

## Single Bus Buffer Gate with 3-State Output

### General Description

The ET74LVC1G126 device is a single bus buffer gate/line driver with 3-state output. The output is disabled when the output-enable (OE) input is high. When OE is low, data is passed from the A input to the Y output.

### Features

- Designed for 1.65V to 5.5V  $V_{CC}$  Operation
- Over-voltage Tolerant Inputs Accept Voltages to 5.5V
- $\pm 32\text{mA}$  Balanced Output Sink and Source Capability
- Near Zero Static Supply Current Substantially Reduces System Power Requirements
- These Devices are Pb-Free and RoHS Compliant
- 3-State OE Input is Active-High
- ESD Protection Complies with JESD22 Standard
  - HBM:  $\pm 4000\text{V}$  Pass (JEDEC JS-001)
  - CDM:  $\pm 1000\text{V}$  Pass (JEDEC JS-002)
- Latch-up Performance Exceeds  $\pm 100\text{mA}$  per JEDEC JESD78F
- Part No. and Package Information

| Part No.       | Package                                     | Packing Option          | MSL |
|----------------|---------------------------------------------|-------------------------|-----|
| ET74LVC1G126   | SC70-5 (1.3mm $\times$ 2.1mm)               | Tape and Reel, 3K/Reel  | 1   |
| ET74LVC1G126T  | SOT23-5 (1.6mm $\times$ 2.9mm)              | Tape and Reel, 3K/Reel  | 3   |
| ET74LVC1G126N  | DFN6 (1.0mm $\times$ 1.0mm $\times$ 0.37mm) | Tape and Reel, 5K/Reel  | 1   |
| ET74LVC1G126N1 | DFN6 (1.0mm $\times$ 1.0mm $\times$ 0.55mm) | Tape and Reel, 5K/Reel  | 1   |
| ET74LVC1G126Y1 | DFN4 (0.8mm $\times$ 0.8mm)                 | Tape and Reel, 10K/Reel | 1   |

# ET74LVC1G126

## Pin Configuration

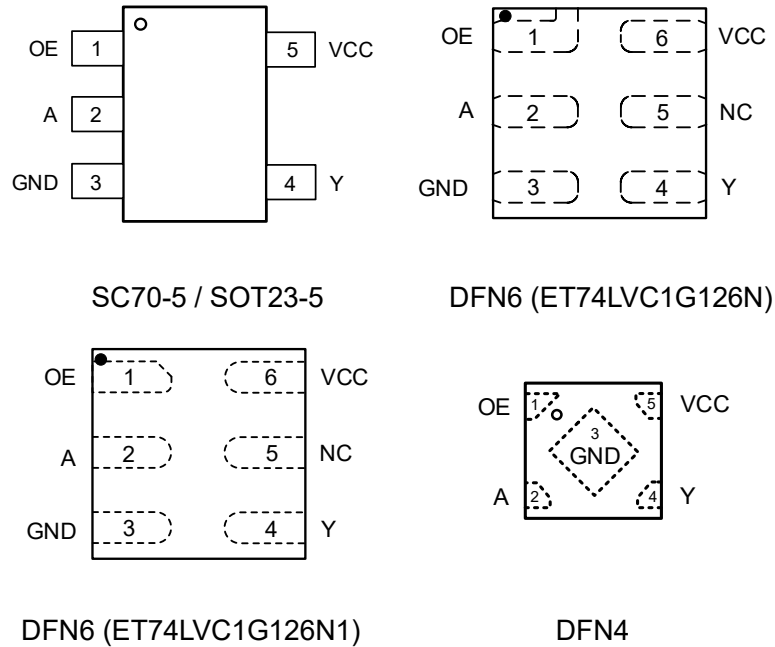


Figure1. Pin Configuration

## Pin Function

SC70-5/ SOT23-5

| Pin No. | Pin Name | Function       |
|---------|----------|----------------|
| 1       | OE       | Enable Input   |
| 2       | A        | Input          |
| 3       | GND      | Ground         |
| 4       | Y        | Output         |
| 5       | VCC      | Supply Voltage |

DFN6

| Pin No. | Pin Name | Function       |
|---------|----------|----------------|
| 1       | OE       | Enable Input   |
| 2       | A        | Input          |
| 3       | GND      | Ground         |
| 4       | Y        | Output         |
| 5       | NC       | No Connect     |
| 6       | VCC      | Supply Voltage |

# ET74LVC1G126

DFN4

| Pin No. | Pin Name | Function       |
|---------|----------|----------------|
| 1       | OE       | Enable Input   |
| 2       | A        | Input          |
| 3       | GND      | Ground         |
| 4       | Y        | Output         |
| 5       | VCC      | Supply Voltage |

## Block Diagram

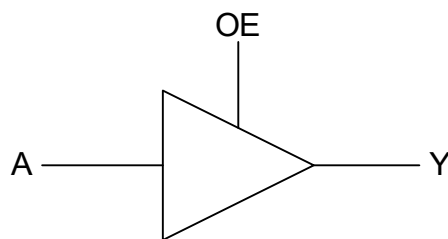


Figure2. Logic Symbol

## Functional Table

| Input |   | Output |
|-------|---|--------|
| OE    | A | Y      |
| H     | L | L      |
| H     | H | H      |
| L     | X | Z      |

# ET74LVC1G126

## Absolute Maximum Ratings

| Symbol    | Parameter                                                           |                                     | Value                    | Unit |
|-----------|---------------------------------------------------------------------|-------------------------------------|--------------------------|------|
| $V_{CC}$  | DC Supply Voltage (VCC Pin)                                         |                                     | -0.5 to 6.5              | V    |
| $V_I$     | DC Input Voltage <sup>(1)</sup>                                     |                                     | $-0.5 \leq V_I \leq 6.5$ | V    |
| $V_O$     | DC Output Voltage Output in Higher or Low State                     |                                     | -0.5 to $V_{CC} + 0.5$   | V    |
| $I_{IK}$  | DC Input Diode Current, $V_I < GND$                                 |                                     | -50                      | mA   |
| $I_{OK}$  | DC Output Diode Current, $V_O < GND$ , $V_O > V_{CC}$               |                                     | $\pm 50$                 | mA   |
| $I_O$     | DC Output Sink Current                                              |                                     | $\pm 50$                 | mA   |
| $I_{CC}$  | DC Supply Current per Supply Pin                                    |                                     | 100                      | mA   |
| $I_{GND}$ | DC Ground Current per Supply Pin                                    |                                     | -100                     | mA   |
| $T_{STG}$ | Storage Temperature Range                                           |                                     | -65 to 150               | °C   |
| $T_L$     | Lead Temperature, Soldering 10 Seconds                              |                                     | 260                      | °C   |
| $T_J$     | Max Junction Temperature                                            |                                     | 150                      | °C   |
| $V_{ESD}$ | ESD Classification                                                  | Human Body Model <sup>(2)</sup>     | $\pm 4000$               | V    |
|           |                                                                     | Charged Device Model <sup>(3)</sup> | $\pm 1000$               |      |
| $I_{LU}$  | Max Latch up Current Above $V_{CC}$ and GND at 125°C <sup>(4)</sup> |                                     | $\pm 100$                | mA   |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

