

# DATA SHEET

## **74AHC3G14; 74AHCT3G14** Inverting Schmitt trigger

Product specification  
Supersedes data of 2003 Nov 27

2004 Oct 18

## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

## FEATURES

- Symmetrical output impedance
- High noise immunity
- ESD protection:
  - HBM EIA/JESD22-A114-B exceeds 2000 V
  - MM EIA/JESD22-A115-A exceeds 200 V
  - CDM EIA/JESD22-C101 exceeds 500 V.
- Low power dissipation
- Balanced propagation delays
- Multiple package options
- Specified from  $-40\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$  and  $-40\text{ }^{\circ}\text{C}$  to  $+125\text{ }^{\circ}\text{C}$ .

## APPLICATIONS

- Wave and pulse shapers
- Astable multivibrators
- Monostable multivibrators.

## DESCRIPTION

The 74AHC3G/AHCT3G14 is a high-speed Si-gate CMOS device.

The 74AHC3G/AHCT3G14 provides three inverting buffers with Schmitt-trigger action. These devices are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

## QUICK REFERENCE DATA

GND = 0 V;  $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$ ;  $t_r = t_f \leq 3.0\text{ ns}$ .

SYMBOL	PARAMETER	CONDITIONS	TYPICAL		UNIT
			AHC3G14	AHCT3G14	
$t_{\text{PHL}}/t_{\text{PLH}}$	propagation delay A to Y	$C_L = 15\text{ pF}$ ; $V_{\text{CC}} = 5\text{ V}$	3.2	4.1	ns
$C_I$	input capacitance		1.5	1.5	pF
$C_{\text{PD}}$	power dissipation capacitance	$C_L = 15\text{ pF}$ ; $f = 1\text{ MHz}$ ; notes 1 and 2	10	12	pF

## Notes

1.  $C_{\text{PD}}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu\text{W}$ ).

$$P_D = C_{\text{PD}} \times V_{\text{CC}}^2 \times f_i \times N + \Sigma(C_L \times V_{\text{CC}}^2 \times f_o) \text{ where:}$$

$f_i$  = input frequency in MHz;

$f_o$  = output frequency in MHz;

$C_L$  = output load capacitance in pF;

$V_{\text{CC}}$  = supply voltage in Volts;

$N$  = number of inputs switching;

$\Sigma(C_L \times V_{\text{CC}}^2 \times f_o)$  = sum of the outputs.

2. The condition is  $V_I = \text{GND to } V_{\text{CC}}$ .

## FUNCTION TABLE

See note 1.

INPUT	OUTPUT
nA	nY
L	H
H	L

## Note

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

# Inverting Schmitt trigger

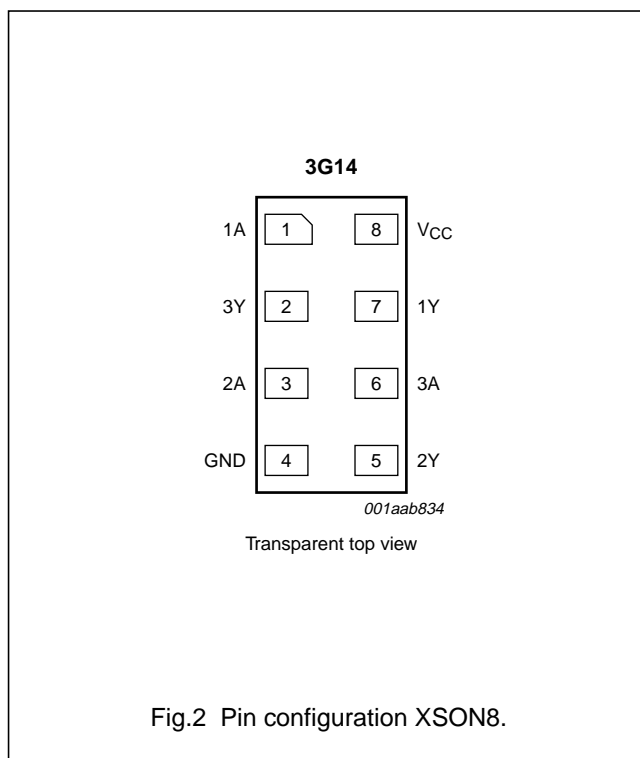
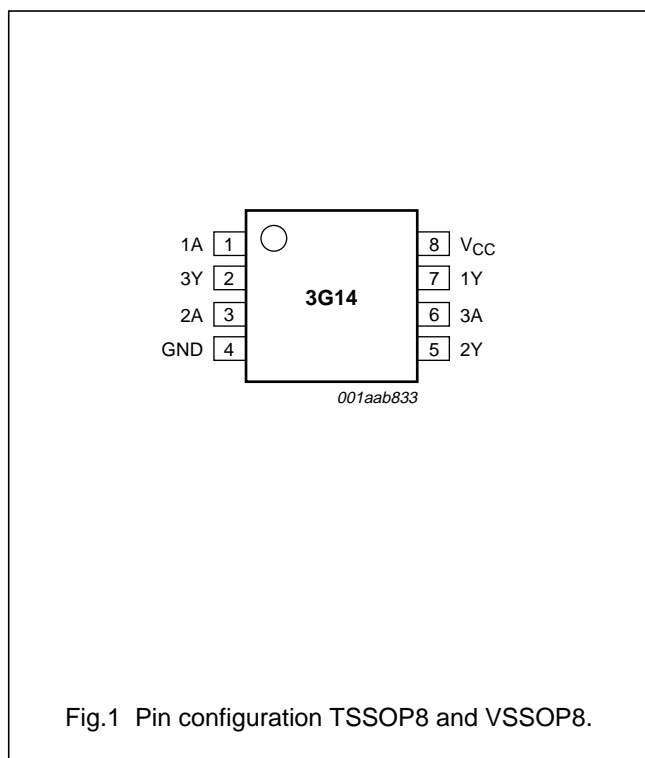
# 74AHC3G14; 74AHCT3G14

## ORDERING INFORMATION

TYPE NUMBER	PACKAGE					
	TEMPERATURE RANGE	PINS	PACKAGE	MATERIAL	CODE	MARKING
74AHC3G14DP	-40 °C to +125 °C	8	TSSOP8	plastic	SOT505-2	A14
74AHCT3G14DP	-40 °C to +125 °C	8	TSSOP8	plastic	SOT505-2	C14
74AHC3G14DC	-40 °C to +125 °C	8	VSSOP8	plastic	SOT765-1	A14
74AHCT3G14DC	-40 °C to +125 °C	8	VSSOP8	plastic	SOT765-1	C14
74AHC3G14GM	-40 °C to +125 °C	8	XSON8	plastic	SOT833-1	A14
74AHCT3G14GM	-40 °C to +125 °C	8	XSON8	plastic	SOT833-1	C14

## PINNING

PIN	SYMBOL	DESCRIPTION
1	1A	data input
2	3Y	data output
3	2A	data input
4	GND	ground (0 V)
5	2Y	data output
6	3A	data input
7	1Y	data output
8	V <sub>CC</sub>	supply voltage



# Inverting Schmitt trigger

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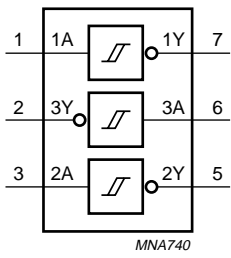


Fig.3 Logic symbol.

