Single Inverter Schmitt Trigger

CJ74AHC/AHCT1G14 Logic

1 Introduction

CJ74AHC1G14 and CJ74AHCT1G14 are high-speed Si-gate CMOS devices. They provide an inverting buffer function with Schmitt trigger action. These devices are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

The AHC device has CMOS input switching levels and supply voltage range 2V to 5.5V.

The AHCT device has TTL input switching levels and supply voltage range 4.5V to 5.5V.

2 Available Packages

PART NUMBER	PACKAGE
CJ74AHC1G14	SOT-23-5L
	SOT-353
CJ74AHCT1G14	SOT-23-5L
	SOT-353

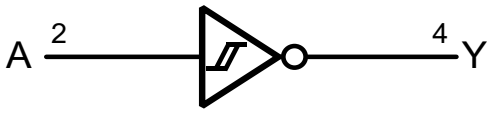
Note: For all available packages, please refer to the part Orderable Information.

3 Features

- Symmetrical output impedance
- Low power dissipation
- Balanced propagation delays
- Specified from -40°C to +125°C

4 Applications

- Barcode Scanners
- Cable Solutions
- E-books
- Embedded PCs
- Field Transmitter: Temperature or Pressure Sensors
- Fingerprint Biometrics
- HVAC: Heating, Ventilating, and Air Conditioning
- Network-Attached Storage (NAS)
- Sever Motherboard and PSU
- Software Defined Radios (SDR)
- TV: High Definition (HDTV), LCD, and Digital
- Video Communications Systems
- Wireless Data Access Cards, Headsets, Keyboards, Mice, and LAN Cards



Logic diagram

5 Orderable Information

DEVICE	PACKAGE	OP TEMP	ECO PLAN	MSL	PACKING OPTION	SORT
CJ74AHC1G14M5N	SOT-23-5L	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active
CJ74AHCT1G14M5N	SOT-23-5L	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active
CJ74AHC1G14R5N	SOT-353	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active
CJ74AHCT1G14R5N	SOT-353	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active

Note:

ECO PLAN: For the RoHS and Green certification standards of this product, please refer to the official report provided by JSCJ.

MSL: Moisture Sensitivity Level. Determined according to JEDEC industry standard classification.

SORT: Specifically defined as follows:
Active: Recommended for new products;
Customized: Products manufactured to meet the specific needs of customers;
Preview: The device has been released and has not been fully mass produced. The sample may or may not be available;
NoRD: It is not recommended to use the device for new design. The device is only produced for the needs of existing customers;
Obsolete: The device has been discontinued.

6 Pin Configuration and Marking Information

6.1 Pin Configuration

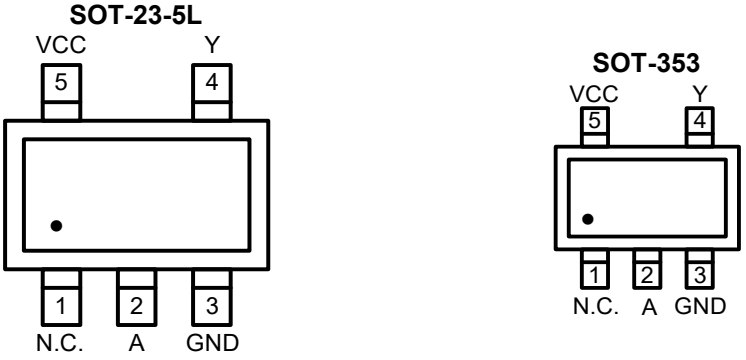


Figure 6-1 Pin configuration

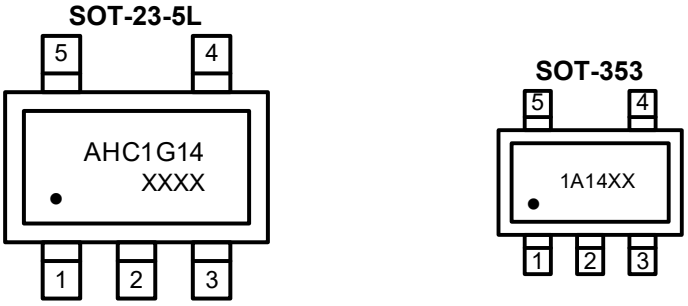
6.2 Pin Function

PIN		I/O(1)	DESCRIPTION
No.	NAME		
1	N.C.	-	Not connected
2	A	I	Data input
3	GND	G	Ground (0V)
4	Y	O	Data output
5	VCC	P	Supply voltage

(1) I-Input, O-Output, P-Power, G-Ground

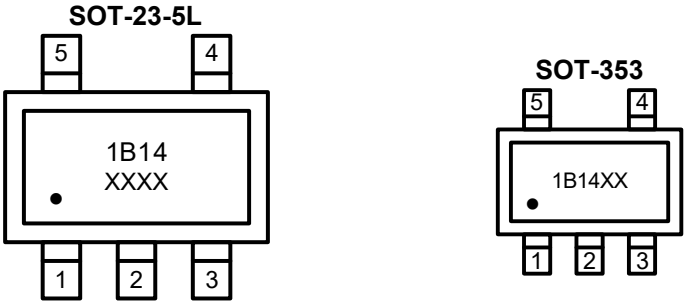
6.3 Marking Information

6.3.1 CJ74AHC1G14



XXXX or XX: Code, indicates weekly record information.