**Note1:**  $I_O$  absolute maximum rating must be observed.

**Note2:** HBM tested per JEDEC JS-001;

**Note3:** CDM tested per JEDEC JS-002;

**Note4:** Latch up Current Maximum Rating tested per JEDEC JESD78F.

## Thermal Characteristics

| Symbol          | Package | Ratings                                                      | Value | Unit |
|-----------------|---------|--------------------------------------------------------------|-------|------|
| $R_{\theta JA}$ | SC70-5  | Thermal Characteristics, Thermal Resistance, Junction-to-Air | 300   | °C/W |
|                 | SOT23-5 |                                                              | 250   |      |
|                 | DFN6    |                                                              | 440   |      |
|                 | DFN4    |                                                              | 285   |      |
| $P_D$           | SC70-5  | Power Dissipation in Still Air at 85°C                       | 215   | mW   |
|                 | SOT23-5 |                                                              | 260   |      |
|                 | DFN6    |                                                              | 150   |      |
|                 | DFN4    |                                                              | 350   |      |

# ET74LVC1G126

## Recommended Operating Conditions

| Symbol                          | Parameter                             |                               | Min  | Max             | Unit |
|---------------------------------|---------------------------------------|-------------------------------|------|-----------------|------|
| V <sub>CC</sub>                 | DC Supply Voltage Operating           |                               | 1.65 | 5.5             | V    |
|                                 | Date Retention Voltage Operating      |                               | 1.5  | 5.5             |      |
| V <sub>I</sub>                  | DC Input Voltage                      |                               | 0    | V <sub>CC</sub> | V    |
| V <sub>O</sub>                  | DC Output Voltage (High or Low State) |                               | 0    | V <sub>CC</sub> | V    |
| T <sub>A</sub>                  | Operating Temperature Range           |                               | -40  | 125             | °C   |
| t <sub>r</sub> , t <sub>f</sub> | Input Rise and Fall Time              | V <sub>CC</sub> = 2.5V ± 0.2V | 0    | 20              | ns/V |
|                                 |                                       | V <sub>CC</sub> = 3.0V ± 0.3V | 0    | 10              |      |
|                                 |                                       | V <sub>CC</sub> = 5.0V ± 0.5V | 0    | 5               |      |

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied.

## Electrical Characteristics

### DC Electrical Characteristics

| Symbol          | Parameter                 | Condition                       | V <sub>CC</sub> (V)  | T <sub>A</sub> = 25°C                     |                 |                                           | -40°C ≤ T <sub>A</sub> ≤ 125°C            |                                           | Unit |
|-----------------|---------------------------|---------------------------------|----------------------|-------------------------------------------|-----------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|------|
|                 |                           |                                 |                      | Min                                       | Typ             | Max                                       | Min                                       | Max                                       |      |
| V <sub>IH</sub> | High-Level Input Voltage  |                                 | 1.65~1.95<br>2.3~5.5 | 0.75V <sub>CC</sub><br>0.7V <sub>CC</sub> |                 |                                           | 0.75V <sub>CC</sub><br>0.7V <sub>CC</sub> |                                           | V    |
| V <sub>IL</sub> | Low-Level Input Voltage   |                                 | 1.65~1.95<br>2.3~5.5 |                                           |                 | 0.25V <sub>CC</sub><br>0.3V <sub>CC</sub> |                                           | 0.25V <sub>CC</sub><br>0.3V <sub>CC</sub> | V    |
| V <sub>OH</sub> | High-Level Output Voltage | I <sub>OH</sub> = -100uA        | 1.65~5.5             | V <sub>CC</sub> - 0.1                     | V <sub>CC</sub> |                                           | V <sub>CC</sub> - 0.1                     |                                           | V    |
|                 |                           | I <sub>OH</sub> = -3mA          | 1.65                 | 1.29                                      | 1.52            |                                           | 1.29                                      |                                           |      |
|                 |                           | I <sub>OH</sub> = -8mA          | 2.3                  | 1.9                                       | 2.1             |                                           | 1.9                                       |                                           |      |
|                 |                           | I <sub>OH</sub> = -12mA         | 2.7                  | 2.2                                       | 2.4             |                                           | 2.2                                       |                                           |      |
|                 |                           | I <sub>OH</sub> = -24mA         | 3.0                  | 2.3                                       | 2.5             |                                           | 2.3                                       |                                           |      |
|                 |                           | I <sub>OH</sub> = -32mA         | 4.5                  | 3.8                                       | 4.0             |                                           | 3.8                                       |                                           |      |
| V <sub>OL</sub> | Low-Level Output Voltage  | I <sub>OH</sub> = 100uA         | 1.65~5.5             |                                           | 0.0             | 0.1                                       |                                           | 0.1                                       | V    |
|                 |                           | I <sub>OL</sub> = 3mA           | 1.65                 |                                           | 0.08            | 0.24                                      |                                           | 0.24                                      |      |
|                 |                           | I <sub>OL</sub> = 8mA           | 2.3                  |                                           | 0.20            | 0.3                                       |                                           | 0.3                                       |      |
|                 |                           | I <sub>OL</sub> = 12mA          | 2.7                  |                                           | 0.22            | 0.4                                       |                                           | 0.4                                       |      |
|                 |                           | I <sub>OL</sub> = 24mA          | 3.0                  |                                           | 0.38            | 0.55                                      |                                           | 0.55                                      |      |
|                 |                           | I <sub>OL</sub> = 32mA          | 4.5                  |                                           | 0.42            | 0.55                                      |                                           | 0.55                                      |      |
| I <sub>IN</sub> | Input Leakage Current     | V <sub>I</sub> = 5.5V<br>or GND | 0~5.5                |                                           | ±0.1            |                                           |                                           | ±1.0                                      | uA   |

