



AOS
SEMICONDUCTOR

产品规格说明书

Product Data Sheet

AOS1G17XX

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电源管理IC



通信接口芯片



二三极管



LDO稳压器



逻辑器件



MOSFETs



运算放大器



显示驱动



MCU单片机



光电器件

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Logic Gates

Description

The AOS1G17XX is a single non-inverting Schmitt Trigger Buffer in three tiny footprint packages.

Features

- Tiny SC70-5 and SOT23-5 Packages
- Source/Sink 24mA at 3.0V
- Chip Complexity:FETs=20
- Designed for 1.65V to 5.5V V_{CC} Operation
- These Devices are Pb-Free,Halogen Free/BFR Free and are RoHS Compliant

Pin Configuration

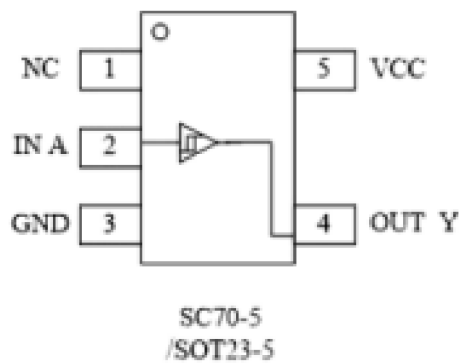


Figure1.Pinouts(Top View)

Pin Function

(SC70-5/SOT23-5)

PIN	FUNCTION
1	NC
2	INA
4	GND
3	VCC
5	OUT



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Block Diagram



Figure2.Logic Symbol

Function Description

Function Table

Input	Output
A	Y
L	L
H	H

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to 7.0	V
V_I	DC Input Voltage	$-0.5 \leq V_I \leq +7.0$	
V_O	DC Output Voltage Output in Higher or Low State(Note1)	-0.5 to $V_{CC}+0.5$	
I_{IK}	DC Input Diode Current $V_I < GND$	-50	mA
I_{OK}	DC Output Diode Current, $V_O < GND, V_O > V_{CC}$	± 50	
I_O	DC Output Sink Current	± 50	
I_{CC}	DC Supply Current per Supply Pin	± 100	
I_{GND}	DC Ground Current per Supply Pin	± 100	
T_{STG}	Storage Temperature Range	-65 to 150	$^{\circ}C$
T_L	Lead Temperature, 1 mm from Case for 10 Seconds	260	
T_J	Junction Temperature Under Bias	150	
θ_{JA}	Thermal Resistance	C70-5(Note1) SOT23-5 435 300	$^{\circ}C/W$
P_D	Power Dissipation in Still Air at 85	SC70-5 SOT23-5 150 200	mW
MSL	Moisture Sensitivity	Level1	
F_R	Flammability Rating Oxygen Index:28 to 34	UL94V-0@0.12in	
ESD	ESD Classification Human Body Model(Note2) Machine Model(Note3) Charged Device Model(Note4)	2000 200 N/A	V
$L_{LATCHUP}$	Latchup Performance Above VCC and Below GND at 125 $^{\circ}C$ (Note5)	± 100	mA

Stress exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Function operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Measured with minimum pad spacing on an FR4 board, using 10 mm-by-1 inch, 2-ounce copper trace with no air flow.

2. Tested to EIA/JESD22-A114-A, rated to EIA/JESD22-A114-B.

3. Tested to EIA/JESD22-A115-A, rated to EIA/JESD22-A115-A.

4. Tested to JESD22-C101-A.

5. Tested to EIA/JESD78.



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Recommended Operating Conditions

Symbol	Parameter	MIN	MAX	UNIT
V_{CC}	DC Supply Voltage Operating Date Retention	1.65 1.5	5.5 5.5	V
V_{IN}	DC Input Voltage	0	5.5	
V_{OUT}	DC Input Voltage(High or Low State) (SOT-353/SOT-23-5L/SOT-553 Packages)	0	5.5	
T_A	Operating Temperature Range	-55	125	°C
t_r, t_f	Input Rise and Fall Time $V_{CC}=2.5V \pm 0.2V$ $V_{CC}=3.0V \pm 0.3V$ $V_{CC}=5.0V \pm 0.5V$	0 0 0	20 10 5	ns/V

