

# DATA SHEET

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**74LV244**

Octal buffer/line driver (3-State)

Product specification  
Supersedes data of 1997 Feb 19  
IC24 Data Handbook

1998 May 20

## Octal buffer/line driver (3-State)

## 74LV244

## FEATURES

- Wide operating voltage: 1.0 to 5.5 V
- Optimized for low voltage applications: 1.0 to 3.6 V
- Accepts TTL input levels between  $V_{CC} = 2.7$  V and  $V_{CC} = 3.6$  V
- Typical  $V_{OLP}$  (output ground bounce)  $< 0.8$  V at  $V_{CC} = 3.3$  V,  $T_{amb} = 25^{\circ}\text{C}$
- Typical  $V_{OHV}$  (output  $V_{OH}$  undershoot)  $> 2$  V at  $V_{CC} = 3.3$  V,  $T_{amb} = 25^{\circ}\text{C}$
- Output capability: bus driver
- $I_{CC}$  category: MSI

## QUICK REFERENCE DATA

$GND = 0$  V;  $T_{amb} = 25^{\circ}\text{C}$ ;  $t_r = t_f \leq 2.5$  ns

| SYMBOL            | PARAMETER   | CONDITIONS                                    | TYPICAL | UNIT |
|-------------------|---|---|---------|------|
| $t_{PHL}/t_{PLH}$ | Propagation delay<br>1A <sub>n</sub> to 1Y <sub>n</sub> ;<br>2A <sub>n</sub> to 2Y <sub>n</sub> | $C_L = 15$ pF;<br>$V_{CC} = 3.3$ V            | 8.0     | ns   |
| $C_I$             | Input capacitance   |   | 3.5     | pF   |
| $C_{PD}$          | Power dissipation capacitance per buffer  | $V_{CC} = 3.3$ V<br>$V_I = GND$ to $V_{CC}^1$ | 35      | pF   |

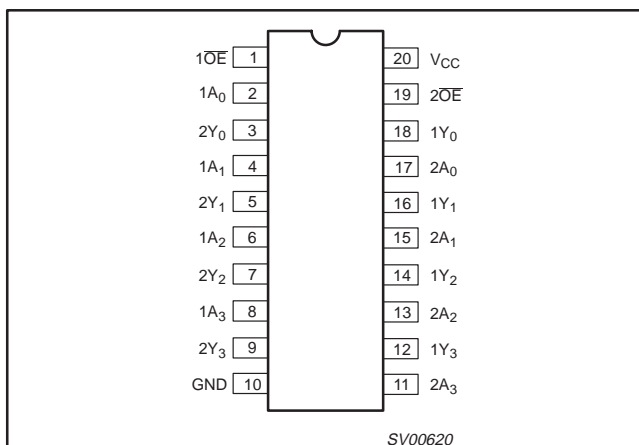
## NOTE:

1.  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu\text{W}$ )  
 $P_D = C_{PD} \times V_{CC}^2 \times f_i + \sum (C_L \times V_{CC}^2 \times f_o)$  where:  
 $f_i$  = input frequency in MHz;  $C_L$  = output load capacitance in pF;  
 $f_o$  = output frequency in MHz;  $V_{CC}$  = supply voltage in V;  
 $\sum (C_L \times V_{CC}^2 \times f_o)$  = sum of the outputs.

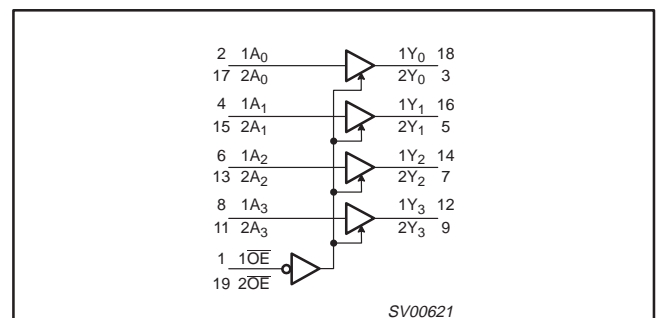
## ORDERING INFORMATION

| PACKAGES                    | TEMPERATURE RANGE                               | OUTSIDE NORTH AMERICA | NORTH AMERICA | PKG. DWG. # |
|-----------------------------|---|-----------------------|---------------|-------------|
| 20-Pin Plastic DIL          | $-40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ | 74LV244 N             | 74LV244 N     | SOT146-1    |
| 20-Pin Plastic SO           | $-40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ | 74LV244 D             | 74LV244 D     | SOT163-1    |
| 20-Pin Plastic SSOP Type II | $-40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ | 74LV244 DB            | 74LV244 DB    | SOT339-1    |
| 20-Pin Plastic TSSOP Type I | $-40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ | 74LV244 PW            | 74LV244PW DH  | SOT360-1    |

## PIN CONFIGURATION



## LOGIC SYMBOL



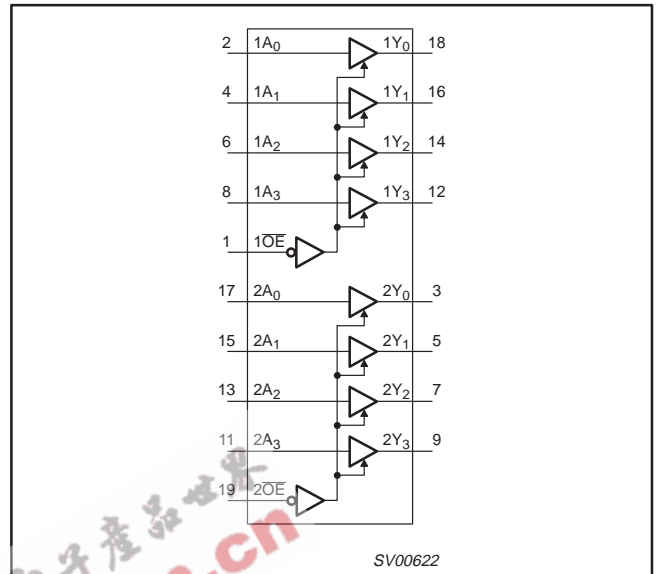
# Octal buffer/line driver (3-State)