# ET74LVC1G126

## DC Electrical Characteristics (Continued)

| Symbol           | Parameter                 | Condition                                      | V <sub>CC</sub><br>(V) | T <sub>A</sub> = 25°C |     |     | -40°C ≤ T <sub>A</sub> ≤ 125°C |     | Unit |
|------------------|---------------------------|------------------------------------------------|------------------------|-----------------------|-----|-----|--------------------------------|-----|------|
|                  |                           |                                                |                        | Min                   | Typ | Max | Min                            | Max |      |
| I <sub>OFF</sub> | Power Off Leakage Current | V <sub>I</sub> = 5.5V or V <sub>O</sub> = 5.5V | 0                      |                       |     | 1   |                                | 10  | uA   |
| I <sub>CC</sub>  | Quiescent Supply Current  | V <sub>I</sub> = 5.5V or GND                   | 5.5                    |                       |     |     |                                | 10  | uA   |

## AC Electrical Characteristics

t<sub>r</sub> = t<sub>f</sub> = 3ns

| Symbol                                 | Parameter                              | Condition                                      | V <sub>CC</sub><br>(V) | T <sub>A</sub> = 25°C |      |      | -40°C ≤ T <sub>A</sub> ≤ 125°C |      | Unit |
|----------------------------------------|----------------------------------------|------------------------------------------------|------------------------|-----------------------|------|------|--------------------------------|------|------|
|                                        |                                        |                                                |                        | Min                   | Typ  | Max  | Min                            | Max  |      |
| t <sub>pd</sub>                        | Propagation Delay<br>(Figure3 and 4)   | R <sub>L</sub> = 1MΩ<br>C <sub>L</sub> = 15pF  | 1.65                   | 2.0                   | 10.1 | 12.9 | 2.0                            | 13.9 | ns   |
|                                        |                                        |                                                | 1.8                    | 2.0                   | 9.1  | 11.6 | 2.0                            | 12.4 |      |
|                                        |                                        |                                                | 2.5                    | 0.2                   | 6.0  | 7.7  | 0.8                            | 8.2  |      |
|                                        |                                        | R <sub>L</sub> = 1MΩ<br>C <sub>L</sub> = 15pF  | 3.3                    | 0.8                   | 5.0  | 6.5  | 0.5                            | 7.0  |      |
|                                        |                                        | R <sub>L</sub> = 500Ω<br>C <sub>L</sub> = 50pF |                        | 1.2                   | 5.6  | 7.1  | 1.5                            | 7.6  |      |
|                                        |                                        | R <sub>L</sub> = 1MΩ<br>C <sub>L</sub> = 15pF  | 5.0                    | 0.5                   | 4.4  | 5.6  | 0.5                            | 6.1  |      |
| t <sub>PZL</sub> ,<br>t <sub>PZH</sub> | Output Enable Time<br>(Figure5 and 6)  | R <sub>L</sub> = 500Ω<br>C <sub>L</sub> = 50pF | 1.65                   | 2.0                   | 12.9 | 20.0 | 2.0                            | 23.0 | ns   |
|                                        |                                        |                                                | 1.8                    | 2.0                   | 10.8 | 18.0 | 2.0                            | 22.0 |      |
|                                        |                                        |                                                | 2.5                    | 1.5                   | 7.2  | 8.8  | 1.5                            | 9.4  |      |
|                                        |                                        |                                                | 3.3                    | 1.5                   | 5.8  | 7.1  | 1.5                            | 7.6  |      |
|                                        |                                        |                                                | 5.0                    | 0.8                   | 4.5  | 5.5  | 0.8                            | 5.9  |      |
| t <sub>PLZ</sub> ,<br>t <sub>PHZ</sub> | Output Disable Time<br>(Figure5 and 6) | R <sub>L</sub> = 500Ω<br>C <sub>L</sub> = 50pF | 1.65                   | 2.0                   | 11.5 | 20.0 | 2.0                            | 23.0 | ns   |
|                                        |                                        |                                                | 1.8                    | 2.0                   | 9.8  | 18.0 | 2.0                            | 22.0 |      |
|                                        |                                        |                                                | 2.5                    | 1.5                   | 7.7  | 9.5  | 1.5                            | 10.1 |      |
|                                        |                                        |                                                | 3.3                    | 1.0                   | 7.2  | 8.8  | 1.0                            | 9.4  |      |
|                                        |                                        |                                                | 5.0                    | 0.5                   | 5.4  | 6.8  | 0.5                            | 7.3  |      |

# ET74LVC1G126

## Capacitance Characteristics

| Symbol          | Parameter                                    | Condition                                                             | Typ | Unit |
|-----------------|----------------------------------------------|-----------------------------------------------------------------------|-----|------|
| C <sub>IN</sub> | Input Capacitance                            | V <sub>CC</sub> = 5.5V, V <sub>I</sub> = 0V or V <sub>CC</sub>        | 5   | pF   |
| C <sub>PD</sub> | Power Dissipation Capacitance <sup>(5)</sup> | 10MHz, V <sub>CC</sub> = 3.3V, V <sub>I</sub> = 0V or V <sub>CC</sub> | 15  | pF   |
|                 |                                              | 10MHz, V <sub>CC</sub> = 5.5V, V <sub>I</sub> = 0V or V <sub>CC</sub> | 15  |      |

**Note5:** C<sub>PD</sub> is used to determine the dynamic power dissipation (P<sub>D</sub> in μW).

$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$  where:

f<sub>i</sub> = input frequency in MHz;

f<sub>o</sub> = output frequency in MHz;

C<sub>L</sub> = output load capacitance in pF;

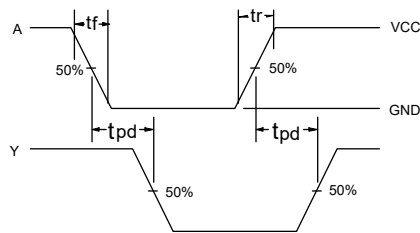
V<sub>CC</sub> = supply voltage in V;

N = number of inputs switching;

$\Sigma(C_L \times V_{CC}^2 \times f_o)$  = sum of outputs.

