74HC244 Octal Buffers and Line Drivers With 3-State Outputs

1. General Description

1.1 Description

The 74HC244 octal buffers and line drivers are designed specifically to improve both the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters.

The 74HC244 devices are organized as two 4-bit buffers and drivers with separate output-enable($\overline{OE}$)inputs. When $\overline{OE}$ is low, the device passes noninverted data from the A inputs to the Y outputs.When ($\overline{OE}$) is high, the outputs are in the high impedance state.

1.2 Features

- Wide Operating Voltage Range of 2 V to 6 V
- High-Current Outputs Drive Up to 15 LSTTL Loads
- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Low Power Consumption: Icc, 10uA(MAX)@T_a=25℃
- ±6-mA Output Drive at 5 V
- Low Input Current of 1uA(MAX)@T_a=25℃

1.3 Device Information

PART NUMBER	PACKAGE
74HC244	DIP
	SOP
	SSOP
	TSSOP

2. Connection Diagrams and Pin Description

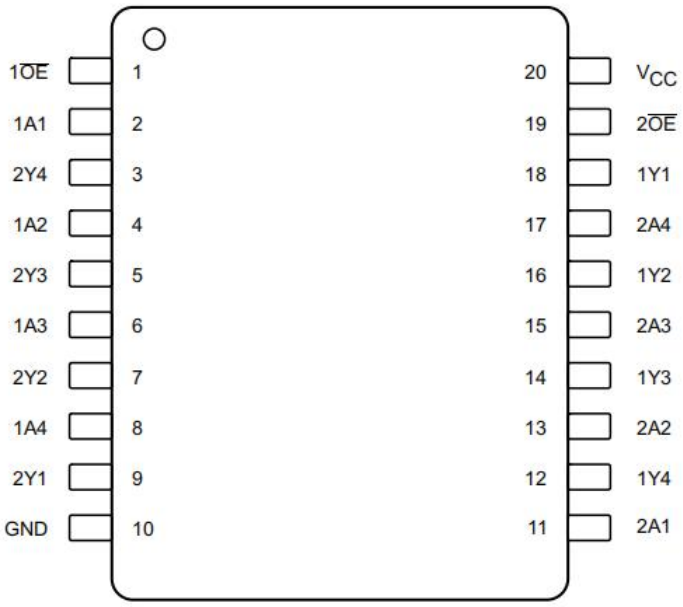


Figure 2.1: Top View

PIN No.	NAME	I/O	FUNCTION
1	1OE	I	Output Enable
2	1A1	I	Input
3	2Y4	O	Output
4	1A2	I	Input
5	2Y3	O	Output
6	1A3	I	Input
7	2Y2	O	Output
8	1A4	I	Input
9	2Y1	O	Output
10	GND	-	Ground
11	2A1	I	Input
12	1Y4	O	Output
13	2A2	I	Input
14	1Y3	O	Output
15	2A3	I	Input
16	1Y2	O	Output
17	2A4	I	Input
18	1Y1	O	Output
19	2OE	I	Output Enable
20	Vcc	-	Power Pin

（1）Signal Types:I= input, O = Output, I/O = Input or Output.