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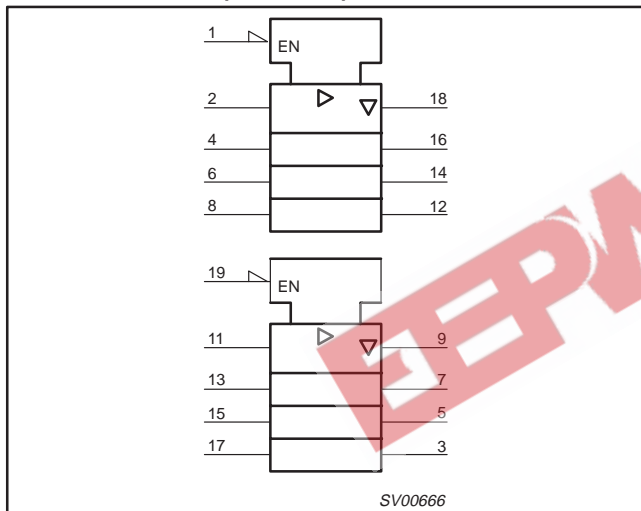
## PIN DESCRIPTION

| PIN NUMBER     | SYMBOL                             | FUNCTION                         |
|----------------|------------------------------------|----------------------------------|
| 1              | 1 $\overline{OE}$                  | Output enable input (active LOW) |
| 2, 4, 6, 8     | 1A <sub>0</sub> to 1A <sub>3</sub> | Data inputs                      |
| 3, 5, 7, 9     | 2Y <sub>0</sub> to 2Y <sub>3</sub> | Bus outputs                      |
| 10             | GND                                | Ground (0 V)                     |
| 17, 15, 13, 11 | 2A <sub>0</sub> to 2A <sub>3</sub> | Data inputs                      |
| 18, 16, 14, 12 | 1Y <sub>0</sub> to 1Y <sub>3</sub> | Bus outputs                      |
| 19             | 2 $\overline{OE}$                  | Output enable input (active LOW) |
| 20             | V <sub>CC</sub>                    | Positive supply voltage          |

## FUNCTIONAL DIAGRAM



## LOGIC SYMBOL (IEEE/IEC)



## FUNCTION TABLE

| INPUTS            |                 | OUTPUT          |
|-------------------|-----------------|-----------------|
| n $\overline{OE}$ | nA <sub>n</sub> | nY <sub>n</sub> |
| L                 | L               | L               |
| L                 | H               | H               |
| H                 | X               | Z               |

### NOTES:

- H = HIGH voltage level
- L = LOW voltage level
- X = don't care
- Z = high impedance OFF-state

## Octal buffer/line driver (3-State)

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## RECOMMENDED OPERATING CONDITIONS

| SYMBOL     | PARAMETER                                       | CONDITIONS   | MIN              | TYP              | MAX                     | UNIT |
|------------|---|--|------------------|------------------|-------------------------|------|
| $V_{CC}$   | DC supply voltage                               | See Note 1   | 1.0              | 3.3              | 5.5                     | V    |
| $V_I$      | Input voltage                                   |  | 0                | –                | $V_{CC}$                | V    |
| $V_O$      | Output voltage                                  |  | 0                | –                | $V_{CC}$                | V    |
| $T_{amb}$  | Operating ambient temperature range in free air | See DC and AC characteristics  | –40<br>–40       |                  | +85<br>+125             | °C   |
| $t_r, t_f$ | Input rise and fall times                       | $V_{CC} = 1.0V$ to $2.0V$<br>$V_{CC} = 2.0V$ to $2.7V$<br>$V_{CC} = 2.7V$ to $3.6V$<br>$V_{CC} = 3.6V$ to $5.5V$ | –<br>–<br>–<br>– | –<br>–<br>–<br>– | 500<br>200<br>100<br>50 | ns/V |

## NOTE:

- The LV is guaranteed to function down to  $V_{CC} = 1.0V$  (input levels GND or  $V_{CC}$ ); DC characteristics are guaranteed from  $V_{CC} = 1.2V$  to  $V_{CC} = 5.5V$ .

ABSOLUTE MAXIMUM RATINGS<sup>1, 2</sup>

In accordance with the Absolute Maximum Rating System (IEC 134).

Voltages are referenced to GND (ground = 0V).

| SYMBOL                         | PARAMETER   | CONDITIONS   | RATING            | UNIT |
|--------------------------------|---|--|-------------------|------|
| $V_{CC}$                       | DC supply voltage   |  | –0.5 to +7.0      | V    |
| $\pm I_{IK}$                   | DC input diode current  | $V_I < -0.5$ or $V_I > V_{CC} + 0.5V$  | 20                | mA   |
| $\pm I_{OK}$                   | DC output diode current   | $V_O < -0.5$ or $V_O > V_{CC} + 0.5V$  | 50                | mA   |
| $\pm I_O$                      | DC output source or sink current<br>– bus driver outputs  | $-0.5V < V_O < V_{CC} + 0.5V$  | 35                | mA   |
| $\pm I_{GND},$<br>$\pm I_{CC}$ | DC $V_{CC}$ or GND current for types with<br>– bus driver outputs   |  | 70                | mA   |
| $T_{stg}$                      | Storage temperature range   |  | –65 to +150       | °C   |
| $P_{TOT}$                      | Power dissipation per package<br>– plastic DIL<br>– plastic mini-pack (SO)<br>– plastic shrink mini-pack (SSOP and TSSOP) | for temperature range: –40 to +125°C<br>above +70°C derate linearly with 12 mW/K<br>above +70°C derate linearly with 8 mW/K<br>above +60°C derate linearly with 5.5 mW/K | 750<br>500<br>400 | mW   |

