

# CD4503 Hex Non-Inverting 3-STATE Buffer

## 1. General Description

### 1.1 Description

CD4503 is a hex non inverting buffer with 3-state outputs having high sink- and source-current capability. Two disable controls are provided, one of which controls four buffers and the other controls the remaining two buffers.

### 1.2 Features

- 2 output-disable controls

- 3-STATE outputs
- 5V, 10V, and 15V parametric ratings
- Maximum input current of 1 $\mu$ A at 18V and 25°C

### 1.3 Device Information

PART NUMBER	PACKAGE
CD4503	DIP
	SOP
	TSSOP

## 2. Pin Description and Functional Diagram

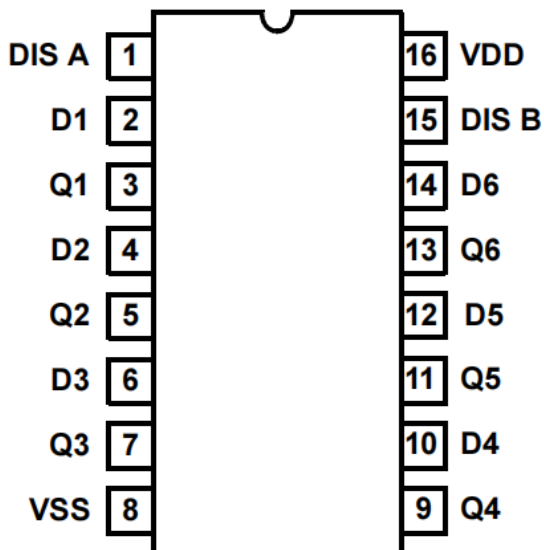
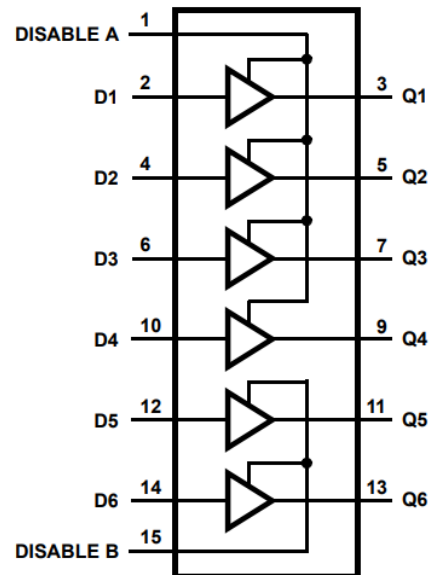


Figure 2.1 Top View



VDD = 16  
VSS = 8

Figure 2.2 Functional Diagram

PIN No.	NAME	I/O	FUNCTION
1	DISA	I	Disable Input
2	D1	I	Data Input
3	Q1	O	Data Output
4	D2	I	Data Input
5	Q2	O	Data Output
6	D3	I	Data Input
7	Q3	O	Data Output
8	VSS		Ground
9	Q4	O	Data Output
10	D4	I	Data Input
11	Q5	O	Data Output
12	D5	I	Data Input
13	Q6	O	Data Output
14	D6	I	Data Input
15	DISB	I	Disable Input
16	VDD		Supply Voltage

