

## Single Buffer/Line Driver: 3-state

# CJ74LVC1G126 Logic

## 1 Introduction

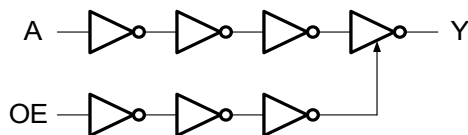
The CJ74LVC1G126 provides one non-inverting buffer/line driver with 3-state output. The 3-state output is controlled by the output enable input (OE). A LOW-level at pin OE causes the output to assume a high-impedance OFF-state.

The input can be driven from either 3.3V or 5V devices. This feature allows the use of this device in a mixed 3.3V and 5V environment.

## 2 Available Packages

| PART NUMBER  | PACKAGE   |
|--------------|-----------|
| CJ74LVC1G126 | SOT-23-5L |
|              | SOT-353   |

**Note:** For all available packages, please refer to the part Orderable Information.



Logic diagram

## 3 Features

- Wide supply voltage range from 1.65V to 5.5V
- $\pm 24\text{mA}$  output drive ( $V_{CC}=3.0\text{V}$ )
- CMOS low power consumption
- Input accepts voltages up to 5V
- Specified from  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

## 4 Applications

- ATCA Solutions
- Active Noise Cancellation (ANC)
- Barcode Scanner
- Blood Pressure Monitor
- CPAP Machine
- Cable Solutions
- DLP3D Machine Vision, Hyperspectral Imaging, Optical Networking, and Spectroscopy
- E-Book
- Embedded PC
- Field Transmitter: Temperature or Pressure Sensor
- Fingerprint Biometrics
- HVAC: Heating, Ventilating, and Air Conditioning
- Network-Attached Storage (NAS)
- Server Motherboard and PSU
- Software Defined Radio (SDR)
- TV: High-Definition (HDTV), LCD, and Digital
- Video Communications System
- Wireless Data Access Card, Headset, Keyboard, Mouse, and LAN Card
- X-ray: Baggage Scanner, Medical, and Dental

## 5 Orderable Information

| DEVICE          | PACKAGE   | OP TEMP   | ECO PLAN     | MSL              | PACKING OPTION                     | SORT   |
|-----------------|-----------|-----------|--------------|------------------|------------------------------------|--------|
| CJ74LVC1G126M5N | SOT-23-5L | -40~125°C | RoHS & Green | Level 3<br>168HR | Tape and Reel<br>3000 Units / Reel | Active |
| CJ74LVC1G126R5N | SOT-353   | -40~125°C | RoHS & Green | Level 3<br>168HR | Tape and Reel<br>3000 Units / Reel | Active |

**Note:**

**ECO PLAN:** For the RoHS and Green certification standards of this product, please refer to the official report provided by JSCJ.

**MSL:** Moisture Sensitivity Level. Determined according to JEDEC industry standard classification.

**SORT:** Specifically defined as follows:

Active: Recommended for new products;

Customized: Products manufactured to meet the specific needs of customers;

Preview: The device has been released and has not been fully mass produced. The sample may or may not be available;

NoRD: It is not recommended to use the device for new design. The device is only produced for the needs of existing customers;

Obsolete: The device has been discontinued.

