



# 74AUP2G14-Q100

Low-power dual Schmitt trigger inverter

Rev. 1 — 26 January 2024

Product data sheet

## 1. General description

The 74AUP2G14-Q100 is a dual inverter with Schmitt-trigger inputs. This device ensures very low static and dynamic power consumption across the entire  $V_{CC}$  range from 0.8 V to 3.6 V. This device is fully specified for partial power down applications using  $I_{OFF}$ . The  $I_{OFF}$  circuitry disables the output, preventing the potentially damaging backflow current through the device when it is powered down.

This product has been qualified to the Automotive Electronics Council (AEC) standard Q100 (Grade 1) and is suitable for use in automotive applications.

## 2. Features and benefits

- Automotive product qualification in accordance with AEC-Q100 (Grade 1)
  - Specified from -40 °C to +85 °C and from -40 °C to +125 °C
- Wide supply voltage range from 0.8 V to 3.6 V
- CMOS low power dissipation
- High noise immunity
- Overvoltage tolerant inputs to 3.6 V
- Low noise overshoot and undershoot < 10 % of  $V_{CC}$
- $I_{OFF}$  circuitry provides partial Power-down mode operation
- Latch-up performance exceeds 100 mA per JESD 78B Class II
- Low static power consumption;  $I_{CC} = 0.9 \mu\text{A}$  (maximum)
- Complies with JEDEC standards:
  - JESD8-12 (0.8 V to 1.3 V)
  - JESD8-11 (0.9 V to 1.65 V)
  - JESD8-7 (1.2 V to 1.95 V)
  - JESD8-5 (1.8 V to 2.7 V)
  - JESD8-B (2.7 V to 3.6 V)
- ESD protection:
  - HBM: ANSI/ESDA/JEDEC JS-001 class 3A exceeds 5000 V
  - CDM: ANSI/ESDA/JEDEC JS-002 class C3 exceeds 1000 V

## 3. Applications

- Wave and pulse shaper
- Astable multivibrator
- Monostable multivibrator

## 4. Ordering information

Table 1. Ordering information

Type number	Package			Version
	Temperature range	Name	Description	
<a href="#">74AUP2G14GW-Q100</a>	-40 °C to +125 °C	TSSOP6	plastic thin shrink small outline package; 6 leads; body width 1.25 mm	<a href="#">SOT363-2</a>

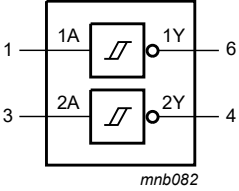
## 5. Marking

Table 2. Marking

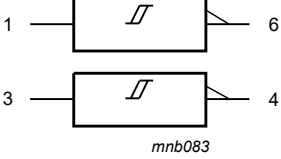
Type number	Marking code[1]
74AUP2G14GW-Q100	pK

[1] The pin 1 indicator is located on the lower left corner of the device, below the marking code.

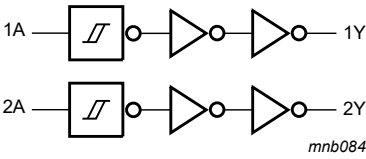
## 6. Functional diagram



**Fig. 1. Logic symbol**



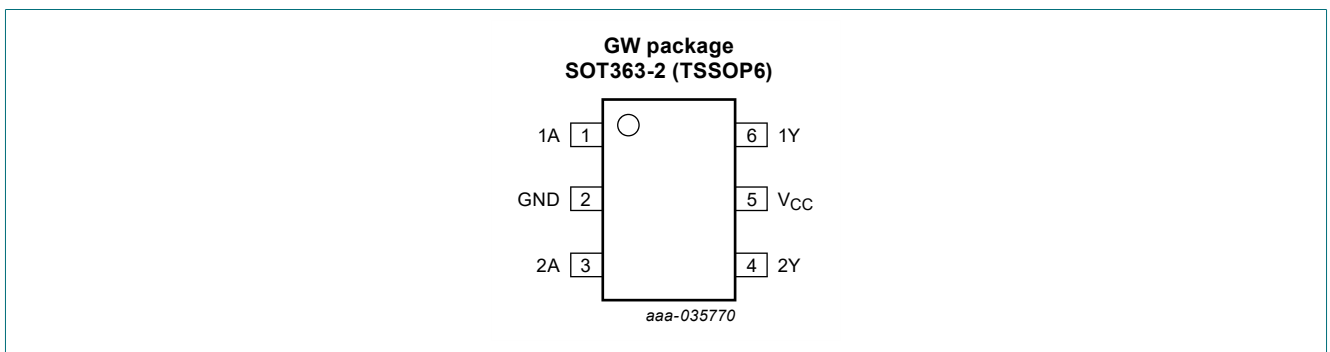
**Fig. 2. IEC logic symbol**



**Fig. 3. Logic diagram**

## 7. Pinning information

### 7.1. Pinning



## 7.2. Pin description

Table 3. Pin description

Symbol	Pin	Description
1A	1	data input
GND	2	ground (0 V)
2A	3	data input
2Y	4	data output
V <sub>CC</sub>	5	supply voltage
1Y	6	data output

