



# **CD4097**

## **Dual 8-channel Analog Multiplexer/Demultiplexer**

### **Product Specification**

**Specification Revision History:**

| <b>Version</b> | <b>Date</b> | <b>Description</b>  |
|----------------|-------------|---------------------|
| 2019-09-A1     | 2019-09     | New                 |
| 2023-04-B1     | 2023-04     | Update the template |
|                |             |                     |
|                |             |                     |



## Contents

|                                                                                  |           |
|----------------------------------------------------------------------------------|-----------|
| <b>1、General Description.....</b>                                                | <b>3</b>  |
| <b>2、Block Diagram And Pin Description .....</b>                                 | <b>5</b>  |
| 2.1、Block Diagram .....                                                          | 5         |
| 2.2、Pin Configurations.....                                                      | 5         |
| 2.3、Pin Description.....                                                         | 6         |
| 2.4、Function Table.....                                                          | 6         |
| <b>3、Electrical Parameter .....</b>                                              | <b>7</b>  |
| 3.1、Absolute Maximum Ratings.....                                                | 7         |
| 3.2、Recommended Operating Conditions .....                                       | 7         |
| 3.3、Electrical Characteristics.....                                              | 7         |
| 3.3.1、DC Characteristics 1 .....                                                 | 7         |
| 3.3.2、DC Characteristics 2.....                                                  | 8         |
| 3.3.3、AC Characteristics 1.....                                                  | 8         |
| 3.3.4、AC Characteristics 2.....                                                  | 9         |
| <b>4、Testing Circuit .....</b>                                                   | <b>9</b>  |
| 4.1、AC Testing Circuit 1 .....                                                   | 9         |
| 4.2、AC Testing Waveforms.....                                                    | 10        |
| 4.3、AC Testing Circuit 2 .....                                                   | 10        |
| 4.4、Measurement Points .....                                                     | 12        |
| 4.5、Test Data .....                                                              | 12        |
| <b>5、Package Information.....</b>                                                | <b>13</b> |
| 5.1、SOP24 .....                                                                  | 13        |
| 5.2、TSSOP24.....                                                                 | 14        |
| <b>6、Statements And Notes .....</b>                                              | <b>15</b> |
| 6.1、The name and content of Hazardous substances or Elements in the product..... | 15        |
| 6.2、Notes .....                                                                  | 15        |



## 1、 General Description

The CD4097 is a dual 8-channel multiplexer having three binary control inputs A0, A1, A2 and an inhibit input ( $\bar{E}$ ). The inputs permit selection of one of eight pairs of switches. With  $\bar{E}$  HIGH all switches are in the high-impedance OFF-state, independent of A0 to A2.

The analog inputs/outputs (nY0 to nY7 and nZ) can swing between  $V_{DD}$  as a positive limit and  $V_{SS}$  as a negative limit.  $V_{DD}$  to  $V_{SS}$  may not exceed 15V.

### Features:

- Wide supply voltage range from 3V to 9V
- Fully static operation
- 5V and 9V parametric ratings
- Standardized symmetrical output characteristics
- Specified from -40°C to +125°C
- Packaging information: SOP24/TSSOP24

**Ordering Information:****Tube packing specifications:**

| Part number   | Packaging form | Marking code | Tube quantity  | Boxed tube quantity | Boxed quantity   | Notes                                                                |
|---------------|----------------|--------------|----------------|---------------------|------------------|----------------------------------------------------------------------|
| CD4097SA24.TB | SOP24          | CD4097       | 30<br>PCS/tube | 80<br>tube/box      | 2400<br>PCS/box  | Dimensions of plastic enclosure: 15.4mm×7.5mm<br>Pin spacing: 1.27mm |
| CD4097TA24.TB | TSSOP24        | CD4097       | 62<br>PCS/tube | 200<br>tube/box     | 12400<br>PCS/box | Dimensions of plastic enclosure: 7.8mm×4.4mm<br>Pin spacing: 0.65mm  |

**Reel packing specifications:**

| Part number   | Packaging form | Marking code | Reel quantity    | Boxed reel quantity | Notes                                                                |
|---------------|----------------|--------------|------------------|---------------------|----------------------------------------------------------------------|
| CD4097SA24.TR | SOP24          | CD4097       | 1250<br>PCS/reel | 1250<br>PCS/box     | Dimensions of plastic enclosure: 15.4mm×7.5mm<br>Pin spacing: 1.27mm |
| CD4097TA24.TR | TSSOP24        | CD4097       | 2500<br>PCS/reel | 5000<br>PCS/box     | Dimensions of plastic enclosure: 7.8mm×4.4mm<br>Pin spacing: 0.65mm  |

Note: If the physical information is inconsistent with the ordering information, please refer to the actual product.



