

### Features

- Wide supply voltage range from 0.8V to 2.7V
- $\pm 8\text{mA}$  Output Driver :  $V_{CC}=1.8\text{V}$
- I<sub>OFF</sub> Supports partial-Power-Down Mode  
Operation and back drive protection
- Low static power consumption;  $I_{CC}=10\mu\text{A}$  (Max.)
- ESD Protection Exceeds JESD 22  
-2000-V Human-Body Model (A114-A)  
-200-V Machine Model (A115-A)  
-1000-V Charged-Device Model (C101)

### General Description

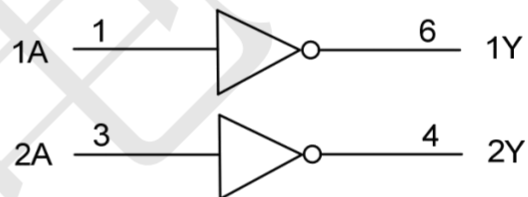
The SN74AUC2G04DCKR-TP performs the Boolean function  $Y = \overline{A}$ .

This device is fully specified for partial-power-down applications using I<sub>OFF</sub>. The I<sub>OFF</sub> circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down.

### Applications

- AV Receiver
- Audio Dock: Portable
- Blu-ray Player and Home Theater
- Embedded PC
- Personal Digital Assistant(PDA)
- Power: Telecom/Server AC/DC Supply: Single Controller: Analog and Digital
- Solid State Drive(SSD): Client and Enterprise
- Wireless Headset, Keyboard, and Mouse

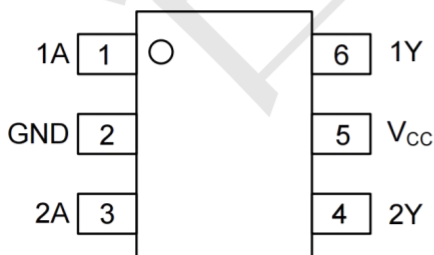
### Logic Diagram



Logic symbol

### Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
SN74AUC2G04DCKR-TP	SOT363	Tape and Reel, 3000



SOT363

### Function Table (each gate)

INPUT(A)	OUTPUT(Y)
H	L
L	H

H: HIGH voltage level; L: LOW voltage level;

### Absolute Maximum Ratings

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Supply Voltage	$V_{CC}$		-0.5 ~ +3.6	V
Input Voltage	$V_{IN}$		-0.5 ~ +3.6	V
Output Voltage	$V_{OUT}$	Enable mode	-0.5 ~ $V_{CC} + 0.5$	V
		Power-down mode	-0.5 ~ +3.6	V
$V_{CC}$ or GND Current	$I_{CC}$		±100	mA
Continuous Output Current	$I_{OUT}$	$V_{OUT}=0 \sim V_{CC}$	±20	mA
Input Clamp Current	$I_{IK}$	$V_{IN} < 0$	-50	mA
Output Clamp Current	$I_{OK}$	$V_{OUT} < 0$	-50	mA
Storage Temperature Range	$T_{STG}$		-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### Recommended Operating Conditions

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$	Operating	0.8	--	2.7	V
Input Voltage	$V_{IN}$		0	--	3.6	V
Output Voltage	$V_{OUT}$	High or low state	0	--	$V_{CC}$	V
Operating Temperature	$T_A$		-40	--	+125	°C

