

## Description

The Advanced Ultra Low Power (AUP) CMOS logic family is designed for low power and extended battery life in portable applications.

The 74AUP2G3404 has one buffer and one inverter. Both gates have push-pull outputs designed for operation over a power supply range of 0.8V to 3.6V. The device is fully specified for partial power down applications using  $I_{OFF}$ . The  $I_{OFF}$  circuitry disables the output preventing damaging current backflow when the device is powered down.

## Features

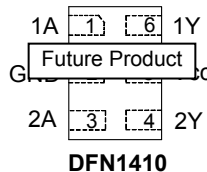
- Advanced Ultra Low Power (AUP) CMOS
- Supply Voltage Range from 0.8V to 3.6V
- $\pm 4\text{mA}$  Output Drive at 3.0V
- Low Static power consumption
  - $I_{CC} < 0.9\mu\text{A}$
- Low Dynamic Power Consumption
  - $C_{PD} = 6\text{pF}$  Typical at 3.6V
- Schmitt Trigger Action at All Inputs Make the Circuit Tolerant for Slower Input Rise and Fall Time. The hysteresis is typically 250mV at  $V_{CC} = 3.0\text{V}$
- $I_{OFF}$  Supports Partial-Power-Down Mode Operation
  - ESD Protection per JESD 22
  - Exceeds 200-V Machine Model (A115-A)
  - Exceeds 2000-V Human Body Model (A114-A)
  - Exceeds 1000-V Charged Device Model (C101C)
- Latch-Up Exceeds 100mA per JESD 78, Class II
- Leadless packages per JESD30E
  - DFN1410 denoted as X2-DFN1410-6
  - DFN1010 denoted as X2-DFN1010-6
  - DFN0910 denoted as X2-DFN0910-6
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Notes:

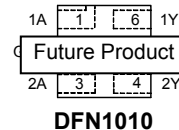
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Pin Assignments

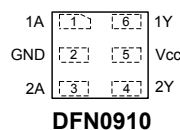
(Top View)



(Top View)



(Top View)



## Applications

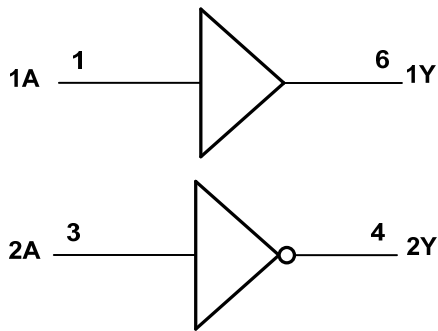
- Suited for battery and low power needs
- Wide array of products such as:
  - PCs, networking, Notebooks, Netbooks, PDAs
  - Tablet Computers, E-Readers
  - Computer Peripherals, Hard Drives, CD/DVD ROM
  - TV, DVD, DVR, Set Top Box
  - Cell Phones, Personal Navigation / GPS
  - MP3 players, Cameras, Video Recorders

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## Pin Descriptions

| Pin Name        | Pin No. | Function       |
|-----------------|---------|----------------|
| 1A              | 1       | Data Input     |
| GND             | 2       | Ground         |
| 2A              | 3       | Data Input     |
| 2Y              | 4       | Data Output    |
| V <sub>CC</sub> | 5       | Supply Voltage |
| 1Y              | 6       | Data Output    |

## Logic Diagram



## Function Tables

| Input | Output |
|-------|--------|
| 1A    | 1Y     |
| H     | H      |
| L     | L      |

| Input | Output |
|-------|--------|
| 2A    | 2Y     |
| H     | L      |
| L     | H      |