## 2、Block Diagram And Pin Description

### 2.1、Block Diagram

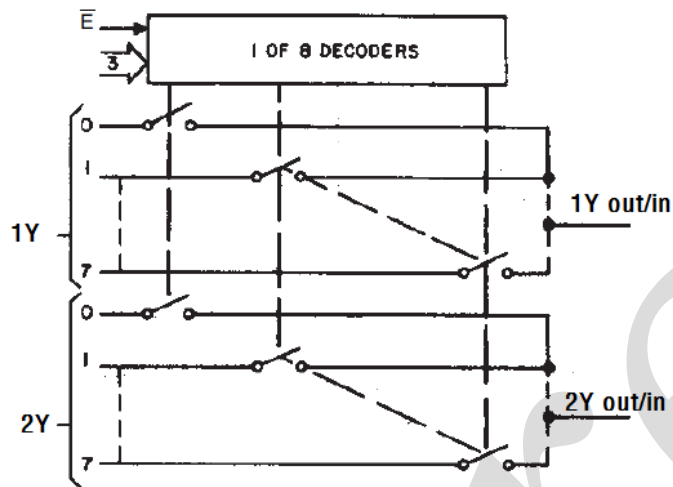
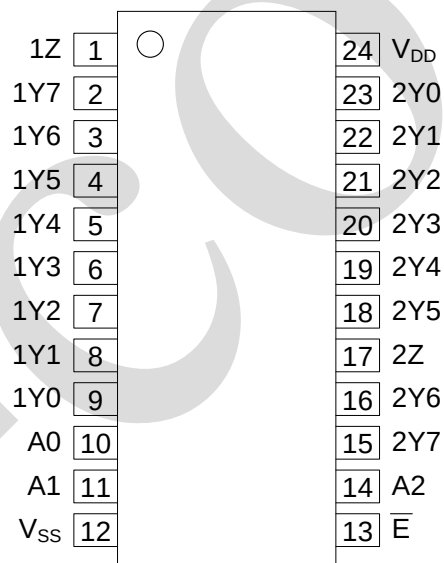


Figure 1. Functional diagram

### 2.2、Pin Configurations





## 2.3、Pin Description

| Pin No. | Pin Name        | Description               |
|---------|-----------------|---------------------------|
| 1       | 1Z              | common input/output       |
| 2       | 1Y7             | independent input/output  |
| 3       | 1Y6             | independent input/output  |
| 4       | 1Y5             | independent input/output  |
| 5       | 1Y4             | independent input/output  |
| 6       | 1Y3             | independent input/output  |
| 7       | 1Y2             | independent input/output  |
| 8       | 1Y1             | independent input/output  |
| 9       | 1Y0             | independent input/output  |
| 10      | A0              | address input             |
| 11      | A1              | address input             |
| 12      | V <sub>SS</sub> | ground (0V)               |
| 13      | $\bar{E}$       | enable input (active LOW) |
| 14      | A2              | address input             |
| 15      | 2Y7             | independent input/output  |
| 16      | 2Y6             | independent input/output  |
| 17      | 2Z              | common input/output       |
| 18      | 2Y5             | independent input/output  |
| 19      | 2Y4             | independent input/output  |
| 20      | 2Y3             | independent input/output  |
| 21      | 2Y2             | independent input/output  |
| 22      | 2Y1             | independent input/output  |
| 23      | 2Y0             | independent input/output  |
| 24      | V <sub>DD</sub> | supply voltage            |

## 2.4、Function Table

| Input     |    |    |    | Selected Channel |
|-----------|----|----|----|------------------|
| $\bar{E}$ | A2 | A1 | A0 |                  |
| L         | L  | L  | L  | 1Y0, 2Y0         |
| L         | L  | L  | H  | 1Y1, 2Y1         |
| L         | L  | H  | L  | 1Y2, 2Y2         |
| L         | L  | H  | H  | 1Y3, 2Y3         |
| L         | H  | L  | L  | 1Y4, 2Y4         |
| L         | H  | L  | H  | 1Y5, 2Y5         |
| L         | H  | H  | L  | 1Y6, 2Y6         |
| L         | H  | H  | H  | 1Y7, 2Y7         |
| H         | X  | X  | X  | none             |

Note: H=HIGH voltage level; L=LOW voltage level; X=don't care.