## 6 Pin Configuration and Marking Information

### 6.1 Pin Configuration

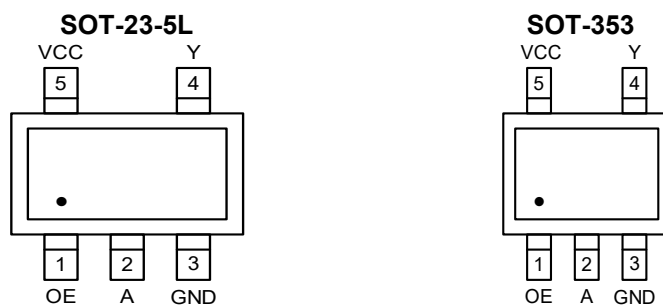


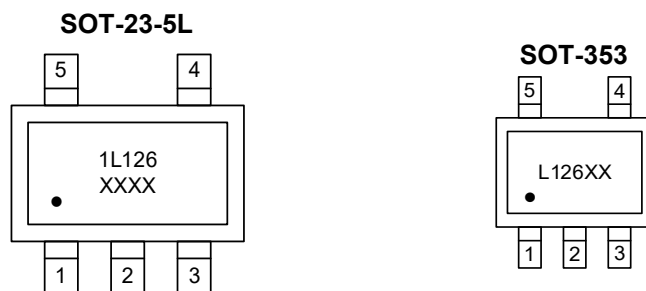
Figure 6-1 Pin configuration

### 6.2 Pin Function

| PIN |      | I/O <sup>(1)</sup> | DESCRIPTION         |
|-----|------|--------------------|---------------------|
| No. | NAME |                    |                     |
| 1   | OE   | I                  | Output enable input |
| 2   | A    | I                  | Data input          |
| 3   | GND  | G                  | Ground (0V)         |
| 4   | Y    | O                  | Data output         |
| 5   | VCC  | P                  | Supply voltage      |

(1) I-Input, O-Output, P-Power, G-Ground

### 6.3 Marking Information



XXXX or XX: Code, indicates weekly record information.

## 7 Specifications

### 7.1 Absolute Maximum Ratings

Voltages are referenced to GND (ground=0V), unless otherwise specified.

| SYMBOL    | PARAMETER               | CONDITIONS                   | MIN. | MAX.         | UNIT |
|-----------|-------------------------|------------------------------|------|--------------|------|
| $V_{CC}$  | Supply voltage          | -                            | -0.5 | +6.5         | V    |
| $V_I$     | Input voltage           | -                            | -0.5 | +6.5         | V    |
| $V_O$     | Output voltage          | Active mode                  | -0.5 | $V_{CC}+0.5$ | V    |
|           |                         | Power-down mode              | -0.5 | +6.5         | V    |
| $I_{IK}$  | Input clamping current  | $V_I < 0V$                   | -50  | -            | mA   |
| $I_{OK}$  | Output clamping current | $V_O > V_{CC}$ or $V_O < 0V$ | -    | $\pm 50$     | mA   |
| $I_O$     | Output current          | $V_O=0V$ to $V_{CC}$         | -    | $\pm 50$     | mA   |
| $I_{CC}$  | Supply current          | -                            | -    | 100          | mA   |
| $I_{GND}$ | Ground current          | -                            | -100 | -            | mA   |
| $T_{stg}$ | Storage temperature     | -                            | -65  | +150         | °C   |
| $P_{tot}$ | Total power dissipation | -                            | -    | 250          | mW   |
| $T_L$     | Soldering temperature   | 10s                          | -    | 260          | °C   |

**Note:** Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are absolute voltages referenced to GND. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

### 7.2 Recommended Operating Conditions

| SYMBOL    | PARAMETER           | CONDITIONS                   | MIN. | TYP. | MAX.     | UNIT |
|-----------|---------------------|------------------------------|------|------|----------|------|
| $V_{CC}$  | Supply voltage      | -                            | 1.65 | -    | 5.5      | V    |
| $V_I$     | Input voltage       | -                            | 0    | -    | 5.5      | V    |
| $V_O$     | Output voltage      | Active mode                  | 0    | -    | $V_{CC}$ | V    |
|           |                     | Power-down mode; $V_{CC}=0V$ | 0    | -    | 5.5      | V    |
| $T_{amb}$ | Ambient temperature | -                            | -40  | -    | +125     | °C   |

### 7.3 ESD Ratings

| SYMBOL        | ESD RATINGS             |                                       | VALUE      | UNIT |
|---------------|-------------------------|---------------------------------------|------------|------|
| $V_{ESD-HBM}$ | Electrostatic discharge | Human body model (HBM) <sup>(1)</sup> | $\pm 2000$ | V    |

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

## 7.4 Electrical Characteristics

### 7.4.1 DC Characteristics 1

$T_{amb} = -40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.