Electrical Characteristics

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	$V_{CC}(V)$	$T_A=25^\circ C$			$-40^\circ C \leq T_A \leq 85^\circ C$		Unit
				Min	Typ	Max	Min	Max	
V_{IH}	High-Level Input Voltage		1.65 to 1.95 2.3V to 5.5	$0.75V_{CC}$ $0.7V_{CC}$			$0.75V_{CC}$ $0.7V_{CC}$		V
V_{IL}	Low-Level Input Voltage		1.65 to 1.95 2.3V to 5.5			$0.25V_{CC}$ $0.3V_{CC}$		$0.25V_{CC}$ $0.3V_{CC}$	
V_{OH}	High-Level Output Voltage $V_{IN}=V_{IL}$	$I_{OH}=-100 \mu A$	1.65 to 5.5	$V_{CC}-0.1$	V_{CC}		$V_{CC}-0.1$		
		$I_{OH}=-3mA$	1.65	1.29	1.52		1.29		
		$I_{OH}=-8mA$	2.3	1.9	2.1		1.9		
		$I_{OH}=-12mA$	2.7	2.2	2.4		2.2		
		$I_{OH}=-16mA$	3.0	2.4	2.7		2.4		
		$I_{OH}=-24mA$	3.0	2.3	2.5		2.3		
		$I_{OH}=-32mA$	4.5	3.8	4.0		3.8		
V_{OL}	Low-Level Output Voltage $V_{IN}=V_{IH}$	$I_{OL}=100 \mu A$	1.65 to 5.5		0.0	0.1		0.1	
		$I_{OL}=3mA$	1.65		0.08	0.24		0.24	
		$I_{OL}=8mA$	2.3		0.20	0.3		0.3	
		$I_{OL}=12mA$	2.7		0.22	0.4		0.4	
		$I_{OL}=16mA$	3.0		0.28	0.4		0.4	
		$I_{OL}=24mA$	3.0		0.38	0.55		0.55	
		$I_{OL}=32mA$	4.5		0.42	0.55		0.55	
I_{IN}	Input Leakage Current	$V_{IN}=5.5V$ or GND	0 to 5.5		± 0.1			± 1.0	μA
I_{OFF}	Power Off Leakage Current	$V_{IN}=5.5V$ or $V_{OUT}=5.5V$	0			1		10	
I_{CC}	Quiscent Supply Current	$V_{IN}=5.5V$ or GND	5.5					10	



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Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

■ AC ELECTRICAL CHARACTERISTICS
 $t_r = t_f = 2.5\text{ns}$; $C_L = 50\text{pF}$; $R_L = 500\Omega$

Symbol	Parameter	Condition	$V_{CC}(\text{V})$	$T_A = 25$			$-40 \leq T_A \leq 85$		Unit
				Min	Typ	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay (Figure 3 and 4)	$R_L = 1\text{M}\Omega$ $C_L = 15\text{pF}$	1.65	2.0	5.3	11.4	2.0	12.0	ns
			1.8	2.0	4.4	9.5	2.0	10.0	
		$R_L = 1\text{M}\Omega$ $C_L = 15\text{pF}$	2.5 ± 0.2	0.2	3.5	6.5	0.8	7.0	
		$R_L = 1\text{M}\Omega$ $C_L = 15\text{pF}$	3.3 ± 0.3	0.8	2.1	4.5	0.5	4.7	
		$R_L = 500\Omega$ $C_L = 50\text{pF}$		1.2	2.9	5.5	1.5	5.2	
		$R_L = 1\text{M}\Omega$ $C_L = 15\text{pF}$	5.0 ± 0.5	0.5	1.8	3.9	0.5	4.1	
		$R_L = 500\Omega$ $C_L = 50\text{pF}$		0.8	2.4	4.3	0.8	4.5	

■ CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Condition	Typical	Unit
C_{IN}	Input Capacitance	$V_{CC} = 5.5\text{V}$, $V_I = 0\text{V}$ or V_{CC}	> 2.5	pF
C_{PD}	Power Dissipation Capacitive (Note6)	10MHz, $V_{CC} = 3.3\text{V}$, $V_I = 0\text{V}$ or V_{CC} 10MHz, $V_{CC} = 5.5\text{V}$, $V_I = 0\text{V}$ or V_{CC}	9 11	pF (Note6)

$6.C_{PD}$ is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load. Average operating current can be obtained by the equation:

$I_{CC(OPR)} = C_{PD} \cdot V_{CC} \cdot f_{in} + I_{CC} \cdot C_{PD}$ is used to determine the no-load dynamic power consumption; $P_D = C_{PD} \cdot V_{CC}^2 \cdot f_{in} + I_{CC} \cdot V_{CC}$ Fig.

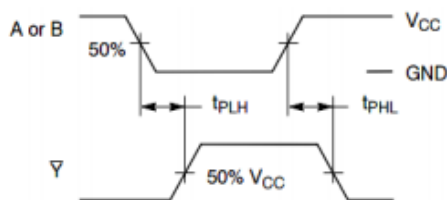
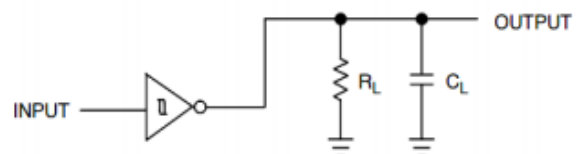


Figure 3. Switching Waveform



A 1-MHz square input wave is recommended for propagation delay tests.