3. System Diagram

3.1 Logic Diagram

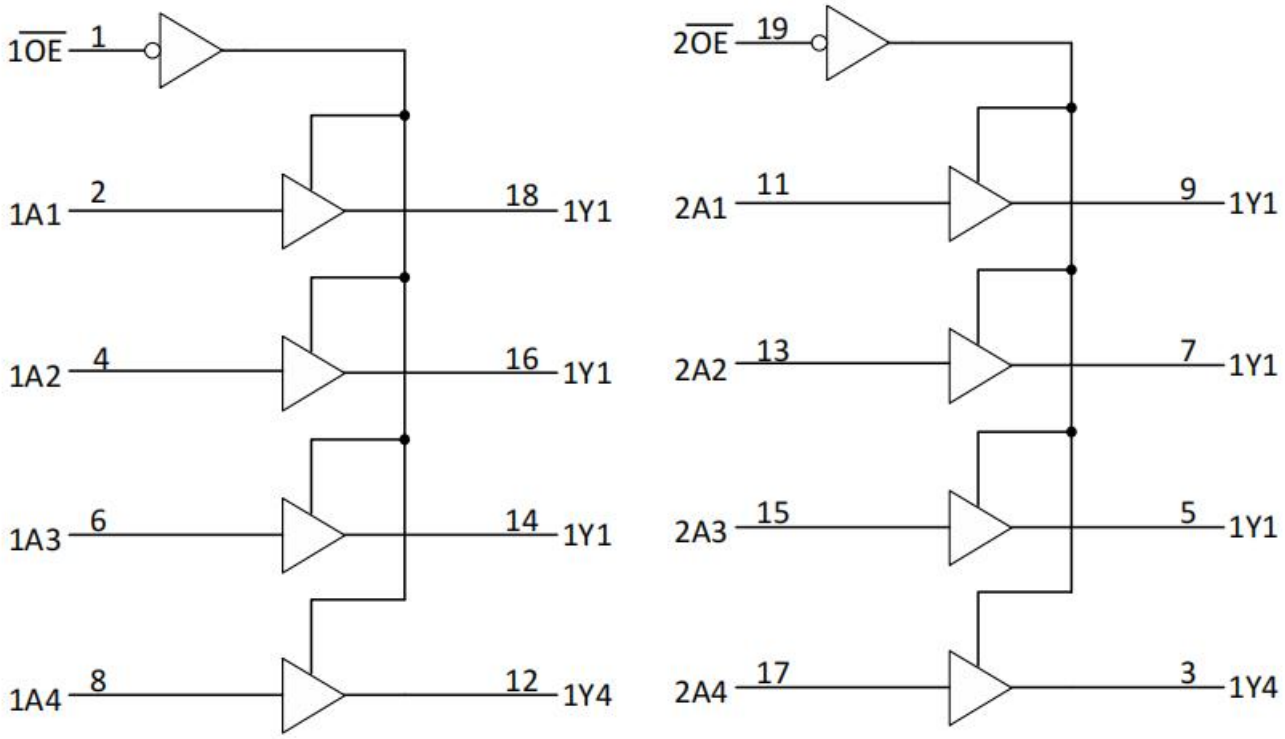


Figure 3.1: 74HC244 Logic Diagram

3.2 Function Table

Input		Function
$\overline{OE}$	A	
0	0	0
0	1	1
1	X	Z

X = don't care, 1≡High State, 0≡Low State

4. Specifications

4.1 Absolute Maximum Ratings

Symbol	Parameter	MIN	MAX	Unit
V_{CC}	Supply Voltage	-0.5	7	V
P_D	Power Dissipation		500	mW
T_J	Junction Temperature		125	℃
T_{OP}	Operating Temperature	-40	85	℃

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 normal 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

4.3 Electrical Characteristics

(T_a=25℃, voltages are referenced to GND (ground=0V), unless otherwise specified)

Symbol	Parameter	Test Condition	MIN	TYP	MAX	Unit
V_{OH}	High Level Output Voltage	V_{CC}=2V,I_O=-20uA	1.9	--	--	V
		V_{CC}=4.5V,I_O=-20uA	4.4	--	--	V
		V_{CC}=6V,I_O=-20uA	5.9	--	--	V
		V_{CC}=4.5V,I_O=-6mA	4.0	--	--	V
		V_{CC}=6V,I_O=-7.8mA	5.5	--	--	V
V_{OL}	Low Level Output Voltage	V_{CC}=2V,I_O=20uA	--	--	0.1	V
		V_{CC}=4.5V,I_O=20uA	--	--	0.1	V
		V_{CC}=6V,I_O=20uA	--	--	0.1	V
		V_{CC}=4.5V,I_O=6mA	--	--	0.26	V
		V_{CC}=6V,I_O=7.8mA	--	--	0.26	V
I_I	Input Leakage Current	V_{CC}=6V,V_I=V_{CC} or GND	--	0	±1	uA
I_{OZ}	Off-State (High Impedance State) Output	V_{CC}=6V,V_O=V_{CC} or GND,V_I=V_{IH} or V_{IL}	--	0	±2	uA
I_{CC}	Quiescent Supply Current	V_{CC}=6V,V_I=V_{CC}/GND,Io=0	--	0	10	uA