**Absolute Maximum Ratings** (Note 4) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol           | Description                                                        | Rating                       | Unit |
|------------------|--------------------------------------------------------------------|------------------------------|------|
| ESD HBM          | Human Body Model ESD Protection                                    | 2                            | KV   |
| ESD CDM          | Charged Device Model ESD Protection                                | 1                            | KV   |
| ESD MM           | Machine Model ESD Protection                                       | 200                          | V    |
| V <sub>CC</sub>  | Supply Voltage Range                                               | -0.5 to 4.6                  | V    |
| V <sub>I</sub>   | Input Voltage Range                                                | -0.5 to 4.6                  | V    |
| V <sub>O</sub>   | Voltage applied to output in high or low state                     | -0.5 to V <sub>CC</sub> +0.5 | V    |
| I <sub>IK</sub>  | Input Clamp Current V <sub>I</sub> < 0                             | 50                           | mA   |
| I <sub>OK</sub>  | Output Clamp Current (V <sub>O</sub> < 0)                          | -50                          | mA   |
| I <sub>O</sub>   | Continuous Output Current (V <sub>O</sub> = 0 to V <sub>CC</sub> ) | ±20                          | mA   |
| I <sub>CC</sub>  | Continuous Current Through V <sub>CC</sub>                         | 50                           | mA   |
| I <sub>GND</sub> | Continuous Current Through GND                                     | -50                          | mA   |
| T <sub>J</sub>   | Operating Junction Temperature                                     | -40 to +150                  | °C   |
| T <sub>STG</sub> | Storage Temperature                                                | -65 to +150                  | °C   |

Note: 4. Stresses beyond the absolute maximum may result in immediate failure or reduced reliability. These are stress values and device operation should be within recommend values.

**Recommended Operating Conditions** (Note 5) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol          | Parameter                          | Min                            | Max             | Unit |
|-----------------|------------------------------------|--------------------------------|-----------------|------|
| V <sub>CC</sub> | Operating Voltage                  | 0.8                            | 3.6             | V    |
| V <sub>I</sub>  | Input Voltage                      | 0                              | 3.6             | V    |
| V <sub>O</sub>  | Output Voltage                     | 0                              | V <sub>CC</sub> | V    |
| I <sub>OH</sub> | High-Level Output Current          | V <sub>CC</sub> = 0.8V         | -20             | μA   |
|                 |                                    | V <sub>CC</sub> = 1.1V         | -1.1            | mA   |
|                 |                                    | V <sub>CC</sub> = 1.4V         | -1.7            |      |
|                 |                                    | V <sub>CC</sub> = 1.65V        | -1.9            |      |
|                 |                                    | V <sub>CC</sub> = 2.3V         | -3.1            |      |
|                 |                                    | V <sub>CC</sub> = 3.0V         | -4              |      |
| I <sub>OL</sub> | Low-Level Output Current           | V <sub>CC</sub> = 0.8V         | 20              | uA   |
|                 |                                    | V <sub>CC</sub> = 1.1V         | 1.1             | mA   |
|                 |                                    | V <sub>CC</sub> = 1.4V         | 1.7             |      |
|                 |                                    | V <sub>CC</sub> = 1.65V        | 1.9             |      |
|                 |                                    | V <sub>CC</sub> = 2.3V         | 3.1             |      |
|                 |                                    | V <sub>CC</sub> = 3.0V         | 4               |      |
| Δt/ΔV           | Input transition rise or fall rate | V <sub>CC</sub> = 0.8V to 3.6V | 200             | ns/V |
| T <sub>A</sub>  | Operating free-air temperature     | -40                            | +125            | °C   |

Note: 5. Unused inputs should be held at V<sub>CC</sub> or Ground.