Figure 4. Test Circuit

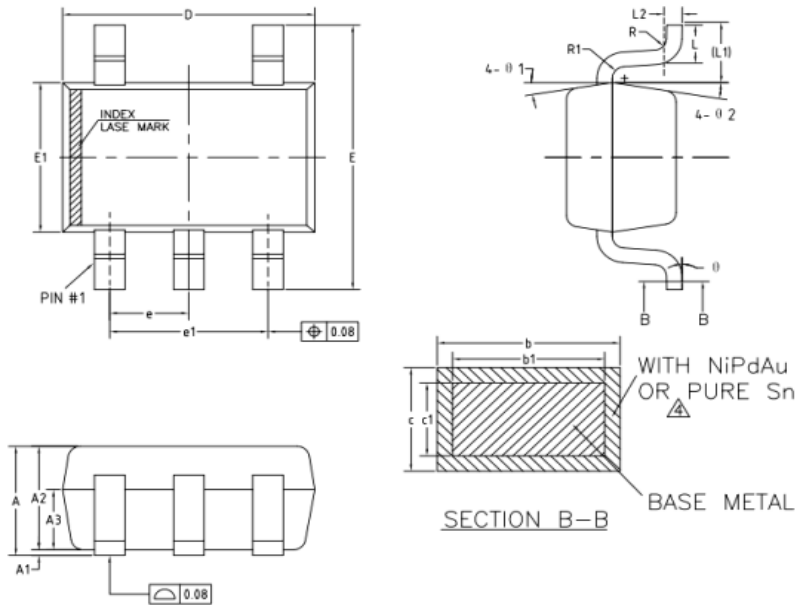


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■ Package Dimension

SC70-5



COMMON DIMENSIONS(UNITS OF MEASURE=MILLINETER)

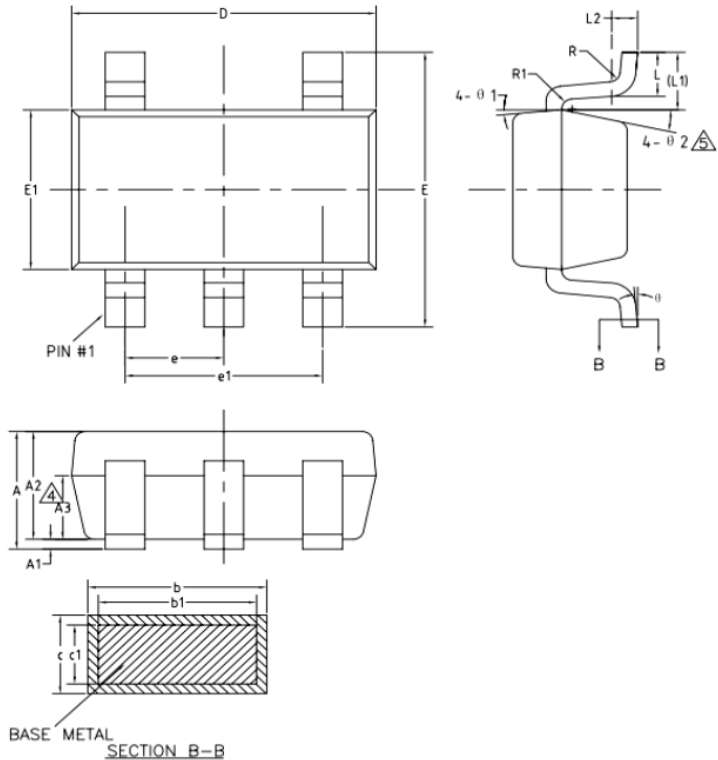
SYMBOL		MIN	NOM	MAX
A		0.85	-	1.05
A1		0	-	0.10
A2		0.80	0.90	1.00
A3		0.47	0.52	0.57
b	NiPdAu	0.22	-	0.29
	PURE Sn	0.23	-	0.33
b1		0.22	0.25	0.28
c	NiPdAu	0.115	-	0.15
	PURE Sn	0.12	-	0.18
c1		0.115	0.13	0.14
D		2.02	2.07	2.12
E		2.20	2.30	2.40
E1		1.25	1.30	1.35
e		0.60	0.65	0.70
e1		1.20	1.30	1.40
L		0.28	0.33	0.38
L1		0.50REF		
L2		0.15BSC		
R		0.10	-	-
R1		0.10	-	0.25
θ		0 °	-	8 °
θ 1		6 °	9 °	12 °
θ 2		6 °	9 °	12 °



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SOT23-5



COMMON DIMENSIONS(UNITS OF MEASURE=MILLINETER)

SYMBOL	MIN	NOM	MAX
A	-	-	1.25
A1	0	-	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	-	0.50
b1	0.36	0.38	0.45
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
R	0.10	-	-
R1	0.10	-	0.25
theta	0 °	-	8 °
theta1	3 °	5 °	7 °
theta2	6 °	-	14 °



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■ Package information

Order code	Marking code	Package	Baseqty	Deliverymode
AOS1G17XF5	C17J	SOT23-5	3000	Tape and reel
AOS1G17XC5	C75	SC70-5	3000	Tape and reel

