

if 
$$d-w \ge 22$$
 late = 27. Mars

 $OST = C$  cary = 22. Mars

if  $d-w \ge 22$ 
 $OST = 1$ 
 $OST = 1$ 
 $OST = 1$ 
 $OST = 1$ 

100 = 0 100 = 1 11 = 0

$$5 \times \bullet = 5$$

$$+ 4 \times 7 \times 1 = 28$$

$$- \circ 5 \times 7444585$$

$$7 = -2$$

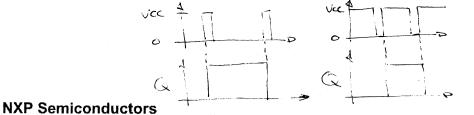
$$6 \times 7446585$$

$$7 = -2$$

$$6 \times 7446585$$

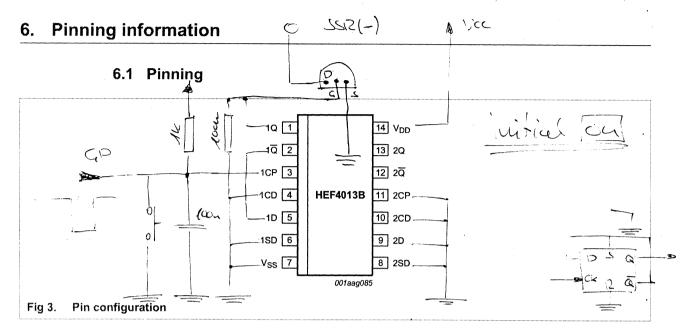
$$\begin{array}{r}
 22 &= 35 & 25 & 24 \\
 23 &= 76 & 27 & 29 \\
 24 &= 50 & 28 & 24 \\
 25 &= 61 & 31 & 26 \\
 26 &= 02 & 26 & 28 \\
 27 &= 13 & 28 & 30. \\
 28 &= 24 &= 28
 \end{array}$$

$$\begin{array}{r}
 27 &= 29 & 24 \\
 26 &= 28 &= 28 \\
 27 &= 13 &= 28 &= 30. \\
 28 &= 24 &= 36 &= 32
 \end{array}$$



**HEF4013B** 

**Dual D-type flip-flop** 



### 6.2 Pin description

Table 2. Pin description

Symbol	Pin	Description		
1Q, 2Q	1, 13	true output		
1Q, 2Q	2, 12	complement output		
1CP, 2CP	3, 11	clock input (LOW to HIGH edge-triggered)		
1CD, 2CD	4, 10	asynchronous clear-direct input (active HIGH)		
1D, 2D	5, 9	data input		
1SD, 2SD	6, 8	asynchronous set-direct input (active HIGH)		
$V_{SS}$	7	ground (0 V)		
$V_{DD}$	14	supply voltage		

## 7. Functional description

Table 3. Function table[1]

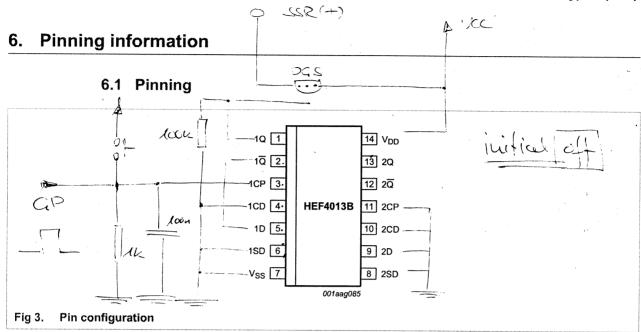
Control			Input	Output	
nSD	nCD	nCP	nD	nQ	nQ
Н	L	x	X	Н	L
L	Н	X	X	L	Н
Н	Н	x	X	Н	Н
L	L	<b>↑</b>	L	L	Н
L	L	<b>↑</b>	Н	Н	L

<sup>[1]</sup> H = HIGH voltage level; L = LOW voltage level; X = don't care; ↑ = LOW-to-HIGH clock transition.

#### **NXP Semiconductors**

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Dual D-type flip-flop



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nSD	nCD	nCP	nĎ	nQ	nQ	
Н	L	X	X	Н	L	
L	Н	X	X	L	Н	
Н	Н	X	X	Н	· H	
L	L	1	L	L	Н	
L	L	1	Н	Н	L	

<sup>[1]</sup> H = HIGH voltage level; L = LOW voltage level; X = don't care; ↑ = LOW-to-HIGH clock transition.