## 8. Functional description

Table 4. Function table

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

Input	Output
nA	nY
L	H
H	L

## 9. Limiting values

Table 5. 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 <sub>CC</sub>	supply voltage		-0.5	+4.6	V
I <sub>IK</sub>	input clamping current	V <sub>I</sub> < 0 V	-50	-	mA
V <sub>I</sub>	input voltage	[1]	-0.5	+4.6	V
I <sub>OK</sub>	output clamping current	V <sub>O</sub> < 0 V	-50	-	mA
V <sub>O</sub>	output voltage	Active mode and Power-down mode [1]	-0.5	+4.6	V
I <sub>O</sub>	output current	V <sub>O</sub> = 0 V to V <sub>CC</sub>	-	±20	mA
I <sub>CC</sub>	supply current		-	50	mA
I <sub>GND</sub>	ground current		-50	-	mA
T <sub>stg</sub>	storage temperature		-65	+150	°C
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> = -40 °C to +125 °C [2]	-	250	mW

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

[2] For SOT363-2 (TSSOP6) package: P<sub>tot</sub> derates linearly with 3.7 mW/K above 83 °C.

## 10. Recommended operating conditions

Table 6. Recommended operating conditions

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{CC}$	supply voltage		0.8	3.6	V
$V_I$	input voltage		0	3.6	V
$V_O$	output voltage	Active mode	0	$V_{CC}$	V
		Power-down mode; $V_{CC} = 0$ V	0	3.6	V
$T_{amb}$	ambient temperature		-40	+125	°C

## 11. Static characteristics

Table 7. Static characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
$T_{amb} = 25$ °C							
$V_{OH}$	HIGH-level output voltage	$V_I = V_{T+}$ or $V_{T-}$					
		$I_O = -20$ $\mu$ A; $V_{CC} = 0.8$ V to 3.6 V	$V_{CC} - 0.1$	-	-	V	
		$I_O = -1.1$ mA; $V_{CC} = 1.1$ V	$0.75 \times V_{CC}$	-	-	V	
		$I_O = -1.7$ mA; $V_{CC} = 1.4$ V	1.11	-	-	V	
		$I_O = -1.9$ mA; $V_{CC} = 1.65$ V	1.32	-	-	V	
		$I_O = -2.3$ mA; $V_{CC} = 2.3$ V	2.05	-	-	V	
		$I_O = -3.1$ mA; $V_{CC} = 2.3$ V	1.9	-	-	V	
		$I_O = -2.7$ mA; $V_{CC} = 3.0$ V	2.72	-	-	V	
$V_{OL}$	LOW-level output voltage	$V_I = V_{T+}$ or $V_{T-}$					
		$I_O = 20$ $\mu$ A; $V_{CC} = 0.8$ V to 3.6 V	-	-	0.1	V	
		$I_O = 1.1$ mA; $V_{CC} = 1.1$ V	-	-	$0.3 \times V_{CC}$	V	
		$I_O = 1.7$ mA; $V_{CC} = 1.4$ V	-	-	0.31	V	
		$I_O = 1.9$ mA; $V_{CC} = 1.65$ V	-	-	0.31	V	
		$I_O = 2.3$ mA; $V_{CC} = 2.3$ V	-	-	0.31	V	
		$I_O = 3.1$ mA; $V_{CC} = 2.3$ V	-	-	0.44	V	
		$I_O = 2.7$ mA; $V_{CC} = 3.0$ V	-	-	0.31	V	
$I_I$	input leakage current	$V_I = GND$ to 3.6 V; $V_{CC} = 0$ V to 3.6 V	-	-	$\pm 0.1$	$\mu$ A	
		$V_I$ or $V_O = 0$ V to 3.6 V; $V_{CC} = 0$ V	$I_O = 20$ $\mu$ A; $V_{CC} = 0.8$ V to 3.6 V	-	-	0.1	V
			$I_O = 1.1$ mA; $V_{CC} = 1.1$ V	-	-	$0.3 \times V_{CC}$	V
			$I_O = 1.7$ mA; $V_{CC} = 1.4$ V	-	-	0.31	V
			$I_O = 1.9$ mA; $V_{CC} = 1.65$ V	-	-	0.31	V
			$I_O = 2.3$ mA; $V_{CC} = 2.3$ V	-	-	0.31	V
			$I_O = 3.1$ mA; $V_{CC} = 2.3$ V	-	-	0.44	V
			$I_O = 2.7$ mA; $V_{CC} = 3.0$ V	-	-	0.31	V
$I_O = 4.0$ mA; $V_{CC} = 3.0$ V	-	-	0.44	V			
$I_{OFF}$	power-off leakage current	$V_I$ or $V_O = 0$ V to 3.6 V; $V_{CC} = 0$ V	-	-	$\pm 0.2$	$\mu$ A	
$\Delta I_{OFF}$	additional power-off leakage current	$V_I$ or $V_O = 0$ V to 3.6 V; $V_{CC} = 0$ V to 0.2 V	-	-	$\pm 0.2$	$\mu$ A	
$I_{CC}$	supply current	$V_I = GND$ or $V_{CC}$ ; $I_O = 0$ A; $V_{CC} = 0.8$ V to 3.6 V	-	-	0.5	$\mu$ A	
$\Delta I_{CC}$	additional supply current	$V_I = V_{CC} - 0.6$ V; $I_O = 0$ A; $V_{CC} = 3.3$ V	-	-	40	$\mu$ A	
$C_I$	input capacitance	$V_I = GND$ or $V_{CC}$ ; $V_{CC} = 0$ V to 3.6 V	-	1.1	-	pF	
$C_O$	output capacitance	$V_O = GND$ ; $V_{CC} = 0$ V	-	1.7	-	pF	