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol            | Parameter                        | Test Conditions                                                           | V <sub>CC</sub> | T <sub>A</sub> = +25°C |                        | T <sub>A</sub> = -40°C to +85°C |                        | Unit |
|-------------------|----------------------------------|---------------------------------------------------------------------------|-----------------|------------------------|------------------------|---------------------------------|------------------------|------|
|                   |                                  |                                                                           |                 | Min                    | Max                    | Min                             | Max                    |      |
| V <sub>IH</sub>   | High-Level Input Voltage         |                                                                           | 0.8V to 1.65V   | 0.80 X V <sub>CC</sub> |                        | 0.80 X V <sub>CC</sub>          |                        | V    |
|                   |                                  |                                                                           | 1.65V to 1.95V  | 0.65 X V <sub>CC</sub> |                        | 0.65 X V <sub>CC</sub>          |                        |      |
|                   |                                  |                                                                           | 2.3V to 2.7V    | 1.6                    |                        | 1.6                             |                        |      |
|                   |                                  |                                                                           | 3.0V to 3.6V    | 2.0                    |                        | 2.0                             |                        |      |
| V <sub>IL</sub>   | Low-Level Input Voltage          |                                                                           | 0.8V to 1.65V   |                        | 0.30 X V <sub>CC</sub> |                                 | 0.30 X V <sub>CC</sub> | V    |
|                   |                                  |                                                                           | 1.65V to 1.95V  |                        | 0.35 X V <sub>CC</sub> |                                 | 0.35 X V <sub>CC</sub> |      |
|                   |                                  |                                                                           | 2.3V to 2.7V    |                        | 0.7                    |                                 | 0.7                    |      |
|                   |                                  |                                                                           | 3.0V to 3.6V    |                        | 0.9                    |                                 | 0.9                    |      |
| V <sub>OH</sub>   | High-Level Output Voltage        | I <sub>OH</sub> = -20μA                                                   | 0.8V to 3.6V    | V <sub>CC</sub> - 0.1  |                        | V <sub>CC</sub> - 0.1           |                        | V    |
|                   |                                  | I <sub>OH</sub> = -1.1mA                                                  | 1.1V            | 0.75 X V <sub>CC</sub> |                        | 0.7 X V <sub>CC</sub>           |                        |      |
|                   |                                  | I <sub>OH</sub> = -1.7mA                                                  | 1.4V            | 1.11                   |                        | 1.03                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -1.9mA                                                  | 1.65V           | 1.32                   |                        | 1.3                             |                        |      |
|                   |                                  | I <sub>OH</sub> = -2.3mA                                                  | 2.3V            | 2.05                   |                        | 1.97                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -3.1mA                                                  |                 | 1.9                    |                        | 1.85                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -2.7mA                                                  | 3V              | 2.72                   |                        | 2.67                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -4mA                                                    |                 | 2.6                    |                        | 2.55                            |                        |      |
| V <sub>OL</sub>   | Low-Level Input Voltage          | I <sub>OL</sub> = 20μA                                                    | 0.8V to 3.6V    |                        | 0.1                    |                                 | 0.1                    | V    |
|                   |                                  | I <sub>OL</sub> = 1.1mA                                                   | 1.1V            |                        | 0.3 X V <sub>CC</sub>  |                                 | 0.3 X V <sub>CC</sub>  |      |
|                   |                                  | I <sub>OL</sub> = 1.7mA                                                   | 1.4V            |                        | 0.31                   |                                 | 0.37                   |      |
|                   |                                  | I <sub>OL</sub> = 1.9mA                                                   | 1.65V           |                        | 0.31                   |                                 | 0.35                   |      |
|                   |                                  | I <sub>OL</sub> = 2.3mA                                                   | 2.3V            |                        | 0.31                   |                                 | 0.33                   |      |
|                   |                                  | I <sub>OL</sub> = 3.1mA                                                   |                 |                        | 0.44                   |                                 | 0.45                   |      |
|                   |                                  | I <sub>OL</sub> = 2.7mA                                                   | 3V              |                        | 0.31                   |                                 | 0.33                   |      |
|                   |                                  | I <sub>OL</sub> = 4mA                                                     |                 |                        | 0.44                   |                                 | 0.45                   |      |
| I <sub>I</sub>    | Input Current                    | A or B Input<br>V <sub>I</sub> = GND to 3.6V                              | 0V to 3.6V      |                        | ± 0.1                  |                                 | ± 0.5                  | μA   |
| I <sub>OFF</sub>  | Power Down Leakage Current       | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                             | 0V              |                        | ± 0.2                  |                                 | ± 0.6                  | μA   |
| ΔI <sub>OFF</sub> | Delta Power Down Leakage Current | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                             | 0V to 0.2V      |                        | ± 0.2                  |                                 | ± 0.6                  | μA   |
| I <sub>CC</sub>   | Supply Current                   | V <sub>I</sub> = GND or V <sub>CC</sub> , I <sub>O</sub> = 0              | 0.8V to 3.6V    |                        | 0.5                    |                                 | 0.9                    | μA   |
| ΔI <sub>CC</sub>  | Additional Supply Current        | One input at V <sub>CC</sub> - 0.6V Other input at V <sub>CC</sub> or GND | 3.3V            |                        | 40                     |                                 | 50                     | μA   |