## NOTES:

- Stresses beyond those listed may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
- The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

## Octal buffer/line driver (3-State)

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**DC ELECTRICAL CHARACTERISTICS**

Over recommended operating conditions. Voltages are referenced to GND (ground = 0V).

| SYMBOL           | PARAMETER                                     | TEST CONDITIONS   | LIMITS                |                  |                       |                       |                       | UNIT |
|------------------|---|---|-----------------------|------------------|-----------------------|-----------------------|-----------------------|------|
|                  |   |   | -40°C to +85°C        |                  |                       | -40°C to +125°C       |                       |      |
|                  |   |   | MIN                   | TYP <sup>1</sup> | MAX                   | MIN                   | MAX                   |      |
| V <sub>IH</sub>  | HIGH level Input voltage                      | V <sub>CC</sub> = 1.2V  | 0.9                   |                  |                       | 0.9                   |                       | V    |
|                  |   | V <sub>CC</sub> = 2.0V  | 1.4                   |                  |                       | 1.4                   |                       |      |
|                  |   | V <sub>CC</sub> = 2.7 to 3.6V   | 2.0                   |                  |                       | 2.0                   |                       |      |
|                  |   | V <sub>CC</sub> = 4.5 to 5.5V   | 0.7 * V <sub>CC</sub> |                  |                       | 0.7 * V <sub>CC</sub> |                       |      |
| V <sub>IL</sub>  | LOW level Input voltage                       | V <sub>CC</sub> = 1.2V  |                       |                  | 0.3                   |                       | 0.3                   | V    |
|                  |   | V <sub>CC</sub> = 2.0V  |                       |                  | 0.6                   |                       | 0.6                   |      |
|                  |   | V <sub>CC</sub> = 2.7 to 3.6V   |                       |                  | 0.8                   |                       | 0.8                   |      |
|                  |   | V <sub>CC</sub> = 4.5 to 5.5  |                       |                  | 0.3 * V <sub>CC</sub> |                       | 0.3 * V <sub>CC</sub> |      |
| V <sub>OH</sub>  | HIGH level output voltage; all outputs        | V <sub>CC</sub> = 1.2V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; -I <sub>O</sub> = 100µA                 |                       | 1.2              |                       |                       |                       | V    |
|                  |   | V <sub>CC</sub> = 2.0V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; -I <sub>O</sub> = 100µA                 | 1.8                   | 2.0              |                       | 1.8                   |                       |      |
|                  |   | V <sub>CC</sub> = 2.7V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; -I <sub>O</sub> = 100µA                 | 2.5                   | 2.7              |                       | 2.5                   |                       |      |
|                  |   | V <sub>CC</sub> = 3.0V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; -I <sub>O</sub> = 100µA                 | 2.8                   | 3.0              |                       | 2.8                   |                       |      |
|                  |   | V <sub>CC</sub> = 4.5V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; -I <sub>O</sub> = 100µA                 | 4.3                   | 4.5              |                       | 4.3                   |                       |      |
| V <sub>OH</sub>  | HIGH level output voltage; BUS driver outputs | V <sub>CC</sub> = 3.0V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; -I <sub>O</sub> = 8mA                   | 2.40                  | 2.82             |                       | 2.20                  |                       | V    |
|                  |   | V <sub>CC</sub> = 4.5V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; -I <sub>O</sub> = 16mA                  | 3.60                  | 4.20             |                       | 3.50                  |                       |      |
| V <sub>OL</sub>  | LOW level output voltage; all outputs         | V <sub>CC</sub> = 1.2V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100µA                  |                       | 0                |                       |                       |                       | V    |
|                  |   | V <sub>CC</sub> = 2.0V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100µA                  |                       | 0                | 0.2                   |                       | 0.2                   |      |
|                  |   | V <sub>CC</sub> = 2.7V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100µA                  |                       | 0                | 0.2                   |                       | 0.2                   |      |
|                  |   | V <sub>CC</sub> = 3.0V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100µA                  |                       | 0                | 0.2                   |                       | 0.2                   |      |
|                  |   | V <sub>CC</sub> = 4.5V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 100µA                  |                       | 0                | 0.2                   |                       | 0.2                   |      |
| V <sub>OL</sub>  | LOW level output voltage; BUS driver outputs  | V <sub>CC</sub> = 3.0V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 8mA                    |                       | 0.25             | 0.40                  |                       | 0.50                  | V    |
|                  |   | V <sub>CC</sub> = 4.5V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; I <sub>O</sub> = 16mA                   |                       | 0.35             | 0.55                  |                       | 0.65                  |      |
| I <sub>I</sub>   | Input leakage current                         | V <sub>CC</sub> = 5.5V; V <sub>I</sub> = V <sub>CC</sub> or GND   |                       |                  | 1.0                   |                       | 1.0                   | µA   |
| I <sub>oz</sub>  | 3-State output OFF-state current              | V <sub>CC</sub> = 3.6V; V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>O</sub> = V <sub>CC</sub> or GND |                       |                  | 5                     |                       | 10                    | µA   |
| I <sub>CC</sub>  | Quiescent supply current; MSI                 | V <sub>CC</sub> = 5.5V; V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0                                   |                       |                  | 20.0                  |                       | 160                   | µA   |
| ΔI <sub>CC</sub> | Additional quiescent supply current per input | V <sub>CC</sub> = 2.7V to 3.6V; V <sub>I</sub> = V <sub>CC</sub> - 0.6V   |                       |                  | 500                   |                       | 850                   | µA   |