### 3、Electrical Parameter

#### 3.1、Absolute Maximum Ratings

(Voltages are referenced to  $V_{SS}$  (ground=0V), unless otherwise specified.)

| Parameter               | Symbol    | Conditions                            | Min. | Max.           | Unit |
|-------------------------|-----------|---------------------------------------|------|----------------|------|
| supply voltage          | $V_{DD}$  | -                                     | -0.5 | +12            | V    |
| input clamping current  | $I_{IK}$  | $V_I < 0.5V$ or $V_I > V_{DD} + 0.5V$ | -    | $\pm 10$       | mA   |
| switch current          | $I$       | -                                     | -    | $\pm 10$       | mA   |
| input voltage           | $V_I$     | all inputs                            | -0.5 | $V_{DD} + 0.5$ | V    |
| storage temperature     | $T_{stg}$ | -                                     | -65  | +150           | °C   |
| total power dissipation | $P_{tot}$ | -                                     | -    | 500            | mW   |
| device dissipation      | $P$       | per output transistor                 | -    | 100            | mW   |
| Soldering temperature   | $T_L$     | 10s                                   | 260  |                | °C   |

#### 3.2、Recommended Operating Conditions

(T<sub>amb</sub>=25°C, voltages are referenced to  $V_{SS}$  (ground=0V), unless otherwise specified.)

| Parameter                                   | Symbol    | Conditions  | Min. | Typ. | Max.     | Unit     |
|---------------------------------------------|-----------|-------------|------|------|----------|----------|
| supply voltage                              | $V_{DD}$  | -           | 3    | 5    | 9        | V        |
| ambient temperature                         | $T_{amb}$ | in free air | -40  | -    | +125     | °C       |
| input voltage                               | $V_I$     | -           | 0    | -    | $V_{DD}$ | V        |
| multiplexer switch input current capability | -         | -           | -    | -    | 25       | mA       |
| output load resistance                      | -         | -           | 100  | -    | -        | $\Omega$ |

#### 3.3、Electrical Characteristics

##### 3.3.1、DC Characteristics 1

(T<sub>amb</sub>=25°C, voltages are referenced to  $V_{SS}$  (ground=0V), unless otherwise specified.)

| Parameter                 | Symbol       | Conditions (V)                            |                                       | T <sub>amb</sub> =25°C |      |         | Unit    |
|---------------------------|--------------|-------------------------------------------|---------------------------------------|------------------------|------|---------|---------|
|                           |              |                                           |                                       | Min.                   | Typ. | Max.    |         |
| LOW-level input voltage   | $V_{IL}$     | $ I_O  < 1\mu A$                          | $V_{DD}=5V$ ,<br>$V_O=0.5V$ or $4.5V$ | -                      | -    | 1.5     | V       |
|                           |              |                                           | $V_{DD}=9V$ ,<br>$V_O=1.0V$ or $9V$   | -                      | -    | 3       | V       |
| HIGH-level input voltage  | $V_{IH}$     | $ I_O  < 1\mu A$                          | $V_{DD}=5V$ ,<br>$V_O=0.5V$ or $4.5V$ | 3.5                    | -    | -       | V       |
|                           |              |                                           | $V_{DD}=9V$ ,<br>$V_O=1.0V$ or $9V$   | 7                      | -    | -       | V       |
| input leakage current     | $I_I$        | $V_I=0V$ or $9V$ , $V_{DD}=9V$            |                                       | -                      | -    | $\pm 1$ | $\mu A$ |
| OFF-state leakage current | $I_{S(OFF)}$ | $V_{SS}=0V$ ; $V_{DD}=9V$                 |                                       | -                      | -    | $\pm 1$ | $\mu A$ |
| supply current            | $I_{DD}$     | all valid input combinations;<br>$I_O=0A$ | $V_{DD}=5V$                           | -                      | 0.04 | 5       | $\mu A$ |
|                           |              |                                           | $V_{DD}=9V$                           | -                      | 0.04 | 10      | $\mu A$ |
| input capacitance         | $C_I$        | any address or inhibit input              |                                       | -                      | 5    | 7.5     | pF      |



|                                                |                 |                                  |             |   |     |      |          |
|------------------------------------------------|-----------------|----------------------------------|-------------|---|-----|------|----------|
| ON resistance                                  | $R_{ON}$        | $V_{SS} \leq V_{is} \leq V_{DD}$ | $V_{DD}=5V$ | - | 470 | 1050 | $\Omega$ |
|                                                |                 |                                  | $V_{DD}=9V$ | - | 180 | 400  | $\Omega$ |
| change in on-state resistance between channels | $\Delta R_{ON}$ | -                                | $V_{DD}=5V$ | - | 15  | -    | $\Omega$ |
|                                                |                 |                                  | $V_{DD}=9V$ | - | 10  | -    | $\Omega$ |