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<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>T+</sub> or V <sub>T-</sub>				
		I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	V <sub>CC</sub> - 0.1	-	-	V
		I <sub>O</sub> = -1.1 mA; V <sub>CC</sub> = 1.1 V	0.7 × V <sub>CC</sub>	-	-	V
		I <sub>O</sub> = -1.7 mA; V <sub>CC</sub> = 1.4 V	1.03	-	-	V
		I <sub>O</sub> = -1.9 mA; V <sub>CC</sub> = 1.65 V	1.30	-	-	V
		I <sub>O</sub> = -2.3 mA; V <sub>CC</sub> = 2.3 V	1.97	-	-	V
		I <sub>O</sub> = -3.1 mA; V <sub>CC</sub> = 2.3 V	1.85	-	-	V
		I <sub>O</sub> = -2.7 mA; V <sub>CC</sub> = 3.0 V	2.67	-	-	V
I <sub>O</sub> = -4.0 mA; V <sub>CC</sub> = 3.0 V	2.55	-	-	V		
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>				
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	-	-	0.1	V
		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	0.3 × V <sub>CC</sub>	V
		I <sub>O</sub> = 1.7 mA; V <sub>CC</sub> = 1.4 V	-	-	0.37	V
		I <sub>O</sub> = 1.9 mA; V <sub>CC</sub> = 1.65 V	-	-	0.35	V
		I <sub>O</sub> = 2.3 mA; V <sub>CC</sub> = 2.3 V	-	-	0.33	V
		I <sub>O</sub> = 3.1 mA; V <sub>CC</sub> = 2.3 V	-	-	0.45	V
		I <sub>O</sub> = 2.7 mA; V <sub>CC</sub> = 3.0 V	-	-	0.33	V
I <sub>O</sub> = 4.0 mA; V <sub>CC</sub> = 3.0 V	-	-	0.45	V		
I <sub>I</sub>	input leakage current	V <sub>I</sub> = GND to 3.6 V; V <sub>CC</sub> = 0 V to 3.6 V	-	-	±0.5	μA
I <sub>OFF</sub>	power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V	-	-	±0.5	μA
ΔI <sub>OFF</sub>	additional power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V to 0.2 V	-	-	±0.6	μA
I <sub>CC</sub>	supply current	V <sub>I</sub> = GND or V <sub>CC</sub> ; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 0.8 V to 3.6 V	-	-	0.9	μA
ΔI <sub>CC</sub>	additional supply current	V <sub>I</sub> = V <sub>CC</sub> - 0.6 V; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 3.3 V	-	-	50	μA

