AOS SEMICONDUCTOR

产品规格说明书

Product Data Sheet

AOS1G00XX

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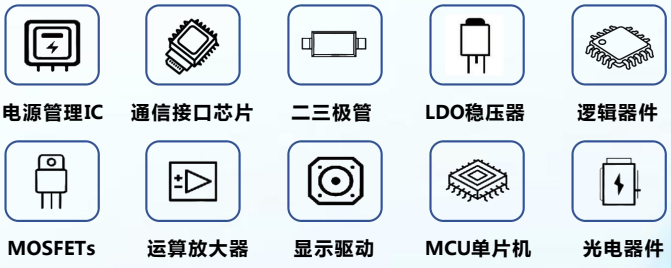


AOS1G00XX

Data Sheet

Logic Gates

■ Product introduction

AOS1G00XX is a 2-input HAND integrated circuit,which can realize the mathematical logic operation of Y= ¬A+ ¬B and Y= ¬(A*B).Advanced CMOS process design is adopted,which has the working characteristics of low power consumption and high output driving capability,he chip can, work normally when,the power supply voltage VCC is between 1.65V and 5.5V.And AOS1G00XX has a variety of small package shapes.It can be widely used in high precision instruments,miniaturized low-power handheld devices, artificial intelligence and other fields.

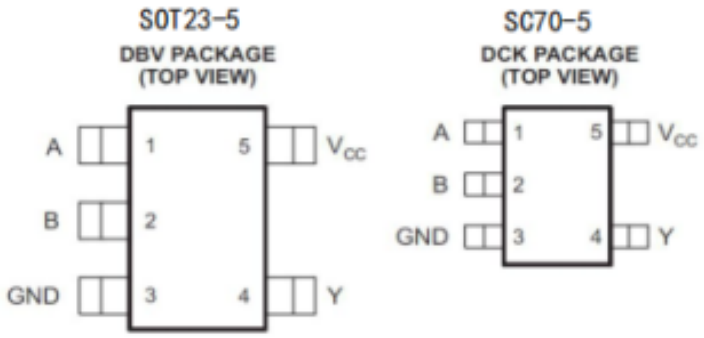
■ Product features

- Low input current:0.1uA typical
- Low static power consumption:0.1uA typical
- High output drive:VCC=4.5V,more than 32mA
- Wide working voltage range: 1.65V to 5.5V
- Package form:DBV/DCK/DRL/YZP/DRY/DSF/DPW

■ Product usage

- Portable audio interface
- Digital television
- Wireless headphones,smart watches, etc.
- Blu-ray player and home theater
- Solid state drive
- Smart wearable devices

■ Package form and pin function definition



PIN				DESCRIPTION
NAME	DBV,DCK, DRL,YZP	DRY,DSF	DPW	
A	1	1	2	Input
B	2	2	1	Input
GND	3	3	3	Ground
Y	4	4	4	Output
VCC	5	6	5	Power pin
NC		5		Not connected

Note:NC null pin,no connecting wire inside.

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■ Limit parameter

Parameter	Symbol	Limit value	Unit
Opertating voltage	V_{CC}	6.5	V
Input	V_{IN}	-0.5~6.5	
Output Voltage(1)	V_{OUT}	-0.5~6.5	
Single pin output current	I_{OUT}	25	mA
Or Vcc current	I_{CC}	50	
Storage temperature	T_S	-65-150	℃
Pin welding temperature	T_W	260,s	
Working temperatue	T_A	-40-105	

Note: 1. In the power-off state of VCC=0V, the limit voltage that the output can bear.

2. Limit parameter refers to the limit value that can't be exceeded uder any conditions, If it exceeds this limit value,it may cause physical damage such as product deterioration.At the same time, the chip can't work normally when it is close to the limit parameters.

■ Principle logic diagram

■ Truth table

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

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■ Working conditions

Project	Symbol	Test condition	Minimum value	Typical value	Maximum	Unit
Operating voltage	VCC	-	1.65	-	5.5	V
Input high level voltage	VIH	VCC=1.65V~1.95V	0.65*VCC	-	-	
		VCC=2.3V~2.7V	1.7V	-	-	
		VCC=3V~5.5V	0.7*VCC	-	-	
Low-Level Input Voltage	VIL	VCC=1.65V~1.95V	-	-	0.35*VCC	
		VCC=2.3V~2.7V	-	-	0.7	
		VCC=3V~5.5V	-	-	0.3*VCC	
Input voltage	VI	-	0	-	5.5	
Output voltage	VO	-	0	-	VCC	
High level output	IOH	VCC=1.65V	-	-	-4	mA
		VCC=2.3V	-	-	-8	
		VCC=3V	-	-	-16	
		VCC=4.5V	-	-	-32	
Low level output current	IOL	VCC=1.65V	-	-	4	
		VCC=2.3V	-	-	8	
		VCC=3V	-	-	16	
		VCC=4.5V	-	-	32	