**Electrical Characteristics** (cont.) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Symbol            | Parameter                        | Test Conditions                                                       | V <sub>CC</sub> | T <sub>A</sub> = -40°C to 125°C |                        | Unit |
|-------------------|----------------------------------|-----------------------------------------------------------------------|-----------------|---------------------------------|------------------------|------|
|                   |                                  |                                                                       |                 | Min                             | Max                    |      |
| V <sub>IH</sub>   | High-Level Input Voltage         |                                                                       | 0.8V to 1.65V   | 0.80 X V <sub>CC</sub>          |                        | V    |
|                   |                                  |                                                                       | 1.65V to 1.95V  | 0.70 X V <sub>CC</sub>          |                        |      |
|                   |                                  |                                                                       | 2.3V to 2.7V    | 1.6                             |                        |      |
|                   |                                  |                                                                       | 3.0V to 3.6V    | 2.0                             |                        |      |
| V <sub>IL</sub>   | Low-Level Input Voltage          |                                                                       | 0.8V to 1.65V   |                                 | 0.25 X V <sub>CC</sub> | V    |
|                   |                                  |                                                                       | 1.65V to 1.95V  |                                 | 0.30 X V <sub>CC</sub> |      |
|                   |                                  |                                                                       | 2.3V to 2.7V    |                                 | 0.7                    |      |
|                   |                                  |                                                                       | 3.0V to 3.6V    |                                 | 0.9                    |      |
| V <sub>OH</sub>   | High-Level Output Voltage        | I <sub>OH</sub> = -20μA                                               | 0.8V to 3.6V    | V <sub>CC</sub> - 0.11          |                        | V    |
|                   |                                  | I <sub>OH</sub> = -1.1mA                                              | 1.1V            | 0.6 X V <sub>CC</sub>           |                        |      |
|                   |                                  | I <sub>OH</sub> = -1.7mA                                              | 1.4V            | 0.93                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -1.9mA                                              | 1.65V           | 1.17                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -2.3mA                                              | 2.3V            | 1.77                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -3.1mA                                              |                 | 1.67                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -2.7mA                                              | 3V              | 2.40                            |                        |      |
|                   |                                  | I <sub>OH</sub> = -4mA                                                |                 | 2.30                            |                        |      |
| V <sub>OL</sub>   | Low-Level Input Voltage          | I <sub>OL</sub> = 20μA                                                | 0.8V to 3.6V    |                                 | 0.11                   | V    |
|                   |                                  | I <sub>OL</sub> = 1.1mA                                               | 1.1V            |                                 | 0.33 X V <sub>CC</sub> |      |
|                   |                                  | I <sub>OL</sub> = 1.7mA                                               | 1.4V            |                                 | 0.41                   |      |
|                   |                                  | I <sub>OL</sub> = 1.9mA                                               | 1.65V           |                                 | 0.39                   |      |
|                   |                                  | I <sub>OL</sub> = 2.3mA                                               | 2.3V            |                                 | 0.36                   |      |
|                   |                                  | I <sub>OL</sub> = 3.1mA                                               |                 |                                 | 0.50                   |      |
|                   |                                  | I <sub>OL</sub> = 2.7mA                                               | 3V              |                                 | 0.36                   |      |
|                   |                                  | I <sub>OL</sub> = 4mA                                                 |                 |                                 | 0.50                   |      |
| I <sub>I</sub>    | Input Current                    | A or B Input, V <sub>I</sub> = GND to 3.6V                            | 0V to 3.6V      |                                 | ± 0.75                 | μA   |
| I <sub>OFF</sub>  | Power Down Leakage Current       | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                         | 0V              |                                 | ± 1.0                  | μA   |
| ΔI <sub>OFF</sub> | Delta Power Down Leakage Current | V <sub>I</sub> or V <sub>O</sub> = 0V to 3.6V                         | 0V to 0.2V      |                                 | ± 2.5                  | μA   |
| I <sub>CC</sub>   | Supply Current                   | V <sub>I</sub> = GND or V <sub>CC</sub> , I <sub>O</sub> = 0          | 0.8V to 3.6V    |                                 | 1.4                    | μA   |
| ΔI <sub>CC</sub>  | Additional Supply Current        | Input at V <sub>CC</sub> - 0.6V Other input at V <sub>CC</sub> or GND | 3.3V            |                                 | 75                     | μA   |