## 3. System Diagram

### 3.1 Logic Diagram

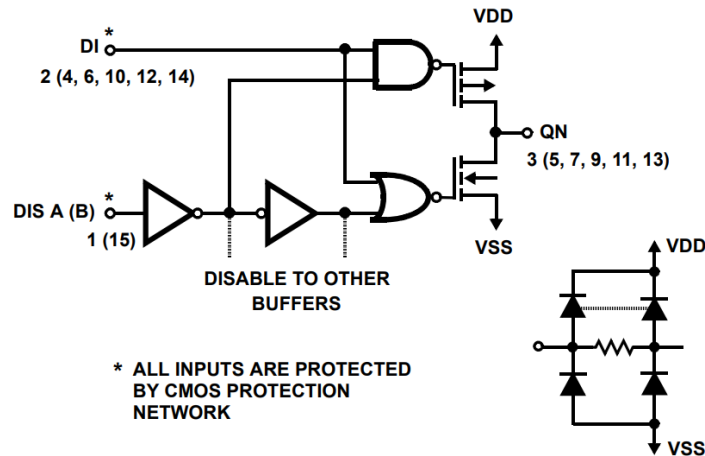


Figure 3.1: CD4503 Logic Diagram

### 3.2 Truth Table

Input		Output
DN	DISA(B)	QN
0	0	0
1	0	1
X	1	High Z



X = Don't Care, 1 ≡ High State, 0 ≡ Low State

## 4. Specifications

### 4.1 Absolute Maximum Ratings

Symbol	Parameter	MIN	MAX	Unit
$V_{DD}$	DC Supply Voltage Range (Voltage Referenced to VSS Terminals)	-0.5	20	V
$V_I$	Input Voltage Range, All Inputs	0.5	$V_{DD}+0.5$	V
$P_D$	Power Dissipation		500	mW
$T_J$	Junction Temperature		125	°C
$T_{OP}$	Operating Temperature	0	70	°C

Absolute maximum ratings are those values beyond which the device could be permanently damaged, These are stress ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under Recommended Operating Conditions.

### 4.2 Electrical Characteristics

#### 4.2.1 DC Specifications

( $T_a=25^\circ\text{C}$ , voltages are referenced to VSS (ground=0V), unless otherwise specified)

Symbol	Parameter	Test Condition			MIN	TYP	MAX	Unit
		$V_O$	$V_{IN}$	$V_{DD}$				
$I_{DD}$	Supply Current	--	0,5	5	--	0	1	$\mu\text{A}$
		--	0,10	10	--	0	1	$\mu\text{A}$
		--	0,18	18	--	0	1	$\mu\text{A}$
$I_{OL}$	Low Level Output Current	0.4	0,5	5	3	6	--	mA
		0.5	0,10	10	7	14	--	mA
		1.5	0,15	15	25	50	--	mA
$I_{OH}$	High Level Output Current	4.6	0,5	5	-1	-1.5	--	mA
		2.5	0,5	5	-4	-7	--	mA
		9.5	0,10	10	-2	-3.5	--	mA
		13.5	0,15	15	-7	-14	--	mA
$V_{OL}$	Low Level Output Voltage	--	0,5	5	--	0	0.05	V
		--	0,10	10	--	0	0.05	V
		--	0,15	15	--	0	0.05	V
$V_{OH}$	High Level Output Voltage	--	0,5	5	4.95	5	--	V
		--	0,10	10	9.95	10	--	V
		--	0,15	15	14.95	15	--	V
$V_{IL}$	Low Level Input Voltage	0.5,4.5	--	5	--	--	1.5	V
		1,9	--	10	--	--	3	V
		1.5,13.5	--	15	--	--	4	V
$V_{IH}$	High Level Input Voltage	0.5,4.5	--	5	3.5	--	--	V
		1,9	--	10	7	--	--	V
		1.5,13.5	--	15	11	--	--	V
$I_{IN}$	Input Current	--	0,18	18	--	0	$\pm 1$	$\mu\text{A}$
$I_{OUT}$	3-STATE Output Leakage Current	0,18	0,18	18	--	0	$\pm 2$	$\mu\text{A}$



