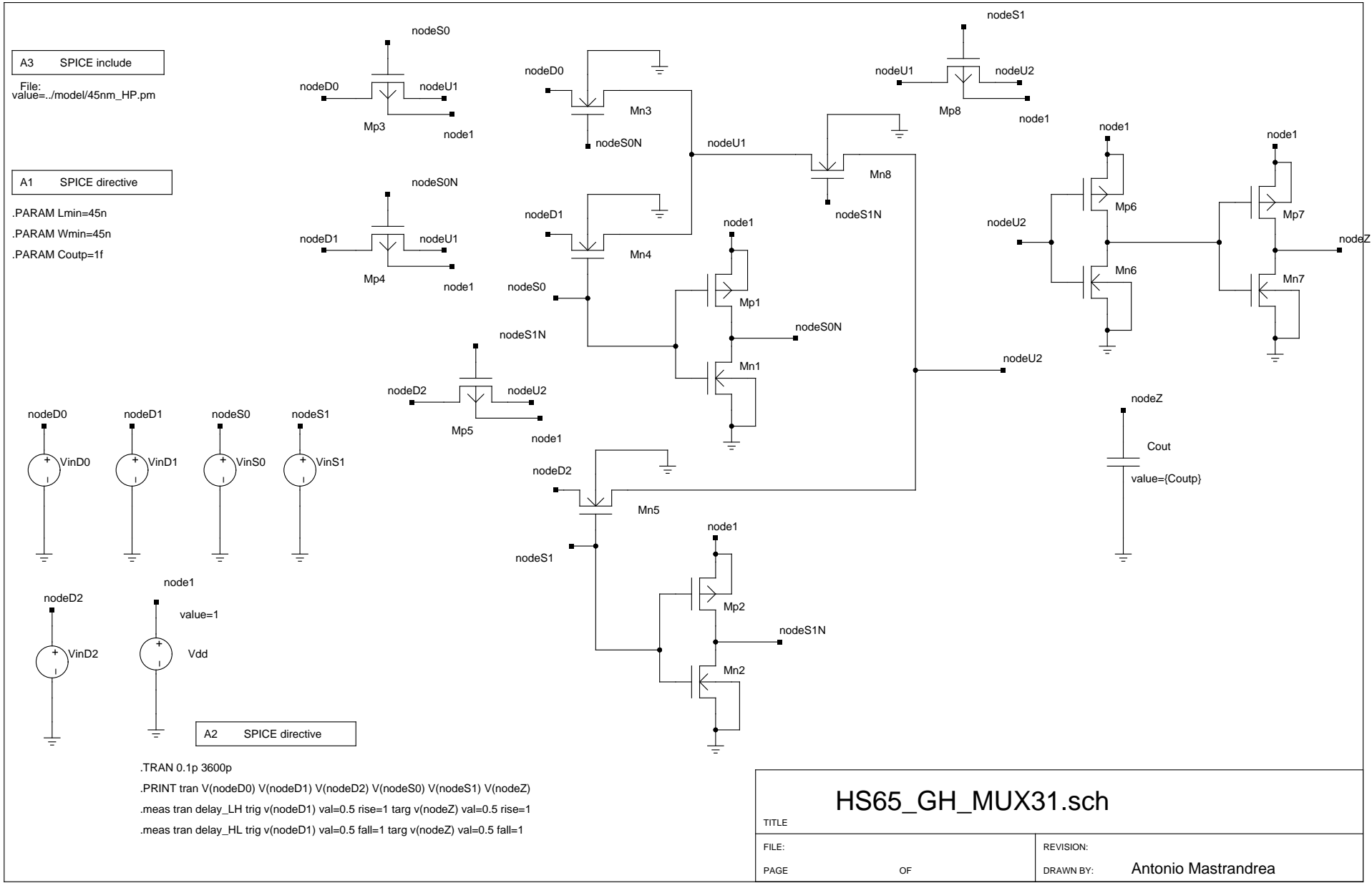
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