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■ Electrical characteristics

Electrical characteristics of DC:TA=25℃

Project	Symbol		Test condition	Minimum value	Typical value	Maximum	Unit
Operating voltage Input high level voltage	V_{OH}		I_{OH}=-100μA	1.65V	1.64	5.5	V
			I_{OH}=-4mA	1.65V	1.47	-	
			I_{OH}=-8mA	2.3V	2.15	-	
			I_{OH}=-16mA	3V	2.73	-	
			I_{OH}=-32mA	4.5V	4.0	-	
Low level load voltage	V_{OL}		I_{OH}=100μA	1.65V~5.5V	0.01	-	
			I_{OH}=4mA	1.65V	0.11	-	
			I_{OH}=8mA	2.3V	0.11	-	
			I_{OH}=16mA	3V	0.2	-	
			I_{OH}=32mA	4.5V	0.35	-	
Incoming current	I_I	A	V_I=5.5V或GND	0~5.5V	0.01	±5	μA
		B			0.01	±5	
Turn-off current	I_{OFF}	V_I	V_I=5.5V	0	0.01	±10	
		V_O	V_O=5.5V	0	0.01	±10	
Operational current	I_{CC}		V_I=5.5V, I_O=0	1.65V~5.5V	0.01	10	
			V_I=GND, I_O=0		0.01	10	
Working current variation value	ΔI_{CC}		A=V_{CC}-0.6V B=V_{CC}或GND	3V~5.5V	25	-	
			B=V_{CC}-0.6V A=V_{CC}或GND		25	-	

Ac electrical characteristics:TA=25℃ VCC=5.0V,tr=≤20ns.See test method.

Project	Symbol	Test condition	Minimum value	Typical value	Maximum	Unit
Maximum transmission delay time a,B to Y		C=15pF	-	10	-	ns
		C=15pF	-	10	-	ns

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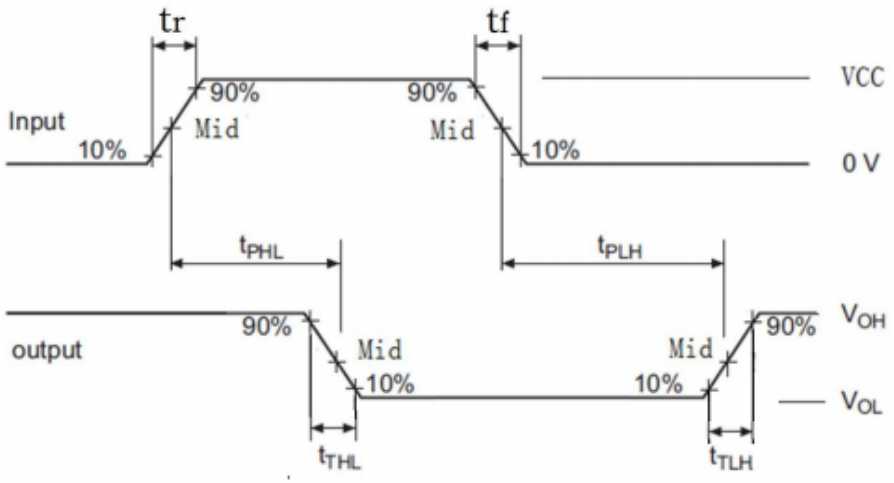
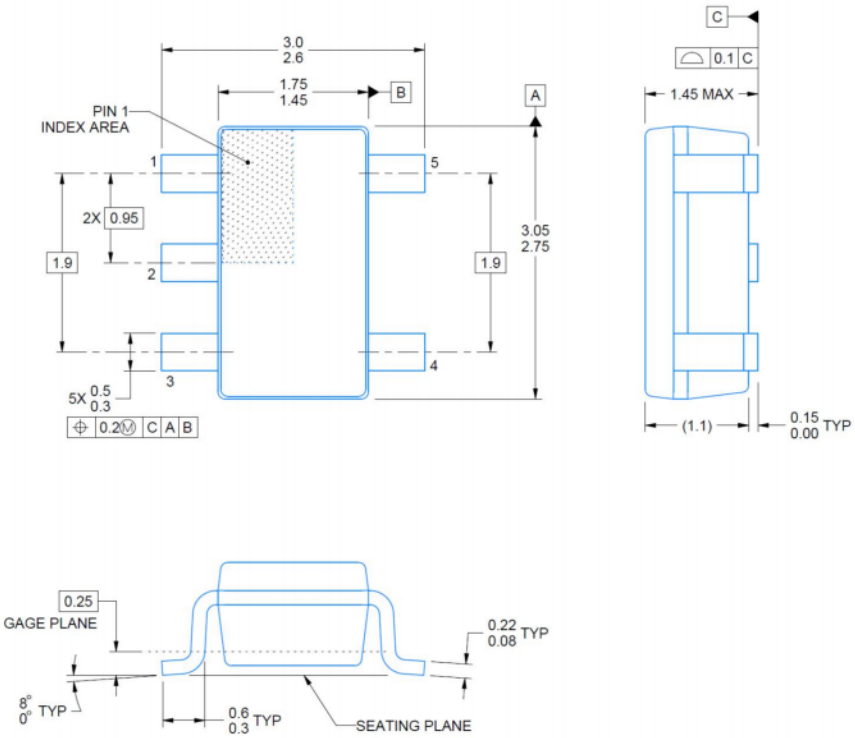