### 3.3.2、DC Characteristics 2

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

| Parameter                 | Symbol       | Conditions (V)                            |                                       | $T_{amb}=-40^{\circ}C$ |         | $T_{amb}=+85^{\circ}C$ |         | $T_{amb}=+125^{\circ}C$ |         | Unit     |
|---------------------------|--------------|-------------------------------------------|---------------------------------------|------------------------|---------|------------------------|---------|-------------------------|---------|----------|
|                           |              |                                           |                                       | Min.                   | Max.    | Min.                   | Max.    | Min.                    | Max.    |          |
| LOW-level input voltage   | $V_{IL}$     | $ I_O  < 1\mu A$                          | $V_{DD}=5V$ ,<br>$V_O=0.5V$ or $4.5V$ | -                      | 1.5     | -                      | 1.5     | -                       | 1.5     | V        |
|                           |              |                                           | $V_{DD}=9V$ ,<br>$V_O=1.0V$ or $9V$   | -                      | 3       | -                      | 3       | -                       | 3       | V        |
| HIGH-level input voltage  | $V_{IH}$     | $ I_O  < 1\mu A$                          | $V_{DD}=5V$ ,<br>$V_O=0.5V$ or $4.5V$ | 3.5                    | -       | 3.5                    | -       | 3.5                     | -       | V        |
|                           |              |                                           | $V_{DD}=9V$ ,<br>$V_O=1.0V$ or $9V$   | 7                      | -       | 7                      | -       | 7                       | -       | V        |
| input leakage current     | $I_I$        | $V_I=0V$ or $9V$ , $V_{DD}=9V$            |                                       | -                      | $\pm 1$ | -                      | $\pm 1$ | -                       | $\pm 1$ | $\mu A$  |
| OFF-state leakage current | $I_{S(OFF)}$ | $V_{SS}=0V$ ; $V_{DD}=9V$                 |                                       | -                      | $\pm 1$ | -                      | $\pm 1$ | -                       | $\pm 1$ | $\mu A$  |
| supply current            | $I_{DD}$     | all valid input combinations;<br>$I_O=0A$ | $V_{DD}=5V$                           | -                      | 5       | -                      | 150     | -                       | 150     | $\mu A$  |
|                           |              |                                           | $V_{DD}=9V$                           | -                      | 10      | -                      | 300     | -                       | 300     | $\mu A$  |
| ON resistance             | $R_{ON}$     | $V_{SS} \leq V_{is} \leq V_{DD}$          | $V_{DD}=5V$                           | -                      | 850     | -                      | 1200    | -                       | 1300    | $\Omega$ |
|                           |              |                                           | $V_{DD}=9V$                           | -                      | 330     | -                      | 520     | -                       | 550     | $\Omega$ |

### 3.3.3、AC Characteristics 1

( $T_{amb}=25^{\circ}C$ , voltages are referenced to  $V_{SS}$  (ground=0V), unless otherwise specified)

| Parameter                           | Symbol    | Conditions                                     | Min.        | Typ. | Max. | Unit   |
|-------------------------------------|-----------|------------------------------------------------|-------------|------|------|--------|
| HIGH to LOW propagation delay time  | $t_{PHL}$ | $nYn$ , $nZ$ to $nZ$ , $nYn$ ;<br>see Figure 3 | $V_{DD}=5V$ | -    | 30   | 60 ns  |
|                                     |           |                                                | $V_{DD}=9V$ | -    | 15   | 30 ns  |
| LOW to HIGH propagation delay       | $t_{PLH}$ | $nYn$ , $nZ$ to $nZ$ , $nYn$ ;<br>see Figure 3 | $V_{DD}=5V$ | -    | 30   | 60 ns  |
|                                     |           |                                                | $V_{DD}=9V$ | -    | 15   | 30 ns  |
| HIGH to OFF-state propagation delay | $t_{PHZ}$ | $\bar{E}$ to $nYn$ , $nZ$ ;<br>see Figure 4    | $V_{DD}=5V$ | -    | 325  | 650 ns |
|                                     |           |                                                | $V_{DD}=9V$ | -    | 135  | 270 ns |
| LOW to OFF-state propagation delay  | $t_{PLZ}$ | $\bar{E}$ to $nYn$ , $nZ$ ;<br>see Figure 4    | $V_{DD}=5V$ | -    | 325  | 650 ns |
|                                     |           |                                                | $V_{DD}=9V$ | -    | 135  | 270 ns |
| OFF-state to HIGH propagation delay | $t_{PZH}$ | $\bar{E}$ to $nYn$ , $nZ$ ;<br>see Figure 4    | $V_{DD}=5V$ | -    | 220  | 440 ns |
|                                     |           |                                                | $V_{DD}=9V$ | -    | 90   | 180 ns |
| OFF-state to LOW propagation delay  | $t_{PZL}$ | $\bar{E}$ to $nYn$ , $nZ$ ;<br>see Figure 4    | $V_{DD}=5V$ | -    | 220  | 440 ns |
|                                     |           |                                                | $V_{DD}=9V$ | -    | 90   | 180 ns |