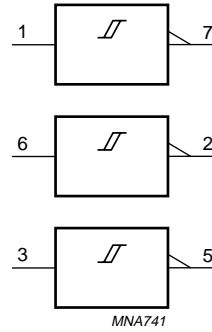


Fig.4 IEC logic symbol.

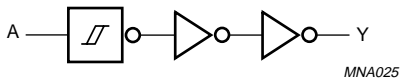


Fig.5 Logic diagram (one driver).

## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

## RECOMMENDED OPERATING CONDITIONS

SYMBOL	PARAMETER	CONDITIONS	74AHC3G			74AHCT3G			UNIT
			MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
$V_{CC}$	supply voltage		2.0	5.0	5.5	4.5	5.0	5.5	V
$V_I$	input voltage		0	–	5.5	0	–	5.5	V
$V_O$	output voltage		0	–	$V_{CC}$	0	–	$V_{CC}$	V
$T_{amb}$	operating ambient temperature	see DC and AC characteristics per device	–40	+25	+125	–40	+25	+125	°C

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134); voltages are referenced to GND (ground = 0 V).

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 diode current	$V_I < -0.5$ V	–	–20	mA
$I_{OK}$	output diode current	$V_O < -0.5$ V or $V_O > V_{CC} + 0.5$ V; note 1	–	±20	mA
$I_O$	output source or sink current	$-0.5$ V < $V_O$ < $V_{CC} + 0.5$ V	–	±25	mA
$I_{CC}, I_{GND}$	$V_{CC}$ or GND current		–	±75	mA
$T_{stg}$	storage temperature		–65	+150	°C
$P_D$	power dissipation	$T_{amb} = -40$ °C to +125 °C	–	250	mW

## Note

1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

## Inverting Schmitt trigger

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## DC CHARACTERISTICS

## Type 74AHC3G14

At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

SYMBOL	PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
		OTHER	V <sub>CC</sub> (V)				
<b>T<sub>amb</sub> = 25 °C</b>							
V <sub>OH</sub>	HIGH-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>					
		I <sub>O</sub> = -50 μA	2.0	1.9	2.0	-	V
		I <sub>O</sub> = -50 μA	3.0	2.9	3.0	-	V
		I <sub>O</sub> = -50 μA	4.5	4.4	4.5	-	V
		I <sub>O</sub> = -4.0 mA	3.0	2.58	-	-	V
		I <sub>O</sub> = -8.0 mA	4.5	3.94	-	-	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>					
		I <sub>O</sub> = 50 μA	2.0	-	0	0.1	V
		I <sub>O</sub> = 50 μA	3.0	-	0	0.1	V
		I <sub>O</sub> = 50 μA	4.5	-	0	0.1	V
		I <sub>O</sub> = 4.0 mA	3.0	-	-	0.36	V
		I <sub>O</sub> = 8.0 mA	4.5	-	-	0.36	V
I <sub>LI</sub>	input leakage current	V <sub>I</sub> = V <sub>CC</sub> or GND	5.5	-	-	0.1	μA
I <sub>CC</sub>	quiescent supply current	V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	-	-	1.0	μA
C <sub>I</sub>	input capacitance		-	-	1.5	10	pF
<b>T<sub>amb</sub> = -40 °C to +85 °C</b>							
V <sub>OH</sub>	HIGH-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>					
		I <sub>O</sub> = -50 μA	2.0	1.9	-	-	V
		I <sub>O</sub> = -50 μA	3.0	2.9	-	-	V
		I <sub>O</sub> = -50 μA	4.5	4.4	-	-	V
		I <sub>O</sub> = -4.0 mA	3.0	2.48	-	-	V
		I <sub>O</sub> = -8.0 mA	4.5	3.8	-	-	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>					
		I <sub>O</sub> = 50 μA	2.0	-	-	0.1	V
		I <sub>O</sub> = 50 μA	3.0	-	-	0.1	V
		I <sub>O</sub> = 50 μA	4.5	-	-	0.1	V
		I <sub>O</sub> = 4.0 mA	3.0	-	-	0.44	V
		I <sub>O</sub> = 8.0 mA	4.5	-	-	0.44	V
I <sub>LI</sub>	input leakage current	V <sub>I</sub> = V <sub>CC</sub> or GND	5.5	-	-	1.0	μA
I <sub>CC</sub>	quiescent supply current	V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	-	-	10	μA
C <sub>I</sub>	input capacitance		-	-	-	10	pF

## Inverting Schmitt trigger

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SYMBOL	PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
		OTHER	V <sub>CC</sub> (V)				
<b>T<sub>amb</sub> = -40 °C to +125 °C</b>							
V <sub>OH</sub>	HIGH-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>O</sub> = -50 µA	2.0	1.9	-	-	V
		I <sub>O</sub> = -50 µA	3.0	2.9	-	-	V
		I <sub>O</sub> = -50 µA	4.5	4.4	-	-	V
		I <sub>O</sub> = -4.0 mA	3.0	2.40	-	-	V
		I <sub>O</sub> = -8.0 mA	4.5	3.70	-	-	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> I <sub>O</sub> = 50 µA	2.0	-	-	0.1	V
		I <sub>O</sub> = 50 µA	3.0	-	-	0.1	V
		I <sub>O</sub> = 50 µA	4.5	-	-	0.1	V
		I <sub>O</sub> = 4.0 mA	3.0	-	-	0.55	V
		I <sub>O</sub> = 8.0 mA	4.5	-	-	0.55	V
I <sub>LI</sub>	input leakage current	V <sub>I</sub> = V <sub>CC</sub> or GND	5.5	-	-	2.0	µA
I <sub>CC</sub>	quiescent supply current	V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	-	-	40	µA
C <sub>I</sub>	input capacitance		-	-	-	10	pF

## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

**Type 74AHCT3G14**

At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

SYMBOL	PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
		OTHER	V <sub>CC</sub> (V)				
<b>T<sub>amb</sub> = 25 °C</b>							
V <sub>OH</sub>	HIGH-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	4.5	4.4	4.5	–	V
		I <sub>O</sub> = –50 μA I <sub>O</sub> = –8.0 mA	4.5	3.94	–	–	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	4.5	–	0	0.1	V
		I <sub>O</sub> = 50 μA I <sub>O</sub> = 8.0 mA	4.5	–	–	0.36	V
I <sub>LI</sub>	input leakage current	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	5.5	–	–	0.1	μA
I <sub>CC</sub>	quiescent supply current	V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	–	–	1.0	μA
ΔI <sub>CC</sub>	additional quiescent supply current per input pin	V <sub>I</sub> = 3.4 V; other inputs at V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	–	–	1.35	mA
C <sub>I</sub>	input capacitance		–	–	1.5	10	pF
<b>T<sub>amb</sub> = –40 °C to +85 °C</b>							
V <sub>OH</sub>	HIGH-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	4.5	4.4	–	–	V
		I <sub>O</sub> = –50 μA I <sub>O</sub> = –8.0 mA	4.5	3.8	–	–	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	4.5	–	–	0.1	V
		I <sub>O</sub> = 50 μA I <sub>O</sub> = 8.0 mA	4.5	–	–	0.44	V
I <sub>LI</sub>	input leakage current	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	5.5	–	–	1.0	μA
I <sub>CC</sub>	quiescent supply current	V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	–	–	10	μA
ΔI <sub>CC</sub>	additional quiescent supply current per input pin	V <sub>I</sub> = 3.4 V; other inputs at V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	–	–	1.5	mA
C <sub>I</sub>	input capacitance		–	–	–	10	pF
<b>T<sub>amb</sub> = –40 °C to +125 °C</b>							
V <sub>OH</sub>	HIGH-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	4.5	4.4	–	–	V
		I <sub>O</sub> = –50 μA I <sub>O</sub> = –8.0 mA	4.5	3.70	–	–	V
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	4.5	–	–	0.1	V
		I <sub>O</sub> = 50 μA I <sub>O</sub> = 8.0 mA	4.5	–	–	0.55	V
I <sub>LI</sub>	input leakage current	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub>	5.5	–	–	2.0	μA
I <sub>CC</sub>	quiescent supply current	V <sub>I</sub> = V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	–	–	40	μA
ΔI <sub>CC</sub>	additional quiescent supply current per input pin	V <sub>I</sub> = 3.4 V; other inputs at V <sub>CC</sub> or GND; I <sub>O</sub> = 0 A	5.5	–	–	1.5	mA
C <sub>I</sub>	input capacitance		–	–	–	10	pF



## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

## TRANSFER CHARACTERISTICS

## Type 74AHC3G14

At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

SYMBOL	PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
		WAVEFORMS	V <sub>CC</sub> (V)				
<b>T<sub>amb</sub> = 25 °C</b>							
V <sub>T+</sub>	positive-going threshold	see Figs 6 and 7	3.0	–	–	2.2	V
			4.5	–	–	3.15	V
			5.5	–	–	3.85	V
V <sub>T-</sub>	negative-going threshold	see Figs 6 and 7	3.0	0.9	–	–	V
			4.5	1.35	–	–	V
			5.5	1.65	–	–	V
V <sub>H</sub>	hysteresis (V <sub>T+</sub> – V <sub>T-</sub> )	see Figs 6 and 7	3.0	0.3	–	1.2	V
			4.5	0.4	–	1.4	V
			5.5	0.5	–	1.6	V
<b>T<sub>amb</sub> = –40 °C to +85 °C</b>							
V <sub>T+</sub>	positive-going threshold	see Figs 6 and 7	3.0	–	–	2.2	V
			4.5	–	–	3.15	V
			5.5	–	–	3.85	V
V <sub>T-</sub>	negative-going threshold	see Figs 6 and 7	3.0	0.9	–	–	V
			4.5	1.35	–	–	V
			5.5	1.65	–	–	V
V <sub>H</sub>	hysteresis (V <sub>T+</sub> – V <sub>T-</sub> )	see Figs 6 and 7	3.0	0.3	–	1.2	V
			4.5	0.4	–	1.4	V
			5.5	0.5	–	1.6	V
<b>T<sub>amb</sub> = –40 °C to +125 °C</b>							
V <sub>T+</sub>	positive-going threshold	see Figs 6 and 7	3.0	–	–	2.2	V
			4.5	–	–	3.15	V
			5.5	–	–	3.85	V
V <sub>T-</sub>	negative-going threshold	see Figs 6 and 7	3.0	0.9	–	–	V
			4.5	1.35	–	–	V
			5.5	1.65	–	–	V
V <sub>H</sub>	hysteresis (V <sub>T+</sub> – V <sub>T-</sub> )	see Figs 6 and 7	3.0	0.25	–	1.2	V
			4.5	0.35	–	1.4	V
			5.5	0.45	–	1.6	V

## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

**Type 74AHCT3G14**

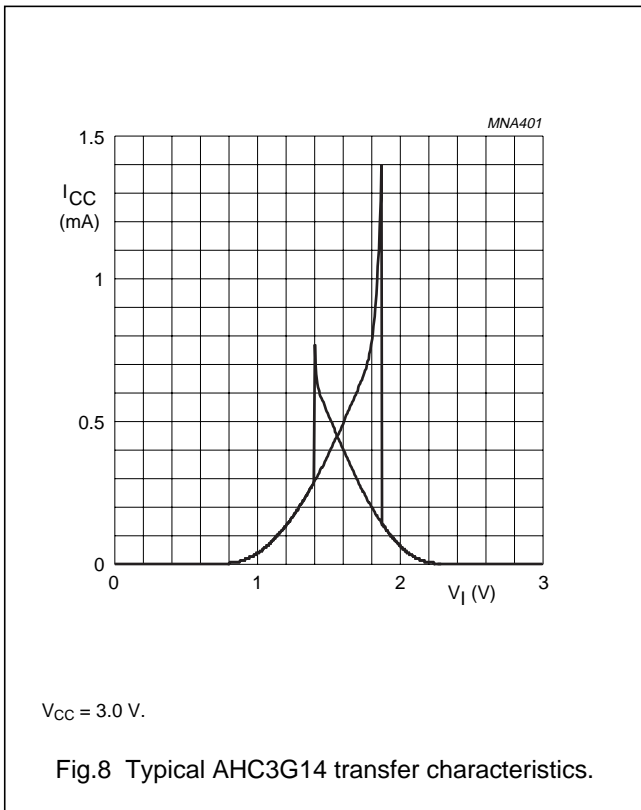
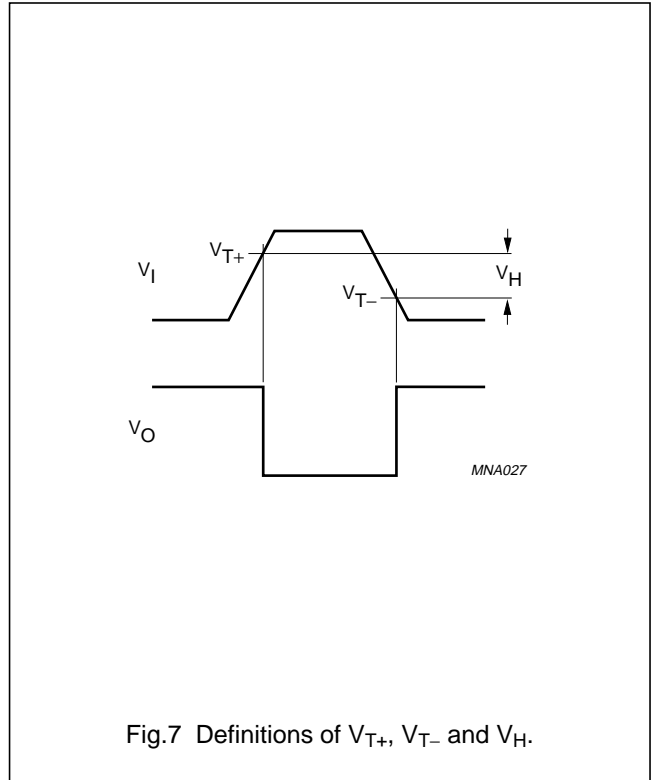
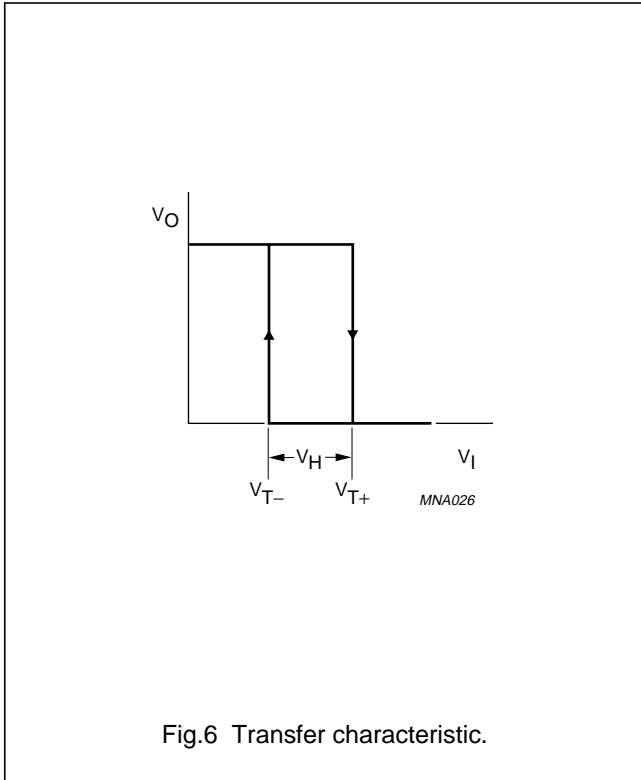
At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

SYMBOL	PARAMETER	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
		WAVEFORMS	V <sub>CC</sub> (V)				
<b>T<sub>amb</sub> = 25 °C</b>							
V <sub>T+</sub>	positive-going threshold	see Figs 6 and 7	4.5	–	–	2.0	V
			5.5	–	–	2.0	V
V <sub>T-</sub>	negative-going threshold	see Figs 6 and 7	4.5	0.5	–	–	V
			5.5	0.6	–	–	V
V <sub>H</sub>	hysteresis (V <sub>T+</sub> – V <sub>T-</sub> )	see Figs 6 and 7	4.5	0.4	–	1.4	V
			5.5	0.4	–	1.6	V
<b>T<sub>amb</sub> = –40 °C to +85 °C</b>							
V <sub>T+</sub>	positive-going threshold	see Figs 6 and 7	4.5	–	–	2.0	V
			5.5	–	–	2.0	V
V <sub>T-</sub>	negative-going threshold	see Figs 6 and 7	4.5	0.5	–	–	V
			5.5	0.6	–	–	V
V <sub>H</sub>	hysteresis (V <sub>T+</sub> – V <sub>T-</sub> )	see Figs 6 and 7	4.5	0.4	–	1.4	V
			5.5	0.4	–	1.6	V
<b>T<sub>amb</sub> = –40 °C to +125 °C</b>							
V <sub>T+</sub>	positive-going threshold	see Figs 6 and 7	4.5	–	–	2.0	V
			5.5	–	–	2.0	V
V <sub>T-</sub>	negative-going threshold	see Figs 6 and 7	4.5	0.5	–	–	V
			5.5	0.6	–	–	V
V <sub>H</sub>	hysteresis (V <sub>T+</sub> – V <sub>T-</sub> )	see Figs 6 and 7	4.5	0.35	–	1.4	V
			5.5	0.35	–	1.6	V