Note: 1. CL capacitor is external chip capacitor (0603), which is connected close to the output pin,and the capacitor ground is close to the chip GND;
2. Input: port input level,f=500kHz,D=50%;tr=tf≤20ns;
3. Output: Y-terminal output test.

■ Encapsulated information

DBV(SOT23-5)



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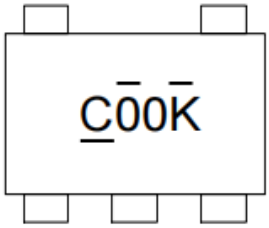
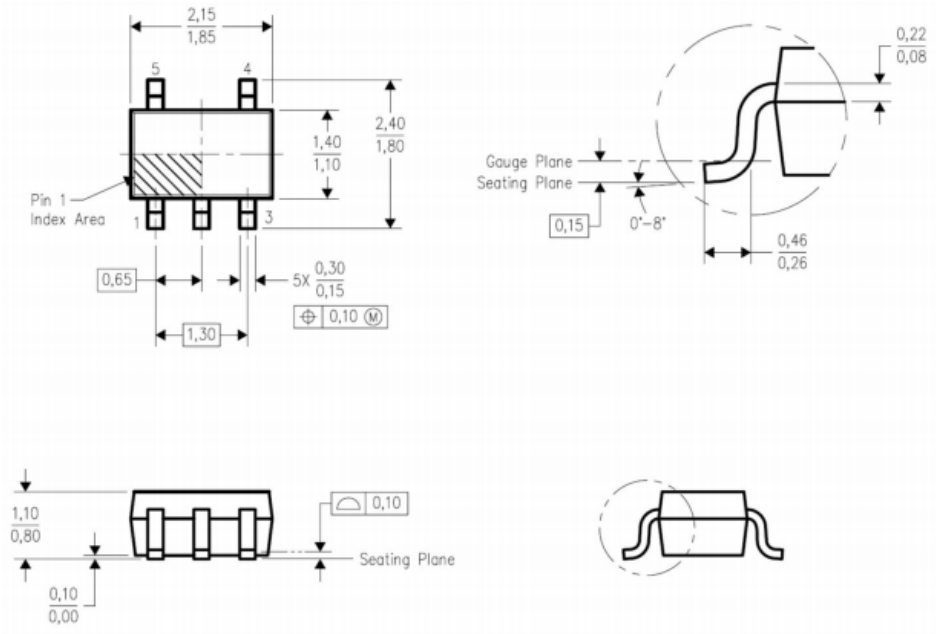
■ Marking



DCK(SC70-5)



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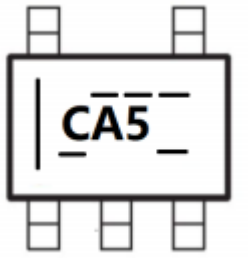

Order code	Package	Baseqty	Deliverrymode
AOS1G00XC5	SC70-5	3000	Tape and reel
AOS1G00XF5	SOT23-5	3000	Tape and reel