



# **AiP74AUP1G08**

## **Low Power Single 2-input And Gate**

### **Product Specification**

**Specification Revision History:**

<b>Version</b>	<b>Date</b>	<b>Description</b>
2019-12-A1	2019-12	New
2023-04-B1	2023-04	Update the template
2025-10-B2	2025-10	Add XSON6(1*1*0.45)-0.35 package form; modify the package information
2025-11-B3	2025-11	Add DFN4 and XSON6(1*1.45*0.55)-0.5 package form



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## 1、General Description

The AiP74AUP1G08 provides the single 2-input AND function.

This device ensures a very low static and dynamic power consumption across the entire  $V_{CC}$  range from 0.8V to 3.6V.

This device is fully specified for partial Power-down applications using  $I_{OFF}$ . The  $I_{OFF}$  circuitry disables the output, preventing the damaging backflow current through the device when it is powered down.

### Features:

- Wide supply voltage range from 0.8V to 3.6V
- Low static power consumption;  $I_{CC}=1\mu A$  (maximum)
- Inputs accept voltages up to 3.6V
- $I_{OFF}$  circuitry provides partial Power-down mode operation
- Specified from  $-40^{\circ}C$  to  $+125^{\circ}C$
- Packaging information: SOT23-5/SOT353/XSON6/DFN4



**Ordering Information:**

**Reel packing specifications:**

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
AiP74AUP1G08GB235.TR	SOT23-5	CTXX	3000 PCS/reel	30000 PCS/box	Dimensions of plastic enclosure: 2.9mm×1.6mm Pin spacing: 0.95mm
AiP74AUP1G08GC353.TR	SOT353	CTXX	3000 PCS/reel	30000 PCS/box	Dimensions of plastic enclosure: 2.1mm×1.3mm Pin spacing: 0.65mm
AiP74AUP1G08XD4.TR	DFN4	CTX	12000 PCS/reel	120000 PCS/box	Dimensions of plastic enclosure: 0.8mm×0.8mm Pin spacing: 0.5mm
AiP74AUP1G08EA6.TR	XSON6	CT XX	5000 PCS/reel	25000 PCS/box	Dimensions of plastic enclosure: 1.45mm×1.0mm Pin spacing: 0.5mm
AiP74AUP1G08ED6.TR	XSON6	CT XX	5000 PCS/reel	25000 PCS/box	Dimensions of plastic enclosure: 1.0mm×1.0mm Pin spacing: 0.35mm

Note 1: "XX" refers to variable content, meaning package batch serial number.

Note 2: 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

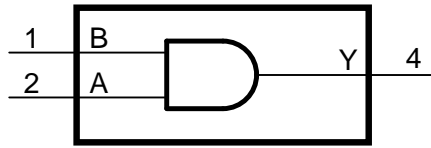


Figure 1. Logic symbol



Figure 2. IEC logic symbol

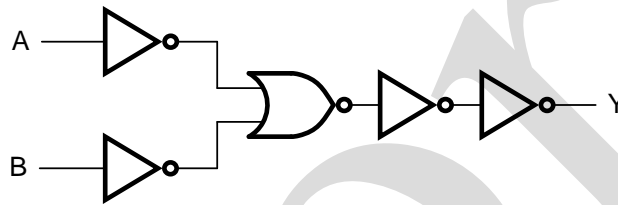
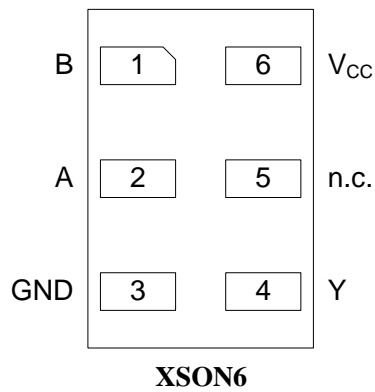
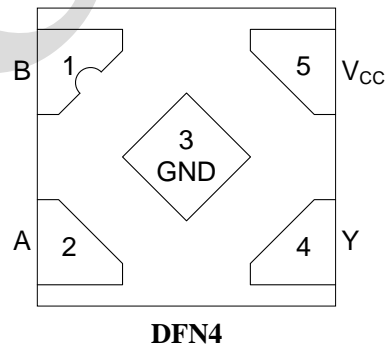
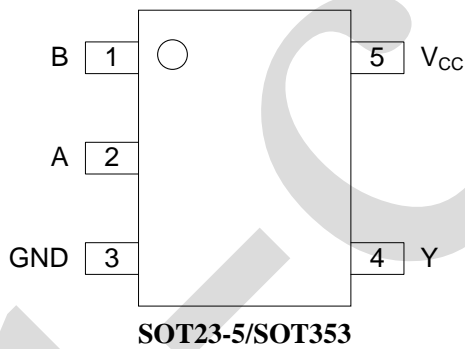


Figure 3. Logic diagram

### 2.2、Pin Configurations





## 2.3、Pin Description

Pin No.		Pin Name	Description
SOT23-5/SOT353/DFN4	XSON6		
1	1	B	data input
2	2	A	data input
3	3	GND	ground (0V)
4	4	Y	data output
-	5	n.c.	not connected
5	6	V <sub>CC</sub>	supply voltage

## 2.4、Function Table

Input		Output	
A	B	Y	
L	L	L	
L	H	L	
H	L	L	
H	H	H	

Note: H=HIGH voltage level; L=LOW voltage level.