5. Application Information

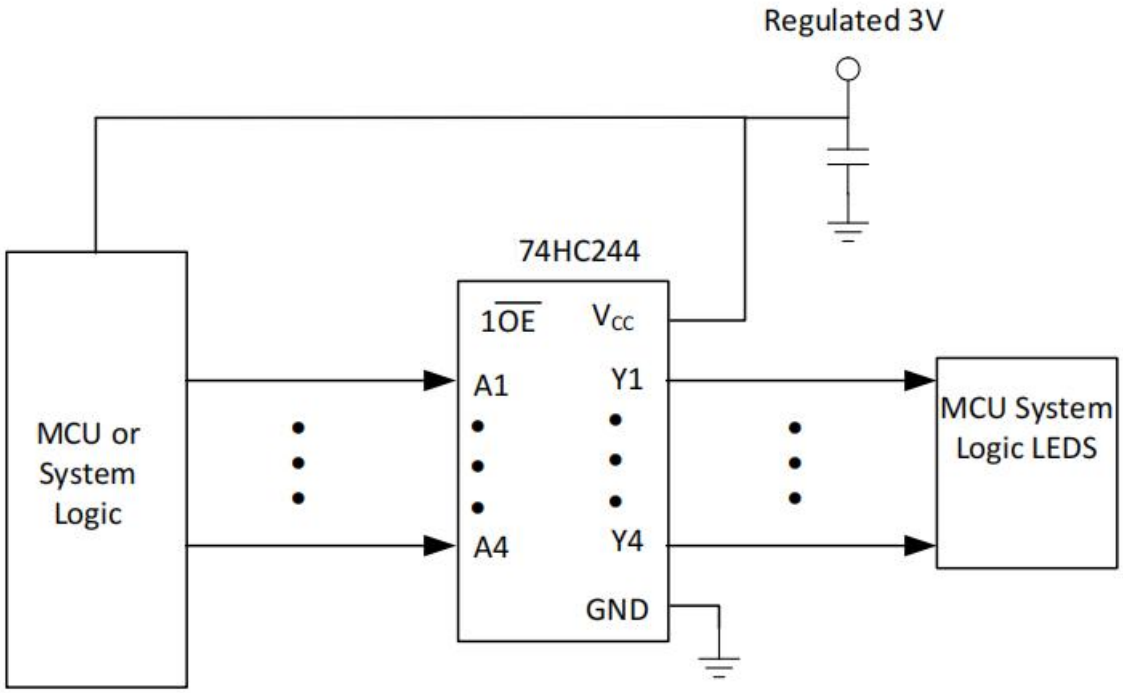


Figure 5.1:Typical application schematic

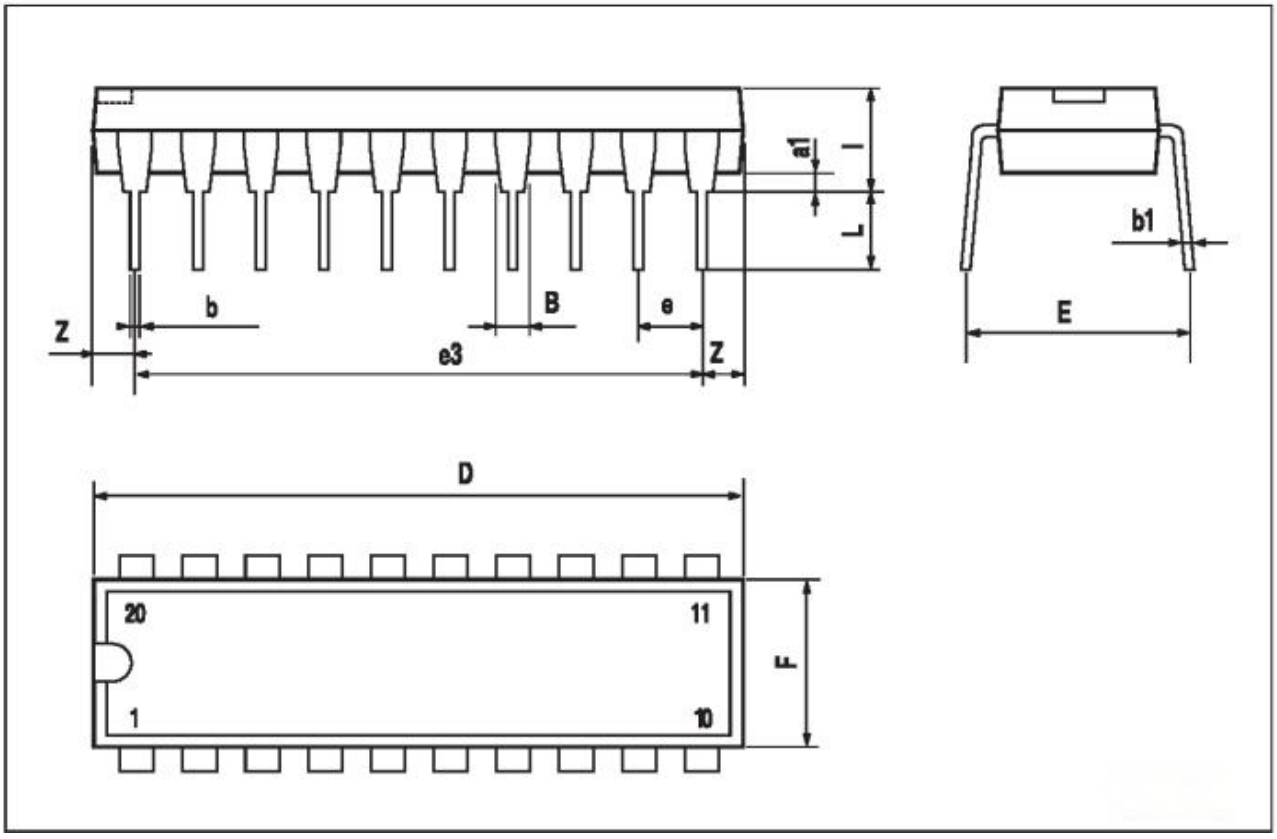
6. Ordering Information

Orderable Device	Package Type	Pins	Packing	Package Qty
74HC244ND20ATAH	DIP	20	Tube	18
74HC244NS20ARBQ	SOP	20	Tape & Reel	2000
74HC244SS20ARBQ	SSOP	20	Tape & Reel	2000
74HC244TS20ARCQ	TSSOP	20	Tape & Reel	3000