Inverting Schmitt trigger

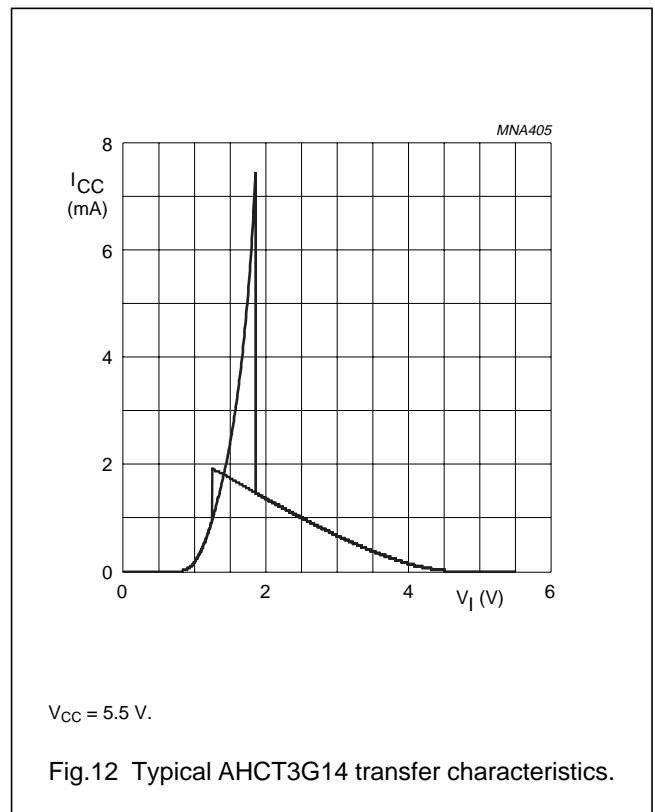
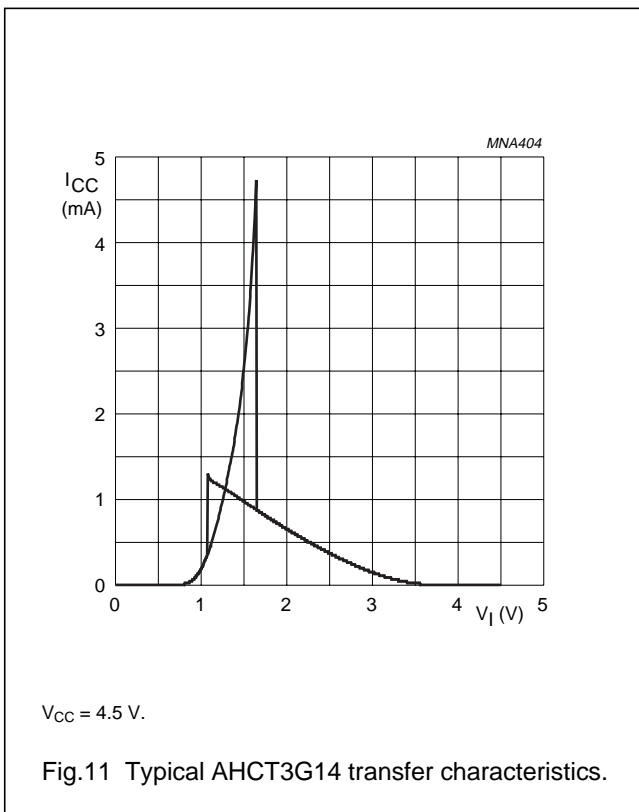
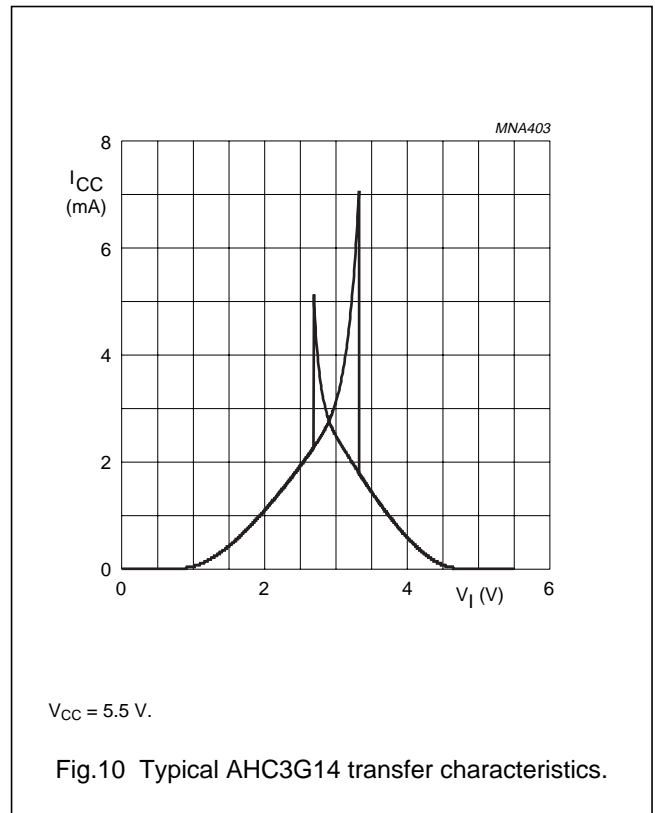
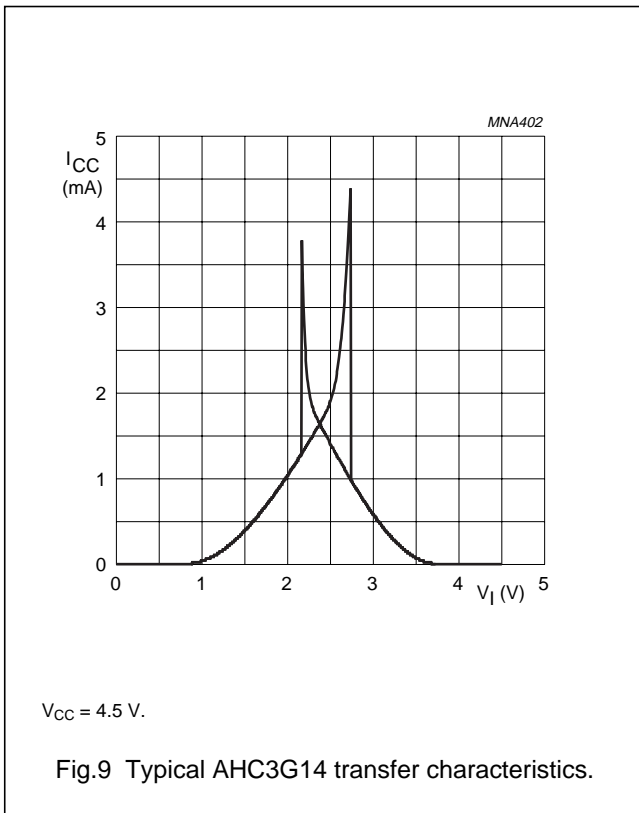
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TRANSFER CHARACTERISTIC WAVEFORMS



Inverting Schmitt trigger

74AHC3G14; 74AHCT3G14



## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

## AC CHARACTERISTICS

## Type 74AHC3G14

GND = 0 V;  $t_r = t_f \leq 3.0$  ns.

SYMBOL	PARAMETER	TEST CONDITIONS			MIN.	TYP.	MAX.	UNIT
		WAVEFORMS	V <sub>CC</sub> (V)	C <sub>L</sub> (pF)				
<b>T<sub>amb</sub> = 25 °C</b>								
t <sub>PHL</sub> /t <sub>PLH</sub>	propagation delay nA to nY	see Figs 13 and 14	3.3	15	–	4.2	–	ns
				50	–	6.0	–	ns
			3.0 to 3.6	15	–	–	12.8	ns
				50	–	–	16.3	ns
			5.0	15	–	3.2	–	ns
				50	–	4.6	–	ns
			4.5 to 5.5	15	–	–	8.6	ns
				50	–	–	10.6	ns
<b>T<sub>amb</sub> = –40 °C to +85 °C</b>								
t <sub>PHL</sub> /t <sub>PLH</sub>	propagation delay nA to nY	see Figs 13 and 14	3.0 to 3.6	15	1.0	–	15.0	ns
				50	1.0	–	18.5	ns
			4.5 to 5.5	15	1.0	–	10.0	ns
				50	1.0	–	12.0	ns
<b>T<sub>amb</sub> = –40 °C to +125 °C</b>								
t <sub>PHL</sub> /t <sub>PLH</sub>	propagation delay nA to nY	see Figs 13 and 14	3.0 to 3.6	15	1.0	–	16.5	ns
				50	1.0	–	20.5	ns
			4.5 to 5.5	15	1.0	–	11.0	ns
				50	1.0	–	13.5	ns

## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

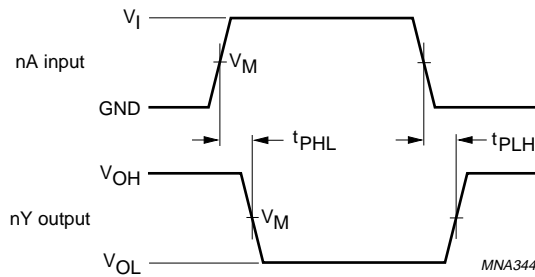
**Type 74AHCT3G14**GND = 0 V;  $t_r = t_f \leq 3.0$  ns.

