

74HC06

Hex Inverted with Open-Drain Outputs

1. General Description

1.1 Description

This device contains six open drain output inverters, This device can be used in wired-AND, LED driver and other applications with a suitable pull-up resistors.

1.2 Features

- Low input current
 $I_{IN}=1\mu A(MAX)@TA=25^{\circ}C$

- WIDE OPERATING VOLTAGE RANGE:
 $V_{CC} (OPR) = 2V \text{ to } 6V$

1.3 Device Information

PART NUMBER	PACKAGE
74HC06	DIP
	SOP
	TSSOP

2. Connection Diagrams and Pin Description

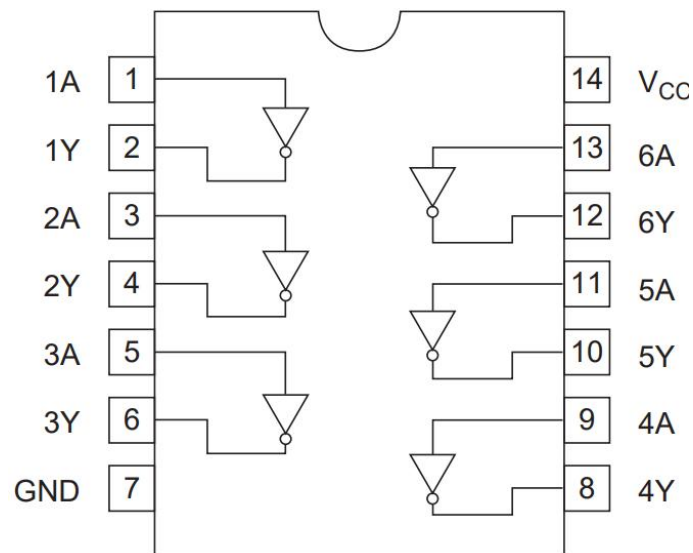


Figure 2.1: Top View



PIN No.	NAME	I/O	FUNCTION
1	A1	I	Input
2	Y1	O	Output
3	A2	I	Input
4	Y2	O	Output
5	A3	I	Input
6	Y3	O	Output
7	GND	-	Ground
8	Y4	O	Output
9	A4	I	Input
10	Y5	O	Output
11	A5	I	Input
12	Y6	O	Output
13	A6	I	Input
14	Vcc	-	Power Pin

Signal Types:I= input, O = Output

3. System Diagram

3.1 Logic Diagram

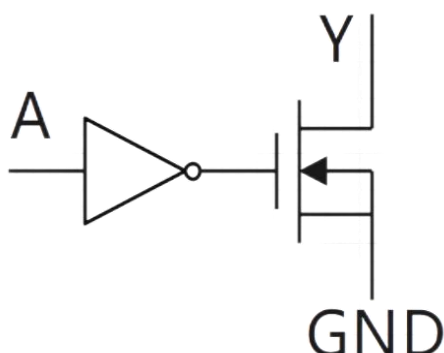


Figure 3.1: 74HC06 Logic Diagram (one gate)

3.2 Function Table

Input A	OUTPUT Y
0	Z
1	0

1=High State,0=Low State,Z=High Impedance

4. Specifications

4.1 Absolute Maximum Ratings

Symbol	Parameter	MIN	MAX	Unit
V_{CC}	Supply Voltage	-0.5	7	V
V_I	DC Input Voltage	-0.5	$V_{CC} + 0.5$	V
V_O	DC Output Voltage	-0.5	$V_{CC} + 0.5$	V
P_D	Power Dissipation		500	mW
T_J	Junction Temperature		125	°C
T_{OP}	Operating Temperature	-40	85	°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 Recommended Operating Conditions

Symbol	Parameter	Test Condition	MIN	NOM	MAX	Unit
V_{CC}	Supply Voltage		2	5	6	V
V_{IH}	High Level Input Voltage	$V_{CC}=2V$	1.5			V
		$V_{CC}=4.5V$	3.15			V
		$V_{CC}=6V$	4.2			V
V_{IL}	Low Level Input Voltage	$V_{CC}=2V$			0.5	V
		$V_{CC}=4.5V$			1.35	V
		$V_{CC}=6V$			1.8	V
V_I	Input voltage		0		V_{CC}	V
V_O	Output Voltage		0		V_{CC}	V