**NOTE:**1. All typical values are measured at T<sub>amb</sub> = 25°C.

# Octal buffer/line driver (3-State)

74LV244

## AC CHARACTERISTICS

GND = 0V;  $t_r = t_f \leq 2.5\text{ns}$ ;  $C_L = 50\text{pF}$ ;  $R_L = 1\text{K}\Omega$

| SYMBOL                             | PARAMETER   | WAVEFORM     | CONDITION  | LIMITS              |                 |                  |                |     | UNIT |
|------------------------------------|---|--------------|------------|---------------------|-----------------|------------------|----------------|-----|------|
|                                    |   |              |            | -40 to +85 °C       |                 |                  | -40 to +125 °C |     |      |
|                                    |   |              |            | V <sub>CC</sub> (V) | MIN             | TYP <sup>1</sup> | MAX            | MIN |      |
| t <sub>PHL</sub> /t <sub>PLH</sub> | Propagation delay<br>1A <sub>n</sub> to 1Y <sub>n</sub> ;<br>2A <sub>n</sub> to 2Y <sub>n</sub> | Figures 1, 2 | 1.2        |                     | 50              |                  |                |     | ns   |
|                                    |   |              | 2.0        |                     | 17              | 24               |                | 31  |      |
|                                    |   |              | 2.7        |                     | 13              | 17               |                | 23  |      |
|                                    |   |              | 3.0 to 3.6 |                     | 9 <sup>2</sup>  | 14               |                | 18  |      |
|                                    |   |              | 4.5 to 5.5 |                     |                 | 12               |                | 15  |      |
| t <sub>PZH</sub> /t <sub>PZL</sub> | 3-State output enable time<br>1OE to 1Y <sub>n</sub> ;<br>2OE to 2Y <sub>n</sub>                | Figures 2, 3 | 1.2        |                     | 65              |                  |                |     | ns   |
|                                    |   |              | 2.0        |                     | 22              | 39               |                | 49  |      |
|                                    |   |              | 2.7        |                     | 16              | 29               |                | 36  |      |
|                                    |   |              | 3.0 to 3.6 |                     | 12 <sup>2</sup> | 23               |                | 29  |      |
|                                    |   |              | 4.5 to 5.5 |                     |                 | 19               |                | 24  |      |
| t <sub>PHZ</sub> /t <sub>PLZ</sub> | 3-State output disable time<br>1OE to 1Y <sub>n</sub> ;<br>2OE to 2Y <sub>n</sub>               | Figures 2, 3 | 1.2        |                     | 60              |                  |                |     | ns   |
|                                    |   |              | 2.0        |                     | 22              | 34               |                | 43  |      |
|                                    |   |              | 2.7        |                     | 17              | 24               |                | 32  |      |
|                                    |   |              | 3.0 to 3.6 |                     | 13 <sup>2</sup> | 21               |                | 26  |      |
|                                    |   |              | 4.5 to 5.5 |                     |                 | 16               |                | 19  |      |

**NOTES:**

1. Unless otherwise stated, all typical values are measured at T<sub>amb</sub> = 25°C.
2. Typical values are measured at V<sub>CC</sub> = 3.3 V.

## AC WAVEFORMS

V<sub>M</sub> = 1.5 V at V<sub>CC</sub> ≥ 2.7 V and ≤ 3.6 V  
 V<sub>M</sub> = 0.5 × V<sub>CC</sub> at V<sub>CC</sub> < 2.7 V and ≥ 4.5 V  
 V<sub>OL</sub> and V<sub>OH</sub> are the typical output voltage drop that occur with the output load.  
 V<sub>X</sub> = V<sub>OL</sub> + 0.3 V at V<sub>CC</sub> ≥ 2.7 V and ≤ 3.6 V  
 V<sub>X</sub> = V<sub>OL</sub> + 0.1 × V<sub>CC</sub> at V<sub>CC</sub> < 2.7 V and ≥ 4.5 V  
 V<sub>Y</sub> = V<sub>OH</sub> - 0.3 V at V<sub>CC</sub> ≥ 2.7 V and ≤ 3.6 V  
 V<sub>Y</sub> = V<sub>OH</sub> - 0.1 × V<sub>CC</sub> at V<sub>CC</sub> < 2.7 V and ≥ 4.5 V

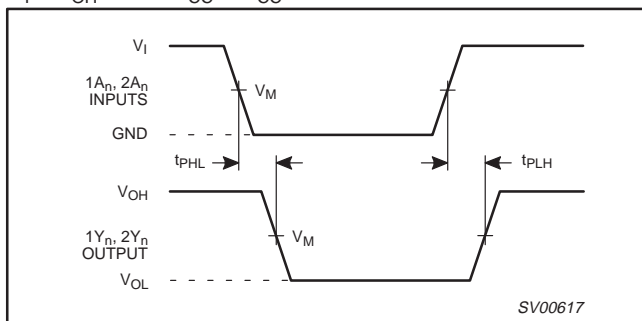


Figure 1. Input (1A<sub>n</sub>, 2A<sub>n</sub>) to output (1Y<sub>n</sub>, 2Y<sub>n</sub>) propagation delays.