SYMBOL	PARAMETER	TEST CONDITIONS			MIN.	TYP.	MAX.	UNIT
		WAVEFORMS	V <sub>CC</sub> (V)	C <sub>L</sub> (pF)				
<b>T<sub>amb</sub> = 25 °C</b>								
t <sub>PHL</sub> /t <sub>PLH</sub>	propagation delay nA to nY	see Figs 13 and 14	5	15	–	4.1	–	ns
				50	–	5.9	–	ns
			4.5 to 5.5	15	–	–	7.0	ns
				50	–	–	8.5	ns
<b>T<sub>amb</sub> = –40 °C to +85 °C</b>								
t <sub>PHL</sub> /t <sub>PLH</sub>	propagation delay nA to nY	see Figs 13 and 14	4.5 to 5.5	15	1.0	–	8.0	ns
				50	1.0	–	10.0	ns
<b>T<sub>amb</sub> = –40 °C to +125 °C</b>								
t <sub>PHL</sub> /t <sub>PLH</sub>	propagation delay nA to nY	see Figs 13 and 14	4.5 to 5.5	15	1.0	–	9.0	ns
				50	1.0	–	11.0	ns

Inverting Schmitt trigger

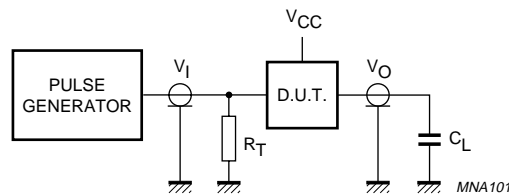
74AHC3G14; 74AHCT3G14

AC WAVEFORMS



FAMILY	V <sub>I</sub> INPUT REQUIREMENTS	V <sub>M</sub> INPUT	V <sub>M</sub> OUTPUT
AHC3G	GND to V <sub>CC</sub>	50 % V <sub>CC</sub>	50 % V <sub>CC</sub>
AHCT3G	GND to 3.0 V	1.5 V	50 % V <sub>CC</sub>

Fig.13 The input (nA) to output (nY) propagation delays.



Definitions for test circuit:

C<sub>L</sub> = Load capacitance including jig and probe capacitance. (See Chapter "AC characteristics" for values).

R<sub>T</sub> = Termination resistance should be equal to the output impedance Z<sub>o</sub> of the pulse generator.

Fig.14 Load circuitry for switching times.

# Inverting Schmitt trigger

# 74AHC3G14; 74AHCT3G14

### APPLICATION INFORMATION

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

$$P_{ad} = f_i \times (t_r \times I_{CC(AV)} + t_f \times I_{CC(AV)}) \times V_{CC}$$

Where:

$P_{ad}$  = additional power dissipation ( $\mu W$ );

$f_i$  = input frequency (MHz);

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

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

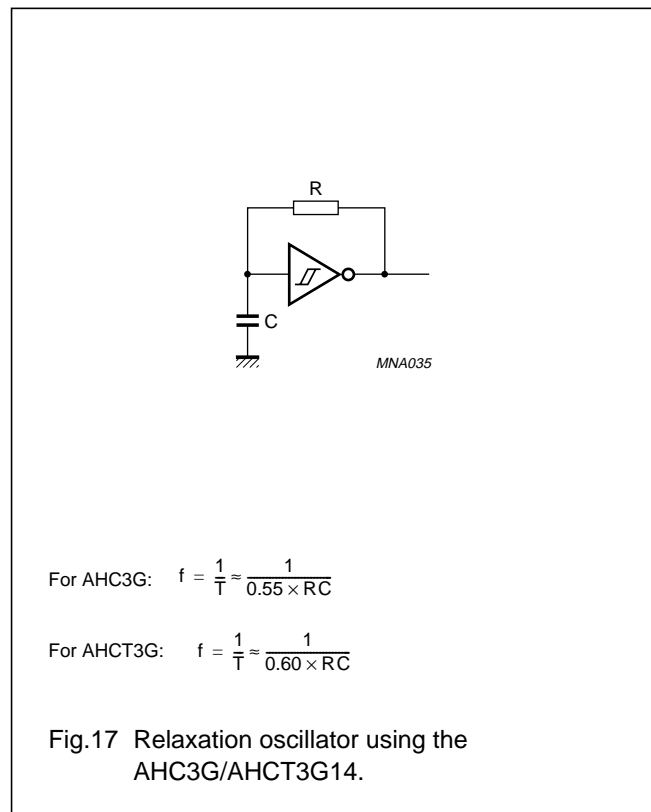
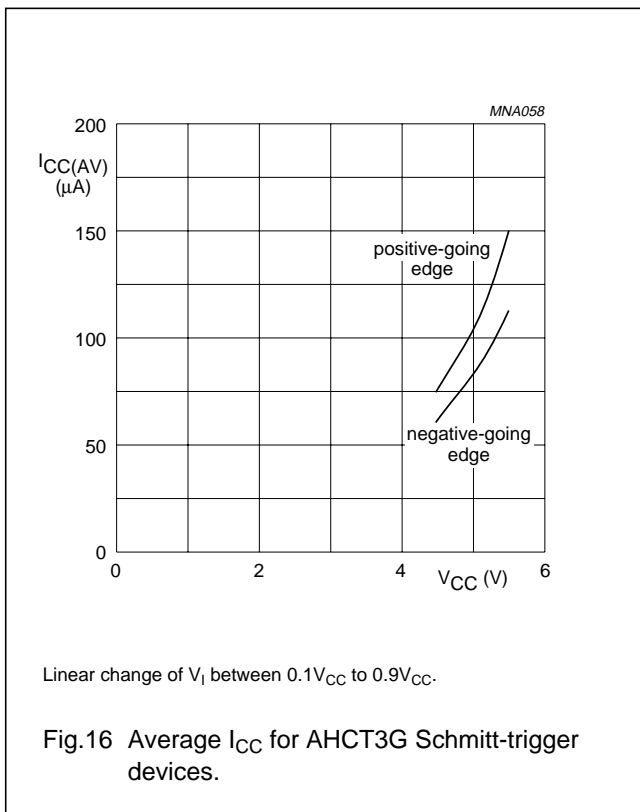
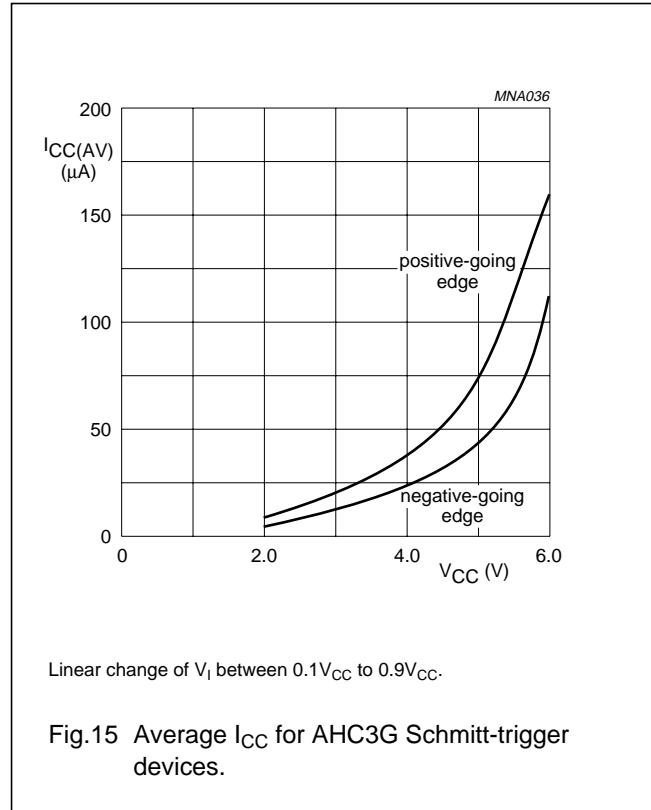
$I_{CC(AV)}$  = average additional supply current ( $\mu A$ ).