# ET74LVC1G126

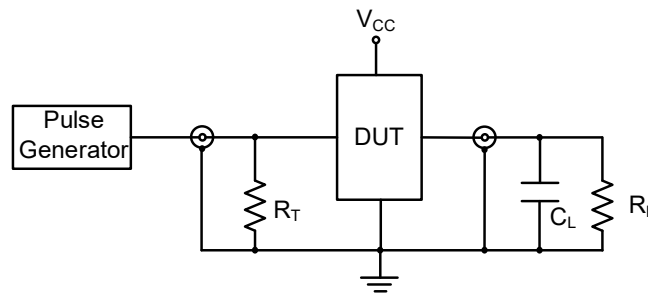
## AC Test Circuit



PROPAGATION DELAYS:

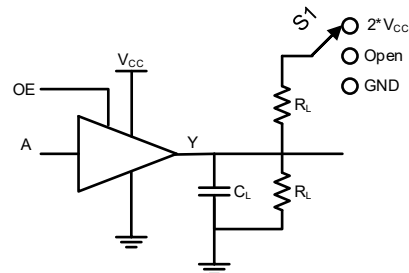
$t_R = t_F = 3\text{ns}$ , 10% to 90%;  $f = 1\text{MHz}$ ;

Figure3. Switch Waveform



$R_T = 50\Omega(\text{typ})$

Figure4. Test Circuit



| Test                | Switch     |
|---------------------|------------|
| $t_{PD}$            | Open       |
| $t_{PZL}$ $t_{PLZ}$ | $2*V_{CC}$ |
| $t_{PZH}$ $t_{PHZ}$ | GND        |

Figure5. Output Enable/Disable Time Test Circuit

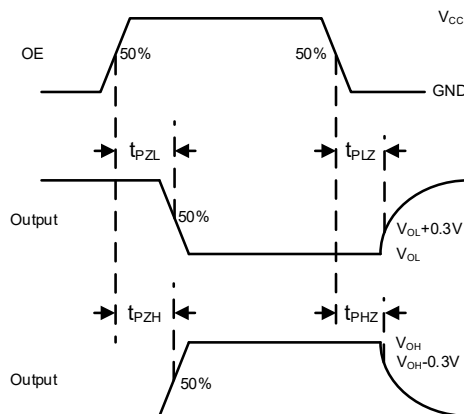
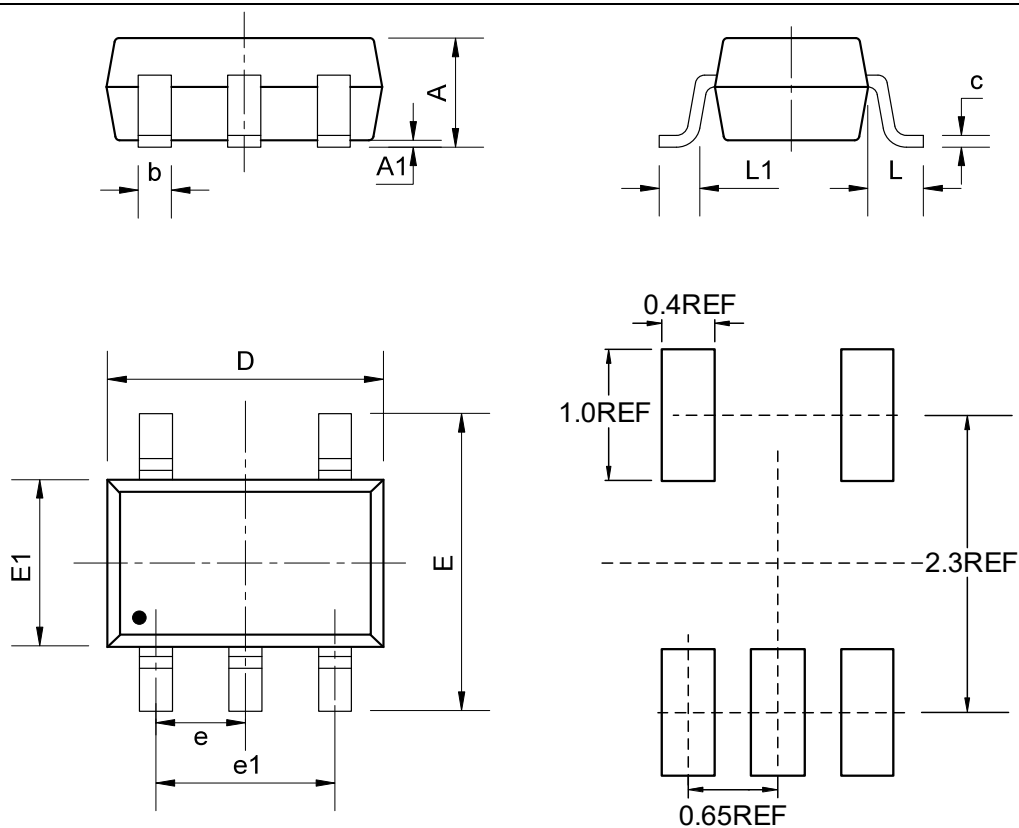


Figure6. Output Enable/Disable Waveform

# ET74LVC1G126

## Package Dimension

SC70-5 (1.3mm × 2.1mm)