**Operating and Package Characteristics**

 T<sub>A</sub> = +25°C

| Parameter       |                               | Test Conditions                         | V <sub>CC</sub> | Typ | Unit |
|-----------------|-------------------------------|-----------------------------------------|-----------------|-----|------|
| C <sub>pd</sub> | Power dissipation capacitance | f = 1MHz<br>No Load                     | 0.8V            | 5.1 | pF   |
|                 |                               |                                         | 1.2V ± 0.1V     | 5.2 |      |
|                 |                               |                                         | 1.5V ± 0.1V     | 5.2 |      |
|                 |                               |                                         | 1.8V ± 0.15V    | 5.5 |      |
|                 |                               |                                         | 2.5V ± 0.2V     | 5.7 |      |
|                 |                               |                                         | 3.3V ± 0.3V     | 6.0 |      |
| C <sub>I</sub>  | Input Capacitance             | V <sub>I</sub> = V <sub>CC</sub> or GND | 0V or 3.3V      | 2.0 | pF   |
| C <sub>O</sub>  | Output Capacitance            | V <sub>O</sub> = V <sub>CC</sub> or GND | 0V              | 3.5 | pF   |

## Switching Characteristics

 $C_L = 5\text{pF}$  see Figure 1

| Parameter | From Input | TO OUTPUT | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Max  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           |                           | 16.0 |      |                                                 |      |                                                  |      | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 2.4                       | 5.0  | 10.3 | 2.0                                             | 11.4 | 2.0                                              | 12.6 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 1.8                       | 3.6  | 6.4  | 1.6                                             | 7.4  | 1.6                                              | 8.2  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 1.5                       | 2.9  | 5.0  | 1.4                                             | 5.9  | 1.4                                              | 6.5  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.2                       | 2.4  | 3.9  | 1.1                                             | 4.5  | 1.1                                              | 5.0  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.1                       | 2.1  | 3.2  | 1.0                                             | 3.9  | 1.0                                              | 4.3  |      |

 $C_L = 10\text{pF}$  see Figure 1

| Parameter | From Input | TO OUTPUT | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Max  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           |                           | 19.8 |      |                                                 |      |                                                  |      | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 2.8                       | 5.9  | 12.2 | 2.3                                             | 13.7 | 2.3                                              | 15.1 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.3                       | 4.2  | 7.5  | 1.9                                             | 8.7  | 1.9                                              | 9.6  |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.0                       | 3.5  | 5.9  | 1.7                                             | 7.0  | 1.7                                              | 7.7  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 1.7                       | 2.9  | 4.6  | 1.5                                             | 5.4  | 1.5                                              | 6.0  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 1.6                       | 2.7  | 3.8  | 1.4                                             | 4.5  | 1.4                                              | 5.1  |      |

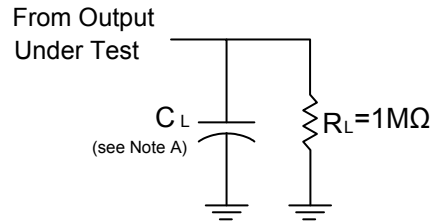
 $C_L = 15\text{pF}$  see Figure 1

| Parameter | From Input | TO OUTPUT | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Max  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           |                           | 23.3 |      |                                                 |      |                                                  |      | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 3.2                       | 6.7  | 13.0 | 2.6                                             | 15.8 | 2.6                                              | 17.4 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 2.6                       | 4.7  | 8.6  | 2.2                                             | 10.0 | 2.2                                              | 11.0 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 2.3                       | 4.0  | 6.7  | 2.0                                             | 8.0  | 2.0                                              | 8.8  |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 2.1                       | 3.3  | 5.1  | 1.8                                             | 6.1  | 1.8                                              | 6.8  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 2.0                       | 3.1  | 4.2  | 1.6                                             | 5.0  | 1.6                                              | 5.5  |      |