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<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>T+</sub> or V <sub>T-</sub>				
		I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	V <sub>CC</sub> - 0.11	-	-	V
		I <sub>O</sub> = -1.1 mA; V <sub>CC</sub> = 1.1 V	0.6 × V <sub>CC</sub>	-	-	V
		I <sub>O</sub> = -1.7 mA; V <sub>CC</sub> = 1.4 V	0.93	-	-	V
		I <sub>O</sub> = -1.9 mA; V <sub>CC</sub> = 1.65 V	1.17	-	-	V
		I <sub>O</sub> = -2.3 mA; V <sub>CC</sub> = 2.3 V	1.77	-	-	V
		I <sub>O</sub> = -3.1 mA; V <sub>CC</sub> = 2.3 V	1.67	-	-	V
		I <sub>O</sub> = -2.7 mA; V <sub>CC</sub> = 3.0 V	2.40	-	-	V
I <sub>O</sub> = -4.0 mA; V <sub>CC</sub> = 3.0 V	2.30	-	-	V		
V <sub>OL</sub>	LOW-level output voltage	V <sub>I</sub> = V <sub>T+</sub> or V <sub>T-</sub>				
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 0.8 V to 3.6 V	-	-	0.11	V
		I <sub>O</sub> = 1.1 mA; V <sub>CC</sub> = 1.1 V	-	-	0.33 × V <sub>CC</sub>	V
		I <sub>O</sub> = 1.7 mA; V <sub>CC</sub> = 1.4 V	-	-	0.41	V
		I <sub>O</sub> = 1.9 mA; V <sub>CC</sub> = 1.65 V	-	-	0.39	V
		I <sub>O</sub> = 2.3 mA; V <sub>CC</sub> = 2.3 V	-	-	0.36	V
		I <sub>O</sub> = 3.1 mA; V <sub>CC</sub> = 2.3 V	-	-	0.50	V
		I <sub>O</sub> = 2.7 mA; V <sub>CC</sub> = 3.0 V	-	-	0.36	V
I <sub>O</sub> = 4.0 mA; V <sub>CC</sub> = 3.0 V	-	-	0.50	V		
I <sub>I</sub>	input leakage current	V <sub>I</sub> = GND to 3.6 V; V <sub>CC</sub> = 0 V to 3.6 V	-	-	±0.75	μA
I <sub>OFF</sub>	power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V	-	-	±0.75	μA
ΔI <sub>OFF</sub>	additional power-off leakage current	V <sub>I</sub> or V <sub>O</sub> = 0 V to 3.6 V; V <sub>CC</sub> = 0 V to 0.2 V	-	-	±0.75	μA
I <sub>CC</sub>	supply current	V <sub>I</sub> = GND or V <sub>CC</sub> ; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 0.8 V to 3.6 V	-	-	1.4	μA
ΔI <sub>CC</sub>	additional supply current	V <sub>I</sub> = V <sub>CC</sub> - 0.6 V; I <sub>O</sub> = 0 A; V <sub>CC</sub> = 3.3 V	-	-	75	μA

## 12. Dynamic characteristics

**Table 8. Dynamic characteristics**

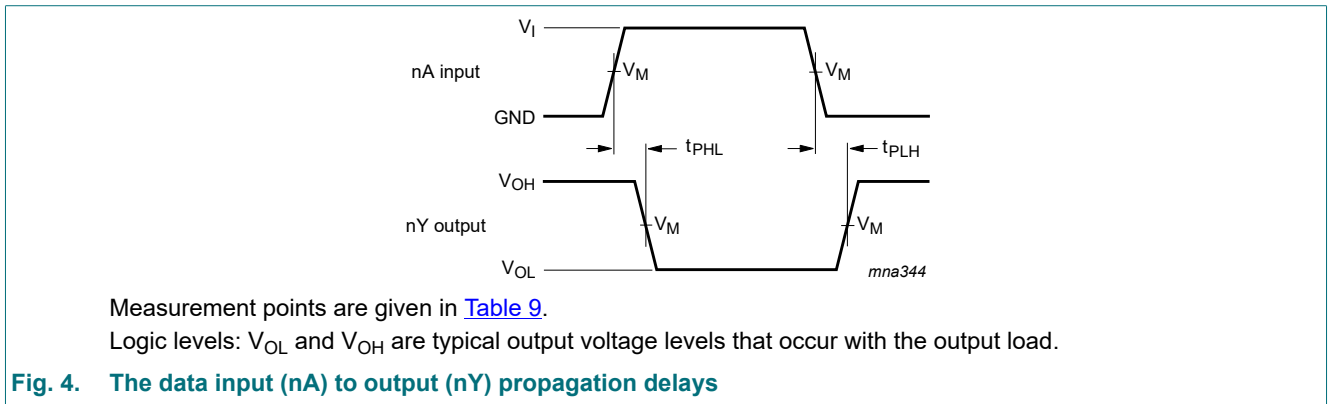
Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 5.

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
<b>C<sub>L</sub> = 5 pF</b>										
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 4 [2]								
		V <sub>CC</sub> = 0.8 V	-	19.9	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	2.7	5.9	11.0	2.4	11.1	2.4	11.2	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.6	4.3	6.6	2.4	7.1	2.4	7.4	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.1	3.7	5.4	2.0	6.0	2.0	6.2	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.0	3.0	4.1	1.7	4.5	1.7	4.7	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	1.9	2.8	3.6	1.5	3.9	1.5	4.0	ns
<b>C<sub>L</sub> = 10 pF</b>										
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 4 [2]								
		V <sub>CC</sub> = 0.8 V	-	23.4	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	2.9	6.8	12.7	2.8	12.8	2.8	12.9	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	2.8	5.0	7.7	2.6	8.2	2.6	8.6	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.7	4.2	6.2	2.5	6.7	2.5	7.1	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.3	3.6	4.8	2.1	5.2	2.1	5.5	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.1	3.3	4.3	2.0	4.5	2.0	4.7	ns
<b>C<sub>L</sub> = 15 pF</b>										
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 4 [2]								
		V <sub>CC</sub> = 0.8 V	-	26.9	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	3.3	7.6	14.3	3.0	14.5	3.0	14.7	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	3.3	5.5	8.6	2.9	9.4	2.9	9.8	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	2.8	4.7	7.0	2.8	7.7	2.8	8.1	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	2.7	4.0	5.5	2.4	5.9	2.4	6.2	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	2.6	3.8	4.8	2.2	5.2	2.2	5.4	ns
<b>C<sub>L</sub> = 30 pF</b>										
t <sub>pd</sub>	propagation delay	nA to nY; see Fig. 4 [2]								
		V <sub>CC</sub> = 0.8 V	-	37.3	-	-	-	-	-	ns
		V <sub>CC</sub> = 1.1 V to 1.3 V	4.0	9.8	18.7	3.9	19.6	3.9	20.0	ns
		V <sub>CC</sub> = 1.4 V to 1.6 V	3.7	7.1	11.2	3.8	12.3	3.8	12.9	ns
		V <sub>CC</sub> = 1.65 V to 1.95 V	3.6	6.0	9.1	3.6	10.0	3.6	10.6	ns
		V <sub>CC</sub> = 2.3 V to 2.7 V	3.5	5.2	6.9	3.2	7.5	3.2	7.9	ns
		V <sub>CC</sub> = 3.0 V to 3.6 V	3.3	4.8	6.1	3.1	7.1	3.1	7.4	ns