### Electrical Characteristics (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T <sub>A</sub> =25°C			T <sub>A</sub> =-40~+85°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-level Input Voltage	V <sub>IH</sub>	V <sub>CC</sub> =0.8V	V <sub>CC</sub>	--	--	V <sub>CC</sub>	--	--	V
		V <sub>CC</sub> =1.1V ~ 1.95V	0.65 ×V <sub>CC</sub>	--	--	0.65 ×V <sub>CC</sub>	--	--	V
		V <sub>CC</sub> =2.3V ~ 2.7V	1.7	--	--	1.7	--	--	V
Low-level Input Voltage	V <sub>IL</sub>	V <sub>CC</sub> =0.8V	--	--	0	--	--	0	V
		V <sub>CC</sub> =1.1V ~ 1.95V	--	--	0.35 ×V <sub>CC</sub>	--	--	0.35 ×V <sub>CC</sub>	V
		V <sub>CC</sub> =2.3V ~ 2.7V	--	--	0.7	--	--	0.7	V
High-Level Output Voltage	V <sub>OH</sub>	V <sub>CC</sub> =0.8 ~ 2.7V, I <sub>OH</sub> =-100μA	V <sub>CC</sub> -0.1	--	--	V <sub>CC</sub> -0.1	--	--	V
		V <sub>CC</sub> =0.8V, I <sub>OH</sub> =-700μA	--	0.55	--	--	0.55	--	V
		V <sub>CC</sub> =1.1V, I <sub>OH</sub> =-3mA	0.8	--	--	0.8	--	--	V
		V <sub>CC</sub> =1.4V, I <sub>OH</sub> =-5mA	1	--	--	1	--	--	V
		V <sub>CC</sub> =1.65V, I <sub>OH</sub> =-8mA	1.2	--	--	1.2	--	--	V
		V <sub>CC</sub> =2.3V, I <sub>OH</sub> =-9mA	1.8	--	--	1.8	--	--	V
Low-Level Output Voltage	V <sub>OL</sub>	V <sub>CC</sub> =0.8~ 2.7V, I <sub>OL</sub> =100μA	--	--	0.2	--	--	0.2	V
		V <sub>CC</sub> =0.8V, I <sub>OL</sub> =700μA	--	0.25	--	--	0.25	--	V
		V <sub>CC</sub> =1.1V, I <sub>OL</sub> =3mA	--	--	0.3	--	--	0.3	V
		V <sub>CC</sub> =1.4V, I <sub>OL</sub> =5mA	--	--	0.4	--	--	0.4	V
		V <sub>CC</sub> =1.65V, I <sub>OL</sub> =8mA	--	--	0.45	--	--	0.45	V
		V <sub>CC</sub> =2.3V, I <sub>OL</sub> =9mA	--	--	0.6	--	--	0.6	V
Input Leakage Current (A Inputs)	I <sub>I(LEAK)</sub>	V <sub>CC</sub> =0 ~ 2.7V, V <sub>IN</sub> = V <sub>CC</sub> or GND	--	±0.1	±5	--	±0.1	±5	μA
Power OFF Leakage Current	I <sub>OFF</sub>	V <sub>CC</sub> =0V, V <sub>IN</sub> = V <sub>O</sub> or 2.7V	--	±0.1	±10	--	±0.1	±10	μA
Quiescent Supply Current	I <sub>CC</sub>	V <sub>CC</sub> =0.8~ 2.7V, V <sub>IN</sub> =V <sub>CC</sub> or GND I <sub>OUT</sub> =0	--	0.1	10	--	0.1	10	μA

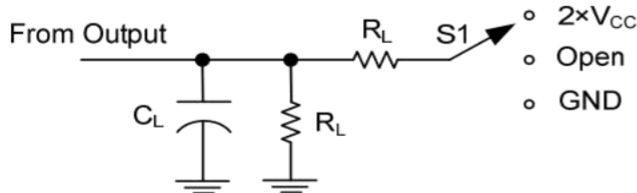
### SWITCHING CHARACTERISTICS (TA = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	TA=25°C			TA=-40~+85°C			UNIT	
			MIN	TYP	MAX	MIN	TYP	MAX		
Propagation delay from input (A) to output(Y)	t <sub>PLH</sub> / t <sub>PHL</sub>	CL=15pF, RL=2KΩ	V <sub>CC</sub> =0.8V	--	15	--	--	18	--	ns
			V <sub>CC</sub> =1.2±0.1V	0.1	--	9.1	0.1	--	10.1	ns
		V <sub>CC</sub> =1.5±0.1V	0.1	--	8	0.1	--	9	ns	
		V <sub>CC</sub> =1.8±0.15V	0.1	--	7.7	0.1	--	8.7	ns	
		V <sub>CC</sub> =2.5±0.2V	0.1	--	7.2	0.1	--	8.2	ns	
	CL=30pF, RL=1KΩ	0.1	--	5	0.1	--	6	ns		
	CL=30pF, RL=500Ω	0.1	--	4.5	0.1	--	5.5	ns		