## 3、Electrical Parameter

### 3.1、Absolute Maximum Ratings

(T<sub>amb</sub>=25°C, voltages are referenced to GND (ground=0V), unless otherwise specified)

Characteristic	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V <sub>CC</sub>	-	-0.5	+4.6	V
input clamping current	I <sub>IK</sub>	V <sub>I</sub> <0V	-50	-	mA
input voltage	V <sub>I</sub>	- <sup>[1]</sup>	-0.5	+4.6	V
output clamping current	I <sub>OK</sub>	V <sub>O</sub> <0V	-	±20	mA
output voltage	V <sub>O</sub>	Active mode and Power-down mode <sup>[1]</sup>	-0.5	+4.6	V
output current	I <sub>O</sub>	V <sub>O</sub> =0V to V <sub>CC</sub>	-	±20	mA
supply current	I <sub>CC</sub>	-	-	+50	mA
ground current	I <sub>GND</sub>	-	-50	-	mA
storage temperature	T <sub>stg</sub>	-	-65	+150	°C
total power dissipation	P <sub>tot</sub>	-	-	250	mW
soldering temperature	T <sub>L</sub>	-	260		°C

Note:

[1] The minimum input and output voltage ratings may be exceeded if the input and output current ratings are observed.



## 3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
supply voltage	$V_{CC}$	-	0.8	-	3.6	V
input voltage	$V_I$	-	0	-	3.6	V
output voltage	$V_O$	Active mode	0	-	$V_{CC}$	V
		Power-down mode; $V_{CC}=0V$	0	-	3.6	V
ambient temperature	$T_{amb}$	-	-40	-	+125	°C
input transition rise and fall rate	$\Delta t/\Delta V$	$V_{CC}=0.8V$ to $3.6V$	0	-	200	ns/V

## 3.3、Electrical Characteristics

### 3.3.1、DC Characteristics 1

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
HIGH-level input voltage	$V_{IH}$	$V_{CC}=0.8V$	$0.70 \times V_{CC}$	-	-	V	
		$V_{CC}=0.9V$ to $1.95V$	$0.65 \times V_{CC}$	-	-	V	
		$V_{CC}=2.3V$ to $2.7V$	1.6	-	-	V	
		$V_{CC}=3.0V$ to $3.6V$	2.0	-	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=0.8V$	-	-	$0.30 \times V_{CC}$	V	
		$V_{CC}=0.9V$ to $1.95V$	-	-	$0.35 \times V_{CC}$	V	
		$V_{CC}=2.3V$ to $2.7V$	-	-	0.7	V	
		$V_{CC}=3.0V$ to $3.6V$	-	-	0.9	V	
HIGH-level output voltage	$V_{OH}$	$V_I=V_{IH}$ or $V_{IL}$	$I_O=-20\mu A$ ; $V_{CC}=0.8V$ to $3.6V$	$V_{CC}-0.1$	-	-	V
			$I_O=-1.1mA$ ; $V_{CC}=1.1V$	$0.75 \times V_{CC}$	-	-	V
			$I_O=-1.7mA$ ; $V_{CC}=1.4V$	1.11	-	-	V
			$I_O=-1.9mA$ ; $V_{CC}=1.65V$	1.32	-	-	V
			$I_O=-2.3mA$ ; $V_{CC}=2.3V$	2.05	-	-	V
			$I_O=-3.1mA$ ; $V_{CC}=2.3V$	1.9	-	-	V
			$I_O=-2.7mA$ ; $V_{CC}=3.0V$	2.72	-	-	V
			$I_O=-4.0mA$ ; $V_{CC}=3.0V$	2.6	-	-	V
LOW-level output voltage	$V_{OL}$	$V_I=V_{IH}$ or $V_{IL}$	$I_O=20\mu A$ ; $V_{CC}=0.8V$ to $3.6V$	-	-	0.1	V
			$I_O=1.1mA$ ; $V_{CC}=1.1V$	-	-	$0.3 \times V_{CC}$	V
			$I_O=1.7mA$ ; $V_{CC}=1.4V$	-	-	0.31	V
			$I_O=1.9mA$ ; $V_{CC}=1.65V$	-	-	0.31	V
			$I_O=2.3mA$ ; $V_{CC}=2.3V$	-	-	0.31	V
			$I_O=3.1mA$ ; $V_{CC}=2.3V$	-	-	0.44	V
			$I_O=2.7mA$ ; $V_{CC}=3.0V$	-	-	0.31	V
			$I_O=4.0mA$ ; $V_{CC}=3.0V$	-	-	0.44	V
input leakage current	$I_I$	$V_I=GND$ to $3.6V$ ; $V_{CC}=0V$ to $3.6V$	-	-	$\pm 1.0$	$\mu A$	
power-off leakage current	$I_{OFF}$	$V_I$ or $V_O=0V$ to $3.6V$ ; $V_{CC}=0V$	-	-	$\pm 1.0$	$\mu A$	



additional power-off leakage current	$\Delta I_{OFF}$	$V_I$ or $V_O=0V$ to $3.6V$ ; $V_{CC}=0V$ to $0.2V$	-	-	$\pm 1.0$	$\mu A$
supply current	$I_{CC}$	$V_I=GND$ or $V_{CC}$ ; $I_O=0A$ ; $V_{CC}=0.8V$ to $3.6V$	-	-	1.0	$\mu A$
additional supply current	$\Delta I_{CC}$	$V_I=V_{CC}-0.6V$ ; $I_O=0A$ ; $V_{CC}=3.3V^{[1]}$	-	-	40	$\mu A$
input capacitance	$C_I$	$V_{CC}=0V$ to $3.6V$ ; $V_I=GND$ or $V_{CC}$	-	0.8	-	pF
output capacitance	$C_O$	$V_O=GND$ ; $V_{CC}=0V$	-	1.7	-	pF

Note:

[1] One input at  $V_{CC}-0.6V$ , other input at  $V_{CC}$  or  $GND$ .