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
<b>C<sub>L</sub> = 5 pF, 10 pF, 15 pF and 30 pF</b>										
C <sub>PD</sub>	power dissipation capacitance	f <sub>i</sub> = 1 MHz; V <sub>I</sub> = GND to V <sub>CC</sub> [3][4]								
		V <sub>CC</sub> = 0.8 V	-	2.6	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.1 V to 1.3 V	-	2.7	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.4 V to 1.6 V	-	2.9	-	-	-	-	-	pF
		V <sub>CC</sub> = 1.65 V to 1.95 V	-	3.1	-	-	-	-	-	pF
		V <sub>CC</sub> = 2.3 V to 2.7 V	-	3.7	-	-	-	-	-	pF
		V <sub>CC</sub> = 3.0 V to 3.6 V	-	4.3	-	-	-	-	-	pF

- [1] All typical values are measured at nominal V<sub>CC</sub>.
- [2] t<sub>pd</sub> is the same as t<sub>PLH</sub> and t<sub>PHL</sub>.
- [3] All specified values are the average typical values over all stated loads.
- [4] C<sub>PD</sub> is used to determine the dynamic power dissipation (P<sub>D</sub> in μW).  
 $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$  where:  
 f<sub>i</sub> = input frequency in MHz;  
 f<sub>o</sub> = output frequency in MHz;  
 C<sub>L</sub> = load capacitance in pF;  
 V<sub>CC</sub> = supply voltage in V;  
 N = number of inputs switching;  
 Σ(C<sub>L</sub> × V<sub>CC</sub><sup>2</sup> × f<sub>o</sub>) = sum of the outputs.

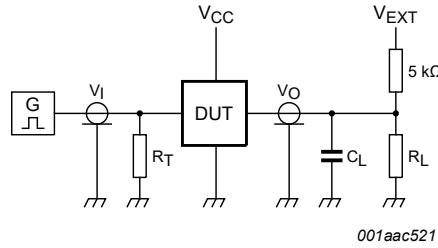
### 12.1. Waveform and test circuit



**Table 9. Measurement points**

Supply voltage	Output	Input		
V <sub>CC</sub>	V <sub>M</sub>	V <sub>M</sub>	V <sub>I</sub>	t <sub>r</sub> = t <sub>f</sub>
0.8 V to 3.6 V	0.5 × V <sub>CC</sub>	0.5 × V <sub>CC</sub>	V <sub>CC</sub>	≤ 3.0 ns





Test data is given in [Table 10](#).

Definitions for test circuit:

$R_L$  = Load resistance;

$C_L$  = Load capacitance including jig and probe capacitance;

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

$V_{EXT}$  = External voltage for measuring switching times.

**Fig. 5. Test circuit for measuring switching times**

**Table 10. Test data**

Supply voltage	Load		$V_{EXT}$		
$V_{CC}$	$C_L$	$R_L$ [1]	$t_{PLH}$ , $t_{PHL}$	$t_{PZH}$ , $t_{PHZ}$	$t_{PZL}$ , $t_{PLZ}$
0.8 V to 3.6 V	5 pF, 10 pF, 15 pF and 30 pF	5 kΩ or 1 MΩ	open	GND	$2 \times V_{CC}$

[1] For measuring enable and disable times  $R_L = 5 \text{ k}\Omega$ .

For measuring propagation delays, set-up and hold times and pulse width  $R_L = 1 \text{ M}\Omega$ .