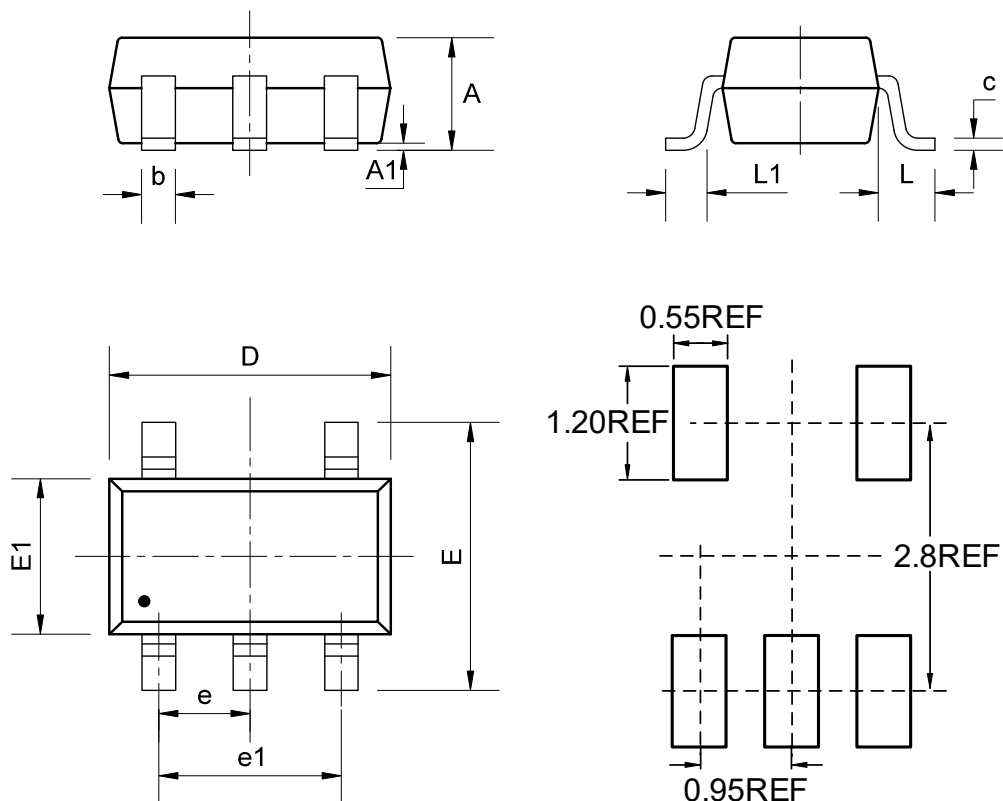
### COMMON DIMENSIONS

(Unit: mm)

| SYMBOL | MIN     | NOM  | MAX  |
|--------|---------|------|------|
| A      | -       | -    | 1.10 |
| A1     | 0.00    | -    | 0.15 |
| b      | 0.15    | -    | 0.35 |
| c      | 0.08    | -    | 0.20 |
| D      | 2.00    | 2.10 | 2.30 |
| e      | 0.65BSC |      |      |
| e1     | 1.30BSC |      |      |
| E      | 2.15    | 2.30 | 2.50 |
| E1     | 1.15    | 1.30 | 1.45 |
| L      | 0.50REF |      |      |
| L1     | 0.33REF |      |      |

# ET74LVC1G126

SOT23-5 (1.6mm × 2.9mm)



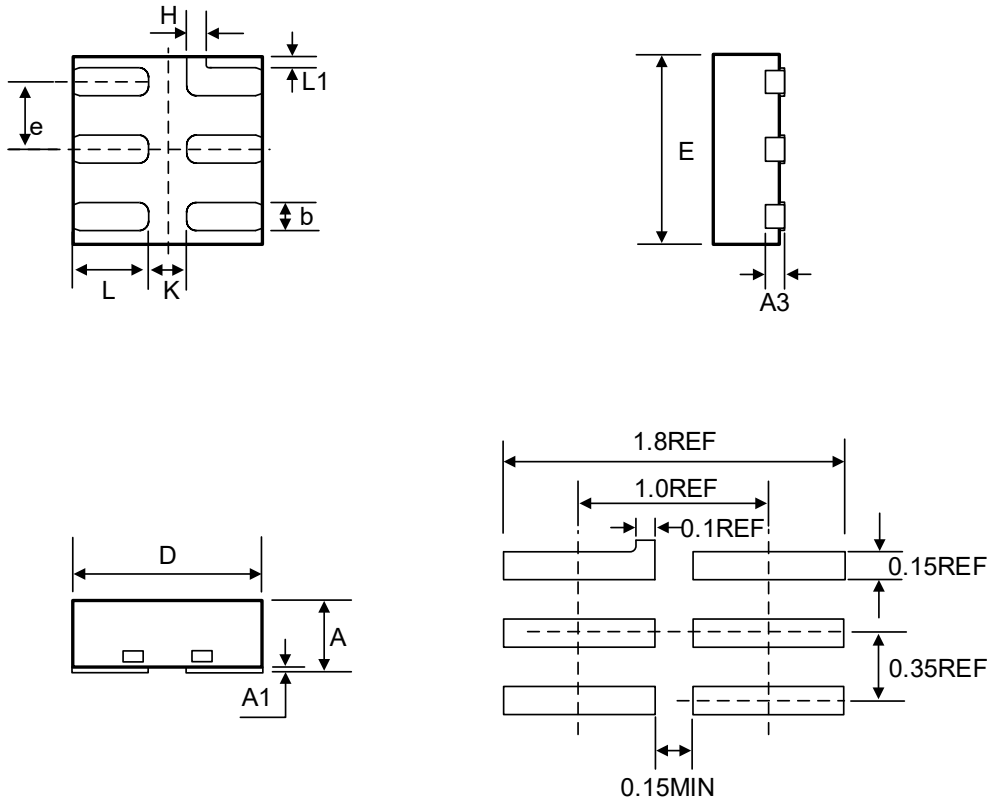
## COMMON DIMENSIONS

(Unit: mm)

| SYMBOL | MIN     | NOM  | MAX  |
|--------|---------|------|------|
| A      | -       | -    | 1.45 |
| A1     | 0.00    | -    | 0.15 |
| b      | 0.28    | 0.35 | 0.50 |
| c      | 0.08    | 0.15 | 0.22 |
| D      | 2.75    | 2.9  | 3.05 |
| e      | 0.90    | 0.95 | 1.00 |
| e1     | 1.80    | 1.90 | 2.00 |
| E      | 2.60    | 2.80 | 3.00 |
| E1     | 1.45    | 1.6  | 1.75 |
| L      | 0.60REF |      |      |
| L1     | 0.30    | 0.45 | 0.60 |

# ET74LVC1G126

DFN6 (1.0mm × 1.0mm × 0.37mm)