4.3 Electrical Characteristics

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

Symbol	Parameter	Test Condition	MIN	TY P	MAX	Unit
V_{OL}	Low Level Output Voltage	$V_I=V_{IH}$ or V_{IL} , $V_{CC}=2V$, $I_O=20\mu A$			0.1	V
		$V_I=V_{IH}$ or V_{IL} , $V_{CC}=4.5V$, $I_O=20\mu A$			0.1	V
		$V_I=V_{IH}$ or V_{IL} , $V_{CC}=6V$, $I_O=20\mu A$			0.1	V
		$V_I=V_{IH}$ or V_{IL} , $V_{CC}=4.5V$, $I_O=4mA$			0.26	V
		$V_I=V_{IH}$ or V_{IL} , $V_{CC}=6V$, $I_O=5.2mA$			0.26	V
I_I	Maximum Input Leakage Current	$V_{CC}=6V$, $V_I=V_{CC}$ or GND	--	0	± 1	μA
I_{OZ}	Output Leakage Current	$V_{CC}=6V$, $V_O=V_{CC}$ or GND	--	0	± 2	μA
I_{CC}	Quiescent Supply Current	$V_{CC}=6V$, $V_I=V_{CC}/GND$, $I_O=0$	--	0	10	μA

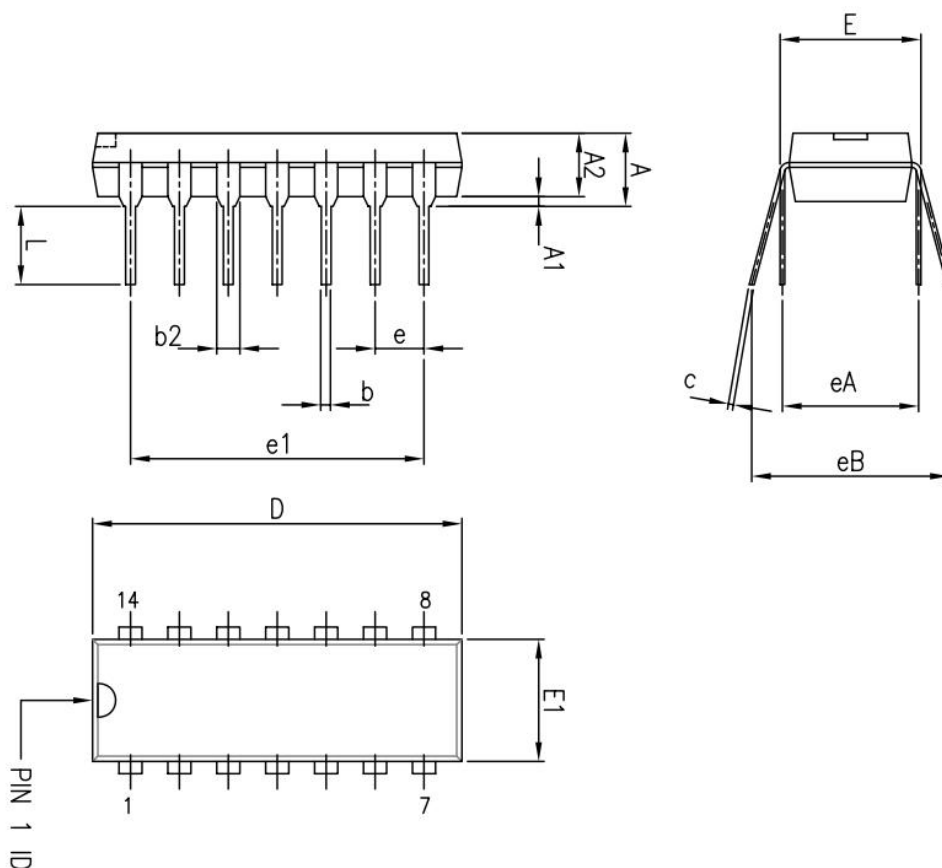


5. Ordering Information

Orderable Device	Package Type	Pins	Packing	Package Qty
74HC06ND14ATBE	DIP	14	Tube	25
74HC06NS14ARDQ	SOP	14	Tape & Reel	4000
74HC06TS14ARBQ	TSSOP	14	Tape & Reel	2000