## 3.3.4、AC Characteristics 2

( $T_{amb}=25^{\circ}\text{C}$ , voltages are referenced to  $V_{SS}$  (ground=0V), unless otherwise specified)

| Parameter                    | Symbol               | Conditions                                                                                                                 |                                                                   | Min. | Typ. | Max. | Unit |
|------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------|------|------|------|
| -3dB frequency response      | f <sub>(-3dB)</sub>  | V <sub>is</sub> =5V; V <sub>DD</sub> =9V;<br>R <sub>L</sub> =1kΩ;<br>see Figure 6                                          | V <sub>os</sub> at Z                                              | -    | 20   | -    | MHz  |
|                              |                      |                                                                                                                            | V <sub>os</sub> at any channel                                    | -    | 60   | -    | MHz  |
| total harmonic distortion    | THD                  | f <sub>is</sub> =1kHz sine wave;<br>see Figure 5                                                                           | V <sub>is</sub> =2V; V <sub>DD</sub> =5V;<br>R <sub>L</sub> =10kΩ | -    | 0.3  | -    | %    |
|                              |                      |                                                                                                                            | V <sub>is</sub> =3V; V <sub>DD</sub> =9V;<br>R <sub>L</sub> =10kΩ | -    | 0.2  | -    | %    |
| -40dB feed through frequency | f <sub>(-40dB)</sub> | V <sub>is</sub> =5V; V <sub>DD</sub> =9V;<br>R <sub>L</sub> =1kΩ;<br>all channel off                                       | V <sub>os</sub> at Z                                              | -    | 12   | -    | MHz  |
|                              |                      |                                                                                                                            | V <sub>os</sub> at any channel                                    | -    | 8    | -    | MHz  |
| crosstalk                    | Xtalk                | V <sub>is</sub> =5V; V <sub>DD</sub> =9V;<br>R <sub>L</sub> =1kΩ;<br>frequency at -40dB;<br>see Figure 8                   | measured on common                                                | -    | 10   | -    | MHz  |
|                              |                      |                                                                                                                            | measured on any channel                                           | -    | 18   | -    | MHz  |
| crosstalk voltage            | V <sub>ct</sub>      | V <sub>DD</sub> =9V; R <sub>L</sub> =10kΩ; V <sub>C</sub> =V <sub>DD</sub> -V <sub>SS</sub><br>(square wave); see Figure 7 |                                                                   | -    | 75   | -    | mV   |

Note:

[1]  $20\log(V_{os}/V_{is}) = -3\text{dB}$ .

[2]  $20\log(V_{os}/V_{is}) = -40\text{dB}$ .

[3] Peak-to-peak voltage symmetrical about  $(V_{DD}-V_{SS})/2$

## 4、Testing Circuit

### 4.1、AC Testing Circuit 1

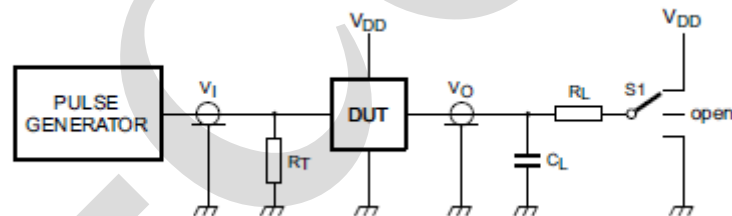


Figure 2. Test circuit for switching times

Definitions for test circuit:

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

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

$R_L$ =Load resistance.

$S1$ =Test selection switch.