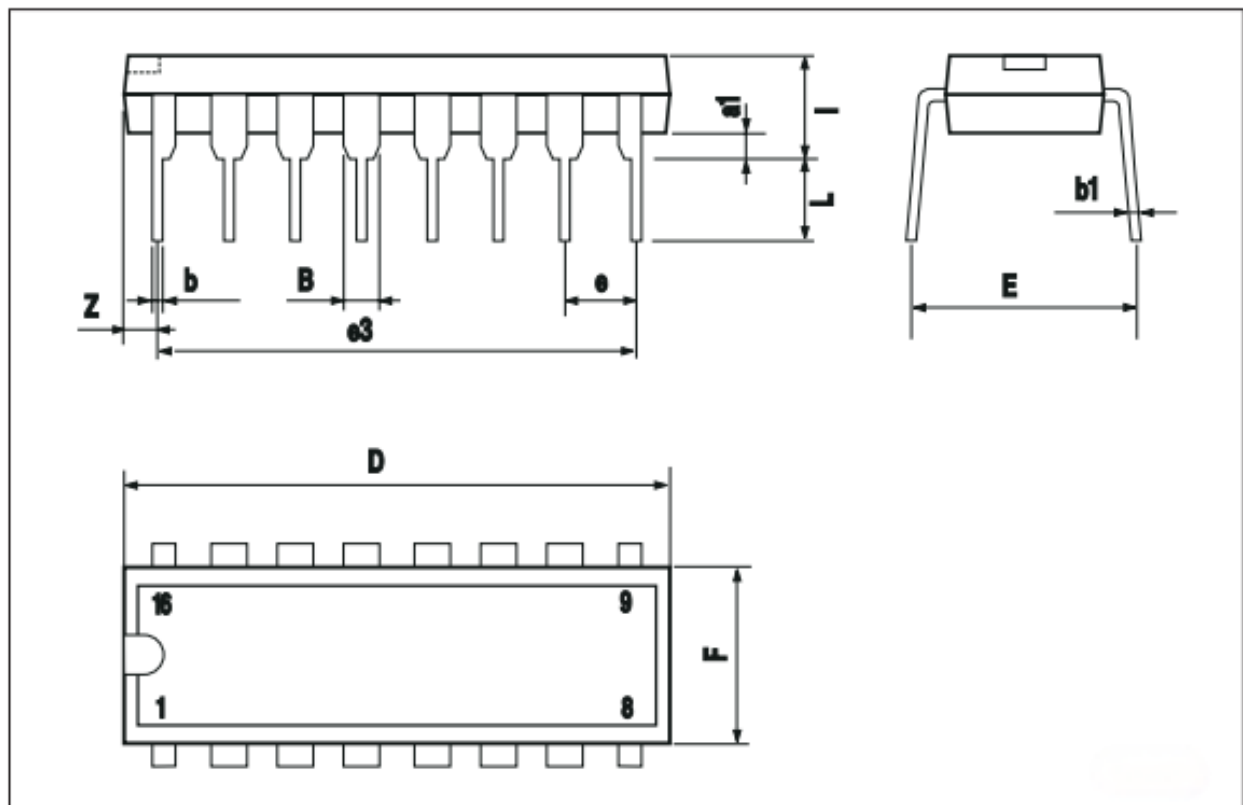
## 5. Ordering Information

Orderable Device	Package Type	Pins	Packing	Package Qty
CD4503ND16ATBE	DIP	16	Tube	25
CD4503NS16ARDQ	SOP	16	Tape & Reel	4000
CD4503TS16ARDQ	TSSOP	16	Tape & Reel	4000