| SYMBOL           | PARAMETER                 | CONDITIONS                                                                                              |                                                        | MIN.                 | TYP. | MAX.                 | UNIT |
|------------------|---------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------|------|----------------------|------|
| V <sub>IH</sub>  | HIGH-level input voltage  | V <sub>CC</sub> =1.65V to 1.95V                                                                         |                                                        | 0.65xV <sub>CC</sub> | -    | -                    | V    |
|                  |                           | V <sub>CC</sub> =2.3V to 2.7V                                                                           |                                                        | 1.7                  | -    | -                    | V    |
|                  |                           | V <sub>CC</sub> =2.7V to 3.6V                                                                           |                                                        | 2.0                  | -    | -                    | V    |
|                  |                           | V <sub>CC</sub> =4.5V to 5.5V                                                                           |                                                        | 0.7xV <sub>CC</sub>  | -    | -                    | V    |
| V <sub>IL</sub>  | LOW-level input voltage   | V <sub>CC</sub> =1.65V to 1.95V                                                                         |                                                        | -                    | -    | 0.35xV <sub>CC</sub> | V    |
|                  |                           | V <sub>CC</sub> =2.3V to 2.7V                                                                           |                                                        | -                    | -    | 0.7                  | V    |
|                  |                           | V <sub>CC</sub> =2.7V to 3.6V                                                                           |                                                        | -                    | -    | 0.8                  | V    |
|                  |                           | V <sub>CC</sub> =4.5V to 5.5V                                                                           |                                                        | -                    | -    | 0.3xV <sub>CC</sub>  | V    |
| V <sub>OH</sub>  | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>                                                     | I <sub>O</sub> =-100uA; V <sub>CC</sub> =1.65V to 5.5V | V <sub>CC</sub> -0.1 | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-4mA; V <sub>CC</sub> =1.65V           | 1.2                  | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-8mA; V <sub>CC</sub> =2.3V            | 1.9                  | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-12mA; V <sub>CC</sub> =2.7V           | 2.2                  | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-24mA; V <sub>CC</sub> =3.0V           | 2.3                  | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-32mA; V <sub>CC</sub> =4.5V           | 3.8                  | -    | -                    | V    |
| V <sub>OL</sub>  | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>                                                     | I <sub>O</sub> =100uA; V <sub>CC</sub> =1.65V to 5.5V  | -                    | -    | 0.10                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =4mA; V <sub>CC</sub> =1.65V            | -                    | -    | 0.45                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =8mA; V <sub>CC</sub> =2.3V             | -                    | -    | 0.30                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =12mA; V <sub>CC</sub> =2.7V            | -                    | -    | 0.40                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =24mA; V <sub>CC</sub> =3.0V            | -                    | -    | 0.55                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =32mA; V <sub>CC</sub> =4.5V            | -                    | -    | 0.55                 | V    |
| I <sub>I</sub>   | Input leakage current     | V <sub>I</sub> =5.5V or GND; V <sub>CC</sub> =0V to 5.5V                                                |                                                        | -                    | -    | ±1                   | uA   |
| I <sub>OZ</sub>  | OFF-state output current  | V <sub>I</sub> =V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>O</sub> =5.5V or GND; V <sub>CC</sub> =3.6V |                                                        | -                    | -    | ±2                   | uA   |
| I <sub>OFF</sub> | Power-off leakage current | V <sub>I</sub> or V <sub>O</sub> =5.5V; V <sub>CC</sub> =0V                                             |                                                        | -                    | -    | ±2                   | uA   |
| I <sub>CC</sub>  | Supply current            | V <sub>I</sub> =5.5V or GND; I <sub>O</sub> =0A; V <sub>CC</sub> =1.65V to 5.5V                         |                                                        | -                    | -    | 4                    | uA   |
| ΔI <sub>CC</sub> | Additional supply current | Per pin; V <sub>I</sub> =V <sub>CC</sub> -0.6V; I <sub>O</sub> =0A; V <sub>CC</sub> =2.3V to 5.5V       |                                                        | -                    | -    | 500                  | uA   |
| C <sub>I</sub>   | Input capacitance         | -                                                                                                       |                                                        | -                    | 5    | -                    | pF   |

(1) All typical values are measured at  $V_{CC}=3.3\text{V}$  and  $T_{amb}=25^{\circ}\text{C}$ .

## 7.4.2 DC Characteristics 2

$T_{amb} = -40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.