### 3.3.2、DC Characteristics 2

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
HIGH-level input voltage	$V_{IH}$	$V_{CC}=0.8V$	$0.70 \times V_{CC}$	-	-	V	
		$V_{CC}=0.9V$ to $1.95V$	$0.65 \times V_{CC}$	-	-	V	
		$V_{CC}=2.3V$ to $2.7V$	1.6	-	-	V	
		$V_{CC}=3.0V$ to $3.6V$	2.0	-	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=0.8V$	-	-	$0.30 \times V_{CC}$	V	
		$V_{CC}=0.9V$ to $1.95V$	-	-	$0.35 \times V_{CC}$	V	
		$V_{CC}=2.3V$ to $2.7V$	-	-	0.7	V	
		$V_{CC}=3.0V$ to $3.6V$	-	-	0.9	V	
HIGH-level output voltage	$V_{OH}$	$V_I=V_{IH}$ or $V_{IL}$	$I_O=-20\mu A$ ; $V_{CC}=0.8V$ to $3.6V$	$V_{CC}-0.1$	-	-	V
			$I_O=-1.1mA$ ; $V_{CC}=1.1V$	$0.7 \times V_{CC}$	-	-	V
			$I_O=-1.7mA$ ; $V_{CC}=1.4V$	1.03	-	-	V
			$I_O=-1.9mA$ ; $V_{CC}=1.65V$	1.30	-	-	V
			$I_O=-2.3mA$ ; $V_{CC}=2.3V$	1.97	-	-	V
			$I_O=-3.1mA$ ; $V_{CC}=2.3V$	1.85	-	-	V
			$I_O=-2.7mA$ ; $V_{CC}=3.0V$	2.67	-	-	V
			$I_O=-4.0mA$ ; $V_{CC}=3.0V$	2.55	-	-	V
LOW-level output voltage	$V_{OL}$	$V_I=V_{IH}$ or $V_{IL}$	$I_O=20\mu A$ ; $V_{CC}=0.8V$ to $3.6V$	-	-	0.1	V
			$I_O=1.1mA$ ; $V_{CC}=1.1V$	-	-	$0.3 \times V_{CC}$	V
			$I_O=1.7mA$ ; $V_{CC}=1.4V$	-	-	0.37	V
			$I_O=1.9mA$ ; $V_{CC}=1.65V$	-	-	0.35	V
			$I_O=2.3mA$ ; $V_{CC}=2.3V$	-	-	0.33	V
			$I_O=3.1mA$ ; $V_{CC}=2.3V$	-	-	0.45	V
			$I_O=2.7mA$ ; $V_{CC}=3.0V$	-	-	0.33	V
			$I_O=4.0mA$ ; $V_{CC}=3.0V$	-	-	0.45	V
input leakage current	$I_I$	$V_I=GND$ to $3.6V$ ; $V_{CC}=0V$ to $3.6V$	-	-	$\pm 1.0$	$\mu A$	



power-off leakage current	$I_{OFF}$	$V_I$ or $V_O=0V$ to 3.6V; $V_{CC}=0V$	-	-	$\pm 1.0$	$\mu A$
additional power-off leakage current	$\Delta I_{OFF}$	$V_I$ or $V_O=0V$ to 3.6V; $V_{CC}=0V$ to 0.2V	-	-	$\pm 1.0$	$\mu A$
supply current	$I_{CC}$	$V_I=GND$ or $V_{CC}$ ; $I_O=0A$ ; $V_{CC}=0.8V$ to 3.6V	-	-	1.0	$\mu A$
additional supply current	$\Delta I_{CC}$	$V_I=V_{CC}-0.6V$ ; $I_O=0A$ ; $V_{CC}=3.3V^{[1]}$	-	-	50	$\mu A$

Note:

[1] One input at  $V_{CC}-0.6V$ , other input at  $V_{CC}$  or GND.

### 3.3.3、DC Characteristics 3

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
HIGH-level input voltage	$V_{IH}$	$V_{CC}=0.8V$	$0.75 \times V_{CC}$	-	-	V	
		$V_{CC}=0.9V$ to 1.95V	$0.70 \times V_{CC}$	-	-	V	
		$V_{CC}=2.3V$ to 2.7V	1.6	-	-	V	
		$V_{CC}=3.0V$ to 3.6V	2.0	-	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=0.8V$	-	-	$0.25 \times V_{CC}$	V	
		$V_{CC}=0.9V$ to 1.95V	-	-	$0.30 \times V_{CC}$	V	
		$V_{CC}=2.3V$ to 2.7V	-	-	0.7	V	
		$V_{CC}=3.0V$ to 3.6V	-	-	0.9	V	
HIGH-level output voltage	$V_{OH}$	$V_I=V_{IH}$ or $V_{IL}$	$I_O=-20\mu A$ ; $V_{CC}=0.8V$ to 3.6V	$V_{CC}-0.11$	-	-	V
			$I_O=-1.1mA$ ; $V_{CC}=1.1V$	$0.6 \times V_{CC}$	-	-	V
			$I_O=-1.7mA$ ; $V_{CC}=1.4V$	0.93	-	-	V
			$I_O=-1.9mA$ ; $V_{CC}=1.65V$	1.17	-	-	V
			$I_O=-2.3mA$ ; $V_{CC}=2.3V$	1.77	-	-	V
			$I_O=-3.1mA$ ; $V_{CC}=2.3V$	1.67	-	-	V
			$I_O=-2.7mA$ ; $V_{CC}=3.0V$	2.40	-	-	V
			$I_O=-4.0mA$ ; $V_{CC}=3.0V$	2.30	-	-	V
LOW-level output voltage	$V_{OL}$	$V_I=V_{IH}$ or $V_{IL}$	$I_O=20\mu A$ ; $V_{CC}=0.8V$ to 3.6V	-	-	0.11	V
			$I_O=1.1mA$ ; $V_{CC}=1.1V$	-	-	$0.33 \times V_{CC}$	V
			$I_O=1.7mA$ ; $V_{CC}=1.4V$	-	-	0.41	V
			$I_O=1.9mA$ ; $V_{CC}=1.65V$	-	-	0.39	V
			$I_O=2.3mA$ ; $V_{CC}=2.3V$	-	-	0.36	V
			$I_O=3.1mA$ ; $V_{CC}=2.3V$	-	-	0.50	V
			$I_O=2.7mA$ ; $V_{CC}=3.0V$	-	-	0.36	V
			$I_O=4.0mA$ ; $V_{CC}=3.0V$	-	-	0.50	V
input leakage current	$I_I$	$V_I=GND$ to 3.6V; $V_{CC}=0V$ to 3.6V	-	-	$\pm 1.0$	$\mu A$	
power-off leakage current	$I_{OFF}$	$V_I$ or $V_O=0V$ to 3.6V; $V_{CC}=0V$	-	-	$\pm 1.0$	$\mu A$	