## 4.2、AC Testing Waveforms

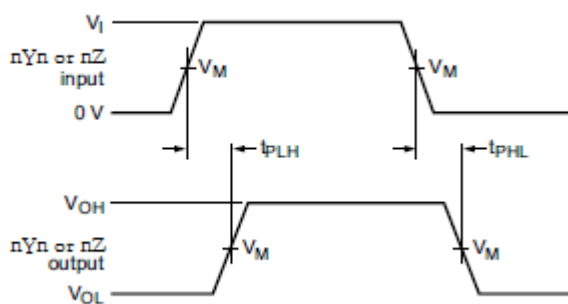


Figure 3. nYn, nZ to nZ, nYn propagation delays

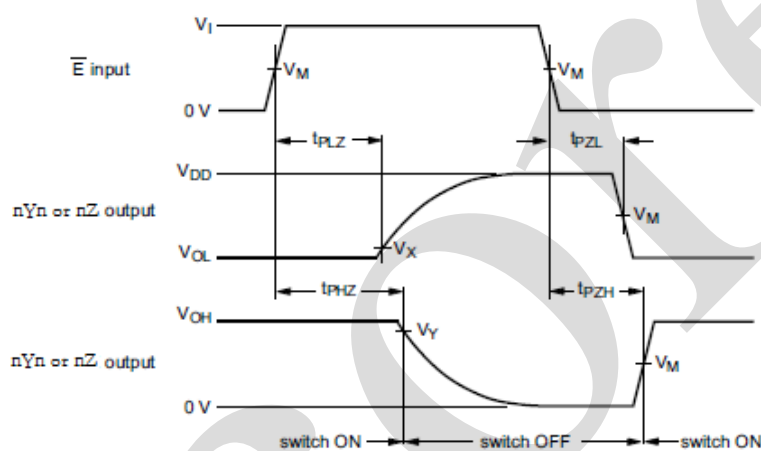


Figure 4. Enable and disable times

## 4.3、AC Testing Circuit 2

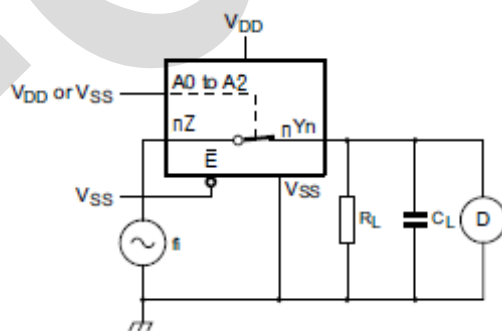


Figure 5. Test circuit for measuring total harmonic distortion

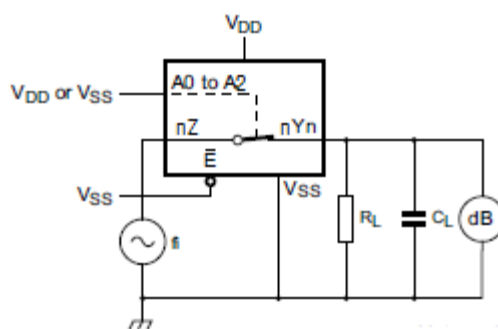
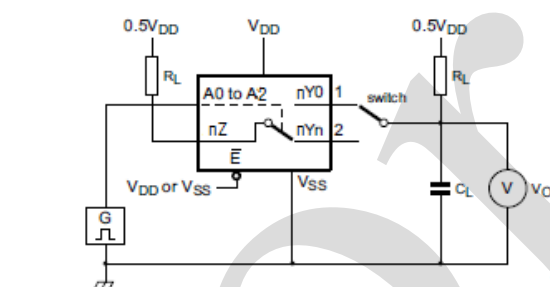
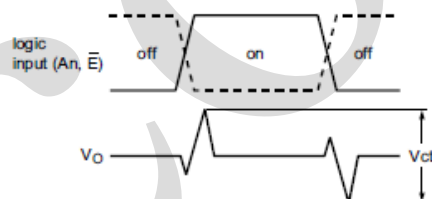


Figure 6. Test circuit for measuring frequency response

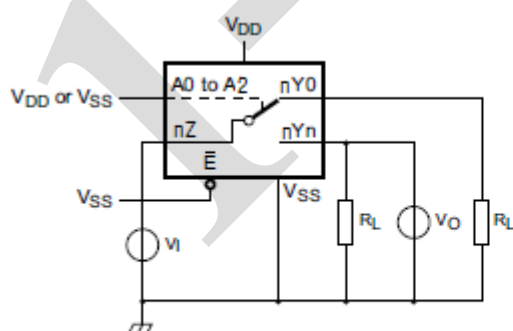


a. Test circuit

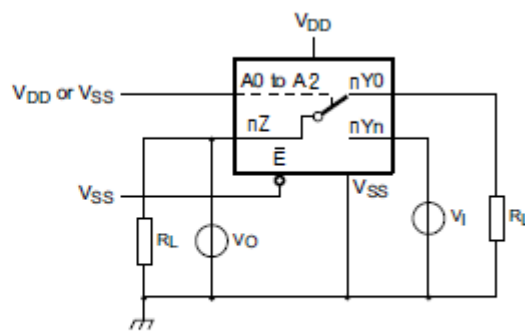


b. Input and output pulse definitions

Figure 7. Test circuit for measuring crosstalk voltage between digital inputs and switch



a. Switch closed condition



b. Switch open condition

Figure 8. Test circuit for measuring crosstalk between switches



## 4.4、Measurement Points

| Supply voltage | Input               | Output              |
|----------------|---------------------|---------------------|
| $V_{DD}$       | $V_M$               | $V_M$               |
| 3V to 9V       | $0.5 \times V_{DD}$ | $0.5 \times V_{DD}$ |