| SYMBOL           | PARAMETER                 | CONDITIONS                                                                                              |                                                        | MIN.                 | TYP. | MAX.                 | UNIT |
|------------------|---------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------|------|----------------------|------|
| V <sub>IH</sub>  | HIGH-level input voltage  | V <sub>CC</sub> =1.65V to 1.95V                                                                         |                                                        | 0.65xV <sub>CC</sub> | -    | -                    | V    |
|                  |                           | V <sub>CC</sub> =2.3V to 2.7V                                                                           |                                                        | 1.7                  | -    | -                    | V    |
|                  |                           | V <sub>CC</sub> =2.7V to 3.6V                                                                           |                                                        | 2.0                  | -    | -                    | V    |
|                  |                           | V <sub>CC</sub> =4.5V to 5.5V                                                                           |                                                        | 0.7xV <sub>CC</sub>  | -    | -                    | V    |
| V <sub>IL</sub>  | LOW-level input voltage   | V <sub>CC</sub> =1.65V to 1.95V                                                                         |                                                        | -                    | -    | 0.35xV <sub>CC</sub> | V    |
|                  |                           | V <sub>CC</sub> =2.3V to 2.7V                                                                           |                                                        | -                    | -    | 0.7                  | V    |
|                  |                           | V <sub>CC</sub> =2.7V to 3.6V                                                                           |                                                        | -                    | -    | 0.8                  | V    |
|                  |                           | V <sub>CC</sub> =4.5V to 5.5V                                                                           |                                                        | -                    | -    | 0.3xV <sub>CC</sub>  | V    |
| V <sub>OH</sub>  | HIGH-level output voltage | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>                                                     | I <sub>O</sub> =-100uA; V <sub>CC</sub> =1.65V to 5.5V | V <sub>CC</sub> -0.1 | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-4mA; V <sub>CC</sub> =1.65V           | 0.95                 | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-8mA; V <sub>CC</sub> =2.3V            | 1.7                  | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-12mA; V <sub>CC</sub> =2.7V           | 1.9                  | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-24mA; V <sub>CC</sub> =3.0V           | 2.0                  | -    | -                    | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =-32mA; V <sub>CC</sub> =4.5V           | 3.4                  | -    | -                    | V    |
| V <sub>OL</sub>  | LOW-level output voltage  | V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>                                                     | I <sub>O</sub> =100uA; V <sub>CC</sub> =1.65V to 5.5V  | -                    | -    | 0.10                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =4mA; V <sub>CC</sub> =1.65V            | -                    | -    | 0.70                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =8mA; V <sub>CC</sub> =2.3V             | -                    | -    | 0.45                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =12mA; V <sub>CC</sub> =2.7V            | -                    | -    | 0.60                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =24mA; V <sub>CC</sub> =3.0V            | -                    | -    | 0.80                 | V    |
|                  |                           |                                                                                                         | I <sub>O</sub> =32mA; V <sub>CC</sub> =4.5V            | -                    | -    | 0.80                 | V    |
| I <sub>I</sub>   | Input leakage current     | V <sub>I</sub> =5.5V or GND; V <sub>CC</sub> =0V to 5.5V                                                |                                                        | -                    | -    | ±1                   | uA   |
| I <sub>OZ</sub>  | OFF-state output current  | V <sub>I</sub> =V <sub>IH</sub> or V <sub>IL</sub> ; V <sub>O</sub> =5.5V or GND; V <sub>CC</sub> =3.6V |                                                        | -                    | -    | ±2                   | uA   |
| I <sub>OFF</sub> | Power-off leakage current | V <sub>I</sub> or V <sub>O</sub> =5.5V; V <sub>CC</sub> =0V                                             |                                                        | -                    | -    | ±2                   | uA   |
| I <sub>CC</sub>  | Supply current            | V <sub>I</sub> =5.5V or GND; I <sub>O</sub> =0A; V <sub>CC</sub> =1.65V to 5.5V                         |                                                        | -                    | -    | 4                    | uA   |
| ΔI <sub>CC</sub> | Additional supply current | Per pin; V <sub>I</sub> =V <sub>CC</sub> -0.6V; I <sub>O</sub> =0A; V <sub>CC</sub> =2.3V to 5.5V       |                                                        | -                    | -    | 500                  | uA   |

### 7.4.3 AC Characteristics 1

$T_{amb} = -40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.

