



AOS
SEMICONDUCTOR

产品规格说明书

Product Data Sheet

SN74AUP1G17

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电源管理IC



通信接口芯片



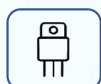
二三极管



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 SN74AUP1G17 is a high performance single Non-inverter with Schmitt-Trigger inputs operating from a 0.8V to 3.6V supply. This device is fabricated with advanced CMOS technology to achieve ultra-high speed with high output drive.

Features

- Designed for 0.8V to 3.6V V_{CC} Operation
- Low static power consumption; $I_{CC}=0.7\mu A$ (maximum)
- 4mA Balanced Output Sink and Source Capability
- Near Zero Static Supply Current Substantially Reduces System Power Requirements
- These Devices are Pb-Free and are RoHS Compliant
- Tiny SC70-5, SOT23-5 and DFN6(1.0×1.5) Packages

Pin Configuration

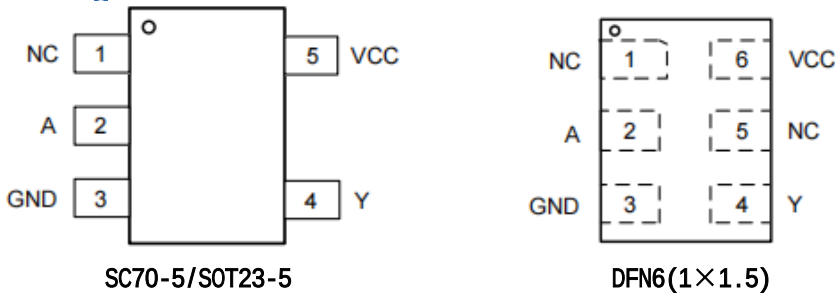


Figure1.Top View

Pin Function

SC70-5/SOT23-5

Pin No.	Pin Name.	Function
1	NC	No connect
2	A	Input
3	GND	Ground
4	Y	Output
5	VCC	Supply Voltage

DFN6

Pin No.	Pin Name.	Function
1	NC	No connect
2	A	Input
3	GND	Ground
4	Y	Output
5	NC	No connect
6	VCC	Supply Voltage

Block Diagram



Figure2.Logic Symbol

Function Description

Function Table

Input A	Output Y
L	L
H	H



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■ Absolute Maximum Ratings

Symbol	Parameter		Value	Unit
V _{CC}	DC Supply Voltage		-0.5 to 4.6	V
V _I	DC Input Voltage		-0.5≤V _I ≤+4.6	
V _O	DC Output Voltage Output in Higher or Low State ⁽¹⁾		-0.5 to 4.6	
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		± 20	
I _{CC}	DC Supply Current per Supply Pin		± 50	
I _{GND}	DC Ground Current per Supply Pin		± 50	
T _{STG}	Storage Temperature Range		-65 to 150	°C
T _L	Lead Temperature, Soldering 10 Seconds		260	
T _J	Max Junction Temperature		150	
V _{ESD}	ESD Classification	Human Body Model ⁽²⁾	± 4000	V
		Charged Device Model ⁽³⁾	± 1000	
L _{LU}	Max Latch up Current Above V _{CC} and GND at 125°C ⁽⁴⁾		± 100	mA

■ 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(1×1.5)		440	
P_D	SC70-5	Power Dissipation in Still Air at 85°C	215	mW
	SOT23-5		260	
	DFN6(1×1.5)		150	

■ Recommended Operating Conditions

Symbol	Parameter		MIN	MAX	UNIT
V _{CC}	DC Supply Voltage Operating		0.8	3.6	V
V _{IN}	DC Input Voltage		0	3.6	
V _{OUT}	DC Output Voltage(High or Low State)		0	3.6	
T _A	Operating Temperature Range		-40	85	°C
t _r ,t _f	Input Rise and Fall Time	V _{CC} =0.8V to 3.6V	0	20	ns/V