### 13. Transfer characteristics

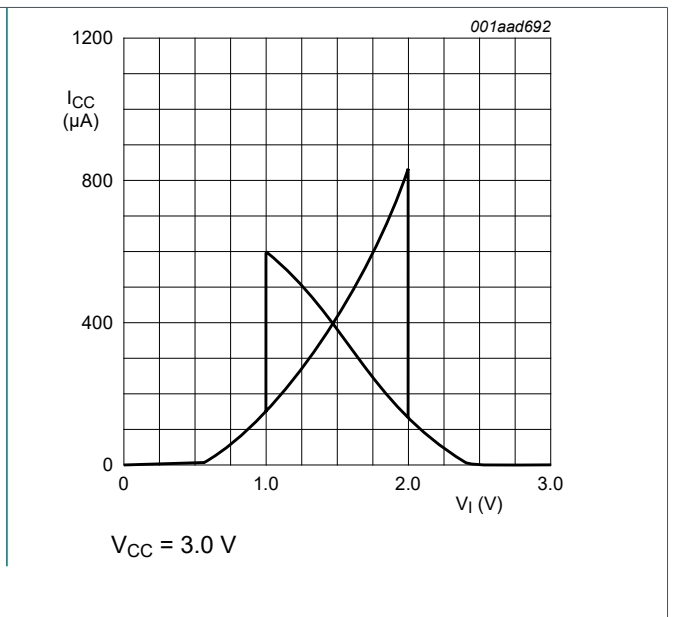
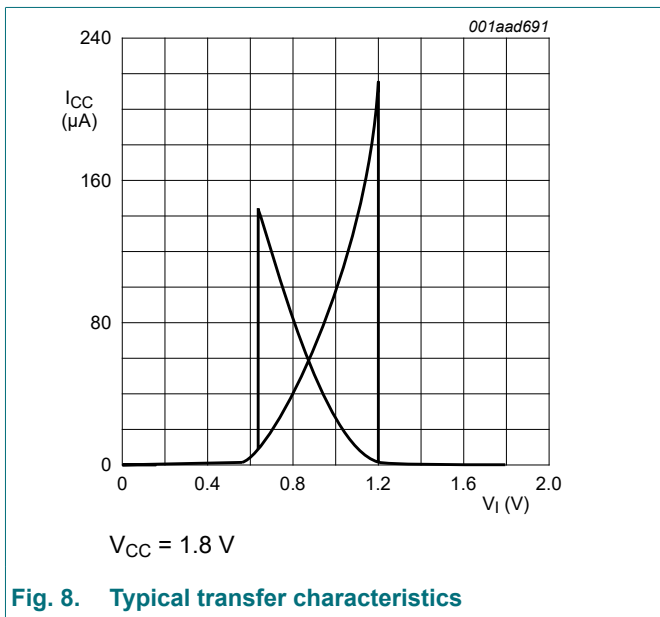
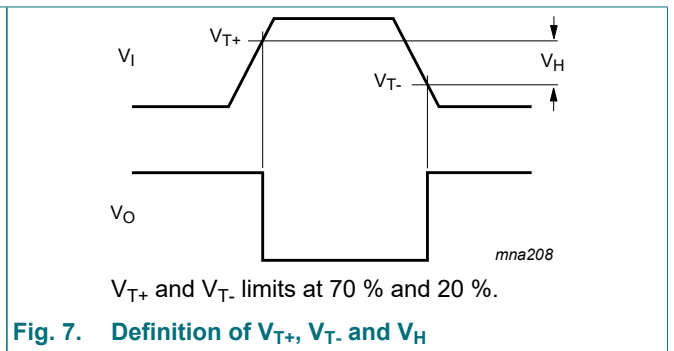
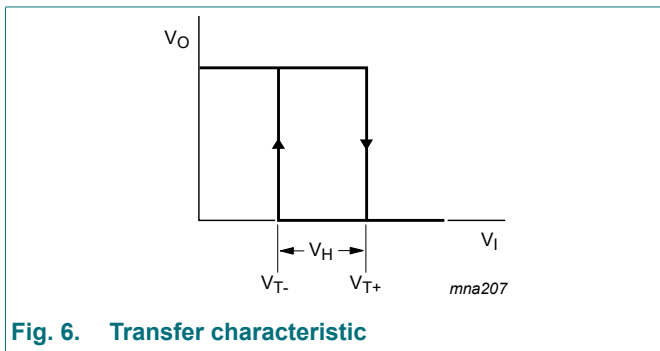
**Table 11. Transfer characteristics**

Voltages are referenced to GND (ground = 0 V); for test circuit see [Fig. 5](#).

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ	Max	Min	Max	Min	Max	
$V_{T+}$	positive-going threshold voltage	see <a href="#">Fig. 6</a> and <a href="#">Fig. 7</a>								
		$V_{CC} = 0.8 \text{ V}$	0.30	-	0.60	0.30	0.60	0.30	0.62	V
		$V_{CC} = 1.1 \text{ V}$	0.53	-	0.90	0.53	0.90	0.53	0.92	V
		$V_{CC} = 1.4 \text{ V}$	0.74	-	1.11	0.74	1.11	0.74	1.13	V
		$V_{CC} = 1.65 \text{ V}$	0.91	-	1.29	0.91	1.29	0.91	1.31	V
		$V_{CC} = 2.3 \text{ V}$	1.37	-	1.77	1.37	1.77	1.37	1.80	V
$V_{T-}$	negative-going threshold voltage	see <a href="#">Fig. 6</a> and <a href="#">Fig. 7</a>								
		$V_{CC} = 0.8 \text{ V}$	0.10	-	0.60	0.10	0.60	0.10	0.60	V
		$V_{CC} = 1.1 \text{ V}$	0.26	-	0.65	0.26	0.65	0.26	0.65	V
		$V_{CC} = 1.4 \text{ V}$	0.39	-	0.75	0.39	0.75	0.39	0.75	V
		$V_{CC} = 1.65 \text{ V}$	0.47	-	0.84	0.47	0.84	0.47	0.84	V
		$V_{CC} = 2.3 \text{ V}$	0.69	-	1.04	0.69	1.04	0.69	1.04	V
	$V_{CC} = 3.0 \text{ V}$	0.88	-	1.24	0.88	1.24	0.88	1.24	V	