6.3.2 CJ74AHCT1G14



XXXX or XX: Code, indicates weekly record information.

7 Specifications

7.1 Absolute Maximum Ratings

Voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CC}	Supply voltage	-	-0.5	+7.0	V
V_I	Input voltage	-	-0.5	+7.0	V
I_{IK}	Input clamping current	V_I<-0.5V	-20	-	mA
I_{OK}	Output clamping current	V_O<-0.5V or V_O>V_{CC}+0.5V	-	±20	mA
I_O	Output current	-0.5V<V_O<V_{CC}+0.5V	-	±25	mA
I_{CC}	Supply current	-	-	75	mA
I_{GND}	Ground current	-	-75	-	mA
T_{stg}	Storage temperature	-	-65	+150	°C
P_{tot}	Total power dissipation	-	-	250	mW
T_L	Soldering temperature	10s	-	260	°C

Note: Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are absolute voltages referenced to GND. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

7.2 Recommended Operating Conditions

Voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14						
V_{CC}	Supply voltage	-	2.0	5.0	5.5	V
V_I	Input voltage	-	0	-	5.5	V
V_O	Output voltage	-	0	-	V_{CC}	V
T_{amb}	Ambient temperature	-	-40	-	+125	°C
CJ74AHCT1G14						
V_{CC}	Supply voltage	-	4.5	5.0	5.5	V
V_I	Input voltage	-	0	-	5.5	V
V_O	Output voltage	-	0	-	V_{CC}	V
T_{amb}	Ambient temperature	-	-40	-	+125	°C

7.3 ESD Ratings

SYMBOL	ESD RATINGS		VALUE	UNIT
$V_{ESD-HBM}$	Electrostatic discharge	Human body model (HBM)(1)	±4000	V

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

7.4 Electrical Characteristics

7.4.1 DC Characteristics 1

T_{amb}=25°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14							
V_{OH}	HIGH-level output voltage	V_I=V_{T+} or V_{T-}	I_O=-50uA; V_{CC}=2.0V	1.9	2.0	-	V
			I_O=-50uA; V_{CC}=3.0V	2.9	3.0	-	V
			I_O=-50uA; V_{CC}=4.5V	4.4	4.5	-	V
			I_O=-4mA; V_{CC}=3.0V	2.58	-	-	V
			I_O=-8mA; V_{CC}=4.5V	3.94	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{T+} or V_{T-}	I_O=50uA; V_{CC}=2.0V	-	0	0.1	V
			I_O=50uA; V_{CC}=3.0V	-	0	0.1	V
			I_O=50uA; V_{CC}=4.5V	-	0	0.1	V
			I_O=4mA; V_{CC}=3.0V	-	-	0.36	V
			I_O=8mA; V_{CC}=4.5V	-	-	0.36	V
I_I	Input leakage current	V_I=5.5V or GND; V_{CC}=0V to 5.5V		-	-	1.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}= 5.5V		-	-	1.0	uA
C_I	Input capacitance	-		-	1.5	10	pF
CJ74AHCT1G14							
V_{OH}	HIGH-level output voltage	V_I=V_{T+} or V_{T-}	I_O=-50uA; V_{CC}=4.5V	4.4	4.5	-	V
			I_O=-8mA; V_{CC}=4.5V	3.94	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{T+} or V_{T-}	I_O=50uA; V_{CC}=4.5V	-	0	0.1	V
			I_O=8mA; V_{CC}=4.5V	-	-	0.36	V
I_I	Input leakage current	V_I=5.5V or GND; V_{CC}=0V to 5.5V		-	-	1.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}= 5.5V		-	-	1.0	uA
ΔI_{CC}	Additional supply current	Per input pin; V_I=3.4V; Other inputs at V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	1.35	mA
C_I	Input capacitance	-		-	1.5	10	pF

7.4.2 DC Characteristics 2

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

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14							
V_{OH}	HIGH-level output voltage	V_I=V_{T+} or V_{T-}	I_O=-50uA; V_{CC}=2.0V	1.9	-	-	V
			I_O=-50uA; V_{CC}=3.0V	2.9	-	-	V
			I_O=-50uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-4mA; V_{CC}=3.0V	2.48	-	-	V
			I_O=-8mA; V_{CC}=4.5V	3.8	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{T+} or V_{T-}	I_O=50uA; V_{CC}=2.0V	-	-	0.1	V
			I_O=50uA; V_{CC}=3.0V	-	-	0.1	V
			I_O=50uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=4mA; V_{CC}=3.0V	-	-	0.44	V
			I_O=8mA; V_{CC}=4.5V	-	-	0.44	V
I_I	Input leakage current	V_I=5.5V or GND; V_{CC}=0V to 5.5V		-	-	1.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}= 5.5V		-	-	10	uA
C_I	Input capacitance	-		-	-	10	pF
CJ74AHCT1G14							
V_{OH}	HIGH-level output voltage	V_I=V_{T+} or V_{T-}	I_O=-50uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-8mA; V_{CC}=4.5V	3.8	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{T+} or V_{T-}	I_O=50uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=8mA; V_{CC}=4.5V	-	-	0.44	V
I_I	Input leakage current	V_I=5.5V or GND; V_{CC}=0V to 5.5V		-	-	1.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}= 5.5V		-	-	10	uA
ΔI_{CC}	Additional supply current	Per input pin; V_I=3.4V; Other inputs at V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	1.5	mA
C_I	Input capacitance	-		-	-	10	pF