Average  $I_{CC}$  differs with positive or negative input transitions, as shown in Figs 15 and 16.

For AHC3G/AHCT3G14 used in relaxation oscillator circuit, see Fig.17.

### Remark to the application information

All values given are typical unless otherwise specified.



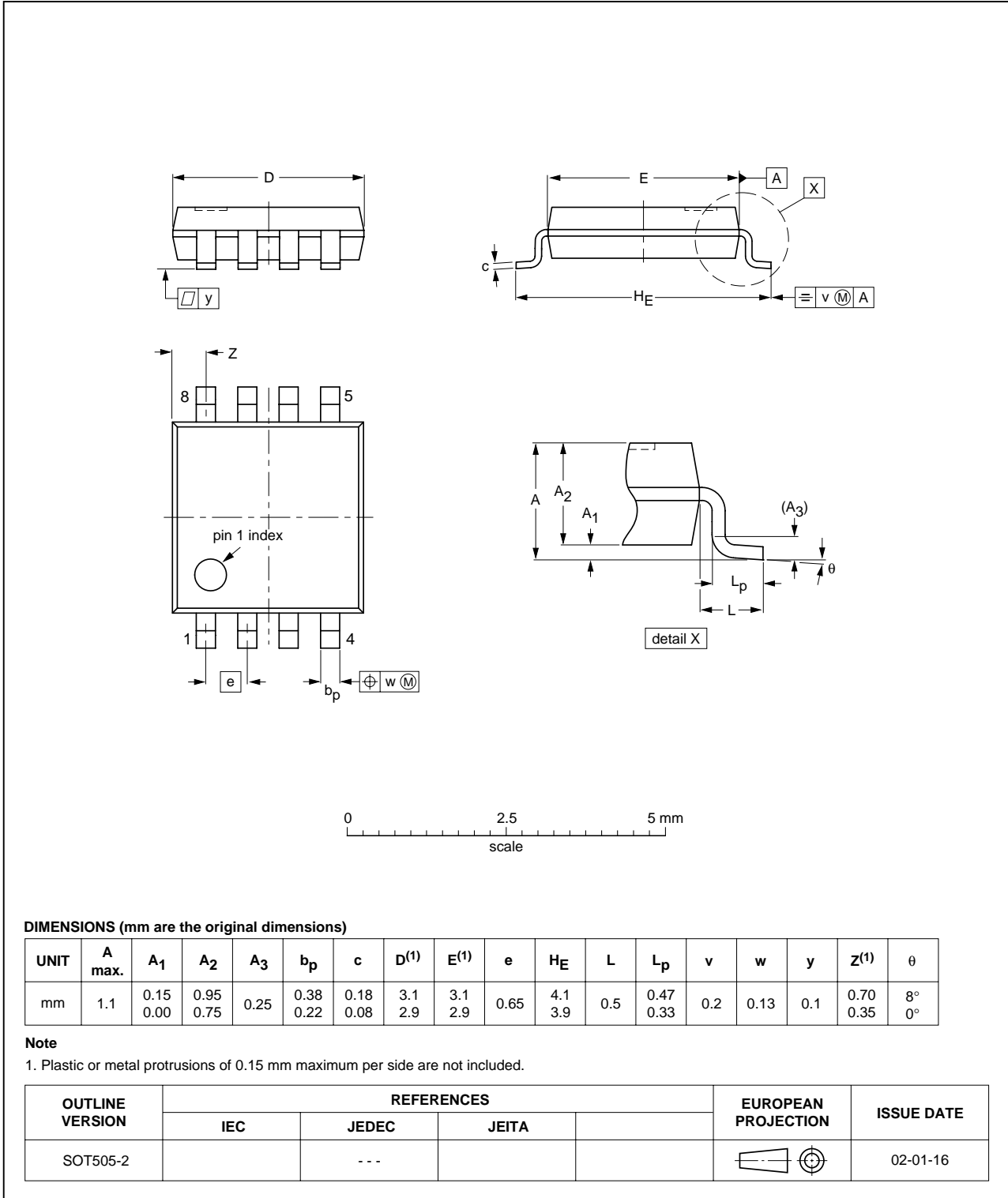


# Inverting Schmitt trigger

# 74AHC3G14; 74AHCT3G14

## PACKAGE OUTLINES

**TSSOP8: plastic thin shrink small outline package; 8 leads; body width 3 mm; lead length 0.5 mm SOT505-2**

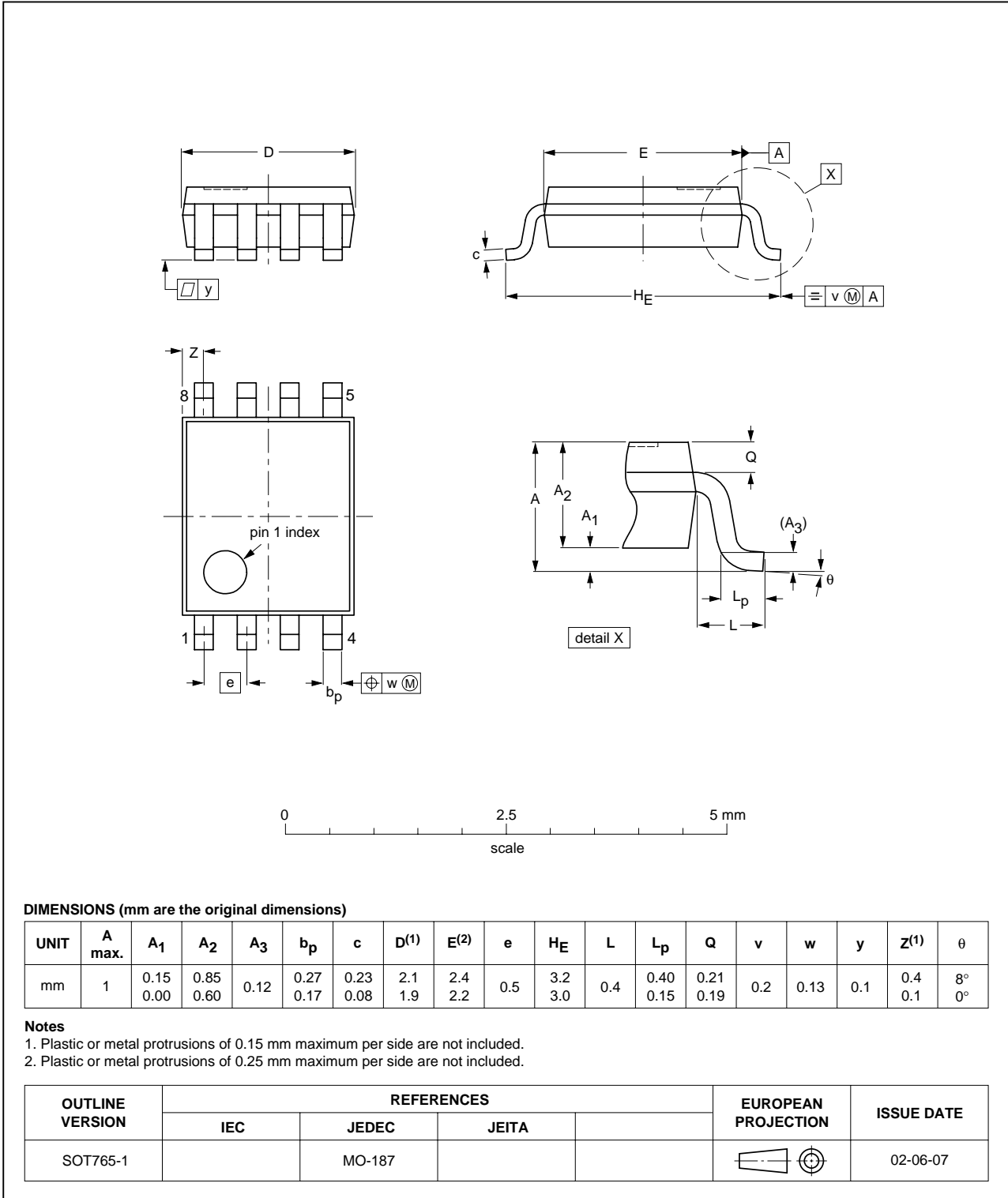


Inverting Schmitt trigger

74AHC3G14; 74AHCT3G14

VSSOP8: plastic very thin shrink small outline package; 8 leads; body width 2.3 mm

SOT765-1

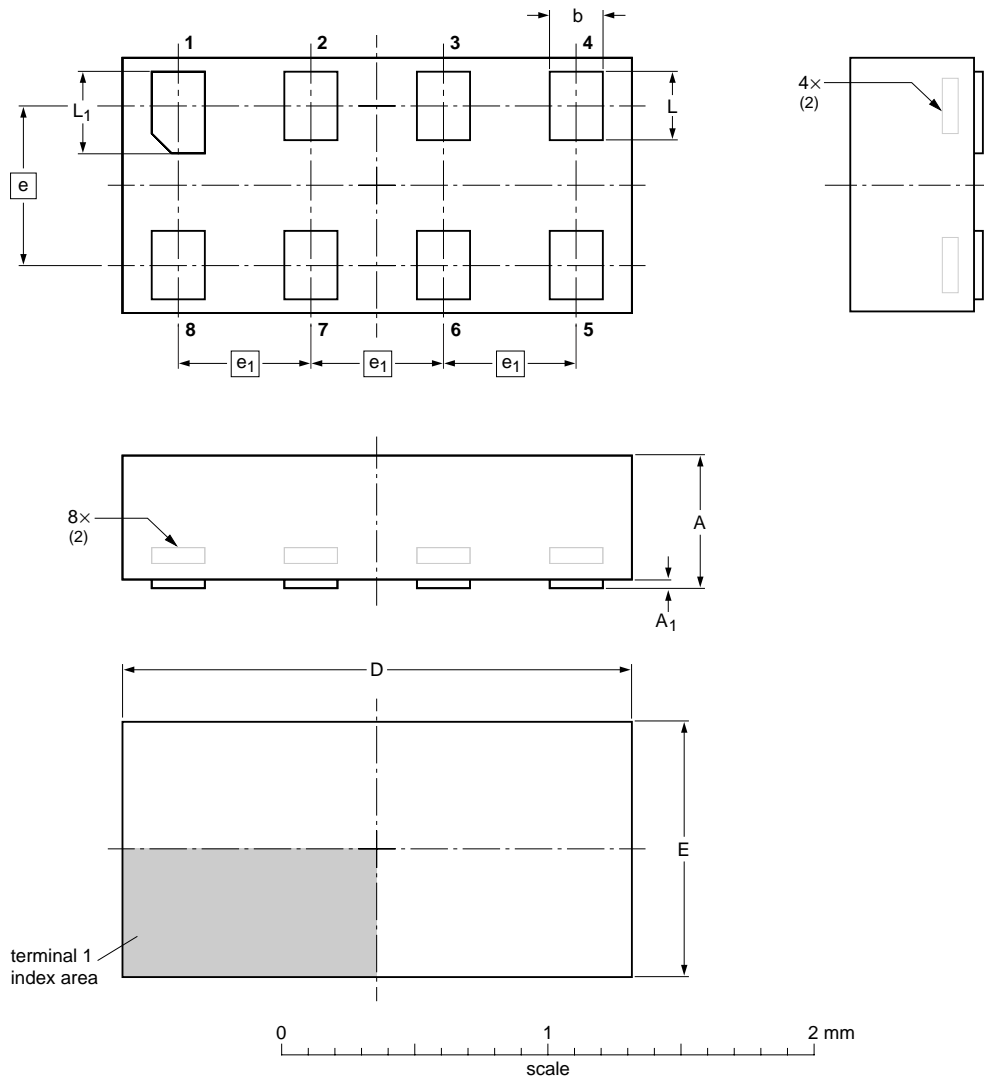


Inverting Schmitt trigger

74AHC3G14; 74AHCT3G14

XSON8: plastic extremely thin small outline package; no leads; 8 terminals; body 0.95 x 1.95 x 0.5 mm

SOT833-1



DIMENSIONS (mm are the original dimensions)

UNIT	A <sup>(1)</sup> max	A <sub>1</sub> max	b	D	E	e	e <sub>1</sub>	L	L <sub>1</sub>
mm	0.5	0.04	0.25 0.17	2.0 1.9	1.0 0.9	0.6	0.5	0.35 0.27	0.40 0.32

Notes

1. Including plating thickness.
2. Can be visible in some manufacturing processes.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA		
SOT833-1	---	MO-252	---		04-07-15 04-07-22

## Inverting Schmitt trigger

## 74AHC3G14; 74AHCT3G14

## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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