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ	Max	Min	Max	Min	Max	
V <sub>H</sub>	hysteresis voltage	(V <sub>T+</sub> - V <sub>T-</sub> ); see Fig. 6, Fig. 7 and Fig. 8.								
		V <sub>CC</sub> = 0.8 V	0.07	-	0.50	0.07	0.50	0.07	0.50	V
		V <sub>CC</sub> = 1.1 V	0.08	-	0.46	0.08	0.46	0.08	0.46	V
		V <sub>CC</sub> = 1.4 V	0.18	-	0.56	0.18	0.56	0.18	0.56	V
		V <sub>CC</sub> = 1.65 V	0.27	-	0.66	0.27	0.66	0.27	0.66	V
		V <sub>CC</sub> = 2.3 V	0.53	-	0.92	0.53	0.92	0.53	0.92	V
V <sub>CC</sub> = 3.0 V	0.79	-	1.31	0.79	1.31	0.79	1.31	V		

13.1. Waveforms transfer characteristics



### 14. Application information

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

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

where:

- $P_{add}$  = additional power dissipation ( $\mu W$ );
- $f_i$  = input frequency (MHz);
- $t_r$  = rise time (ns); 10 % to 90 %;
- $t_f$  = fall time (ns); 90 % to 10 %;
- $\Delta I_{CC(AV)}$  = average additional supply current ( $\mu A$ ).

Average  $\Delta I_{CC(AV)}$  differs with positive or negative input transitions, as shown in Fig. 9.

An example of a relaxation circuit using the 74AUP2G14 is shown in Fig. 10.