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



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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		0.8V	$0.75V_{cc}$			$0.75V_{cc}$		V
			0.9V to 1.95V	$0.7V_{cc}$			$0.7V_{cc}$		
			2.3V to 2.7V	1.6			1.6		
			3.0V to 3.6V	2.0			2.0		
V_{IL}	Low-Level Input Voltage		0.8V			$0.25V_{cc}$		$0.25V_{cc}$	
			0.9V to 1.95V			$0.3V_{cc}$		$0.3V_{cc}$	
			2.3V to 2.7V			0.7		0.7	
			3.0V to 3.6V			0.9		0.9	
V_{OH}	High-Level Output Voltage	$I_{OH}=-20\mu A$	0.8 to 3.6V	$V_{cc}-0.1$			$V_{cc}-0.1$		
		$I_{OH}=-1.1mA$	1.1	0.82	1.02		0.77		
		$I_{OH}=-1.7mA$	1.4	1.11	1.32		1.03		
		$I_{OH}=-1.9mA$	1.65	1.32	1.58		1.30		
		$I_{OH}=-2.3mA$	2.3	2.05	2.24		1.97		
		$I_{OH}=-3.1mA$		1.9	2.22		1.85		
		$I_{OH}=-2.7mA$	3.0	2.72	2.95		2.67		
		$I_{OH}=-4.0mA$		2.6	2.92		2.55		
V_{OL}	Low-Level Output Voltage	$I_{OL}=20\mu A$	0.8 to 3.6V			0.1		0.1	μA
		$I_{OL}=1.1mA$	1.1		0.11	0.33		0.33	
		$I_{OL}=1.7mA$	1.4		0.12	0.31		0.37	
		$I_{OL}=1.9mA$	1.65		0.11	0.31		0.35	
		$I_{OL}=2.3mA$	2.3		0.14	0.31		0.33	
		$I_{OL}=3.1mA$			0.19	0.44		0.45	
		$I_{OL}=2.7mA$	3.0		0.11	0.31		0.33	
		$I_{OL}=4.0mA$			0.16	0.44		0.45	
I_{IN}	Input Leakage Current	$V_{IN}=V_{cc}$ or GND	0 to 3.6V			± 0.1		± 0.2	
I_{OFF}	Power Off Leakage Current	$V_{IN}=3.6V$ or $V_{OUT}=3.6V$	0			± 0.2		± 0.5	
I_{CC}	Quiscent Supply Current	$V_{IN}=3.6V$ or GND	3.6			± 0.2		± 0.7	

Product parameteric performance is indicted in the Electrical Charateristics for the listed test conditions,unless otherwise noted.Product performance may not be indicated by the Electrical Charateristics if operated ubder different conditions.



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■ AC ELECTRICAL CHARACTERISTICS tr=tf=2.5ns

Symbol	Parameter	Condition	V _{cc} (V)	T _A =25°C			-40°C≤T _A ≤85°C		Unit
				Min	Typ	Max	Min	Max	
t _{PLH} t _{PHL}	Propagation Delay (Figure 3 and 4)	C _L =5pF ⁽⁵⁾	0.8	13.2	29	90.1	11.9	220	ns
			1.2	5.0	7.6	14.3	4.6	14.4	
			1.5	3.4	4.8	8.9	3	9.6	
			1.8	2.7	3.6	6.9	2.3	7.6	
			2.5	1.9	2.4	5.1	1.6	5.6	
			3.3	1.5	1.9	4.4	1.3	4.8	
		C _L =10pF ⁽⁵⁾	0.8	14.3	31.3	97.9	12.8	239	
			1.2	5.4	8.3	15.3	5.0	15.3	
			1.5	3.7	5.2	9.5	3.2	10.2	
			1.8	2.9	3.9	7.4	2.5	8.1	
			2.5	2.0	2.6	5.4	1.7	6.0	
			3.3	1.6	2.0	4.6	1.3	5.1	
		C _L =15pF ⁽⁵⁾	0.8	15.3	32.5	106	13.8	259	
			1.2	5.8	8.9	16.3	5.3	16.3	
			1.5	4.0	5.6	10.1	3.5	10.9	
			1.8	3.1	4.2	7.8	2.6	8.6	
			2.5	2.1	2.8	5.8	1.8	6.4	
			3.3	1.7	2.2	4.9	1.4	5.4	
		C _L =30pF ⁽⁵⁾	0.8	18.3	37.5	130	16.6	323	
			1.2	7.0	10.7	19.3	6.4	19.3	
			1.5	4.8	6.9	12.0	4.2	12.9	
			1.8	3.7	5.1	9.2	3.2	10.2	
			2.5	2.6	3.5	6.7	2.2	7.5	
			3.3	2.0	2.2	5.6	1.7	6.3	

Note5.C_L includes probe and jig capacitance.