### OPERATING CHARACTERISTICS (f=10MHz, TA = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C <sub>I</sub>	V <sub>CC</sub> =2.5V, V <sub>IN</sub> =V <sub>CC</sub> or GND	--	2.1	--	pF
Power Dissipation Capacitance	C <sub>PD</sub>	V <sub>CC</sub> =0.8V	--	12.5	--	pF
		V <sub>CC</sub> =1.2V	--	12.5	--	pF
		V <sub>CC</sub> =1.5V	--	12.5	--	pF
		V <sub>CC</sub> =1.8V	--	12.5	--	pF
		V <sub>CC</sub> =2.5V	--	14	--	pF

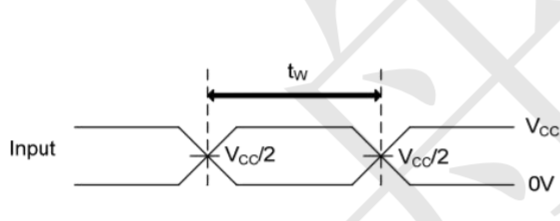
### TEST CIRCUIT AND WAVEFORMS



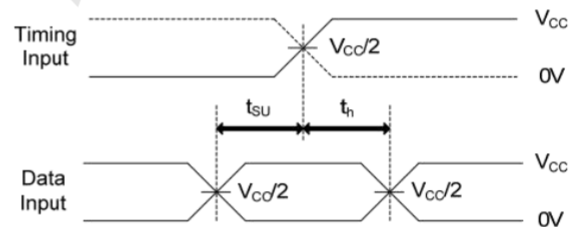
TEST	S1
$t_{PLH}/t_{PHL}$	Open
$t_{PLZ}/t_{PZL}$	$2 \times V_{CC}$
$t_{PHZ}/t_{PZH}$	GND

TEST CIRCUIT

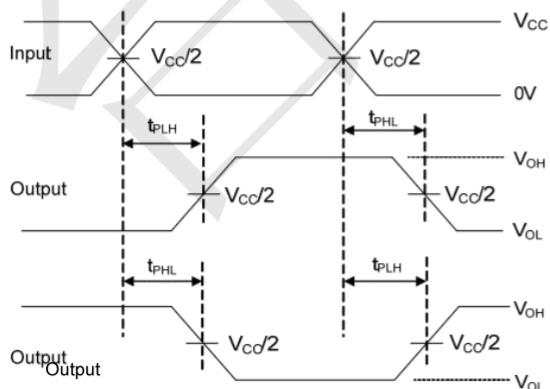
$V_{CC}$	$C_L$	$R_L$	$V_{\Delta}$
0.8V	15pF	2k $\Omega$	0.1V
1.2V $\pm$ 0.1V	15pF	2k $\Omega$	0.1V
1.5V $\pm$ 0.1V	15pF	2k $\Omega$	0.1V
1.8V $\pm$ 0.15V	15pF	2k $\Omega$	0.15V
2.5V $\pm$ 0.2V	15pF	2k $\Omega$	0.15V
1.8V $\pm$ 0.15V	30pF	1k $\Omega$	0.15V
2.5V $\pm$ 0.2V	30pF	500 $\Omega$	0.15V