| SYMBOL                              | PARAMETER                | CONDITIONS     |                                 | MIN. | TYP. <sup>(1)</sup> | MAX. | UNIT |
|-------------------------------------|--------------------------|----------------|---------------------------------|------|---------------------|------|------|
| t <sub>PLH</sub> , t <sub>PHL</sub> | A to Y propagation delay | See Figure 8-5 | V <sub>CC</sub> =1.65V to 1.95V | -    | 9.0                 | 13.5 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.3V to 2.7V   | -    | 6.3                 | 9.5  | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.7V           | -    | 6.9                 | 10.4 | ns   |
|                                     |                          |                | V <sub>CC</sub> =3.0V to 3.6V   | -    | 6.0                 | 9.0  | ns   |
|                                     |                          |                | V <sub>CC</sub> =4.5V to 5.5V   | -    | 5.1                 | 7.7  | ns   |
| t <sub>PZH</sub> , t <sub>PZL</sub> | OE to Y enable time      | See Figure 8-6 | V <sub>CC</sub> =1.65V to 1.95V | -    | 9.6                 | 14.4 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.3V to 2.7V   | -    | 6.6                 | 9.9  | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.7V           | -    | 7.2                 | 10.8 | ns   |
|                                     |                          |                | V <sub>CC</sub> =3.0V to 3.6V   | -    | 6.3                 | 9.5  | ns   |
|                                     |                          |                | V <sub>CC</sub> =4.5V to 5.5V   | -    | 4.8                 | 7.2  | ns   |
| t <sub>PLZ</sub> , t <sub>PHZ</sub> | OE to Y disable time     | See Figure 8-6 | V <sub>CC</sub> =1.65V to 1.95V | -    | 12.9                | 19.4 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.3V to 2.7V   | -    | 8.1                 | 12.2 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.7V           | -    | 10.2                | 15.3 | ns   |
|                                     |                          |                | V <sub>CC</sub> =3.0V to 3.6V   | -    | 9.0                 | 13.5 | ns   |
|                                     |                          |                | V <sub>CC</sub> =4.5V to 5.5V   | -    | 6.6                 | 9.9  | ns   |

(1) Typical values are measured at  $T_{amb}=25^{\circ}\text{C}$  and  $V_{CC}=1.8\text{V}$ ,  $2.5\text{V}$ ,  $2.7\text{V}$ ,  $3.3\text{V}$  and  $5.0\text{V}$  respectively.

### 7.4.4 AC Characteristics 2

$T_{amb} = -40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.

| SYMBOL                              | PARAMETER                | CONDITIONS     |                                 | MIN. | TYP. | MAX. | UNIT |
|-------------------------------------|--------------------------|----------------|---------------------------------|------|------|------|------|
| t <sub>PLH</sub> , t <sub>PHL</sub> | A to Y propagation delay | See Figure 8-5 | V <sub>CC</sub> =1.65V to 1.95V | -    | -    | 17.7 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.3V to 2.7V   | -    | -    | 12.0 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.7V           | -    | -    | 13.2 | ns   |
|                                     |                          |                | V <sub>CC</sub> =3.0V to 3.6V   | -    | -    | 12.0 | ns   |
|                                     |                          |                | V <sub>CC</sub> =4.5V to 5.5V   | -    | -    | 10.5 | ns   |
| t <sub>PZH</sub> , t <sub>PZL</sub> | OE to Y enable time      | See Figure 8-6 | V <sub>CC</sub> =1.65V to 1.95V | -    | -    | 18.4 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.3V to 2.7V   | -    | -    | 12.8 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.7V           | -    | -    | 13.9 | ns   |
|                                     |                          |                | V <sub>CC</sub> =3.0V to 3.6V   | -    | -    | 12.5 | ns   |
|                                     |                          |                | V <sub>CC</sub> =4.5V to 5.5V   | -    | -    | 9.4  | ns   |
| t <sub>PLZ</sub> , t <sub>PHZ</sub> | OE to Y disable time     | See Figure 8-6 | V <sub>CC</sub> =1.65V to 1.95V | -    | -    | 25.2 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.3V to 2.7V   | -    | -    | 15.5 | ns   |
|                                     |                          |                | V <sub>CC</sub> =2.7V           | -    | -    | 19.5 | ns   |
|                                     |                          |                | V <sub>CC</sub> =3.0V to 3.6V   | -    | -    | 17.2 | ns   |
|                                     |                          |                | V <sub>CC</sub> =4.5V to 5.5V   | -    | -    | 13.0 | ns   |

## 8 Detailed Description

### 8.1 Overview

The CJ74LVC1G126 provides one non-inverting buffer/line driver with 3-state output. The 3-state output is controlled by the output enable input (OE). A LOW-level at pin OE causes the output to assume a high-impedance OFF-state.

The input can be driven from either 3.3V or 5V devices. This feature allows the use of this device in a mixed 3.3V and 5V environment.