additional power-off leakage current	$\Delta I_{OFF}$	$V_I$ or $V_O=0V$ to $3.6V$ ; $V_{CC}=0V$ to $0.2V$	-	-	$\pm 1.0$	$\mu A$
supply current	$I_{CC}$	$V_I=GND$ or $V_{CC}$ ; $I_O=0A$ ; $V_{CC}=0.8V$ to $3.6V$	-	-	1.4	$\mu A$
additional supply current	$\Delta I_{CC}$	$V_I=V_{CC}-0.6V$ ; $I_O=0A$ ; $V_{CC}=3.3V^{[1]}$	-	-	75	$\mu A$

Note:

[1] One input at  $V_{CC}-0.6V$ , other input at  $V_{CC}$  or GND.

### 3.3.4、AC Characteristics 1

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

Parameter	Symbol	Conditions	Min.	Typ. <sup>[1]</sup>	Max.	Unit	
propagation delay	$t_{pd}$	A, B to Y; see Figure 5 <sup>[2]</sup>	$C_L=5pF$				
			$V_{CC}=0.8V$	-	17.0	-	ns
			$V_{CC}=1.1V$ to $1.3V$	2.6	5.1	10.8	ns
			$V_{CC}=1.4V$ to $1.6V$	1.6	3.7	6.5	ns
			$V_{CC}=1.65V$ to $1.95V$	1.3	3.0	5.2	ns
			$V_{CC}=2.3V$ to $2.7V$	1.1	2.4	4.0	ns
			$V_{CC}=3.0V$ to $3.6V$	1.0	2.2	3.5	ns
			$C_L=10pF$				
			$V_{CC}=0.8V$	-	20.6	-	ns
			$V_{CC}=1.1V$ to $1.3V$	2.4	6.0	12.5	ns
			$V_{CC}=1.4V$ to $1.6V$	2.0	4.3	7.6	ns
			$V_{CC}=1.65V$ to $1.95V$	1.7	3.6	6.1	ns
			$V_{CC}=2.3V$ to $2.7V$	1.4	2.9	4.8	ns
			$V_{CC}=3.0V$ to $3.6V$	1.3	2.7	4.2	ns
			$C_L=15pF$				
			$V_{CC}=0.8V$	-	24.1	-	ns
			$V_{CC}=1.1V$ to $1.3V$	3.4	6.8	14.2	ns
			$V_{CC}=1.4V$ to $1.6V$	2.3	4.9	8.6	ns
			$V_{CC}=1.65V$ to $1.95V$	1.9	4.0	6.9	ns
			$V_{CC}=2.3V$ to $2.7V$	1.7	3.4	5.5	ns
			$V_{CC}=3.0V$ to $3.6V$	1.5	3.1	4.8	ns
$C_L=30pF$							
$V_{CC}=0.8V$	-	34.4	-	ns			
$V_{CC}=1.1V$ to $1.3V$	4.6	9.1	19.4	ns			
$V_{CC}=1.4V$ to $1.6V$	3.4	6.4	11.5	ns			
$V_{CC}=1.65V$ to $1.95V$	2.6	5.3	9.1	ns			
$V_{CC}=2.3V$ to $2.7V$	2.3	4.5	7.2	ns			
$V_{CC}=3.0V$ to $3.6V$	2.2	4.2	6.2	ns			
power dissipation capacitance	$C_{PD}$	$f=1MHz$ ; $V_I=GND$ to $V_{CC}^{[3]}$	$V_{CC}=0.8V$	-	2.5	-	pF
			$V_{CC}=1.1V$ to $1.3V$	-	2.7	-	pF
			$V_{CC}=1.4V$ to $1.6V$	-	2.8	-	pF
			$V_{CC}=1.65V$ to $1.95V$	-	2.9	-	pF
			$V_{CC}=2.3V$ to $2.7V$	-	3.5	-	pF



			V <sub>CC</sub> =3.0V to 3.6V	-	4.0	-	pF
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Note:

- [1] All typical values are measured at nominal V<sub>CC</sub>.
- [2] t<sub>pd</sub> is the same as t<sub>PLH</sub> and t<sub>PHL</sub>.
- [3] C<sub>PD</sub> is used to determine the dynamic power dissipation (P<sub>D</sub> in uW).  
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$  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 the outputs.