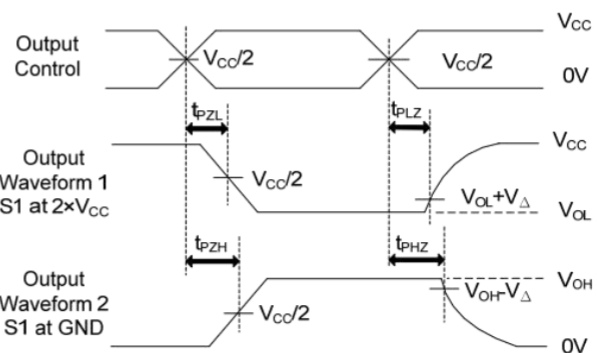
PULSE DURATION



SETUP AND HOLD TIMES



PROPAGATION DELAY TIMES



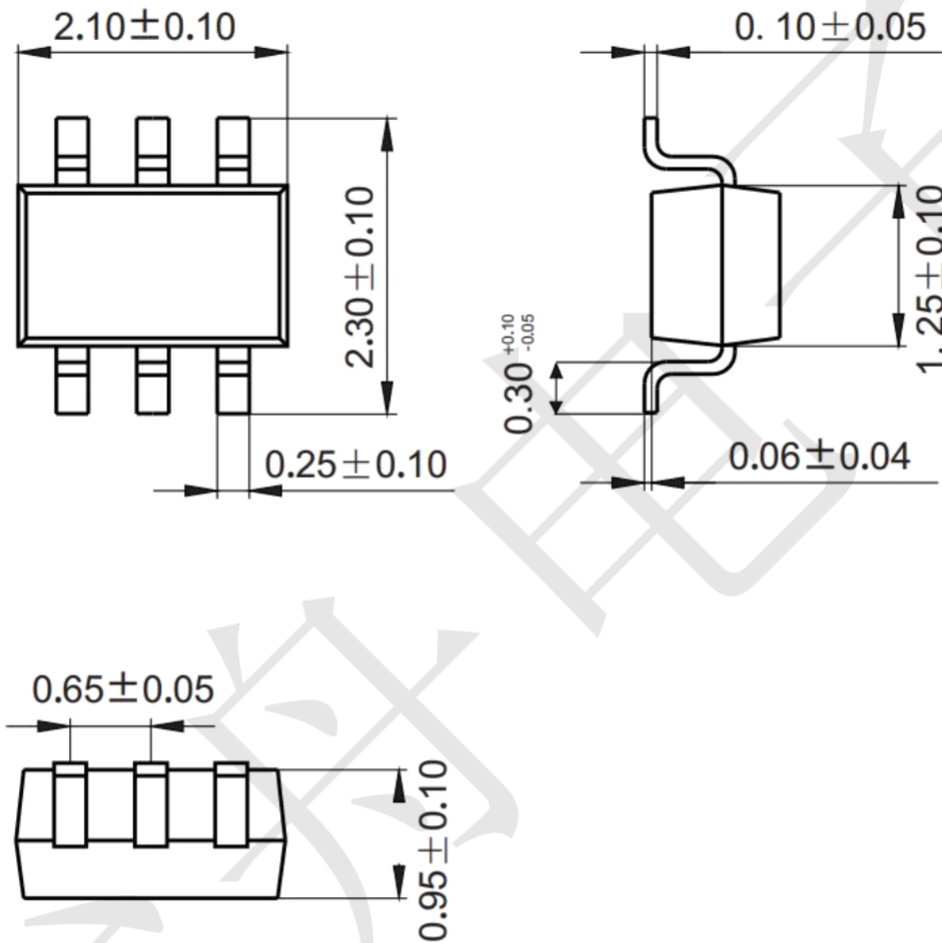
ENABLE AND DISABLE TIMES

Notes: 1.  $C_L$  includes probe and jig capacitance.

2. All input pulses are supplied by generators having the following characteristics: PRR  $\leq$  10MHz,  $Z_o = 50\Omega$ .

**Package information**

SOT363 (Unit: mm)



**Mounting Pad Layout (unit: mm)**