7. Package Information

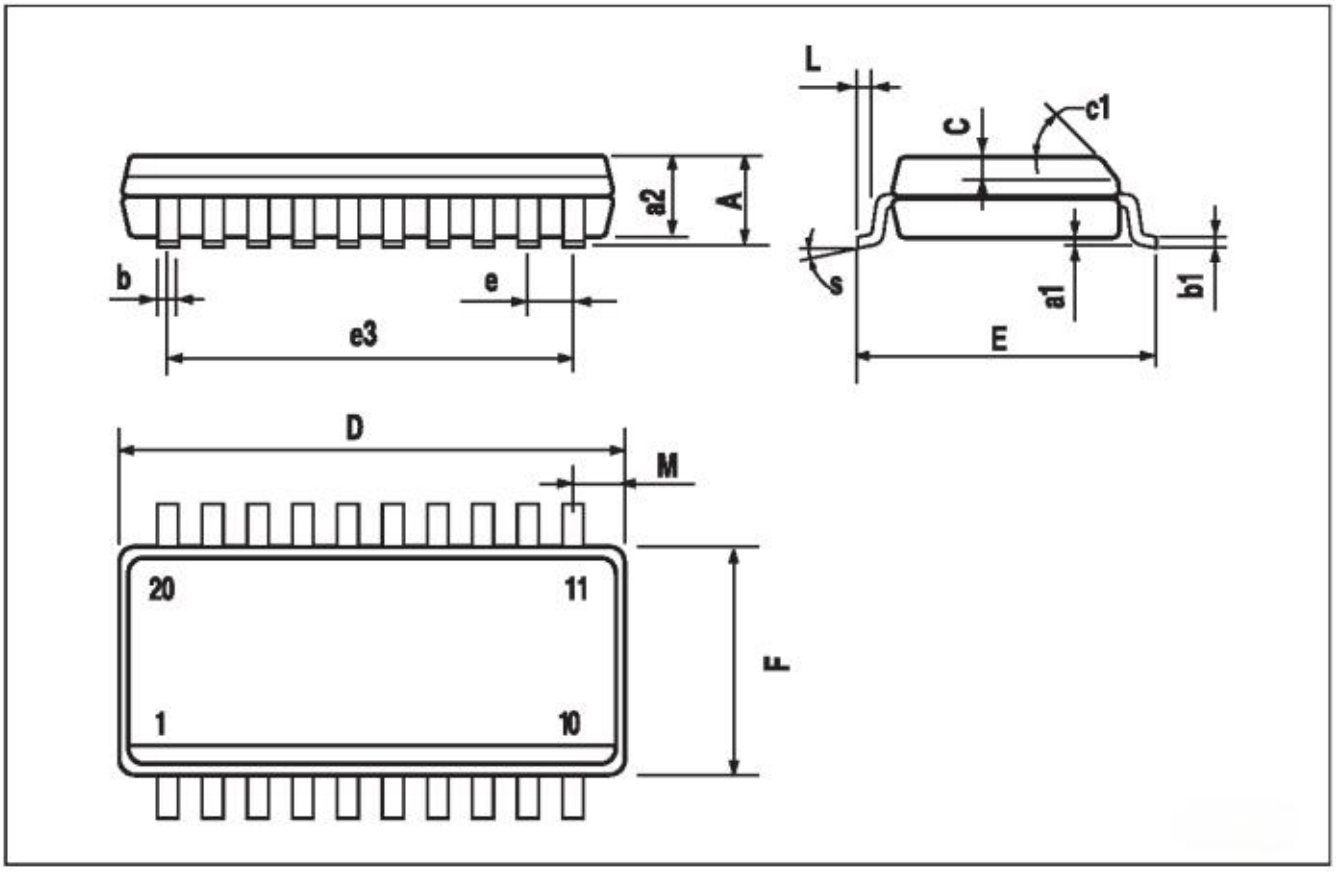
7.1 DIP20

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
a1	0.254			0.010		
B	1.39		1.65	0.055		0.065
b		0.45			0.018	
b1		0.25			0.010	
D			25.4			1.000
E		8.5			0.335	
e		2.54			0.100	
e3		22.86			0.900	
F			7.1			0.280
I			3.93			0.155
L		3.3			0.130	
Z			1.34			0.053