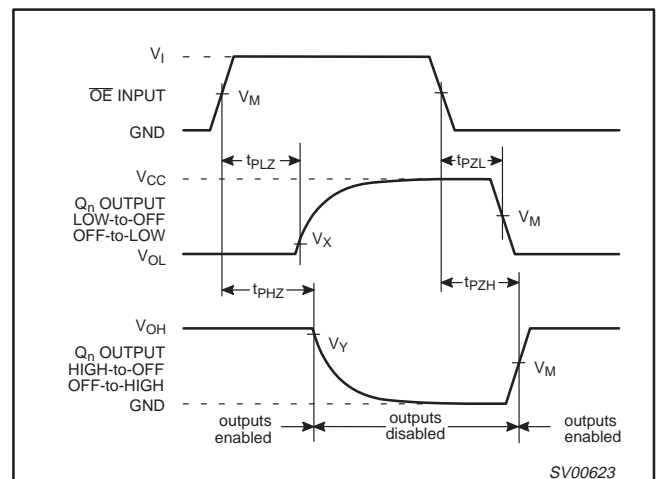


Figure 2. 3-State enable and disable times.

# Octal buffer/line driver (3-State)

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## TEST CIRCUIT

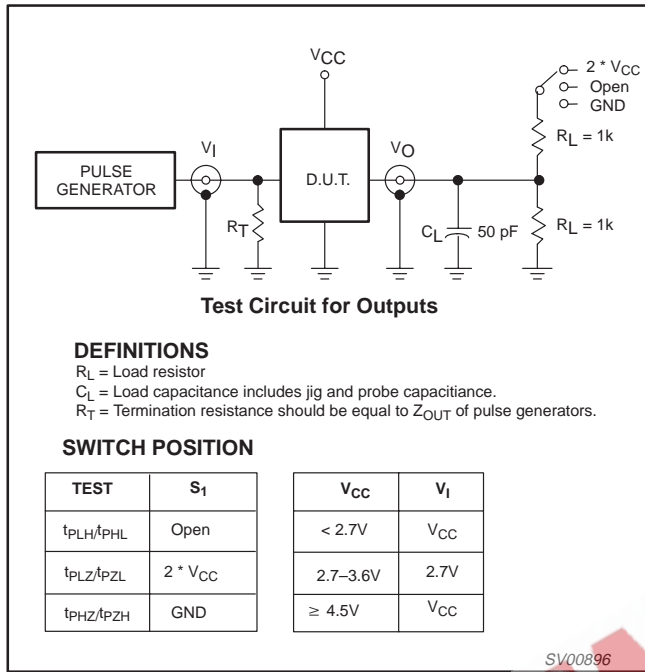


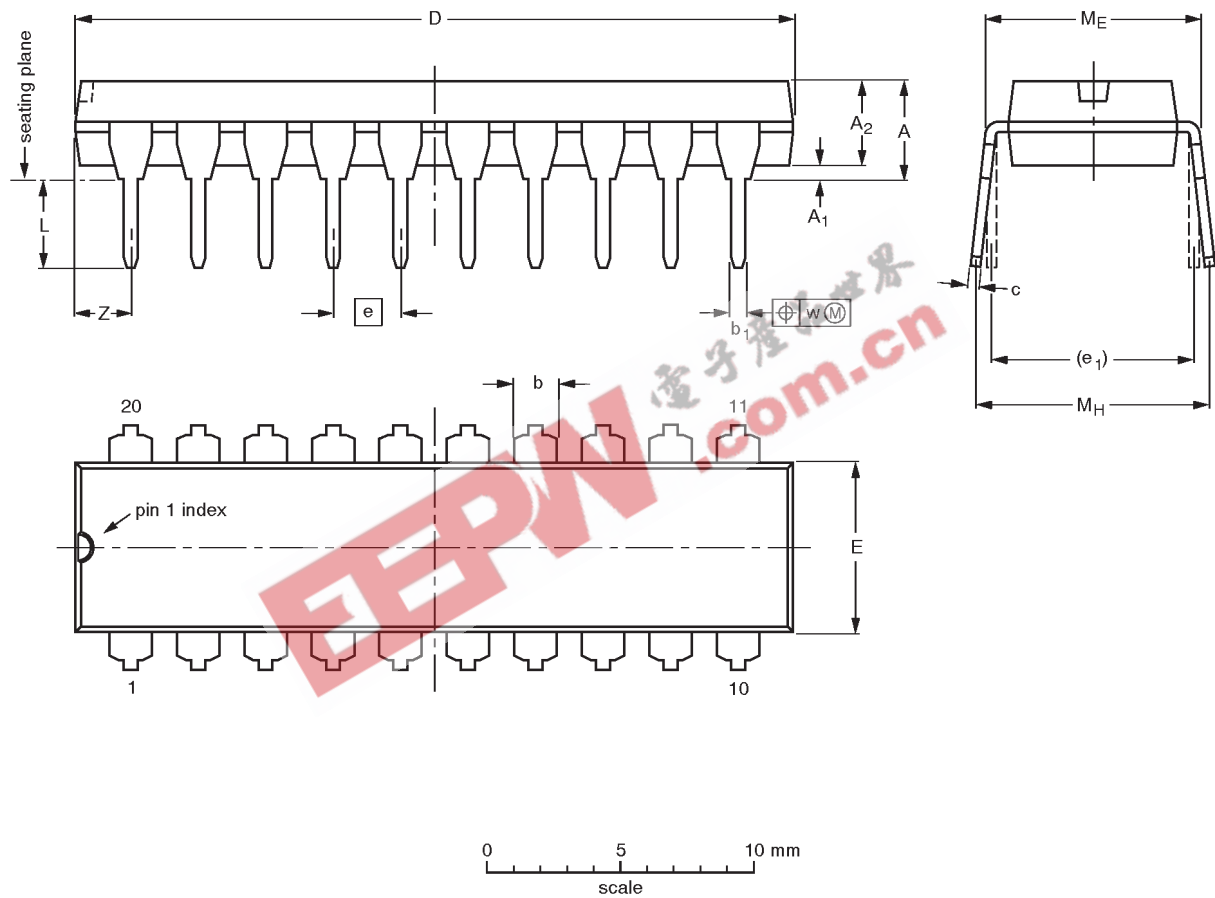
Figure 3. Load circuitry for switching times.