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CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Condition		Typical	Unit
C _{IN}	Iput Capacitance	V _{cc} =3.6V, V _I =0V or V _{cc}		2	pF
C _O	Output Capacitance	V _{cc} =0V, V _{OUT} =GND		3	
C _{PD}	Power Dissipation Capacitance ⁽⁶⁾	1MHz, V _I =0V to V _{cc}	V _{cc} =0.8V	7.6	
			V _{cc} =1.2V	8.1	
			V _{cc} =1.5V	8.5	
			V _{cc} =1.8V	8.6	
			V _{cc} =2.5V	9.0	
			V _{cc} =3.3V	9.6	

Note6.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 obtained by the equation:
 $I_{CC(OPR)}=C_{PD} \cdot V_{CC} \cdot fin+I_{CC} \cdot C_{PD}$ is used to determine the no-load dynamic power consumption;
 $P_D=C_{PD} \cdot V_{CC}^2 \cdot fin+I_{CC} \cdot V_{CC} \cdot Fig.$

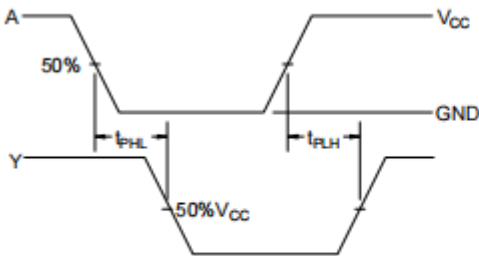


Figure 3. Switching Waveform

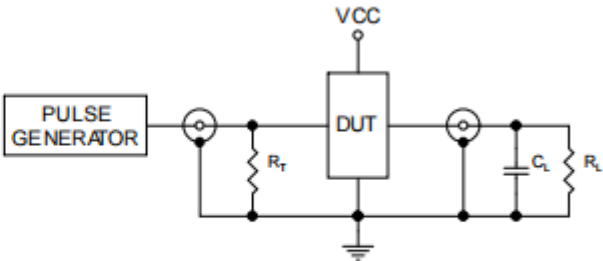


Figure4. Test Circuit

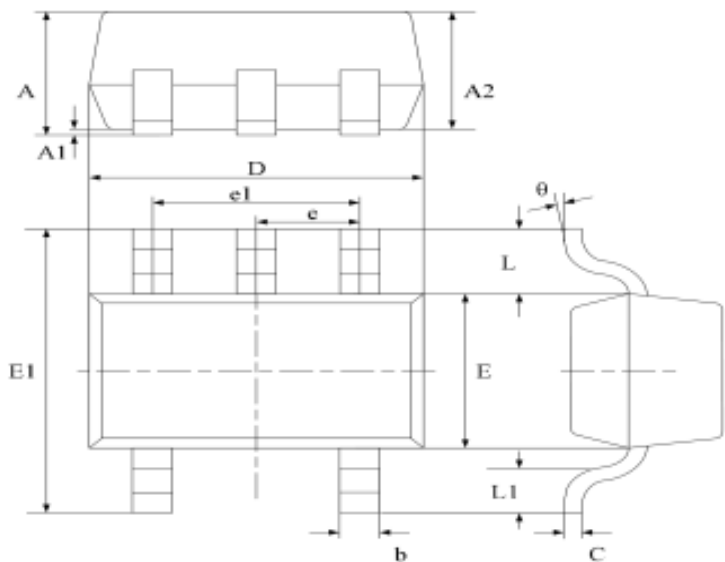


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Data Sheet

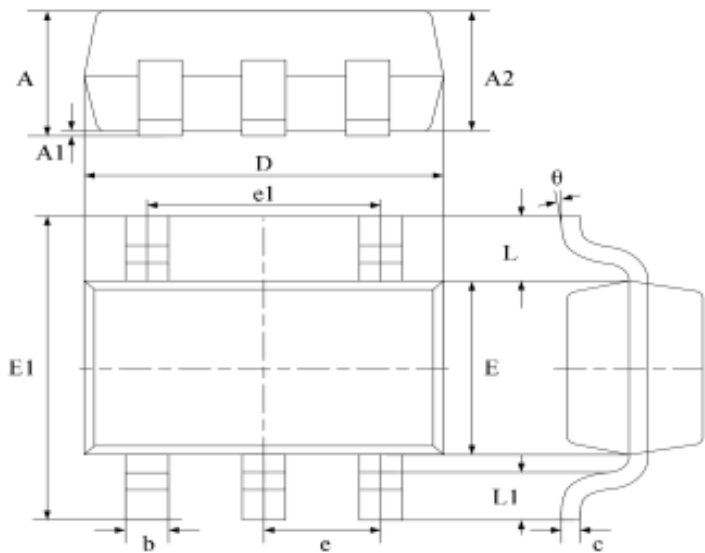
Package Dimension

SC70-5(SOT353)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.035	0.039
b	0.150	0.350	0.006	0.014
C	0.080	0.150	0.003	0.006