### 8.2 Functional Block Diagram

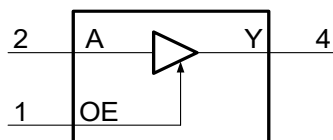


Figure 8-1 Logic symbol



Figure 8-2 IEC logic symbol

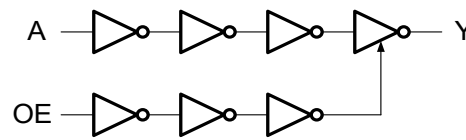


Figure 8-3 Logic diagram

### 8.3 Function Table<sup>(1)</sup>

| INPUT |   | OUTPUT |
|-------|---|--------|
| OE    | A | Y      |
| H     | L | L      |
| H     | H | H      |
| L     | X | Z      |

(1) H=HIGH voltage level; L=LOW voltage level; X=don't care; Z=high-impedance OFF-state.

### 8.4 Testing Circuit

#### 8.4.1 AC Testing Circuit

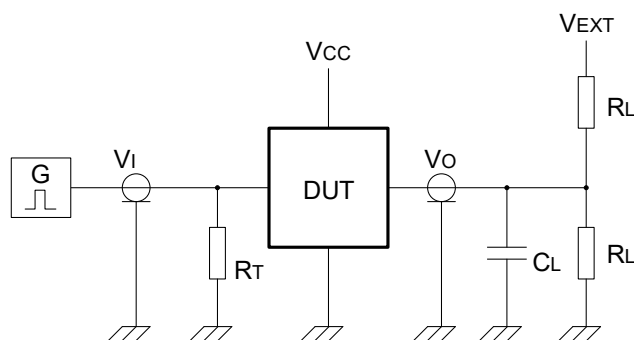


Figure 8-4 Test circuit for measuring switching times

Definitions for test circuit:

$R_L$ =Load resistance.

$C_L$ =Load capacitance including jig and probe capacitance.

$R_T$ =Termination resistance; should be equal to the output impedance  $Z_o$  of the pulse generator.

$V_{EXT}$ =External voltage for measuring switching times.