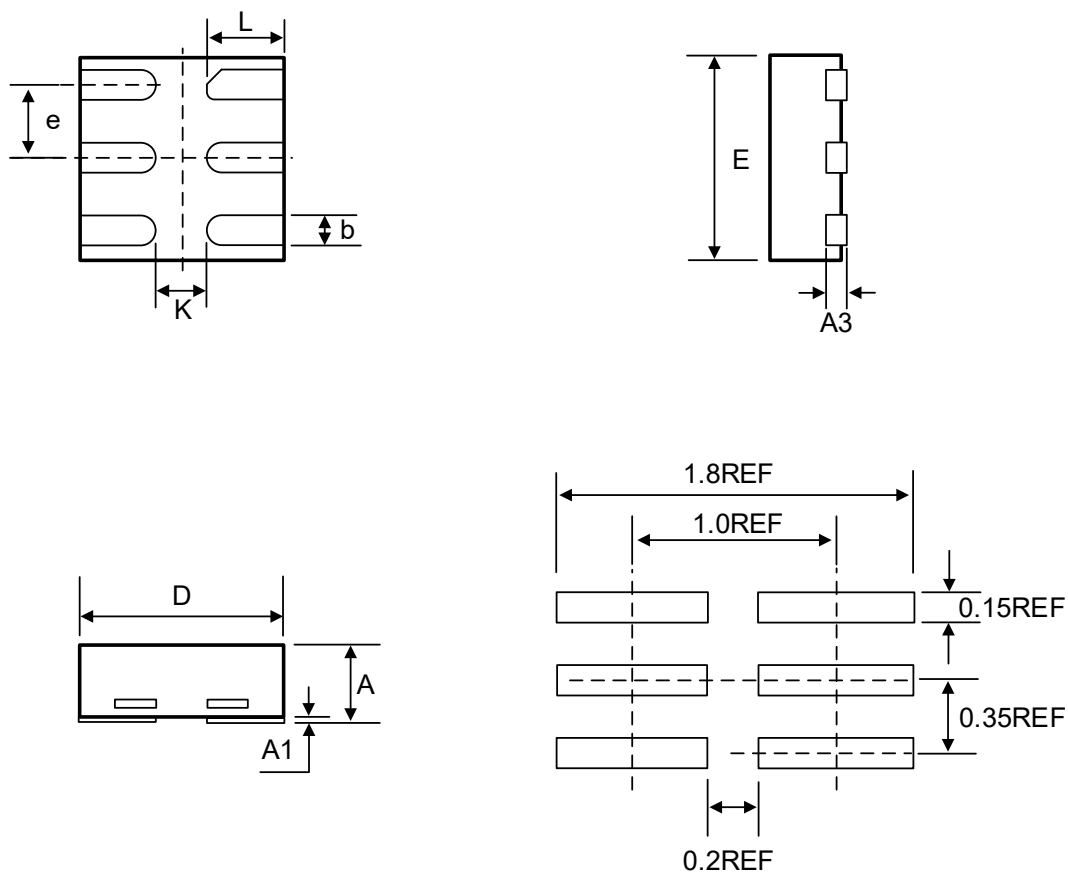
## COMMON DIMENSIONS

(Unit: mm)

| SYMBOL | MIN      | NOM  | MAX  |
|--------|----------|------|------|
| A      | 0.34     | 0.37 | 0.40 |
| A1     | 0        | 0.02 | 0.05 |
| A3     | 0.10REF  |      |      |
| b      | 0.10     | 0.15 | 0.20 |
| D      | 0.95     | 1.00 | 1.05 |
| E      | 0.95     | 1.00 | 1.05 |
| e      | 0.30     | 0.35 | 0.40 |
| H      | 0.10REF  |      |      |
| K      | 0.15     | --   | --   |
| L      | 0.35     | 0.40 | 0.45 |
| L1     | 0.075REF |      |      |

# ET74LVC1G126

DFN6 (1.0mm × 1.0mm × 0.55mm)



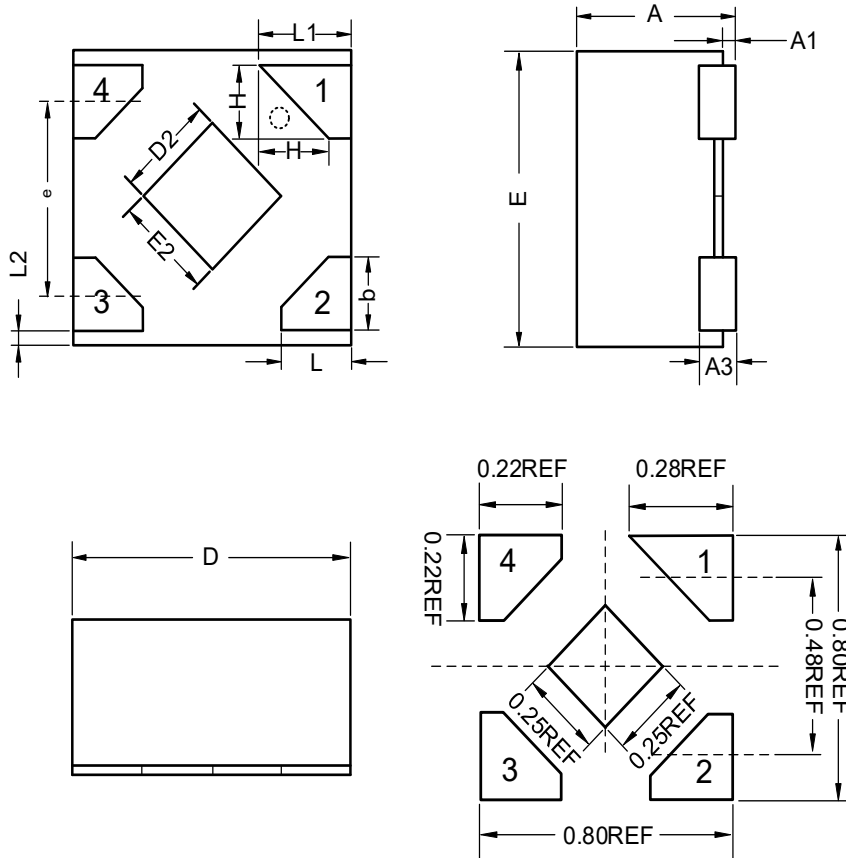
## COMMON DIMENSIONS

(Unit: mm)

| SYMBOL | MIN     | NOM  | MAX  |
|--------|---------|------|------|
| A      | 0.50    | 0.55 | 0.60 |
| A1     | 0       | -    | 0.05 |
| A3     | 0.15REF |      |      |
| b      | 0.10    | 0.15 | 0.20 |
| D      | 0.95    | 1.00 | 1.05 |
| E      | 0.95    | 1.00 | 1.05 |
| e      | 0.35BSC |      |      |
| K      | 0.20REF |      |      |
| L      | 0.30    | 0.40 | 0.50 |

# ET74LVC1G126

DFN4 (0.8mm × 0.8mm)