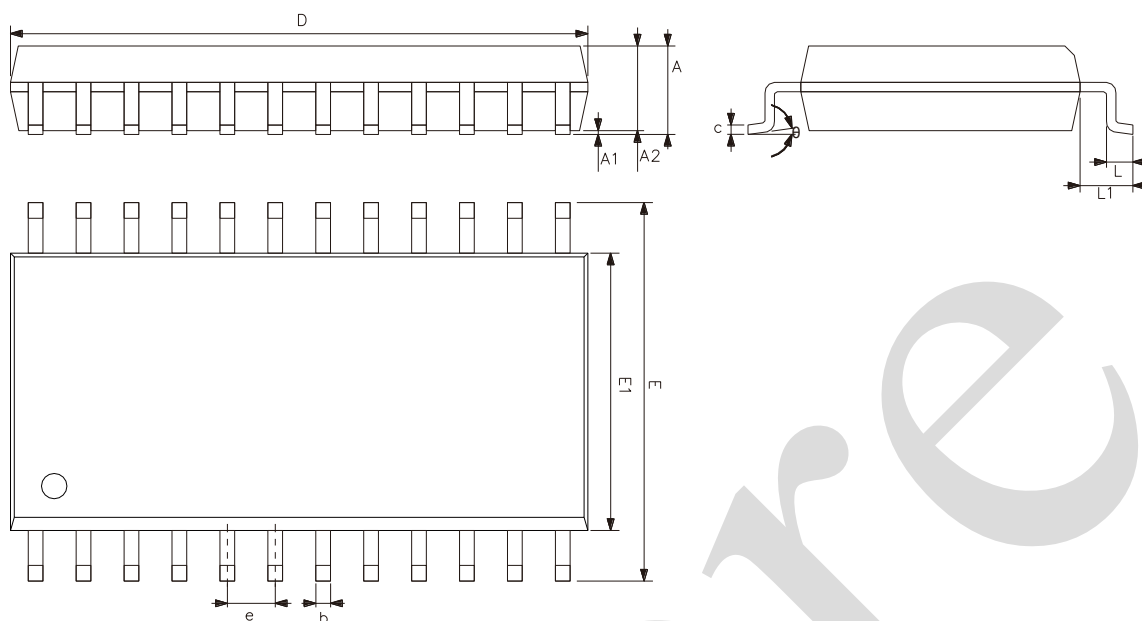
## 4.5、Test Data

| Test               | Input               |             | Load  |              | S1 position          |
|--------------------|---------------------|-------------|-------|--------------|----------------------|
|                    | $V_M$               | $t_r, t_f$  | $C_L$ | $R_L$        |                      |
| $t_{PHL}$          | $0.5 \times V_{DD}$ | $\leq 20ns$ | 50pF  | 10k $\Omega$ | $V_{DD}$ or $V_{SS}$ |
| $t_{PLH}$          | $0.5 \times V_{DD}$ | $\leq 20ns$ | 50pF  | 10k $\Omega$ | $V_{SS}$             |
| $t_{PZH}, t_{PHZ}$ | $0.5 \times V_{DD}$ | $\leq 20ns$ | 50pF  | 10k $\Omega$ | $V_{SS}$             |
| $t_{PZL}, t_{PLZ}$ | $0.5 \times V_{DD}$ | $\leq 20ns$ | 50pF  | 10k $\Omega$ | $V_{DD}$             |
| other              | $0.5 \times V_{DD}$ | $\leq 20ns$ | 50pF  | 10k $\Omega$ | $V_{SS}$             |