7.4.3 DC Characteristics 3

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

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14							
V_{OH}	HIGH-level output voltage	V_I=V_{T+} or V_{T-}	I_O=-50uA; V_{CC}=2.0V	1.9	-	-	V
			I_O=-50uA; V_{CC}=3.0V	2.9	-	-	V
			I_O=-50uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-4mA; V_{CC}=3.0V	2.4	-	-	V
			I_O=-8mA; V_{CC}=4.5V	3.7	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{T+} or V_{T-}	I_O=50uA; V_{CC}=2.0V	-	-	0.1	V
			I_O=50uA; V_{CC}=3.0V	-	-	0.1	V
			I_O=50uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=4mA; V_{CC}=3.0V	-	-	0.55	V
			I_O=8mA; V_{CC}=4.5V	-	-	0.55	V
I_I	Input leakage current	V_I=5.5V or GND; V_{CC}=0V to 5.5V		-	-	2.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}= 5.5V		-	-	40	uA
C_I	Input capacitance	-		-	-	10	pF
CJ74AHCT1G14							
V_{OH}	HIGH-level output voltage	V_I=V_{T+} or V_{T-}	I_O=-50uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-8mA; V_{CC}=4.5V	3.7	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{T+} or V_{T-}	I_O=50uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=8mA; V_{CC}=4.5V	-	-	0.55	V
I_I	Input leakage current	V_I=5.5V or GND; V_{CC}=0V to 5.5V		-	-	2.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}= 5.5V		-	-	40	uA
ΔI_{CC}	Additional supply current	Per input pin; V_I=3.4V; Other inputs at V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	1.5	mA
C_I	Input capacitance	-		-	-	10	pF

7.4.4 Transfer Characteristics 1

T_{amb}=25°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14						
V_{T+}	Positive-going threshold voltage	V_{CC}=3.0V	1.2	-	2.2	V
		V_{CC}=4.5V	1.75	-	3.15	V
		V_{CC}=5.5V	2.15	-	3.85	V
V_{T-}	Negative-going threshold voltage	V_{CC}=3.0V	0.9	-	1.9	V
		V_{CC}=4.5V	1.35	-	2.75	V
		V_{CC}=5.5V	1.65	-	3.35	V
V_H	Hysteresis voltage	V_{CC}=3.0V	0.3	-	1.2	V
		V_{CC}=4.5V	0.4	-	1.4	V
		V_{CC}=5.5V	0.5	-	1.6	V
CJ74AHCT1G14						
V_{T+}	Positive-going threshold voltage	V_{CC}=4.5V	0.9	-	2.0	V
		V_{CC}=5.5V	1.1	-	2.0	V
V_{T-}	Negative-going threshold voltage	V_{CC}=4.5V	0.5	-	1.6	V
		V_{CC}=5.5V	0.6	-	1.5	V
V_H	Hysteresis voltage	V_{CC}=4.5V	0.4	-	1.4	V
		V_{CC}=5.5V	0.4	-	1.6	V

7.4.5 Transfer Characteristics 2

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14						
V_{T+}	Positive-going threshold voltage	V_{CC}=3.0V	1.2	-	2.2	V
		V_{CC}=4.5V	1.75	-	3.15	V
		V_{CC}=5.5V	2.15	-	3.85	V
V_{T-}	Negative-going threshold voltage	V_{CC}=3.0V	0.9	-	1.9	V
		V_{CC}=4.5V	1.35	-	2.75	V
		V_{CC}=5.5V	1.65	-	3.35	V
V_H	Hysteresis voltage	V_{CC}=3.0V	0.3	-	1.2	V
		V_{CC}=4.5V	0.4	-	1.4	V
		V_{CC}=5.5V	0.5	-	1.6	V
CJ74AHCT1G14						
V_{T+}	Positive-going threshold voltage	V_{CC}=4.5V	0.9	-	2.0	V
		V_{CC}=5.5V	1.1	-	2.0	V
V_{T-}	Negative-going threshold voltage	V_{CC}=4.5V	0.5	-	1.6	V
		V_{CC}=5.5V	0.6	-	1.5	V
V_H	Hysteresis voltage	V_{CC}=4.5V	0.4	-	1.4	V
		V_{CC}=5.5V	0.4	-	1.6	V

7.4.6 Transfer Characteristics 3

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14						
V_{T+}	Positive-going threshold voltage	V_{CC}=3.0V	1.2	-	2.2	V
		V_{CC}=4.5V	1.75	-	3.15	V
		V_{CC}=5.5V	2.15	-	3.85	V
V_{T-}	Negative-going threshold voltage	V_{CC}=3.0V	0.9	-	1.9	V
		V_{CC}=4.5V	1.35	-	2.75	V
		V_{CC}=5.5V	1.65	-	3.35	V
V_H	Hysteresis voltage	V_{CC}=3.0V	0.25	-	1.2	V
		V_{CC}=4.5V	0.35	-	1.4	V
		V_{CC}=5.5V	0.45	-	1.6	V
CJ74AHCT1G14						
V_{T+}	Positive-going threshold voltage	V_{CC}=4.5V	0.9	-	2.0	V
		V_{CC}=5.5V	1.1	-	2.0	V
V_{T-}	Negative-going threshold voltage	V_{CC}=4.5V	0.5	-	1.6	V
		V_{CC}=5.5V	0.6	-	1.5	V
V_H	Hysteresis voltage	V_{CC}=4.5V	0.35	-	1.4	V
		V_{CC}=5.5V	0.35	-	1.6	V