## COMMON DIMENSIONS

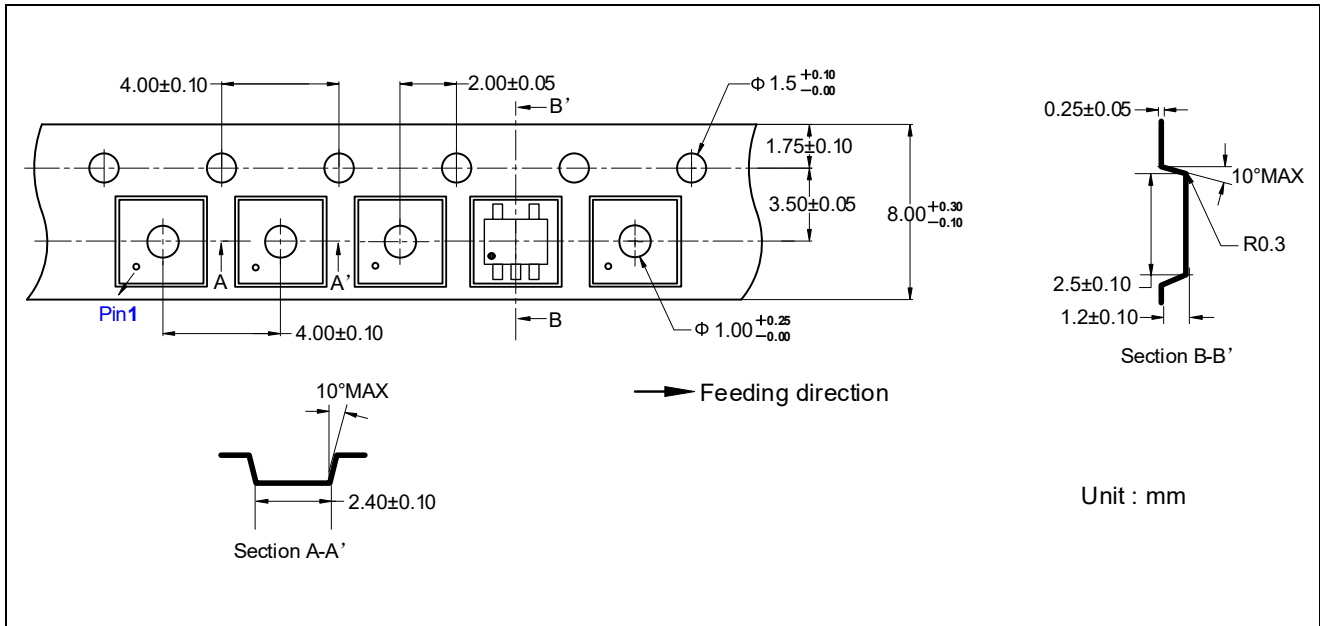
(Unit: mm)

| SYMBOL | MIN     | NOM  | MAX  |
|--------|---------|------|------|
| A      | 0.34    | 0.37 | 0.40 |
| A1     | 0.00    | 0.02 | 0.05 |
| A3     | 0.10REF |      |      |
| b      | 0.17    | 0.22 | 0.27 |
| D      | 0.75    | 0.80 | 0.85 |
| E      | 0.75    | 0.80 | 0.85 |
| D2     | 0.20    | 0.25 | 0.30 |
| E2     | 0.20    | 0.25 | 0.30 |
| e      | 0.43    | 0.48 | 0.53 |
| H      | 0.22REF |      |      |
| L      | 0.17    | 0.22 | 0.27 |
| L1     | 0.18    | 0.28 | 0.38 |
| L2     | 0.05REF |      |      |

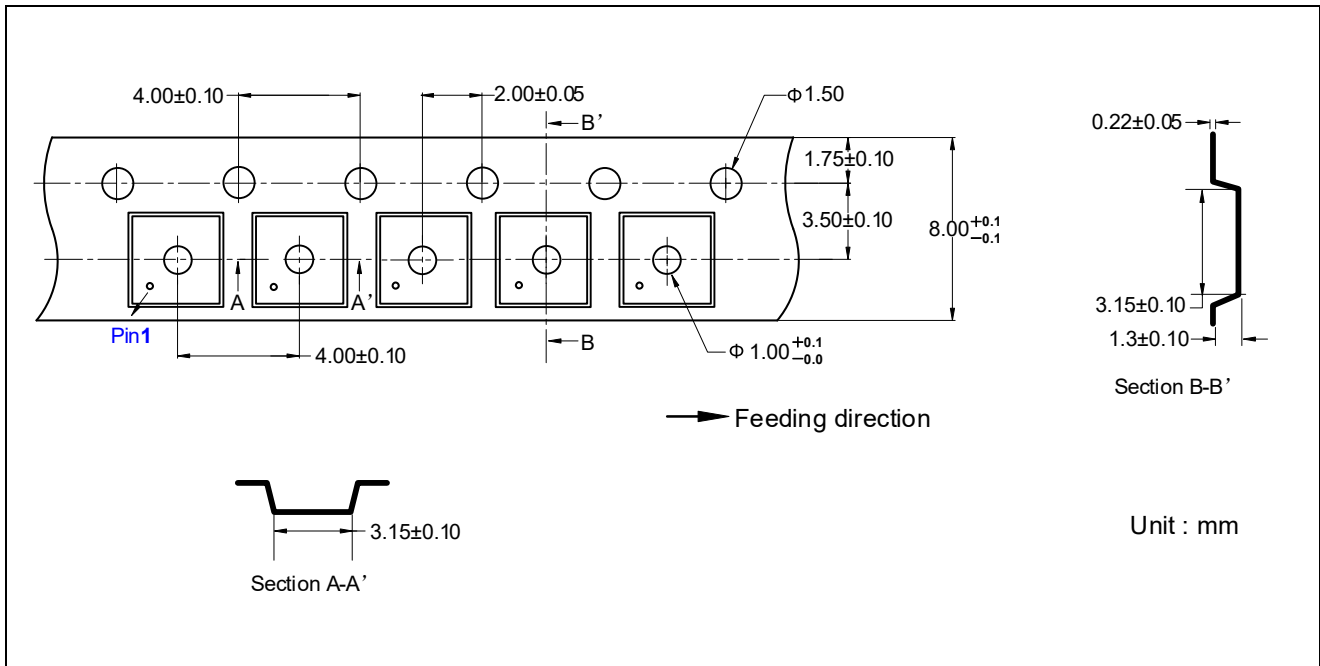
# ET74LVC1G126

## Tape Information

SC70-5 (1.3mm × 2.1mm)