Octal buffer/line driver (3-State)

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DIP20: plastic dual in-line package; 20 leads (300 mil)

SOT146-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

| UNIT   | A max. | A <sub>1</sub> min. | A <sub>2</sub> max. | b              | b <sub>1</sub> | c              | D <sup>(1)</sup> | E <sup>(1)</sup> | e    | e <sub>1</sub> | L            | M <sub>E</sub> | M <sub>H</sub> | w     | Z <sup>(1)</sup> max. |
|--------|--------|---------------------|---------------------|----------------|----------------|----------------|------------------|------------------|------|----------------|--------------|----------------|----------------|-------|-----------------------|
| mm     | 4.2    | 0.51                | 3.2                 | 1.73<br>1.30   | 0.53<br>0.38   | 0.36<br>0.23   | 26.92<br>26.54   | 6.40<br>6.22     | 2.54 | 7.62           | 3.60<br>3.05 | 8.25<br>7.80   | 10.0<br>8.3    | 0.254 | 2.0                   |
| inches | 0.17   | 0.020               | 0.13                | 0.068<br>0.051 | 0.021<br>0.015 | 0.014<br>0.009 | 1.060<br>1.045   | 0.25<br>0.24     | 0.10 | 0.30           | 0.14<br>0.12 | 0.32<br>0.31   | 0.39<br>0.33   | 0.01  | 0.078                 |

Note

1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

| OUTLINE VERSION | REFERENCES |       |       |  | EUROPEAN PROJECTION | ISSUE DATE           |
|-----------------|------------|-------|-------|--|---------------------|----------------------|
|                 | IEC        | JEDEC | EIAJ  |  |                     |                      |
| SOT146-1        |            |       | SC603 |  |                     | 92-11-17<br>95-05-24 |

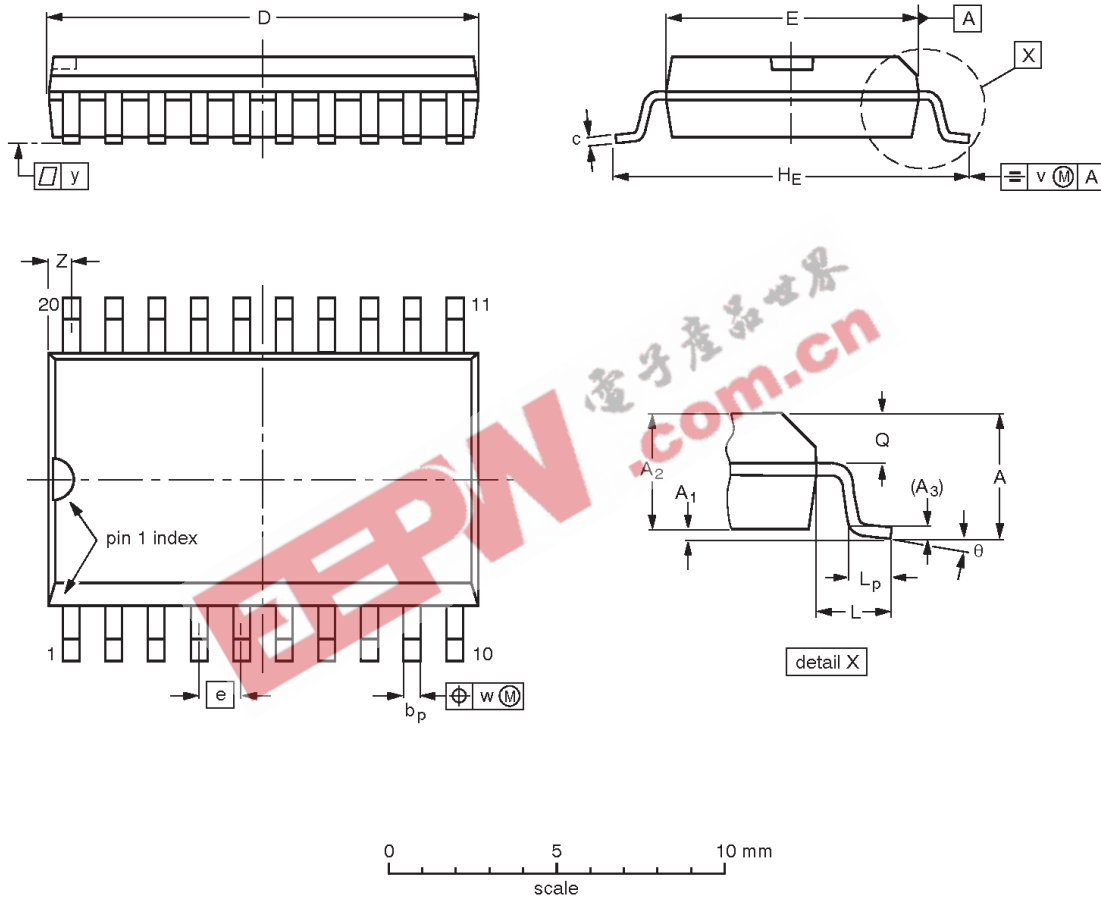


Octal buffer/line driver (3-State)