7.4.7 AC Characteristics 1

T_{amb}=25°C, GND=0V, $t_r=t_f\leq$3.0ns., unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14							
t_{pd}	Propagation delay	A to Y(1)	C_L=15pF V_{CC}=3.0V to 3.6V(2)	-	4.2	12.8	ns
			C_L=50pF V_{CC}=3.0V to 3.6V(2)	-	6.0	16.3	ns
			C_L=15pF V_{CC}=4.5V to 5.5V(3)	-	3.2	8.6	ns
			C_L=50pF V_{CC}=4.5V to 5.5V(3)	-	4.6	10.6	ns
C_{PD}	Power dissipation capacitance	Per buffer; C_L=50pF; f_i=1MHz; V_I= GND to V_{CC}(4)		-	12	-	pF
CJ74AHCT1G14							
t_{pd}	Propagation delay	A to Y(1)	C_L=15pF V_{CC}=4.5V to 5.5V(3)	-	4.1	7.0	ns
			C_L=50pF V_{CC}=4.5V to 5.5V(3)	-	5.9	8.5	ns
C_{PD}	Power dissipation capacitance	Per buffer; V_I= GND to V_{CC}(4)		-	13	-	pF

(1) t_{pd} is the same as t_{PLH} and t_{PHL}.

(2) Typical values are measured at V_{CC}=3.3V.

(3) Typical values are measured at V_{CC}=5.0V.

(4) C_{PD} is used to determine the dynamic power dissipation P_D (uW).

$P_D=C_{PD}xV_{CC}^2xf_i+\sum(C_LxV_{CC}^2xf_o)$ where:

f_i=input frequency in MHz;

f_o=output frequency in MHz;

C_L=output load capacitance in pF;

V_{CC}=supply voltage in Volts.

7.4.8 AC Characteristics 2

T_{amb}=-40°C to +85°C, GND=0V, $t_r=t_f\leq$3.0ns., unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14							
t_{pd}	Propagation delay	A to Y(1)	C_L=15pF V_{CC}=3.0V to 3.6V(2)	1.0	-	15.0	ns
			C_L=50pF V_{CC}=3.0V to 3.6V(2)	1.0	-	18.5	ns
			C_L=15pF V_{CC}=4.5V to 5.5V(3)	1.0	-	10.0	ns
			C_L=50pF V_{CC}=4.5V to 5.5V(3)	1.0	-	12.0	ns
CJ74AHCT1G14							
t_{pd}	Propagation delay	A to Y(1)	C_L=15pF V_{CC}=4.5V to 5.5V(3)	1.0	-	8.0	ns
			C_L=50pF V_{CC}=4.5V to 5.5V(3)	1.0	-	10.0	ns

(1) t_{pd} is the same as t_{PLH} and t_{PHL}.
(2) Typical values are measured at V_{CC}=3.3V.
(3) Typical values are measured at V_{CC}=5.0V.

7.4.9 AC Characteristics 3

T_{amb}=-40°C to +125°C, GND=0V, $t_r=t_f\leq$3.0ns., unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74AHC1G14							
t_{pd}	Propagation delay	A to Y(1)	C_L=15pF V_{CC}=3.0V to 3.6V(2)	1.0	-	16.5	ns
			C_L=50pF V_{CC}=3.0V to 3.6V(2)	1.0	-	20.5	ns
			C_L=15pF V_{CC}=4.5V to 5.5V(3)	1.0	-	11.0	ns
			C_L=50pF V_{CC}=4.5V to 5.5V(3)	1.0	-	13.5	ns
CJ74AHCT1G14							
t_{pd}	Propagation delay	A to Y(1)	C_L=15pF V_{CC}=4.5V to 5.5V(3)	1.0	-	9.0	ns
			C_L=50pF V_{CC}=4.5V to 5.5V(3)	1.0	-	11.0	ns

(1) t_{pd} is the same as t_{PLH} and t_{PHL}.
(2) Typical values are measured at V_{CC}=3.3V.
(3) Typical values are measured at V_{CC}=5.0V.

8 Detailed Description

8.1 Overview

CJ74AHC1G14 and CJ74AHCT1G14 are high-speed Si-gate CMOS devices. They provide an inverting buffer function with Schmitt trigger action. These devices are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

The AHC device has CMOS input switching levels and supply voltage range 2V to 5.5V.

The AHCT device has TTL input switching levels and supply voltage range 4.5V to 5.5V.

8.2 Functional Block Diagram

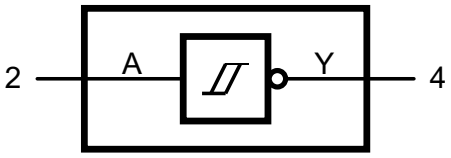


Figure 8-1 Logic symbol

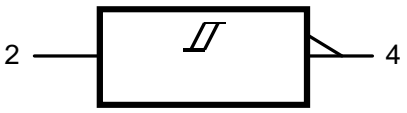


Figure 8-2 IEC logic symbol

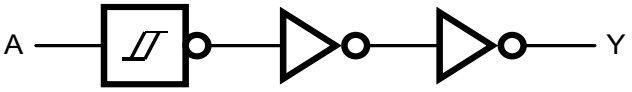


Figure 8-3 Logic diagram

8.3 Function Table(1)

INPUT	OUTPUT
A	**Y**
L	H
H	L

(1) H=HIGH voltage level; L=LOW voltage level.