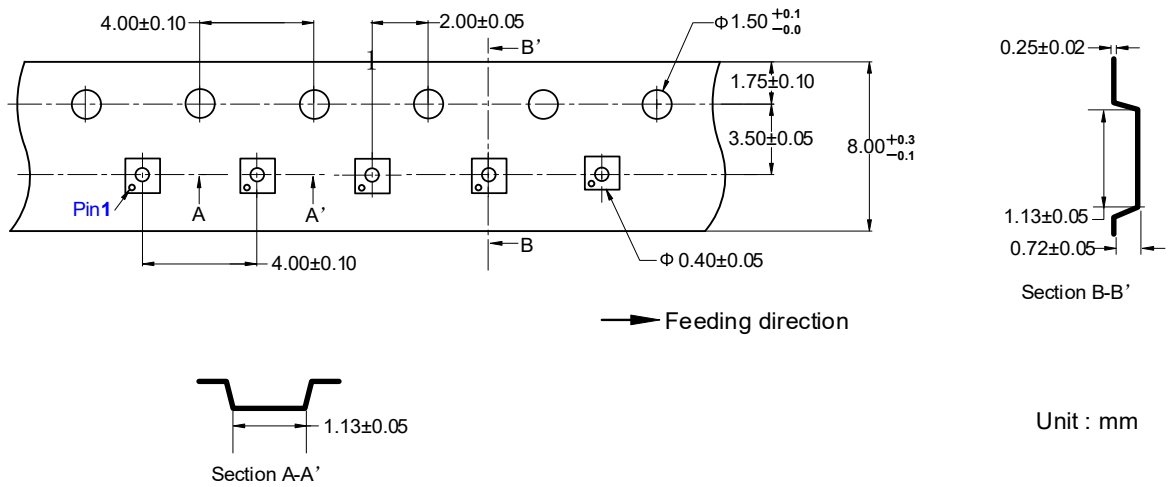


SOT23-5 (1.6mm × 2.9mm)

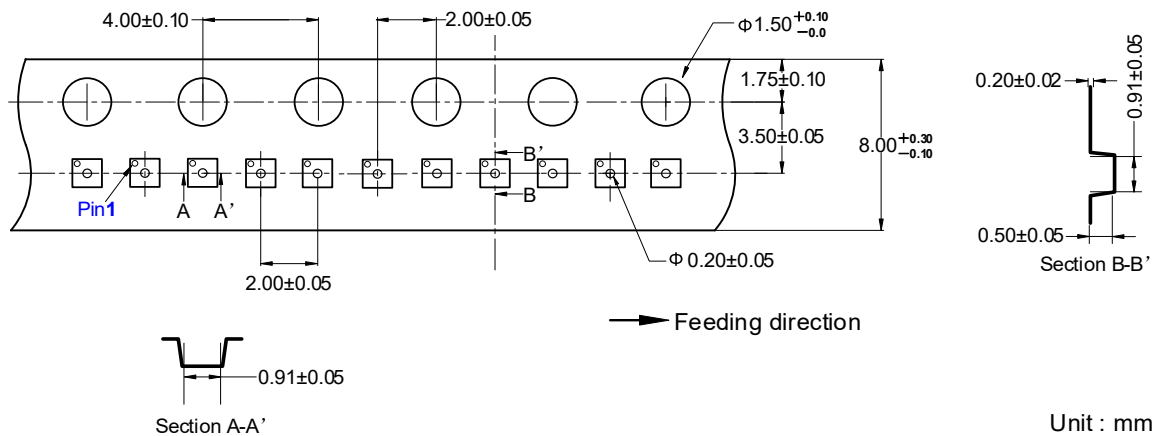


# ET74LVC1G126

DFN6 (1.0mm × 1.0mm)



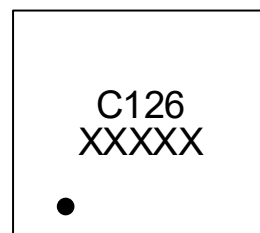
DFN4 (0.8mm × 0.8mm)



## Marking Information

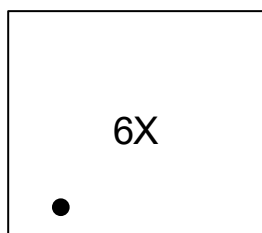


ET74LVC1G126  
G126 = Part Number  
X = Tracking Number



ET74LVC1G126T  
C126 = Part Number  
XXXXX = Tracking Number

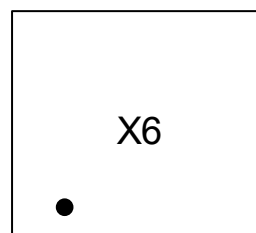
# ET74LVC1G126



ET74LVC1G126N

6 = Part Number

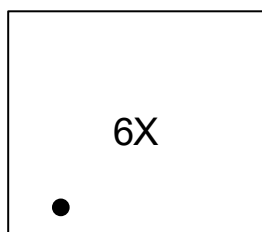
X = Tracking Number



ET74LVC1G126N1

6 = Part Number

X = Tracking Number



ET74LVC1G126Y1

6 = Part Number

X = Tracking Number

## Revision History and Checking Table

| Version | Date       | Revision Item                                 | Modifier    | Function & Spec Checking | Package & Tape Checking |
|---------|------------|-----------------------------------------------|-------------|--------------------------|-------------------------|
| 1.0     | 2017-10-23 | Original Version                              | Ma yongjian | Ma yongjian              | Liu jiaying             |
| 1.1     | 2019-07-18 | Update AC Table and Device Information        | Ma yongjian | Ma yongjian              | Liu jiaying             |
| 1.2     | 2019-08-22 | Add Output Enable/Disable Time & Test Circuit | Ma yongjian | Ma yongjian              | Liu jiaying             |
| 1.3     | 2023-03-08 | ESD Update                                    | Shi bo      | Shi bo                   | Zhu junli               |
| 1.4     | 2024-04-21 | Add Marking & Tape                            | Tu guozhu   | Lu hao                   | Zhu junli               |
| 1.5     | 2025-06-03 | Add Packing Option                            | Yang xiaoxu | Yang xiaoxu              | Liu jiaying             |
| 1.6     | 2025-10-30 | Add DFN6 Package                              | Yang xiaoxu | Yang xiaoxu              | Liu jiaying             |
| 1.6.a   | 2025-11-06 | Update Marking                                | Yang xiaoxu | Yang xiaoxu              | Liu jiaying             |
| 1.6.b   | 2025-12-25 | Update Format                                 | Xu tao      | Yang xiaoxu              | Liu jiaying             |
| 1.6.c   | 2026-03-20 | Update Title                                  | Xu tao      | Yang xiaoxu              | Liu jiaying             |
| 1.7     | 2026-04-20 | Add DFN4 Package                              | Wang anran  | Yang xiaoxu              | Liu jiaying             |