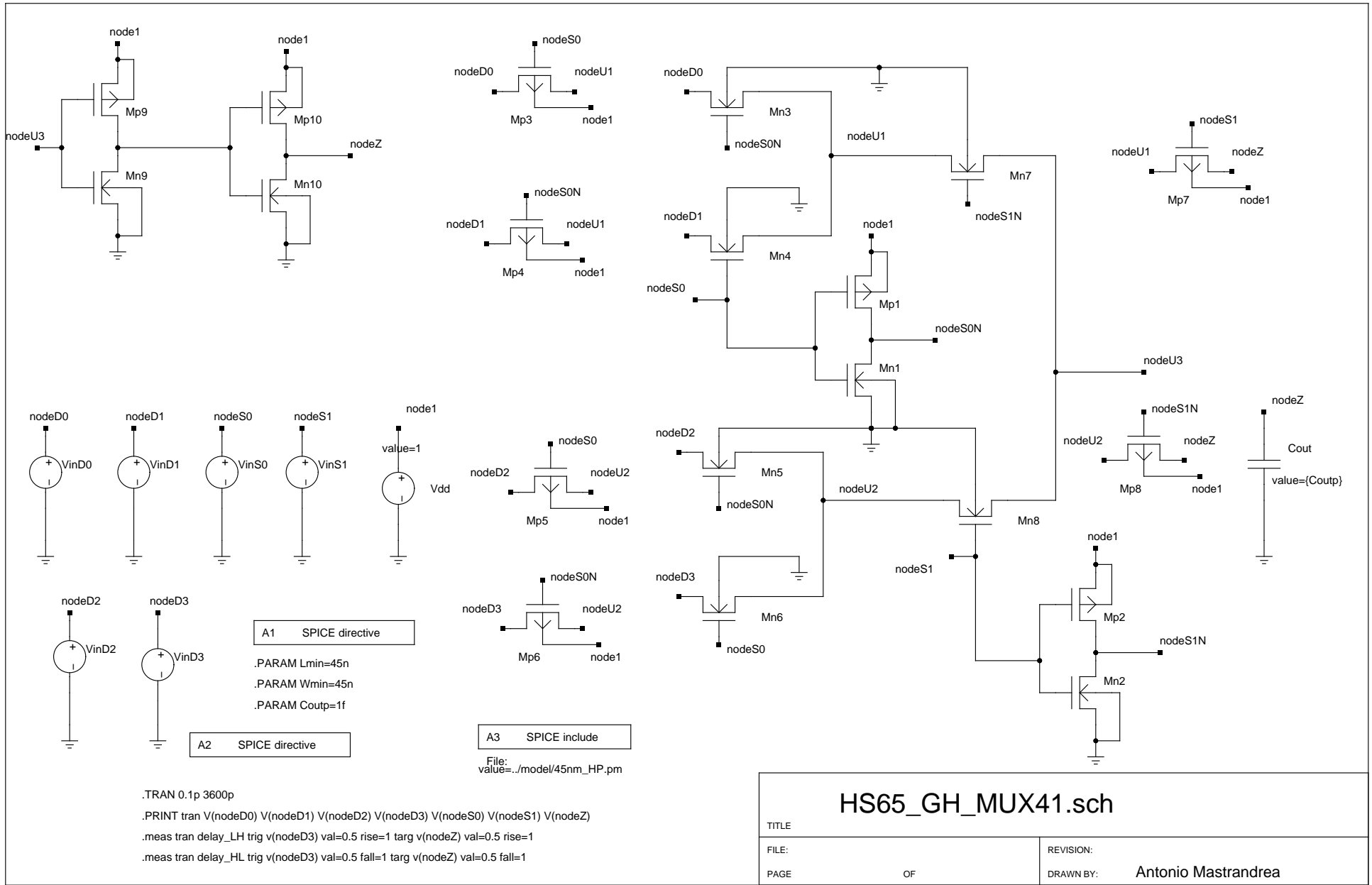
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REVISION:

DRAWN BY:

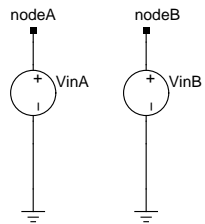
Antonio Mastrandrea





# A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```

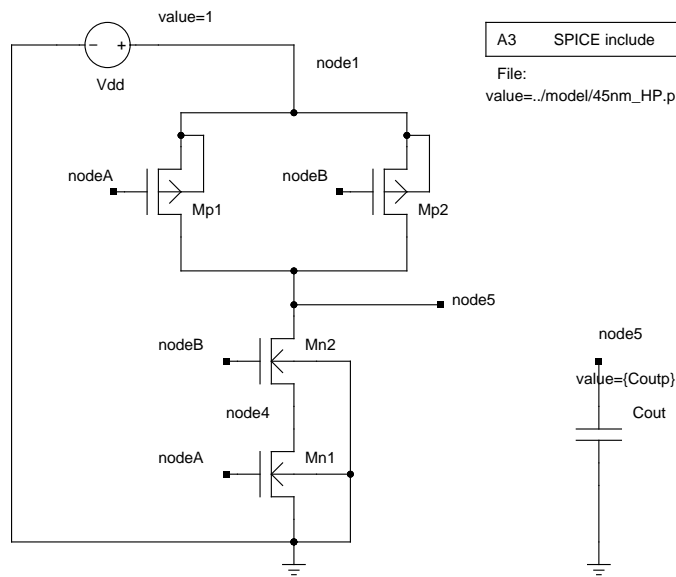


# A2 SPICE directive

```
.TRAN 0.1p 3600p
.PRINT tran V(nodeA) V(nodeB) V(node5)
.meas tran delay_LH trig v(nodeA) val=0.5 fall=1 targ v(node5) val=0.5 rise=1
.meas tran delay_HL trig v(nodeA) val=0.5 rise=1 targ v(node5) val=0.5 fall=1
```

# A3 SPICE include

```
File:
value=../model/45nm_HP.pm
```



## HS65\_GH\_NAND2.sch

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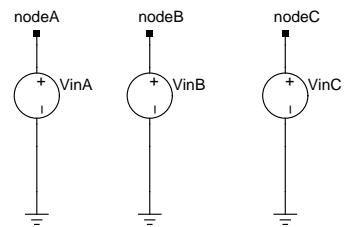
REVISION:

DRAWN BY:

Antonio Mastrandrea

A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```

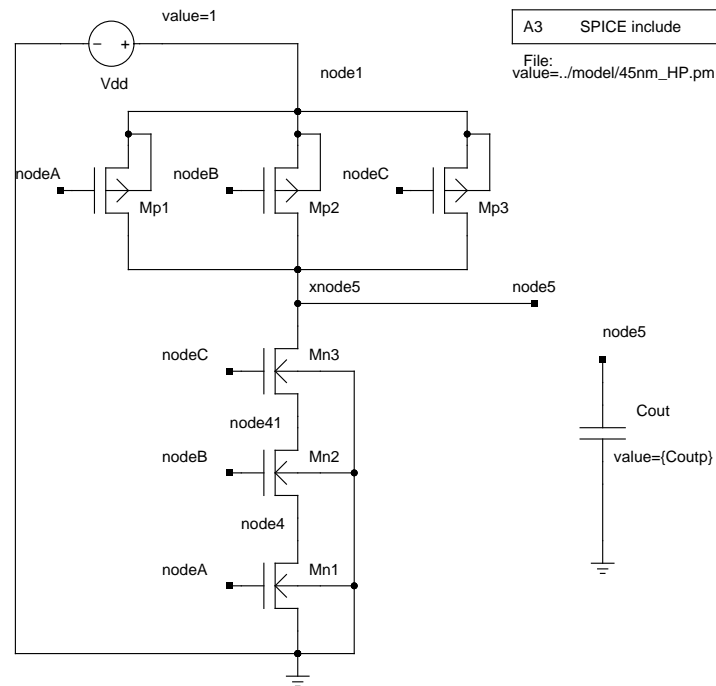


A2 SPICE directive

```
.TRAN 0.1p 3600p
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(node5)
.meas tran delay_LH trig v(nodeA) val=0.5 fall=1 targ v(node5) val=0.5 rise=1
.meas tran delay_HL trig v(nodeA) val=0.5 rise=1 targ v(node5) val=0.5 fall=1
```

A3 SPICE include

File:  
value=../model/45nm\_HP.pm



## HS65\_GH\_NAND3.sch

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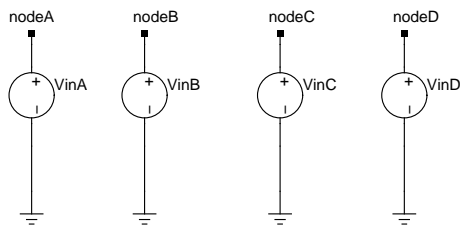
REVISION:

DRAWN BY:

Antonio Mastrandrea

# A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```

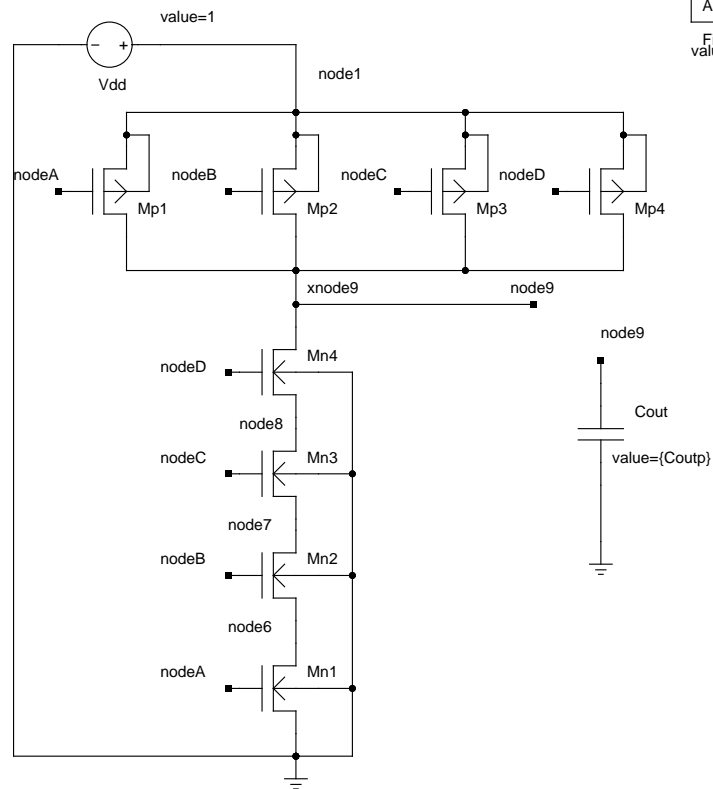


# A2 SPICE directive

```
.TRAN 0.1p 3600p
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(node9)
.meas tran delay_LH trig v(nodeA) val=0.5 fall=1 targ v(node9) val=0.5 rise=1
.meas tran delay_HL trig v(nodeA) val=0.5 rise=1 targ v(node9) val=0.5 fall=1
```

# A3 SPICE include

File:  
value=../model/45nm\_HP.pm



## HS65\_GH\_NAND4.sch

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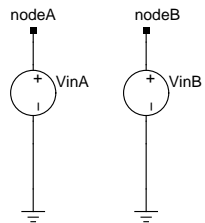
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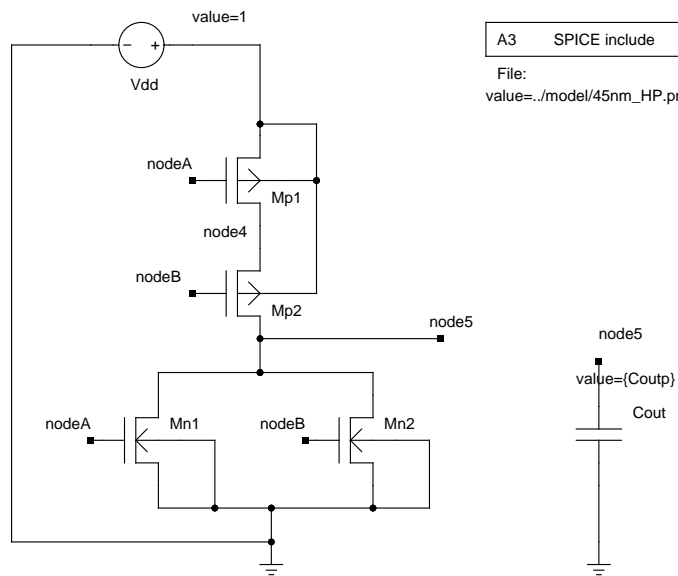
# A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```



# A3 SPICE include

```
File:
value=../model/45nm_HP.pm
```



# A2 SPICE directive

```
.TRAN 0.1p 3600p
.PRINT tran V(nodeA) V(nodeB) V(node5)
.meas tran delay_LH trig v(nodeA) val=0.5 fall=1 targ v(node5) val=0.5 rise=1
.meas tran delay_HL trig v(nodeA) val=0.5 rise=1 targ v(node5) val=0.5 fall=1
```

## HS65\_GH\_NOR2.sch

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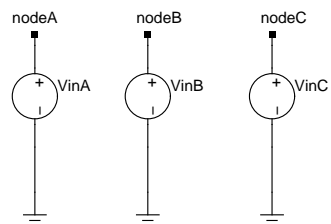
REVISION:

DRAWN BY:

Antonio Mastrandrea

# A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```

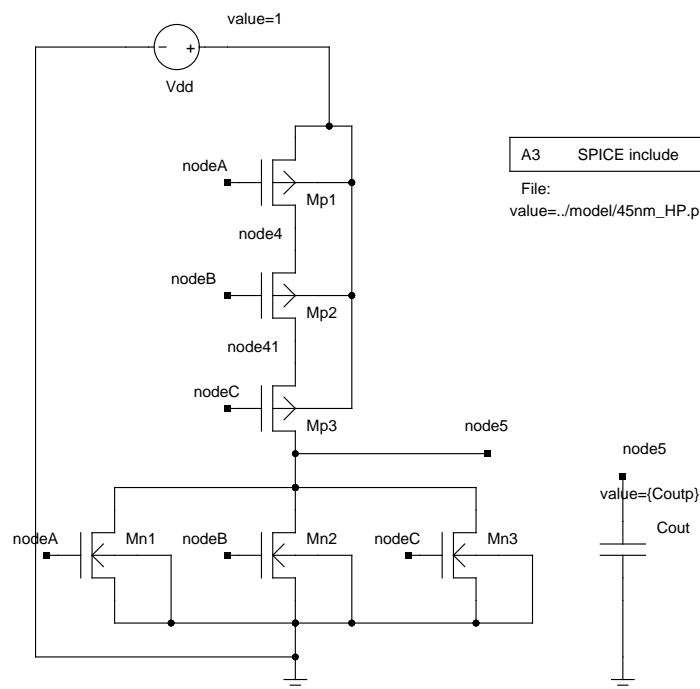


# A2 SPICE directive

```
.TRAN 0.1p 3600p
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(node5)
.meas tran delay_LH trig v(nodeA) val=0.5 fall=1 targ v(node5) val=0.5 rise=1
.meas tran delay_HL trig v(nodeA) val=0.5 rise=1 targ v(node5) val=0.5 fall=1
```

# A3 SPICE include

File:  
value=../model/45nm\_HP.pm



## HS65\_GH\_NOR3.sch

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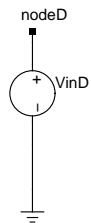
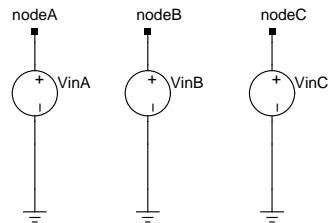
DRAWN BY:

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# A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```

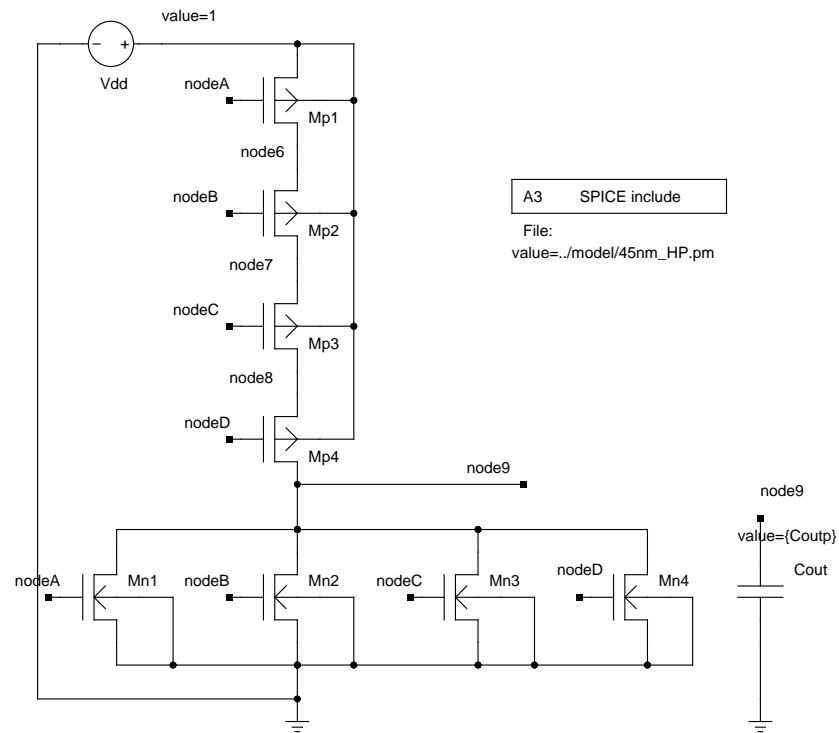


# A2 SPICE directive

```
.TRAN 0.1p 3600p
.PRINT tran V(nodeA) V(nodeB) V(nodeC) V(nodeD) V(node9)
.meas tran delay_LH trig v(nodeA) val=0.5 fall=1 targ v(node9) val=0.5 rise=1
.meas tran delay_HL trig v(nodeA) val=0.5 rise=1 targ v(node9) val=0.5 fall=1
```