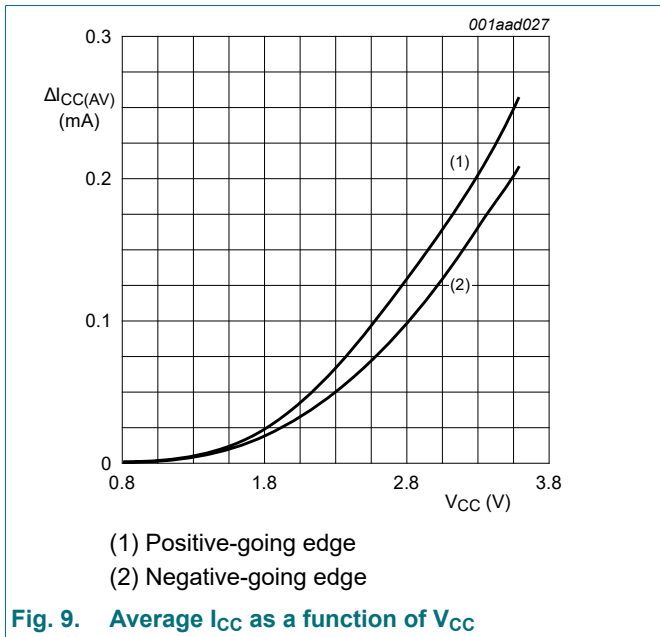


Fig. 9. Average  $I_{CC}$  as a function of  $V_{CC}$

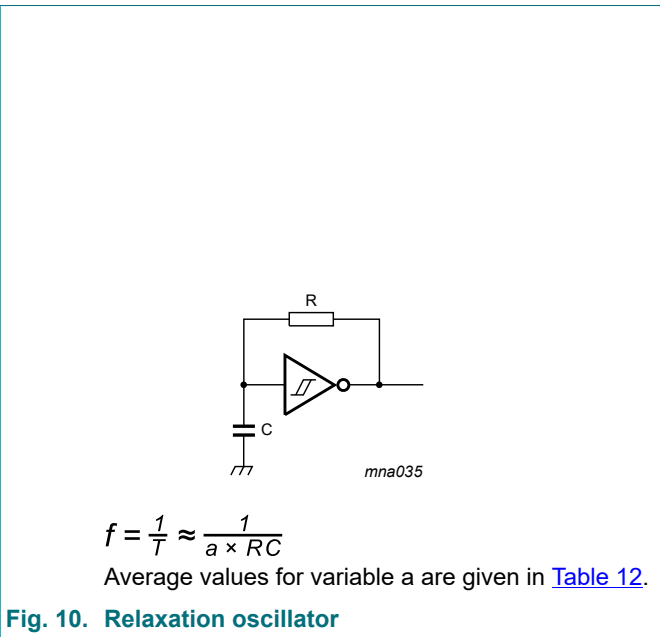


Fig. 10. Relaxation oscillator

Table 12. Variable values

Supply voltage	Variable a
1.1 V	1.28
1.5 V	1.22
1.8 V	1.24
2.8 V	1.34
3.3 V	1.45

15. Package outline

TSSOP6: plastic thin shrink small outline package; 6 leads; body width 1.25 mm

SOT363-2

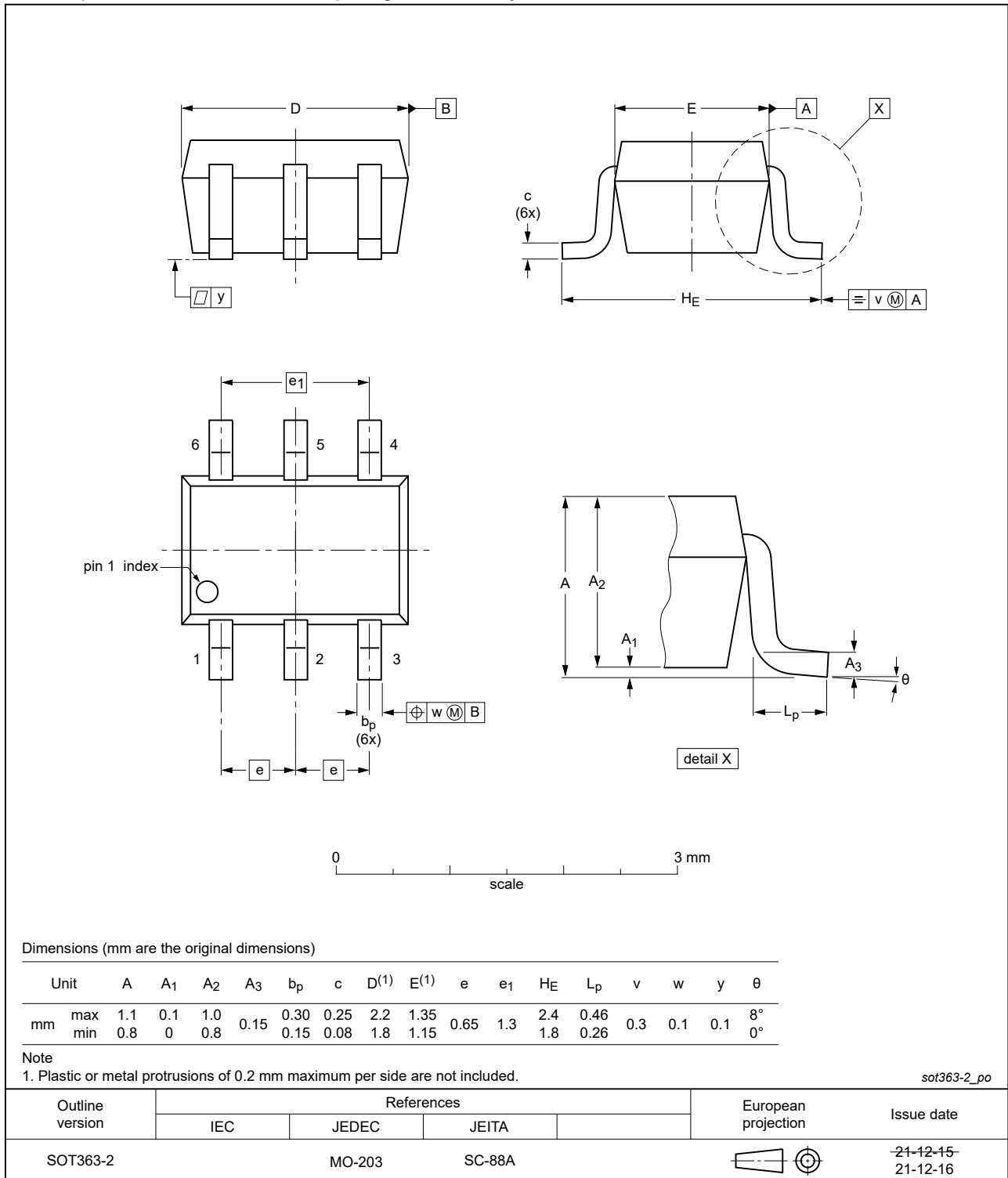


Fig. 11. Package outline SOT363-2 (TSSOP6)

## 16. Abbreviations

Table 13. Abbreviations

Acronym	Description
CDM	Charged Device Model
CMOS	Complementary Metal-Oxide Semiconductor
DUT	Device Under Test
ESD	ElectroStatic Discharge
HBM	Human Body Model

## 17. Revision history

Table 14. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74AUP2G14_Q100 v.1	20240126	Product data sheet	-	-

## 18. Legal information

### Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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