## 8.4.2 AC Testing Waveforms

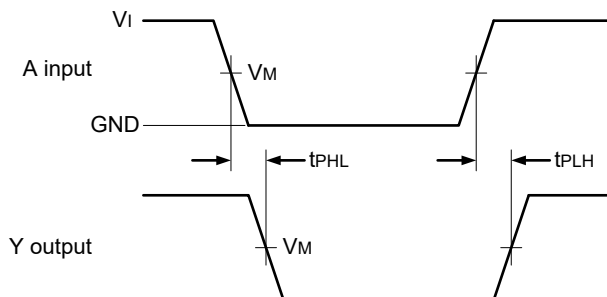


Figure 8-5 The input A to output Y propagation delay times

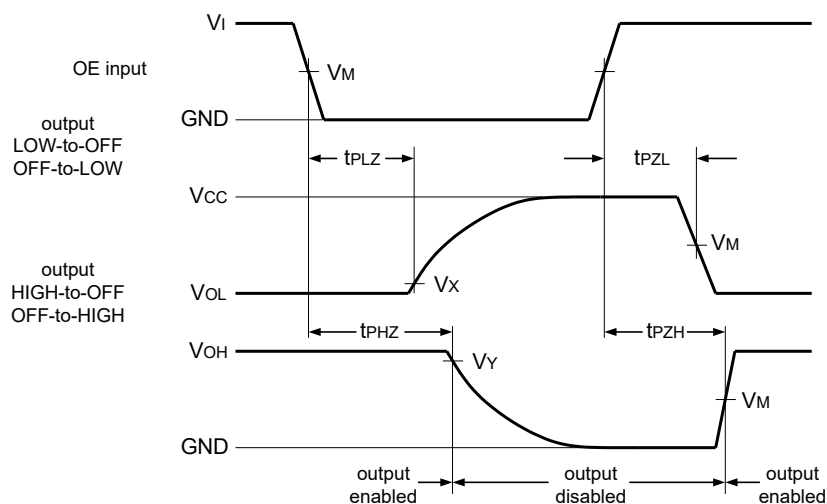


Figure 8-6 3-state enable and disable times

## 8.4.3 Measurement Points

| SUPPLY VOLTAGE | INPUT               | OUTPUT              |                  |                  |
|----------------|---------------------|---------------------|------------------|------------------|
| $V_{CC}$       | $V_M$               | $V_M$               | $V_X$            | $V_Y$            |
| 1.65V to 1.95V | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ | $V_{OL} + 0.15V$ | $V_{OH} - 0.15V$ |
| 2.3V to 2.7V   | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ | $V_{OL} + 0.15V$ | $V_{OH} - 0.15V$ |
| 2.7V           | 1.5V                | 1.5V                | $V_{OL} + 0.3V$  | $V_{OH} - 0.3V$  |
| 3.0V to 3.6V   | 1.5V                | 1.5V                | $V_{OL} + 0.3V$  | $V_{OH} - 0.3V$  |
| 4.5V to 5.5V   | $0.5 \times V_{CC}$ | $0.5 \times V_{CC}$ | $V_{OL} + 0.3V$  | $V_{OH} - 0.3V$  |

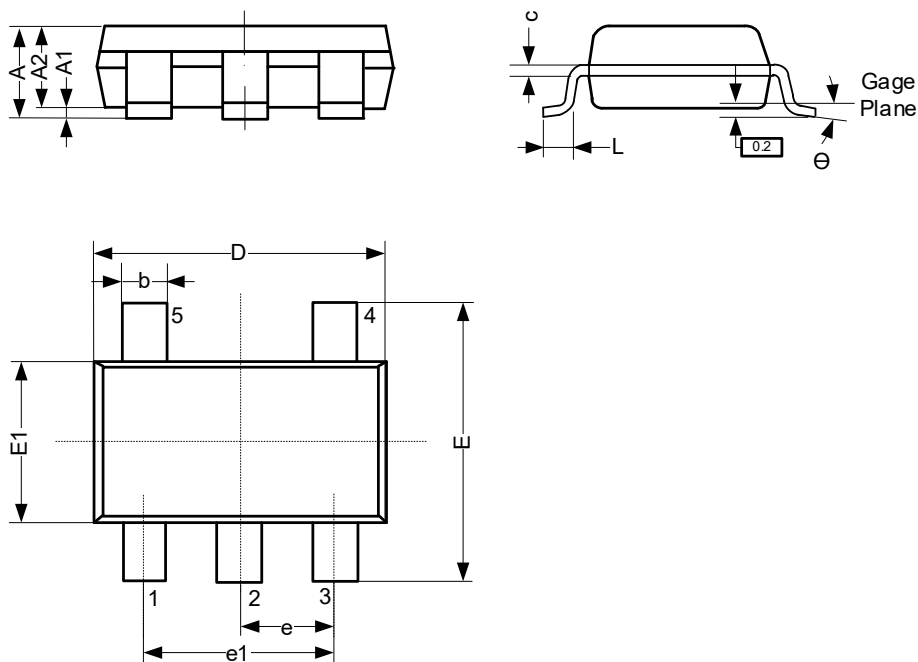
## 8.4.4 Test Data

| SUPPLY VOLTAGE | INPUT    |             | LOAD  |              | $V_{EXT}$          |                    |                    |
|----------------|----------|-------------|-------|--------------|--------------------|--------------------|--------------------|
| $V_{CC}$       | $V_I$    | $t_r = t_f$ | $C_L$ | $R_L$        | $t_{PLH}, t_{PHL}$ | $t_{PZH}, t_{PHZ}$ | $t_{PZL}, t_{PLZ}$ |
| 1.65V to 1.95V | $V_{CC}$ | $\leq 3ns$  | 30pF  | 1k $\Omega$  | Open               | GND                | $2 \times V_{CC}$  |
| 2.3V to 2.7V   | $V_{CC}$ | $\leq 3ns$  | 30pF  | 500 $\Omega$ | Open               | GND                | $2 \times V_{CC}$  |
| 2.7V           | 2.7V     | $\leq 3ns$  | 50pF  | 500 $\Omega$ | Open               | GND                | 6V                 |
| 3.0V to 3.6V   | 2.7V     | $\leq 3ns$  | 50pF  | 500 $\Omega$ | Open               | GND                | 6V                 |
| 4.5V to 5.5V   | $V_{CC}$ | $\leq 3ns$  | 50pF  | 500 $\Omega$ | Open               | GND                | $2 \times V_{CC}$  |