### 3.3.5、AC Characteristics 2

(T<sub>amb</sub>=-40°C to +85°C, voltages are referenced to GND (ground=0V), unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit		
propagation delay	t <sub>pd</sub>	A, B to Y; see Figure 5 <sup>[1]</sup>	C <sub>L</sub> =5pF					
			V <sub>CC</sub> =1.1V to 1.3V	2.1	-	11.7	ns	
			V <sub>CC</sub> =1.4V to 1.6V	1.5	-	7.5	ns	
			V <sub>CC</sub> =1.65V to 1.95V	1.3	-	6.1	ns	
			V <sub>CC</sub> =2.3V to 2.7V	1.0	-	4.8	ns	
			V <sub>CC</sub> =3.0V to 3.6V	0.9	-	4.3	ns	
			C <sub>L</sub> =10pF					
			V <sub>CC</sub> =1.1V to 1.3V	2.2	-	13.6	ns	
			V <sub>CC</sub> =1.4V to 1.6V	1.8	-	8.9	ns	
			V <sub>CC</sub> =1.65V to 1.95V	1.6	-	7.2	ns	
			V <sub>CC</sub> =2.3V to 2.7V	1.3	-	5.7	ns	
			V <sub>CC</sub> =3.0V to 3.6V	1.2	-	4.7	ns	
			C <sub>L</sub> =15pF					
			V <sub>CC</sub> =1.1V to 1.3V	3.1	-	15.7	ns	
			V <sub>CC</sub> =1.4V to 1.6V	2.1	-	10.1	ns	
			V <sub>CC</sub> =1.65V to 1.95V	1.8	-	8.2	ns	
			V <sub>CC</sub> =2.3V to 2.7V	1.6	-	6.5	ns	
			V <sub>CC</sub> =3.0V to 3.6V	1.5	-	5.9	ns	
			C <sub>L</sub> =30pF					
			V <sub>CC</sub> =1.1V to 1.3V	4.1	-	21.8	ns	
			V <sub>CC</sub> =1.4V to 1.6V	2.9	-	13.6	ns	
			V <sub>CC</sub> =1.65V to 1.95V	2.4	-	10.9	ns	
			V <sub>CC</sub> =2.3V to 2.7V	2.2	-	8.6	ns	
			V <sub>CC</sub> =3.0V to 3.6V	2.1	-	7.5	ns	

Note:

- [1] t<sub>pd</sub> is the same as t<sub>PLH</sub> and t<sub>PHL</sub>.



### 3.3.6、AC Characteristics 3

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
propagation delay	$t_{pd}$	A, B to Y; see Figure 5 <sup>[1]</sup>	C <sub>L</sub> =5pF				
			V <sub>CC</sub> =1.1V to 1.3V	2.1	-	12.9	ns
			V <sub>CC</sub> =1.4V to 1.6V	1.5	-	8.3	ns
			V <sub>CC</sub> =1.65V to 1.95V	1.3	-	6.7	ns
			V <sub>CC</sub> =2.3V to 2.7V	1.0	-	5.3	ns
			V <sub>CC</sub> =3.0V to 3.6V	0.9	-	4.8	ns
			C <sub>L</sub> =10pF				
			V <sub>CC</sub> =1.1V to 1.3V	2.2	-	15.0	ns
			V <sub>CC</sub> =1.4V to 1.6V	1.8	-	9.8	ns
			V <sub>CC</sub> =1.65V to 1.95V	1.6	-	7.9	ns
			V <sub>CC</sub> =2.3V to 2.7V	1.3	-	6.3	ns
			V <sub>CC</sub> =3.0V to 3.6V	1.2	-	5.2	ns
			C <sub>L</sub> =15pF				
			V <sub>CC</sub> =1.1V to 1.3V	3.1	-	17.3	ns
			V <sub>CC</sub> =1.4V to 1.6V	2.1	-	11.2	ns
			V <sub>CC</sub> =1.65V to 1.95V	1.8	-	9.0	ns
			V <sub>CC</sub> =2.3V to 2.7V	1.6	-	7.2	ns
			V <sub>CC</sub> =3.0V to 3.6V	1.5	-	6.5	ns
			C <sub>L</sub> =30pF				
			V <sub>CC</sub> =1.1V to 1.3V	4.1	-	24.0	ns
			V <sub>CC</sub> =1.4V to 1.6V	2.9	-	15.0	ns
			V <sub>CC</sub> =1.65V to 1.95V	2.4	-	12.1	ns
			V <sub>CC</sub> =2.3V to 2.7V	2.2	-	9.5	ns
			V <sub>CC</sub> =3.0V to 3.6V	2.1	-	8.3	ns

Note:

[1]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .



## 4、Testing Circuit

### 4.1、AC Testing Circuit

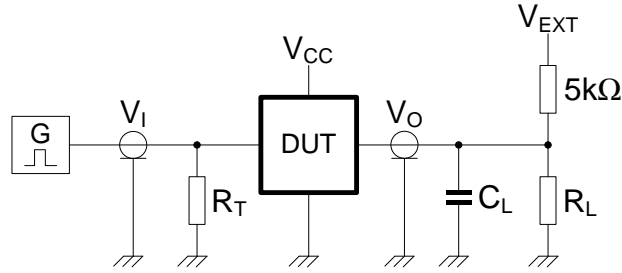


Figure 4. Test circuit for measuring switching times

Definitions for test circuit:

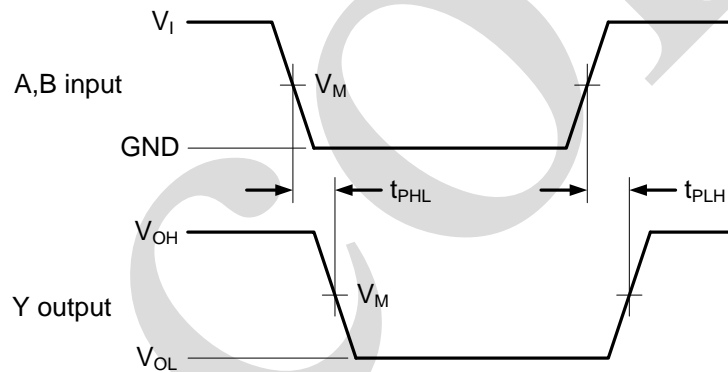
$R_L$ =Load resistance.