8.4 Testing Circuit

8.4.1 AC Testing Circuit

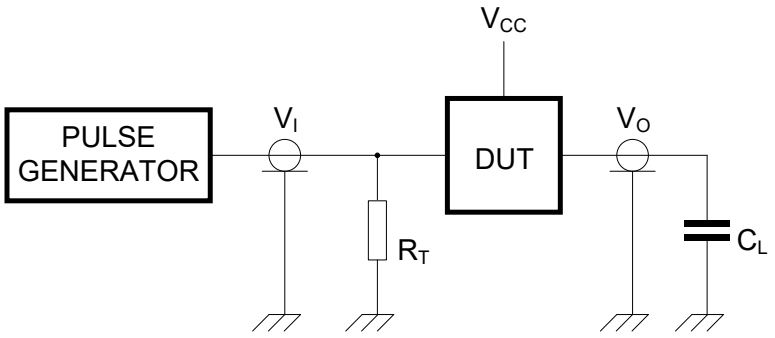


Figure 8-4 Test circuit for measuring switching times

Definitions for test circuit:

C_L=Load capacitance.

R_T=Termination resistance should be equal to output impedance Z_o of the pulse generator.

8.4.2 AC Testing Waveforms

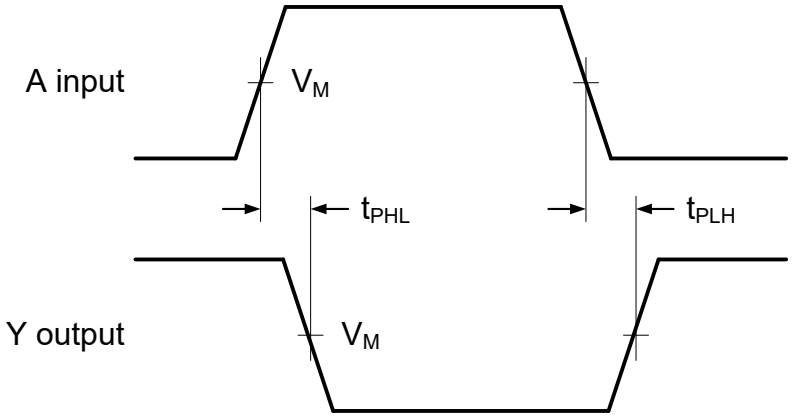


Figure 8-5 The input (A) to output (Y) propagation delay times

8.4.3 Test Data

TYPE	INPUT		OUTPUT
	V_I	V_M	V_M
CJ74AHC1G14	GND to V_{CC}	0.5xV_{CC}	0.5xV_{CC}
CJ74AHCT1G14	GND to 3.0V	1.5V	0.5xV_{CC}

8.4.4 Transfer Characteristic Waveforms

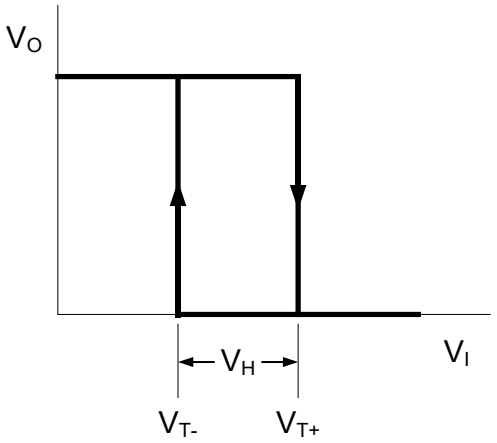


Figure 8-6 Transfer characteristic

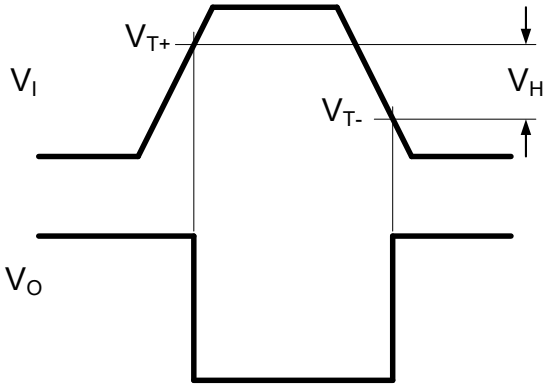


Figure 8-7 The definitions of V_{T+}, V_{T-} and V_H

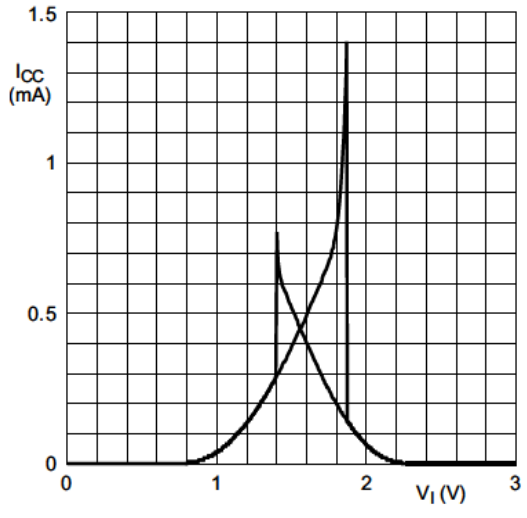


Figure 8-8 Typical CJ74AHC1G14 transfer characteristics; V_{CC}=3.0V

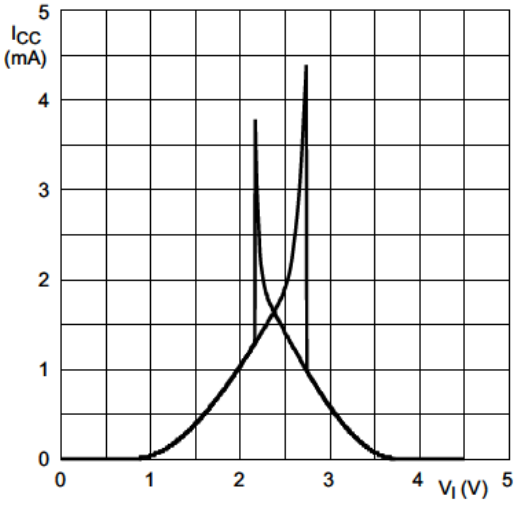


Figure 8-9 Typical CJ74AHC1G14 transfer characteristics; V_{CC}=4.5V

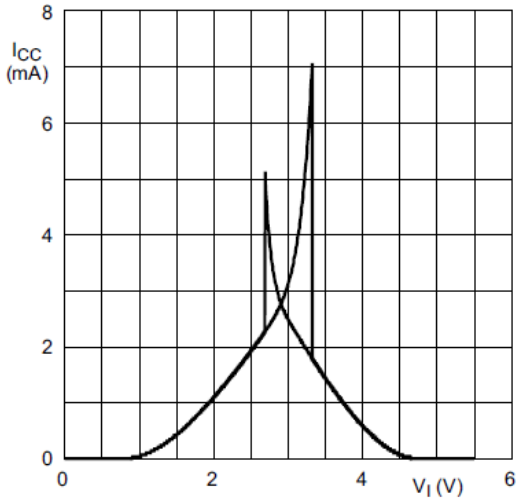