## 9 Mechanical Information

### 9.1 SOT-23-5L Mechanical Information

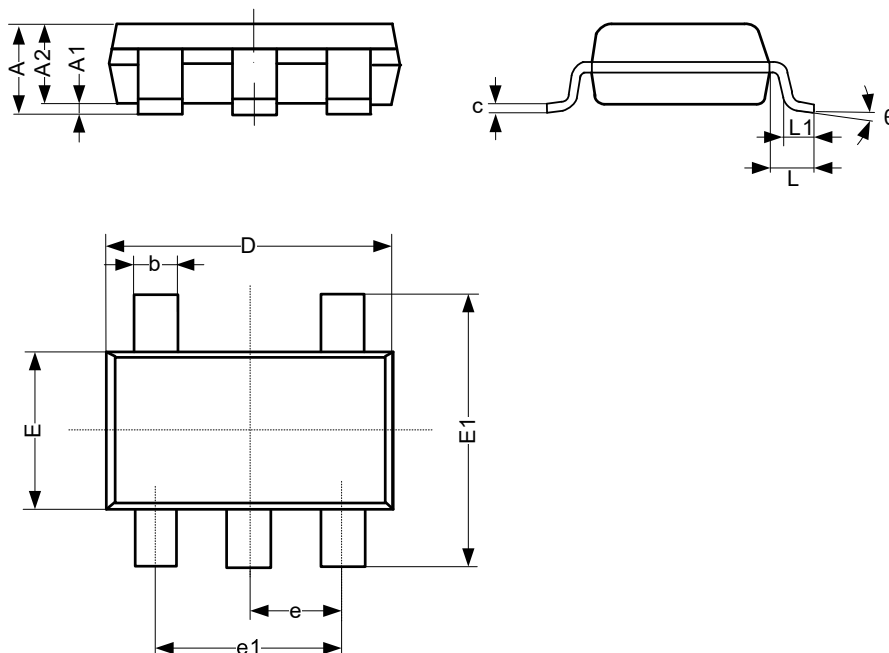
#### 9.1.1 SOT-23-5L Outline Dimensions



| SYMBOL   | Dimensions In Millimeters |      |      |
|----------|---------------------------|------|------|
|          | Min.                      | Typ. | Max. |
| A        | -                         | -    | 1.26 |
| A1       | 0.00                      | -    | 0.12 |
| A2       | 1.00                      | -    | 1.20 |
| b        | 0.30                      | -    | 0.50 |
| c        | 0.10                      | -    | 0.20 |
| D        | 2.82                      | -    | 3.02 |
| E        | 2.60                      | -    | 3.00 |
| E1       | 1.50                      | -    | 1.70 |
| e        | 0.95 BSC                  |      |      |
| e1       | 1.80                      | -    | 2.00 |
| L        | 0.30                      | -    | 0.60 |
| $\theta$ | 0°                        | -    | 8°   |
| Unit: mm |                           |      |      |

## 9.2 SOT-353 Mechanical Information

### 9.2.1 SOT-353 Outline Dimensions



| SYMBOL   | Dimensions In Millimeters |       |       |
|----------|---------------------------|-------|-------|
|          | Min.                      | Typ.  | Max.  |
| A        | 0.90                      | -     | 1.10  |
| A1       | 0.00                      | -     | 0.10  |
| A2       | 0.90                      | -     | 1.00  |
| b        | 0.15                      | -     | 0.35  |
| c        | 0.11                      | -     | 0.175 |
| D        | 2.00                      | -     | 2.20  |
| E        | 1.15                      | -     | 1.35  |
| E1       | 2.15                      | -     | 2.45  |
| e        | 0.65 BSC                  |       |       |
| e1       | 1.20                      | -     | 1.40  |
| L        | -                         | 0.525 | -     |
| L1       | 0.26                      | -     | 0.46  |
| θ        | 0°                        | -     | 8°    |
| Unit: mm |                           |       |       |

## **10 Notes and Revision History**

### **10.1 Associated Product Family and Others**

To view other products of the same type or IC products of other types, click the official website of JSCJ -- <https://www.jscj-elec.com> for more details.

### **10.2 Notes**

#### **Electrostatic Discharge Caution**



This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. If appropriate measures are not taken to prevent ESD damage, the hazards caused by ESD include but are not limited to degradation of integrated circuit performance or complete damage of integrated circuit. For some precision integrated circuits, a very small parameter change may cause the whole device to be inconsistent with its published specifications.

### **10.3 Revision History**

July, 2025: rev - 1.1, Change marking information.

# DISCLAIMER

## IMPORTANT NOTICE, PLEASE READ CAREFULLY

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