# A3 SPICE include

File:  
value=../model/45nm\_HP.pm



# HS65\_GH\_NOR4.sch

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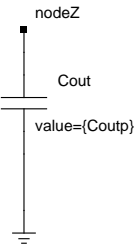
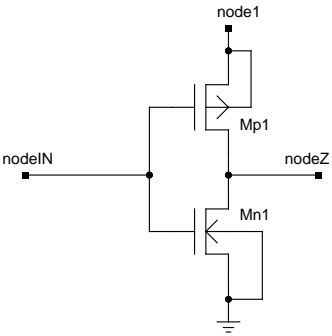
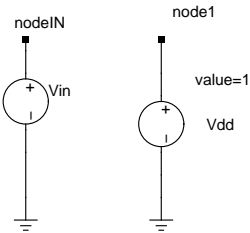
Antonio Mastrandrea

A1 SPICE directive

```
.PARAM Lmin=45n
.PARAM Wmin=45n
.PARAM Coutp=1f
```

A3 SPICE include

```
File:
value=../model/45nm_HP.pm
```



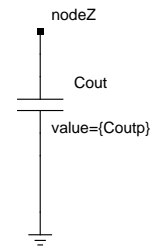
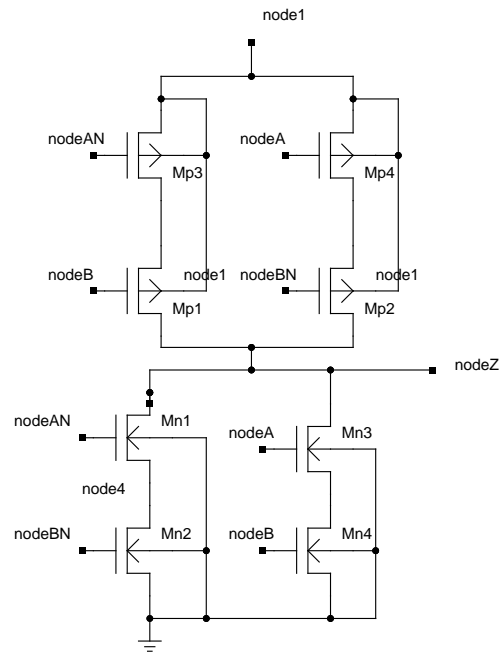
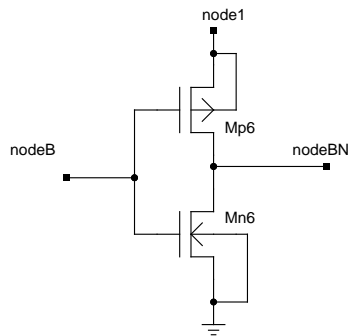
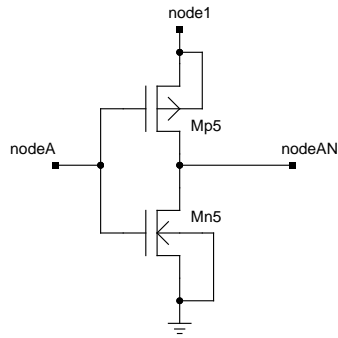
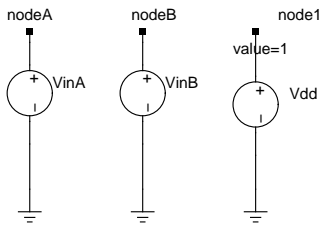
A2 SPICE directive

```
.TRAN 0.1p 1800p
.PRINT tran V(nodeIN) V(nodeZ)
.meas tran delay_LH trig v(nodeIN) val=0.5 fall=1 targ v(nodeZ) val=0.5 rise=1
.meas tran delay_HL trig v(nodeIN) val=0.5 rise=1 targ v(nodeZ) val=0.5 fall=1
```

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FILE:		REVISION:	
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A3 SPICE include  
File:  
value=../model/45nm\_HP.pm

A1 SPICE directive  
PARAM Lmin=45n  
.PARAM Wmin=45n  
.PARAM Coutp=1f



A2 SPICE directive

.TRAN 0.1p 3600p  
.PRINT tran V(nodeA) V(nodeB) V(nodeZ)  
.meas tran delay\_LH trig v(nodeA) val=0.5 fall=1 targ v(nodeZ) val=0.5 rise=1  
.meas tran delay\_HL trig v(nodeA) val=0.5 rise=1 targ v(nodeZ) val=0.5 fall=1

## HS65\_GH\_XOR2.sch

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