Figure 8-10 Typical CJ74AHC1G14 transfer characteristics; V_{CC}=5.5V

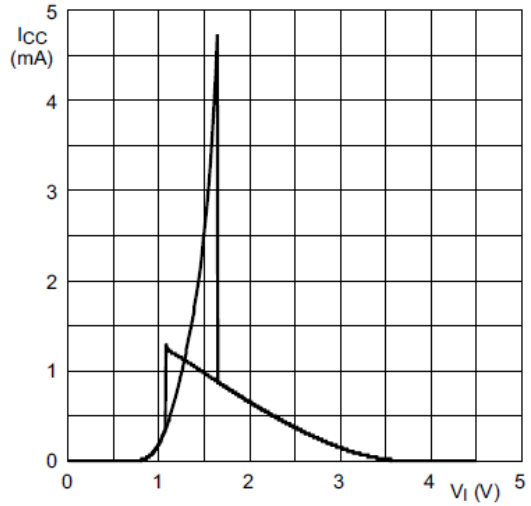


Figure 8-11 Typical CJ74AHCT1G14 transfer characteristics; V_{CC}=4.5V

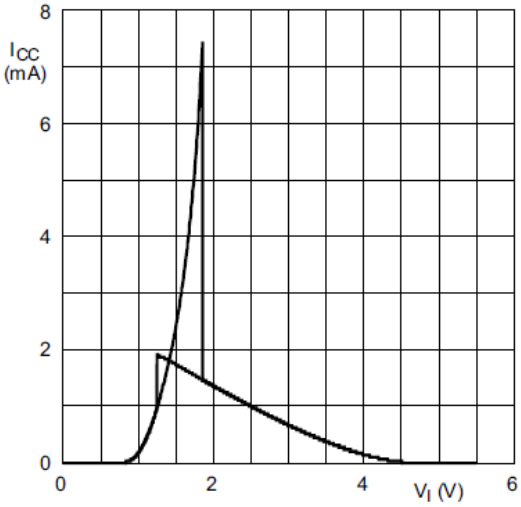


Figure 8-12 Typical CJ74AHCT1G14 transfer characteristics; V_{CC}=5.5V

8.5 Typical Application Circuit And Application Note

The slow input rise and fall times cause additional power dissipation, which can be calculated using the following formula:

$P_{add}=f_i x(t_r x\Delta I_{CC(AV)}+t_f x\Delta I_{CC(AV)})xV_{CC}$ where:

P_{add}=additional power dissipation (uW);

f_i=input frequency (MHz);

t_r=input rise time (ns); 10% to 90%;

t_f=input fall time (ns); 90% to 10%;

$\Delta I_{CC(AV)}$=average additional supply current (uA).

Average additional I_{CC} differs with positive or negative input transitions, as shown in Figure 8-13 and Figure 8-14.

For CJ74AHC1G14 and CJ74AHCT1G14 used in relaxation oscillator circuit, see Figure 8-15.

Note to the application information:

1.All values given are typical unless otherwise specified.