74LV244

SO20: plastic small outline package; 20 leads; body width 7.5 mm

SOT163-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

| UNIT   | A max. | A <sub>1</sub> | A <sub>2</sub> | A <sub>3</sub> | b <sub>p</sub> | c              | D <sup>(1)</sup> | E <sup>(1)</sup> | e     | H <sub>E</sub> | L     | L <sub>p</sub> | Q              | v    | w    | y     | Z <sup>(1)</sup> | θ        |
|--------|--------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|-------|----------------|-------|----------------|----------------|------|------|-------|------------------|----------|
| mm     | 2.65   | 0.30<br>0.10   | 2.45<br>2.25   | 0.25           | 0.49<br>0.36   | 0.32<br>0.23   | 13.0<br>12.6     | 7.6<br>7.4       | 1.27  | 10.65<br>10.00 | 1.4   | 1.1<br>0.4     | 1.1<br>1.0     | 0.25 | 0.25 | 0.1   | 0.9<br>0.4       | 8°<br>0° |
| inches | 0.10   | 0.012<br>0.004 | 0.096<br>0.089 | 0.01           | 0.019<br>0.014 | 0.013<br>0.009 | 0.51<br>0.49     | 0.30<br>0.29     | 0.050 | 0.42<br>0.39   | 0.055 | 0.043<br>0.016 | 0.043<br>0.039 | 0.01 | 0.01 | 0.004 | 0.035<br>0.016   |          |

Note

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

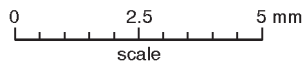
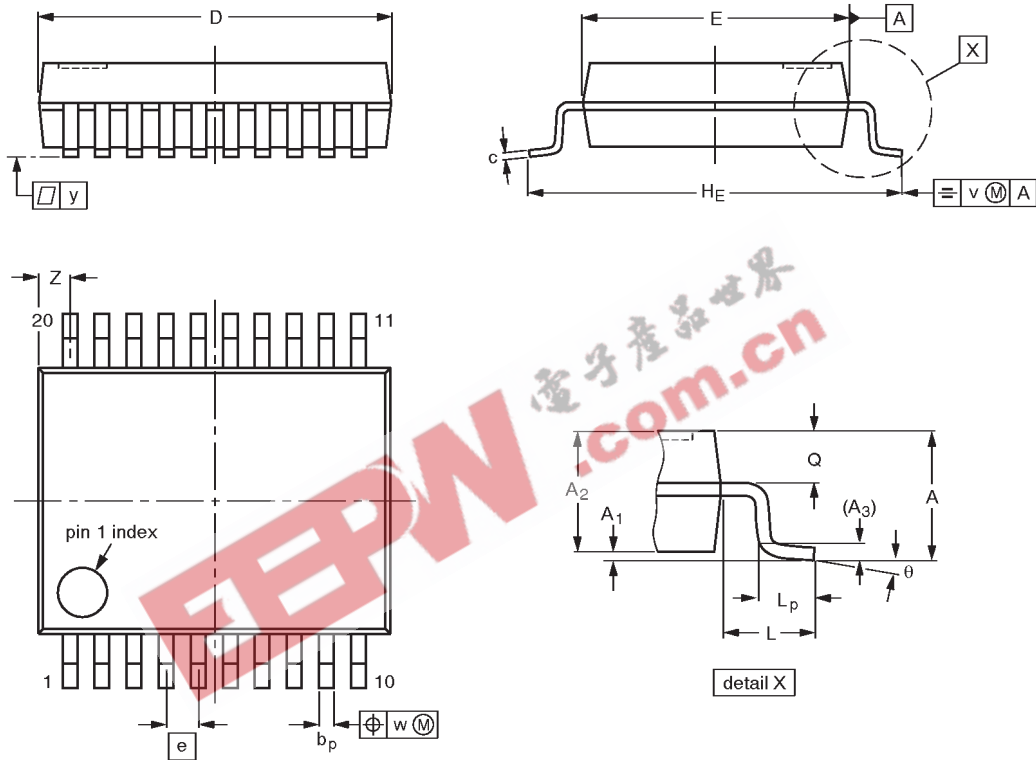
| OUTLINE VERSION | REFERENCES |          |      |  | EUROPEAN PROJECTION | ISSUE DATE           |
|-----------------|------------|----------|------|--|---------------------|----------------------|
|                 | IEC        | JEDEC    | EIAJ |  |                     |                      |
| SOT163-1        | 075E04     | MS-013AC |      |  |                     | 92-11-17<br>95-01-24 |

Octal buffer/line driver (3-State)

74LV244

SSOP20: plastic shrink small outline package; 20 leads; body width 5.3 mm

SOT339-1



DIMENSIONS (mm are the original dimensions)

| UNIT | A max. | A <sub>1</sub> | A <sub>2</sub> | A <sub>3</sub> | b <sub>p</sub> | c            | D <sup>(1)</sup> | E <sup>(1)</sup> | e    | H <sub>E</sub> | L    | L <sub>p</sub> | Q          | v   | w    | y   | z <sup>(1)</sup> | θ        |
|------|--------|----------------|----------------|----------------|----------------|--------------|------------------|------------------|------|----------------|------|----------------|------------|-----|------|-----|------------------|----------|
| mm   | 2.0    | 0.21<br>0.05   | 1.80<br>1.65   | 0.25           | 0.38<br>0.25   | 0.20<br>0.09 | 7.4<br>7.0       | 5.4<br>5.2       | 0.65 | 7.9<br>7.6     | 1.25 | 1.03<br>0.63   | 0.9<br>0.7 | 0.2 | 0.13 | 0.1 | 0.9<br>0.5       | 8°<br>0° |