$C_L$ =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.

### 4.2、AC Testing Waveforms



Logic levels:  $V_{OL}$  and  $V_{OH}$  are typical output voltage levels that occur with the output load.

Figure 5. The data input (A or B) to output (Y) propagation delays

### 4.3、Measurement Points

Supply voltage	Output	Input		
$V_{CC}$	$V_M$	$V_M$	$V_I$	$t_r=t_f$
0.8V to 3.6V	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	$V_{CC}$	$\leq 3.0ns$

### 4.4、Test Data

Supply voltage	Load		$V_{EXT}$		
$V_{CC}$	$C_L$	$R_L^{[1]}$	$t_{PLH}, t_{PHL}$	$t_{PZH}, t_{PHZ}$	$t_{PZL}, t_{PLZ}$
0.8V to 3.6V	5pF, 10pF, 15pF and 30pF	5kΩ or 1MΩ	open	GND	$2 \times V_{CC}$

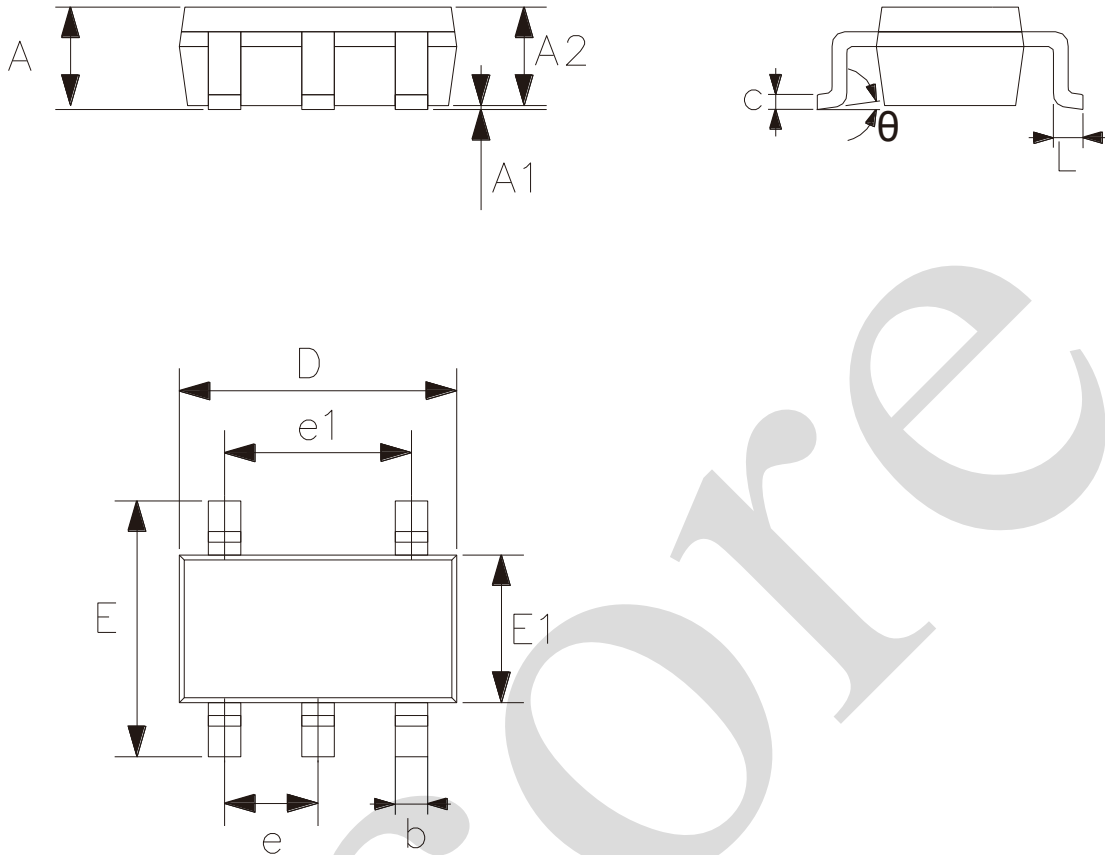
Note:

[1] For measuring enable and disable times  $R_L=5k\Omega$ , for measuring propagation delays, setup and hold times and pulse width  $R_L=1M\Omega$ .