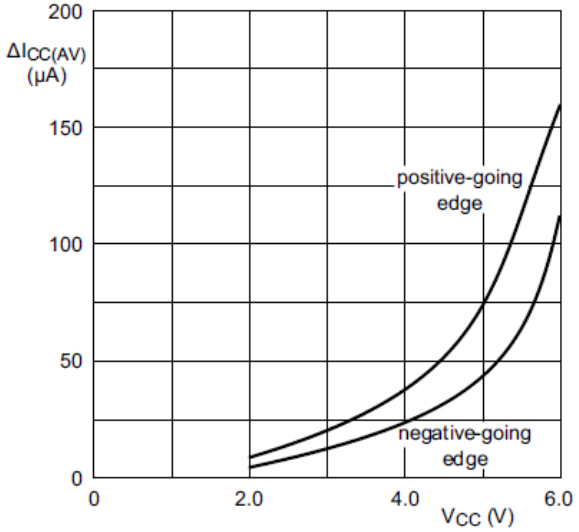


Figure 8-13 Average additional I_{CC} for CJ74AHC1G14 Schmitt trigger devices;

linear change of V_I between 0.1V_{CC} to 0.9V_{CC}

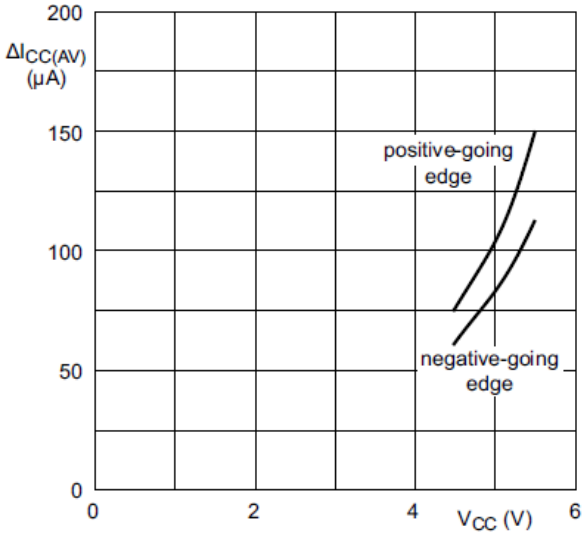
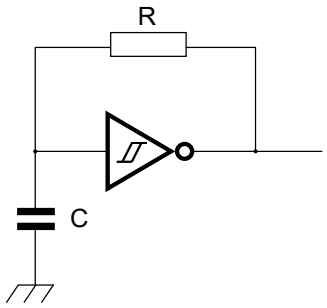


Figure 8-14 Average additional I_{CC} for CJ74AHCT1G14 Schmitt trigger devices;

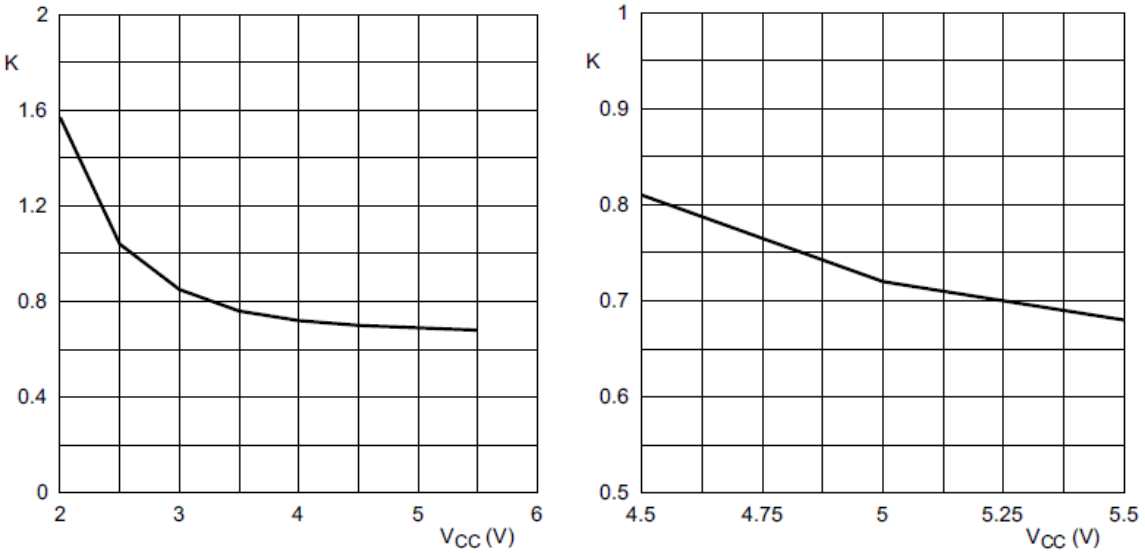
linear change of V_I between 0.1V_{CC} to 0.9V_{CC}



For CJ74AHC1G14 and CJ74AHCT1G14: $f = \frac{1}{T} \approx \frac{1}{K \times RC}$