Note

1. Plastic or metal protrusions of 0.20 mm maximum per side are not included.

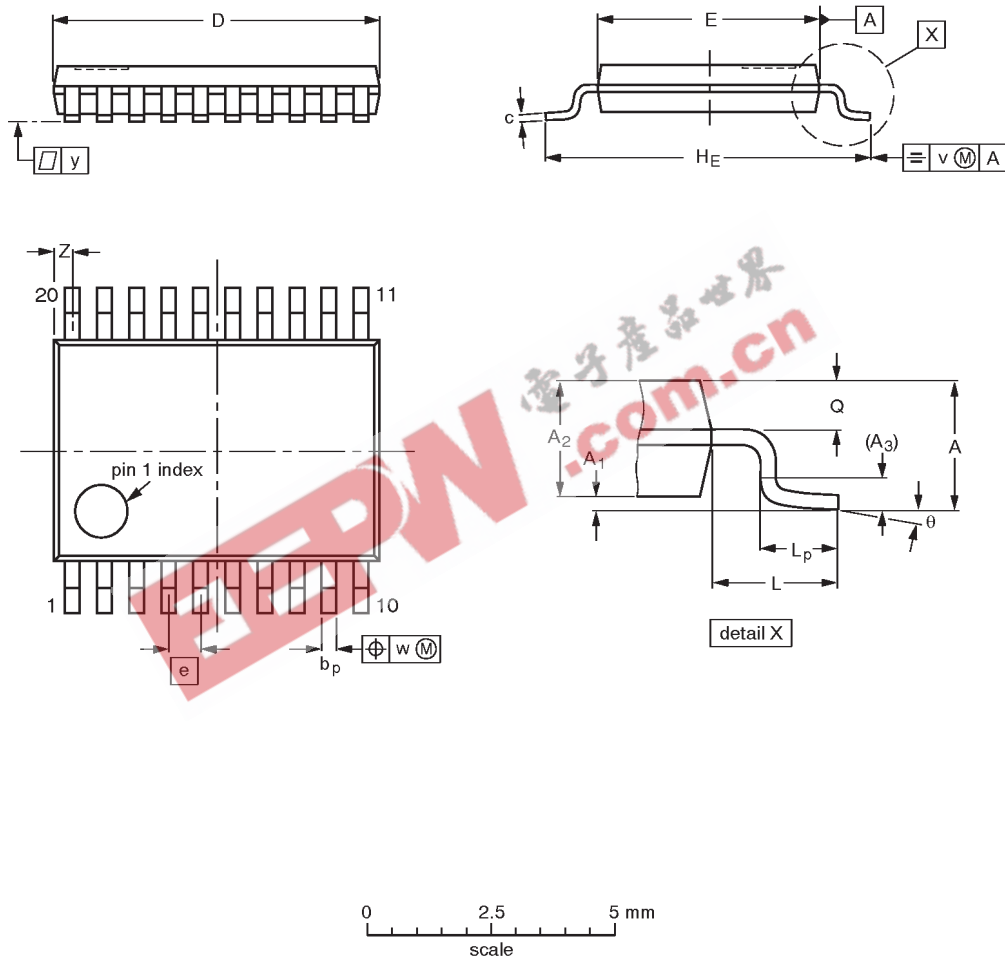
| OUTLINE VERSION | REFERENCES |          |      |  | EUROPEAN PROJECTION | ISSUE DATE           |
|-----------------|------------|----------|------|--|---------------------|----------------------|
|                 | IEC        | JEDEC    | EIAJ |  |                     |                      |
| SOT339-1        |            | MO-150AE |      |  |                     | 93-09-08<br>95-02-04 |

Octal buffer/line driver (3-State)

74LV244

TSSOP20: plastic thin shrink small outline package; 20 leads; body width 4.4 mm

SOT360-1



DIMENSIONS (mm are the original dimensions)

| UNIT | A max. | A <sub>1</sub> | A <sub>2</sub> | A <sub>3</sub> | b <sub>p</sub> | c          | D <sup>(1)</sup> | E <sup>(2)</sup> | e    | H <sub>E</sub> | L   | L <sub>p</sub> | Q          | v   | w    | y   | Z <sup>(1)</sup> | θ        |
|------|--------|----------------|----------------|----------------|----------------|------------|------------------|------------------|------|----------------|-----|----------------|------------|-----|------|-----|------------------|----------|
| mm   | 1.10   | 0.15<br>0.05   | 0.95<br>0.80   | 0.25           | 0.30<br>0.19   | 0.2<br>0.1 | 6.6<br>6.4       | 4.5<br>4.3       | 0.65 | 6.6<br>6.2     | 1.0 | 0.75<br>0.50   | 0.4<br>0.3 | 0.2 | 0.13 | 0.1 | 0.5<br>0.2       | 8°<br>0° |

Notes

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

| OUTLINE VERSION | REFERENCES |          |      |  | EUROPEAN PROJECTION | ISSUE DATE            |
|-----------------|------------|----------|------|--|---------------------|-----------------------|
|                 | IEC        | JEDEC    | EIAJ |  |                     |                       |
| SOT360-1        |            | MO-153AC |      |  |                     | -93-06-16<br>95-02-04 |

## Octal buffer/line driver (3-State)

74LV244

## DEFINITIONS

| Data Sheet Identification        | Product Status                | Definition   |
|----------------------------------|-------------------------------|--|
| <i>Objective Specification</i>   | <b>Formative or in Design</b> | This data sheet contains the design target or goal specifications for product development. Specifications may change in any manner without notice.   |
| <i>Preliminary Specification</i> | <b>Preproduction Product</b>  | This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |
| <i>Product Specification</i>     | <b>Full Production</b>        | This data sheet contains Final Specifications. Philips Semiconductors reserves the right to make changes at any time without notice, in order to improve design and supply the best possible product.  |

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