## 5、Package Information

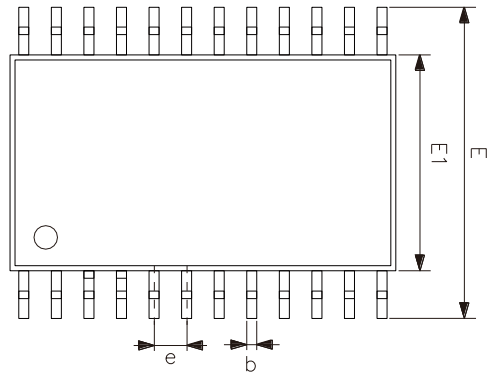
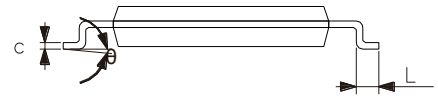
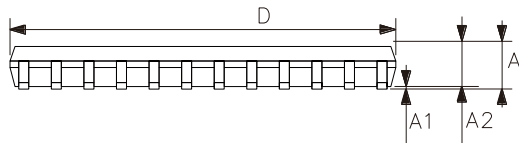
### 5.1、SOP24



| Symbol | Dimensions (mm) |       |
|--------|-----------------|-------|
|        | Min.            | Max.  |
| A      | 2.35            | 2.65  |
| A1     | 0.10            | 0.30  |
| A2     | 2.13            | 2.44  |
| b      | 0.39            | 0.47  |
| c      | 0.25            | 0.30  |
| D      | 15.19           | 15.55 |
| E      | 10.10           | 10.57 |
| E1     | 7.40            | 7.62  |
| e      | 1.27            |       |
| L      | 0.41            | 1.00  |
| L1     | 1.30            | 1.50  |
| θ      | 0°              | 8°    |



## 5.2、TSSOP24



| Symbol   | Dimensions (mm) |      |
|----------|-----------------|------|
|          | Min.            | Max. |
| A        | -               | 1.20 |
| A1       | 0.05            | 0.15 |
| A2       | 0.80            | 1.05 |
| b        | 0.19            | 0.30 |
| c        | 0.09            | 0.20 |
| D        | 7.70            | 7.90 |
| E        | 6.20            | 6.60 |
| E1       | 4.30            | 4.50 |
| e        | 0.65            |      |
| L        | 0.45            | 0.75 |
| $\theta$ | 0°              | 8°   |



## 6、Statements And Notes

### 6.1、The name and content of Hazardous substances or Elements in the product

| Part name               | Hazardous substances or Elements                                                                                                                                                                                                                                                 |                               |                               |                               |                          |                                |                   |                       |                           |                      |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------|--------------------------------|-------------------|-----------------------|---------------------------|----------------------|
|                         | Lead and lead compounds                                                                                                                                                                                                                                                          | Mercury and mercury compounds | Cadmium and cadmium compounds | Hexavalent chromium compounds | Polybrominated biphenyls | Polybrominated biphenyl ethers | Dibutyl phthalate | Butylbenzyl phthalate | Di-2-ethylhexyl phthalate | Diisobutyl phthalate |
| Lead frame              | ○                                                                                                                                                                                                                                                                                | ○                             | ○                             | ○                             | ○                        | ○                              | ○                 | ○                     | ○                         | ○                    |
| Plastic resin           | ○                                                                                                                                                                                                                                                                                | ○                             | ○                             | ○                             | ○                        | ○                              | ○                 | ○                     | ○                         | ○                    |
| Chip                    | ○                                                                                                                                                                                                                                                                                | ○                             | ○                             | ○                             | ○                        | ○                              | ○                 | ○                     | ○                         | ○                    |
| The lead                | ○                                                                                                                                                                                                                                                                                | ○                             | ○                             | ○                             | ○                        | ○                              | ○                 | ○                     | ○                         | ○                    |
| Plastic sheet installed | ○                                                                                                                                                                                                                                                                                | ○                             | ○                             | ○                             | ○                        | ○                              | ○                 | ○                     | ○                         | ○                    |
| explanation             | <p>○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard.</p> <p>×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.</p> |                               |                               |                               |                          |                                |                   |                       |                           |                      |

### 6.2、Notes

We Recommend you to read this chapter carefully before using this product.

The information in this chapter is provided for reference only and i-Core disclaims any express or implied warranties, including but not limited to applicability, special application or non-infringement of third party rights.

This product is not suitable for critical equipment such as life-saving, life-sustaining or safety equipment. It is also not suitable for applications that may result in personal injury, death, or serious property or environmental damage due to product malfunction or failure. I-Core will not be liable for any damages incurred by the customers at their own risk for such applications.

The customer is responsible for conducting all necessary tests i-Core's application to avoid failure in the application or the application of the customer's third party users. I-Core does not accept any liability.

The Company reserves the right to change or improve the information published in this chapter at any time. The information in this chapter are subject to change without notice. We recommend the customer to consult our sales staff before purchasing.

Please obtain related materials form i-Core's regular channels and we are not responsible for its content if it is provided by sources other than our company.

In case of any conflict between the Chinese and English version, the version is subject to the Chinese one.