For K-factor, see Figure 8-16

Figure 8-15 Relaxation oscillator using the 74AHC1G14 and 74AHCT1G14



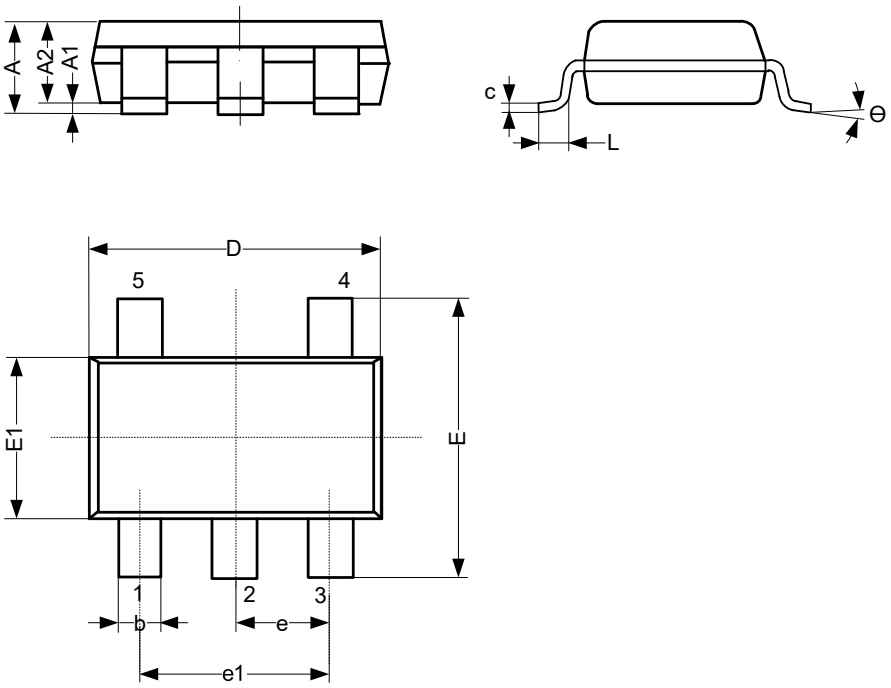
K-factor for CJ74AHC1G14 K-factor for CJ74AHCT1G14

Figure 8-16 Typical K-factor for relaxation oscillator

9 Mechanical Information

9.1 SOT-23-5L Mechanical Information

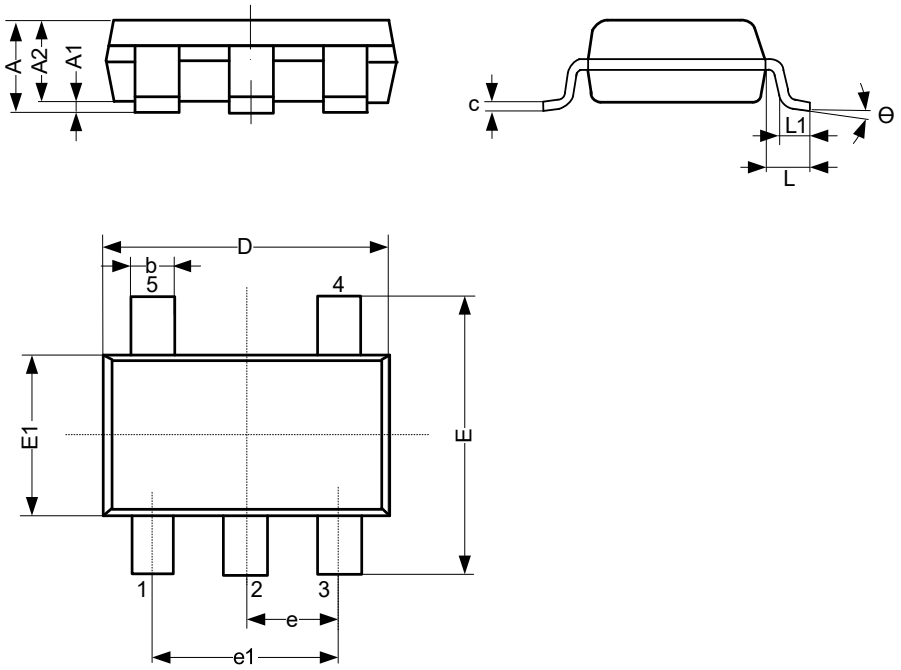
9.1.1 SOT-23-5L Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	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 BSC		
e1	1.80	-	2.00
L	0.30	-	0.60
Θ	0°	-	8°
Unit: mm			

9.2 SOT-353 Mechanical Information

9.2.1 SOT-353 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	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	2.15	-	2.45
E1	1.15	-	1.35
e	0.65 BSC		
e1	1.20	-	1.40
L	-	0.525	-
L1	0.26	-	0.46
Θ	0°	-	8°
Unit: mm			

10 Notes and Revision History

10.1 Associated Product Family and Others

To view other products of the same type or IC products of other types, click the official website of JSCJ -- ***https:www.jscj-elec.com*** for more details.

10.2 Notes

Electrostatic Discharge Caution

This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. If appropriate measures are not taken to prevent ESD damage, the hazards caused by ESD include but are not limited to degradation of integrated circuit performance or complete damage of integrated circuit. For some precision integrated circuits, a very small parameter change may cause the whole device to be inconsistent with its published specifications.

DISCLAIMER

IMPORTANT NOTICE, PLEASE READ CAREFULLY

The information in this data sheet is intended to describe the operation and characteristics of our products. JSCJ has the right to make any modification, enhancement, improvement, correction or other changes to any content in this data sheet, including but not limited to specification parameters, circuit design and application information, without prior notice.

Any person who purchases or uses JSCJ products for design shall: 1. Select products suitable for circuit application and design; 2. Design, verify and test the rationality of circuit design; 3. Procedures to ensure that the design complies with relevant laws and regulations and the requirements of such laws and regulations. JSCJ makes no warranty or representation as to the accuracy or completeness of the information contained in this data sheet and assumes no responsibility for the application or use of any of the products described in this data sheet.

Without the written consent of JSCJ, this product shall not be used in occasions requiring high quality or high reliability, including but not limited to the following occasions: medical equipment, military facilities and aerospace. JSCJ shall not be responsible for casualties or property losses caused by abnormal use or application of this product.

Official Website: www.jscj-elec.com