## 6. Package Information

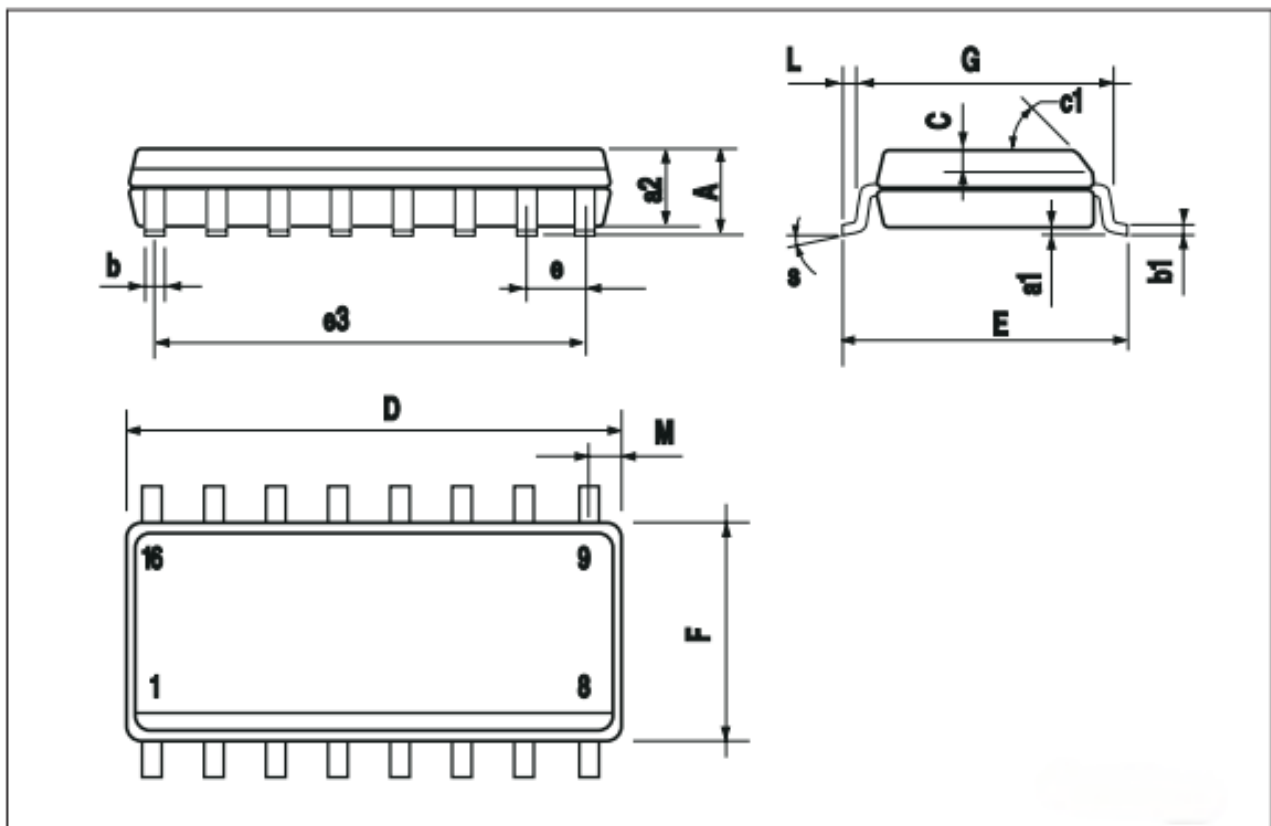
### 6.1 DIP16

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
I			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050



## 6.2 SOP16

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.068
a1	0.1		0.25	0.004		0.010
a2			1.64			0.063
b	0.35		0.46	0.013		0.018
b1	0.19		0.25	0.007		0.010
C		0.5			0.019	
c1	45° (typ.)					
D	9.8		10	0.385		0.393
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		8.89			0.350	
F	3.8		4.0	0.149		0.157
G	4.6		5.3	0.181		0.208
L	0.5		1.27	0.019		0.050
M			0.62			0.024
S	8° (max.)					



### 6.3 TSSOP16

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.2			0.047
A1	0.05		0.15	0.002	0.004	0.006
A2	0.8	1	1.05	0.031	0.039	0.041
b	0.19		0.30	0.007		0.012
c	0.09		0.20	0.004		0.0079
D	4.9	5	5.1	0.193	0.197	0.201
E	6.2	6.4	6.6	0.244	0.252	0.260
E1	4.3	4.4	4.48	0.169	0.173	0.176
e		0.65 BSC			0.0256 BSC	
K	0°		8°	0°		8°
L	0.45	0.60	0.75	0.018	0.024	0.030