## 5、Package Information

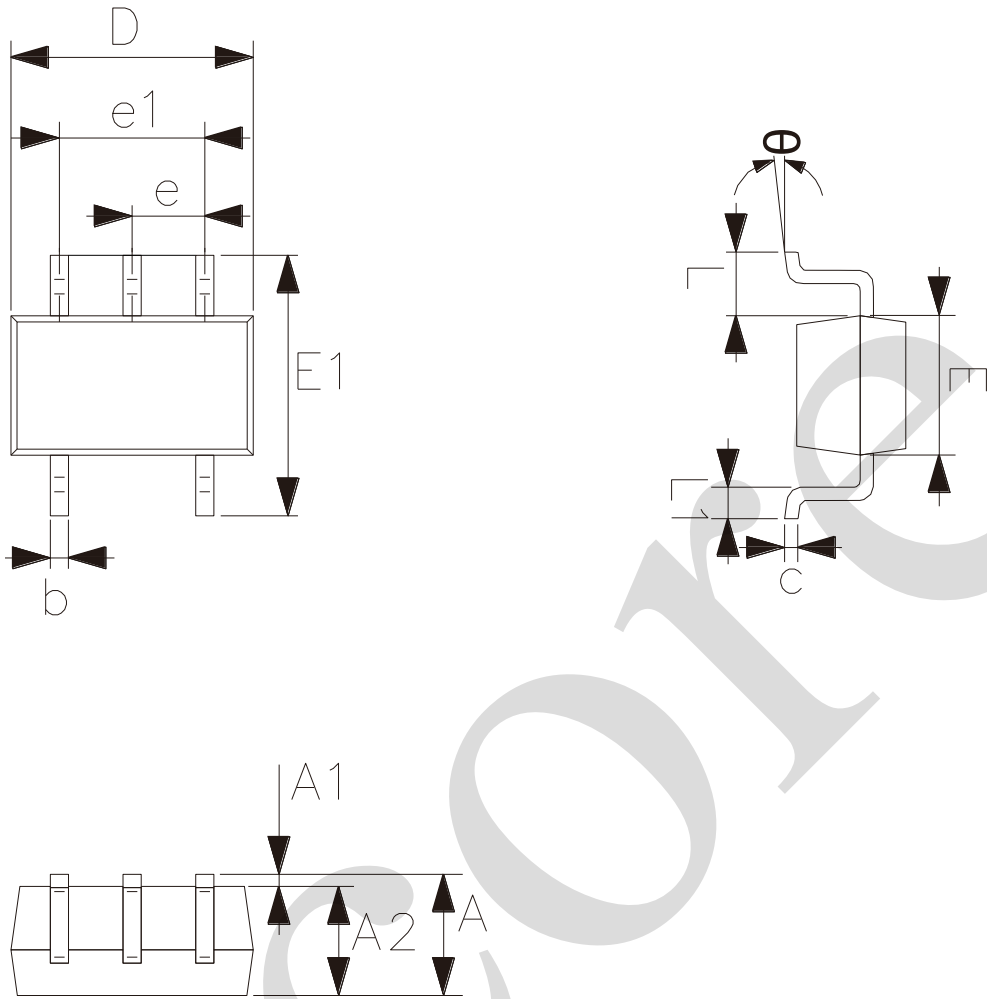
### 5.1、SOT23-5



2023/12/A	Dimensions In Millimeters	
Symbol	Min.	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	
e1	1.80	2.00
L	0.30	0.60
$\theta$	0°	8°



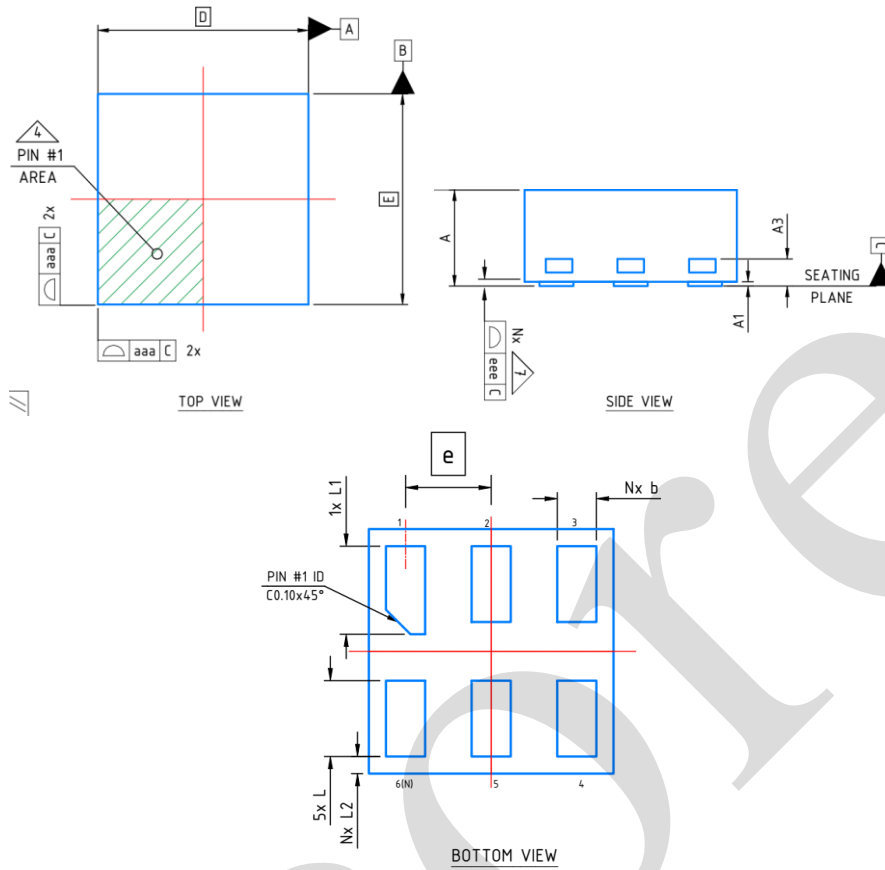
5.2、SOT353



2023/12/A Symbol	Dimensions In Millimeters	
	Min.	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	
e1	1.20	1.40
L	0.525	
L1	0.26	0.46
$\theta$	0°	8°