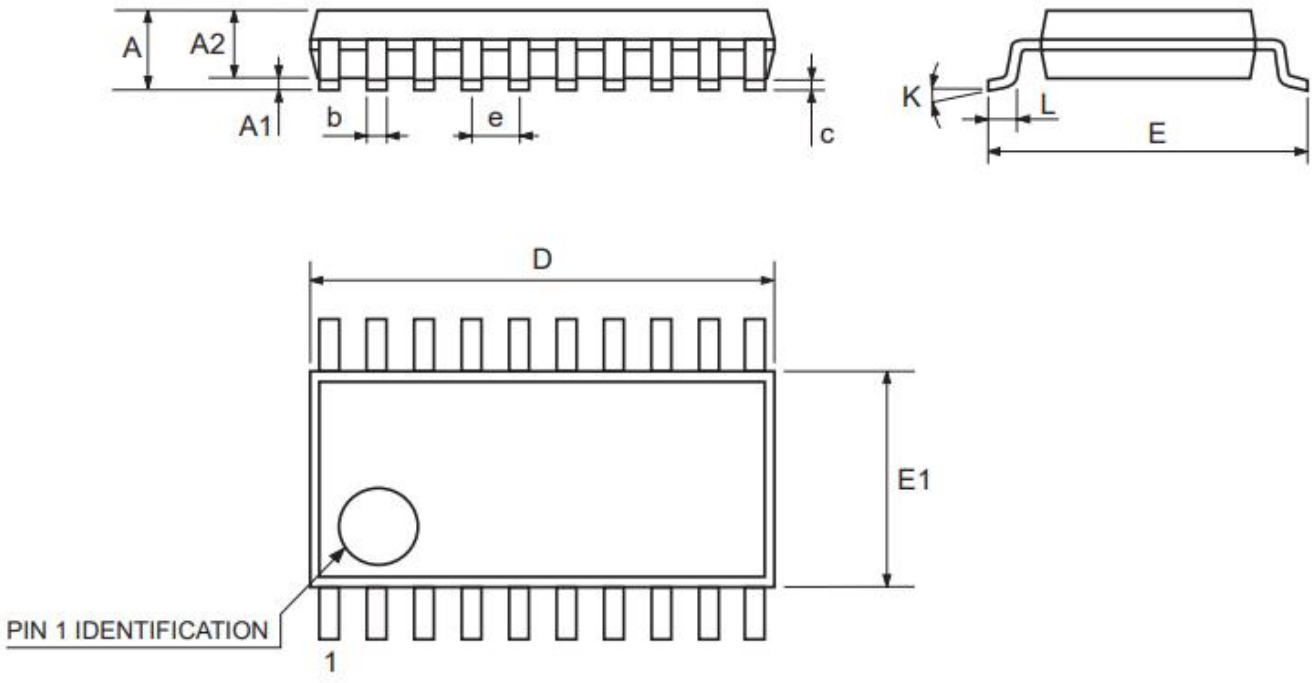


7.2 SOP20

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			2.65			0.104
a1	0.1		0.2	0.004		0.008
a2			2.45			0.096
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.012
C		0.5			0.020	
c1	45° (typ.)					
D	12.60		13.00	0.496		0.512
E	10.00		10.65	0.393		0.419
e		1.27			0.050	
e3		11.43			0.450	
F	7.40		7.60	0.291		0.300
L	0.50		1.27	0.020		0.050
M			0.75			0.029
S	8° (max.)					



7.3 SSOP20



DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			2			0.079
A1	0.05			0.002		
A2	1.65	1.75	1.85	0.065	0.069	0.073
b	0.22		0.38	0.009		0.015
c	0.09		0.25	0.004		0.010
D	6.9	7.2	7.5	0.272	0.283	0.295
E	7.4	7.8	8.2	0.291	0.307	0.323
E1	5	5.3	5.6	0.197	0.209	0.220
e		0.65 BSC			0.0256 BSC	
K	0°	4°	8°	0°	4°	8°
L	0.55	0.75	0.95	0.022	0.030	0.037

7.4 TSSOP20

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		0.0089
D	6.4	6.5	6.6	0.252	0.256	0.260
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