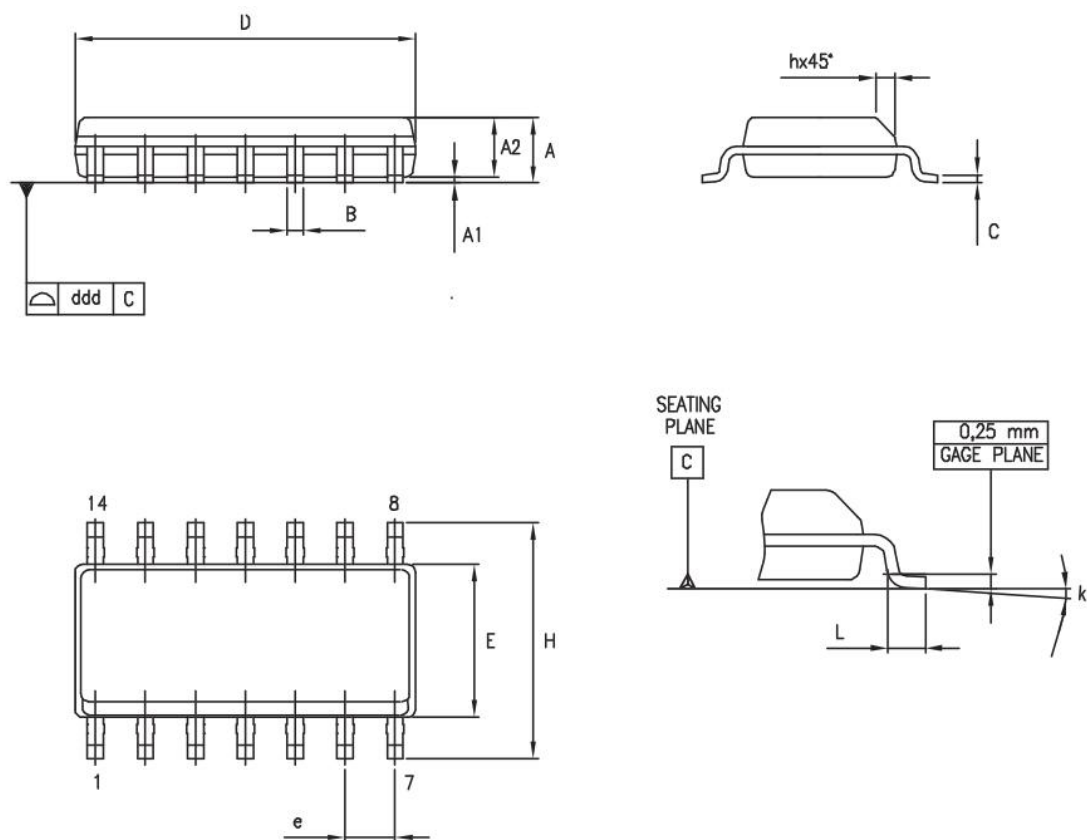
6. Package Information

6.1 DIP14



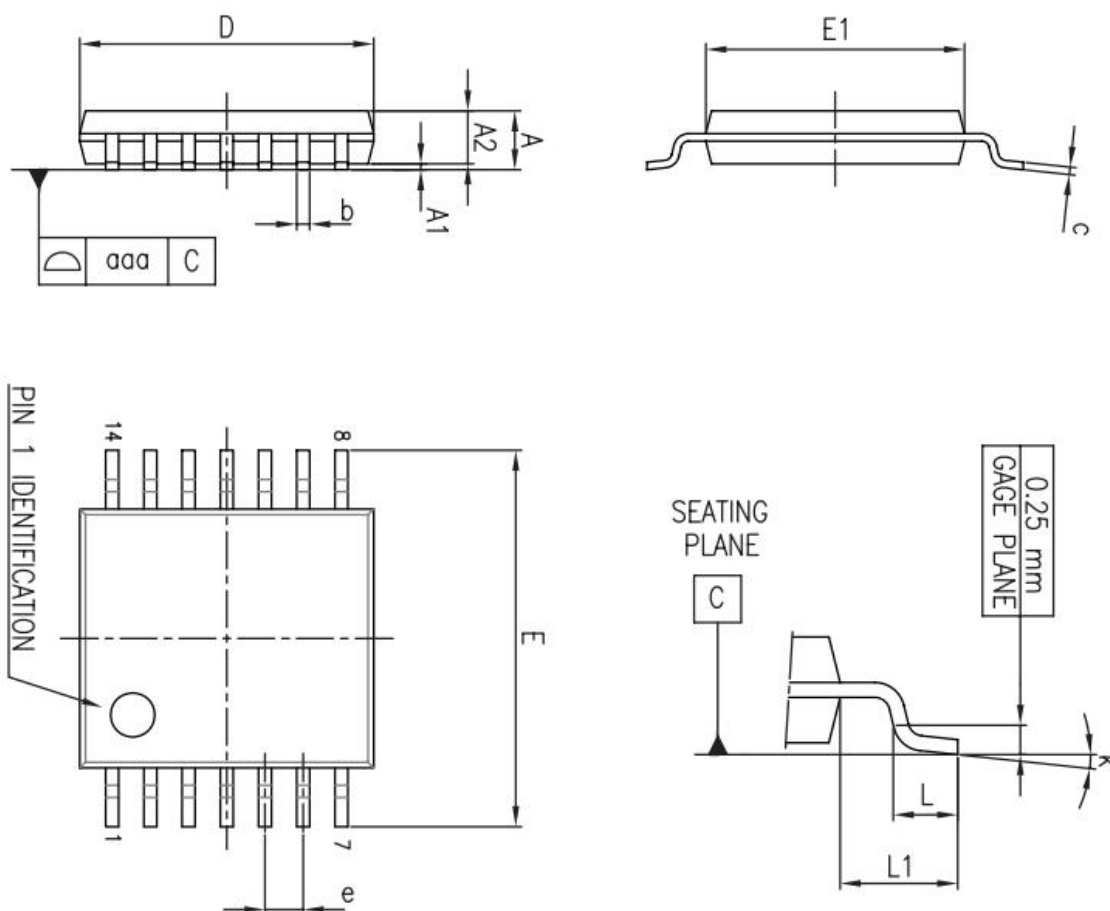
Dimensions						
Ref.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			5.33			0.21
A1	0.38			0.015		
A2	2.92	3.30	4.95	0.11	0.13	0.19
b	0.36	0.46	0.56	0.014	0.018	0.022
b2	1.14	1.52	1.78	0.04	0.06	0.07
c	0.20	0.25	0.36	0.007	0.009	0.01
D	18.67	19.05	19.69	0.73	0.75	0.77
E	7.62	7.87	8.26	0.30	0.31	0.32
E1	6.10	6.35	7.11	0.24	0.25	0.28
e		2.54			0.10	
e1		15.24			0.60	
eA		7.62			0.30	
eB			10.92			0.43
L	2.92	3.30	3.81	0.11	0.13	0.15

6.2 SOP14



Dimensions						
Ref.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.35		1.75	0.05		0.068
A1	0.10		0.25	0.004		0.009
A2	1.10		1.65	0.04		0.06
B	0.33		0.51	0.01		0.02
C	0.19		0.25	0.007		0.009
D	8.55		8.75	0.33		0.34
E	3.80		4.0	0.15		0.15
e		1.27			0.05	
H	5.80		6.20	0.22		0.24
h	0.25		0.50	0.009		0.02
L	0.40		1.27	0.015		0.05
k	8° (max.)					
ddd			0.10			0.004

6.3 TSSOP14



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.20			0.047
A1	0.05		0.15	0.002	0.004	0.006
A2	0.80	1.00	1.05	0.031	0.039	0.041
b	0.19		0.30	0.007		0.012
c	0.09		0.20	0.004		0.0089
D	4.90	5.00	5.10	0.193	0.197	0.201
E	6.20	6.40	6.60	0.244	0.252	0.260
E1	4.30	4.40	4.50	0.169	0.173	0.176
e		0.65			0.0256	
L	0.45	0.60	0.75	0.018	0.024	0.030
L1		1.00			0.039	
k	0°		8°	0°		8°
aaa			0.10			0.004