D	1.850	2.150	0.079	0.087
E	1.100	1.400	0.045	0.053
E1	1.950	2.200	0.085	0.096
e	0.850 typ.		0.026 typ.	
e1	1.200	1.400	0.047	0.055
L	0.42 ref.		0.021 ref.	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

SOT23-5



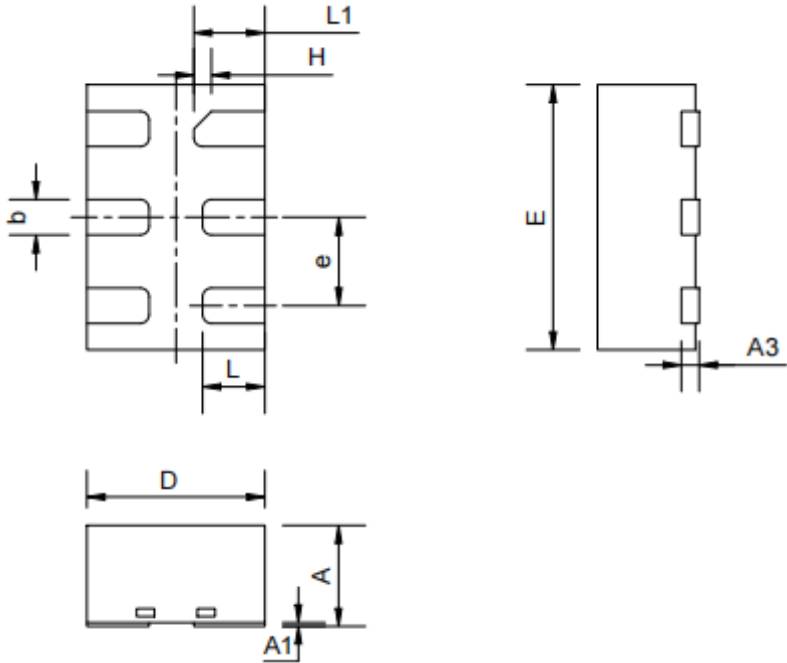
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.040	1.350	0.042	0.055
A1	0.040	0.150	0.002	0.006
A2	1.000	1.200	0.041	0.049
b	0.380	0.480	0.015	0.020
c	0.110	0.210	0.004	0.009
D	2.720	3.120	0.111	0.127
E	1.400	1.800	0.057	0.073
E1	2.600	3.000	0.106	0.122
e	0.950 typ.		0.037 typ.	
e1	1.900 typ.		0.078 typ.	
L	0.700 ref.		0.028 ref.	
L1	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°



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DFN6(1.0×1.5)



COMMON DIMENSIONS(UNITS OF MEASURE=MILLINETER)

SYMBOL	MIN	NOM	MAX
A	0.50	-	0.60
A1	0	0.02	0.05
A3	0.10REF		
b	0.15	0.20	0.25
D	0.90	1.00	1.10
E	1.40	1.50	1.60
e	0.40	0.50	0.60
H	0.10REF		
L	0.30	0.35	0.40
L1	0.35	0.40	0.45

Ordering information

Order code	Package	Baseqty	Deliverymode	Marking
SN74AUP1G17DBVR	SOT23-5	3000	Tape and reel	H17F U
SN74AUP1G17DCKR	SC70-5	3000	Tape and reel	H17F U
SN74AUP1G17DRYR	DFN6	5000	Tape and reel	H7 U