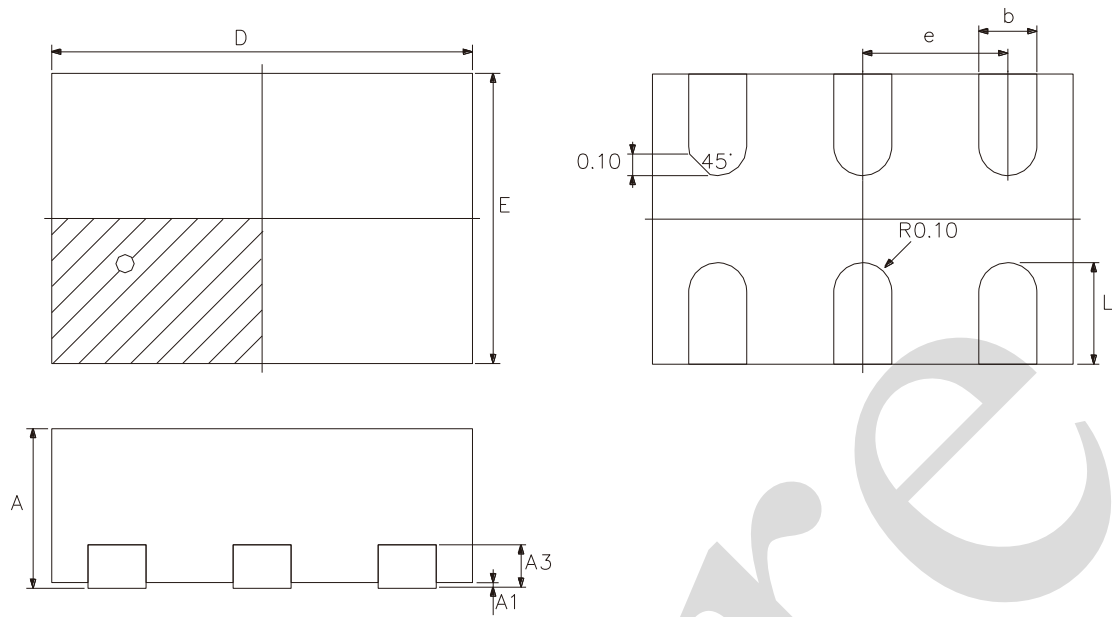
**5.3、XSON6(1\*1\*0.45)-0.35**



2025/03/B	Dimensions In Millimeters	
Symbol	Min	Max
A	0.32	0.50
A1	0	0.05
A3	0.1-0.13 REF	
b	0.10	0.21
D	1.00	
E	1.00	
e	0.35	
L	0.25	0.36
L1	0.30	0.41
L2	0.02	0.12



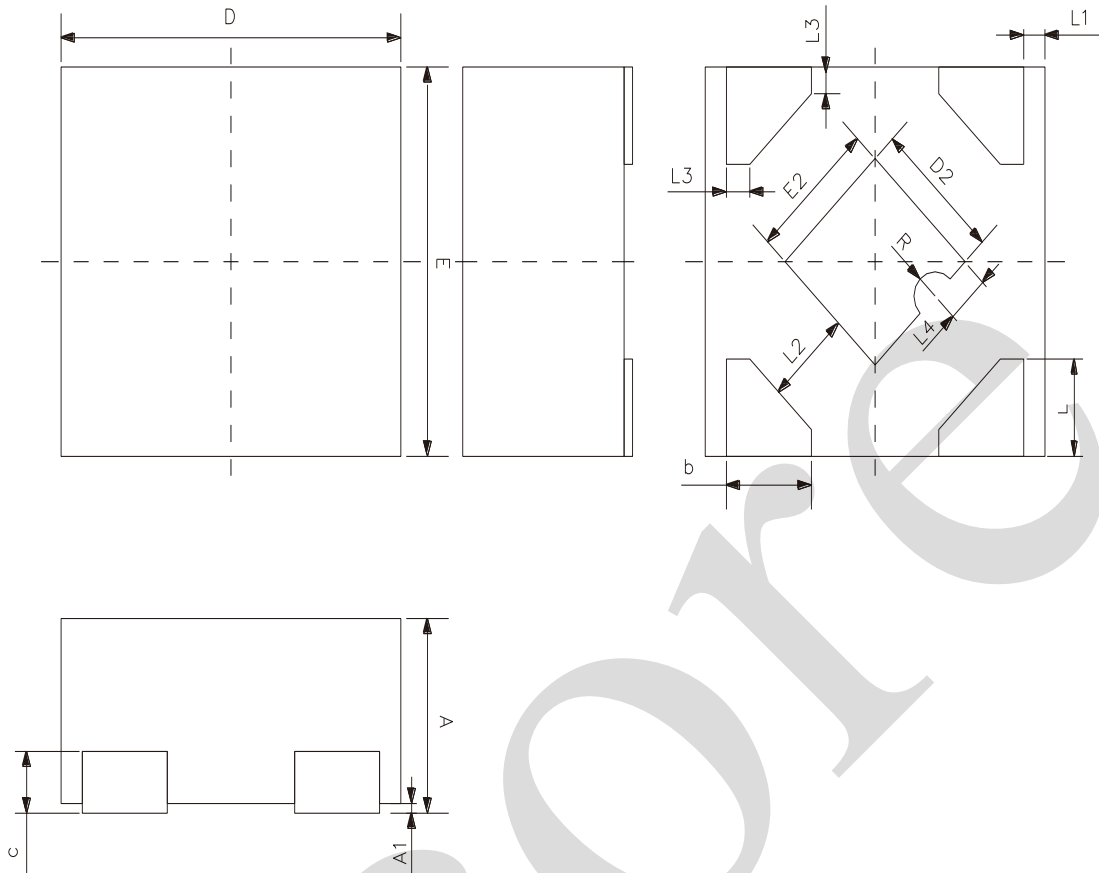
## 5.4. XSON6(1\*1.45\*0.55)-0.5



2023/12/A	Dimensions In Millimeters	
Symbol	Min	Max
A	0.51	0.60
A1	0.00	0.05
A3	0.15	
b	0.15	0.25
D	1.45	
E	1.00	
e	0.50	
L	0.25	0.45



5.5、DFN4



2023/12/A	Dimensions In Millimeters	
Symbol	Min	Max
A	0.37	0.43
A1	0.00	0.05
b	0.15	0.25
c	0.127	
D	0.75	0.85
D2	0.20	0.40
E	0.75	0.85
E2	0.20	0.40
e	0.50	
L	0.15	0.25
L1	0.05	
L2	0.20	
L3	0.055	
L4	0.10	
R	0.05	



## 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	○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									

### 6.2、 Notes

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