 $C_L = 30\text{pF}$  see Figure 1

| Parameter | From Input | TO OUTPUT | $V_{CC}$                       | $T_A = +25^\circ\text{C}$ |      |      | $T_A = -40^\circ\text{C to } +85^\circ\text{C}$ |      | $T_A = -40^\circ\text{C to } +125^\circ\text{C}$ |      | Unit |
|-----------|------------|-----------|--------------------------------|---------------------------|------|------|-------------------------------------------------|------|--------------------------------------------------|------|------|
|           |            |           |                                | Min                       | Typ  | Min  | Min                                             | Max  | Min                                              | Max  |      |
| $t_{pd}$  | A          | Y         | 0.8V                           |                           | 33.6 |      |                                                 |      |                                                  |      | ns   |
|           |            |           | $1.2\text{V} \pm 0.1\text{V}$  | 4.4                       | 8.9  | 16.3 | 3.6                                             | 19.0 | 3.6                                              | 20.9 |      |
|           |            |           | $1.5\text{V} \pm 0.1\text{V}$  | 3.6                       | 6.3  | 10.8 | 3.2                                             | 12.9 | 3.2                                              | 14.2 |      |
|           |            |           | $1.8\text{V} \pm 0.15\text{V}$ | 3.2                       | 5.3  | 9.0  | 2.9                                             | 10.5 | 2.9                                              | 11.6 |      |
|           |            |           | $2.5\text{V} \pm 0.2\text{V}$  | 2.4                       | 4.5  | 6.5  | 2.6                                             | 7.6  | 2.6                                              | 8.5  |      |
|           |            |           | $3.3\text{V} \pm 0.3\text{V}$  | 2.2                       | 4.2  | 5.6  | 2.2                                             | 6.2  | 2.2                                              | 7.2  |      |

## Parameter Measurement Information



| $V_{CC}$         | Inputs   |            | $V_M$      | $C_L$           |
|------------------|----------|------------|------------|-----------------|
|                  | $V_I$    | $t_r/t_f$  |            |                 |
| 0.8 V            | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | 5, 10, 15, 30pF |
| 1.2V $\pm$ 0.1V  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | 5, 10, 15, 30pF |
| 1.5V $\pm$ 0.1V  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | 5, 10, 15, 30pF |
| 1.8V $\pm$ 0.15V | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | 5, 10, 15, 30pF |
| 2.5V $\pm$ 0.2V  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | 5, 10, 15, 30pF |
| 3.3V $\pm$ 0.3V  | $V_{CC}$ | $\leq 3ns$ | $V_{CC}/2$ | 5, 10, 15, 30pF |

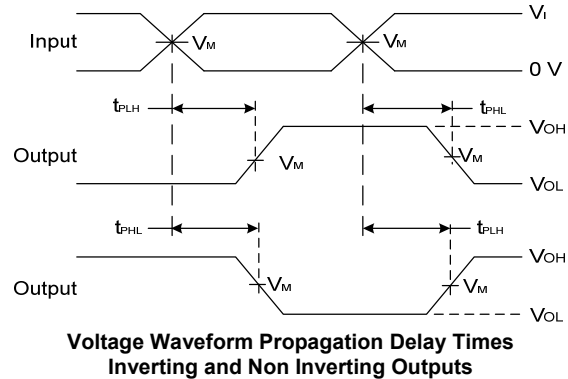
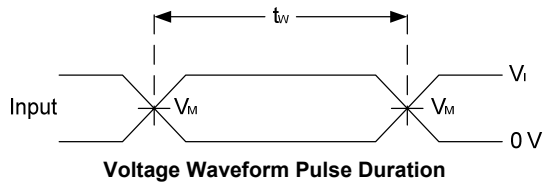
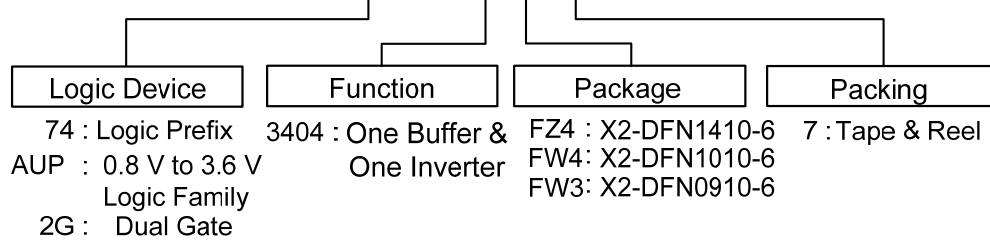


Figure 1 Load Circuit and Voltage Waveforms

- Notes:
- A. Includes test lead and test apparatus capacitance.
  - B. All pulses are supplied at pulse repetition rate  $\leq 10$  MHz.
  - C. Inputs are measured separately one transition per measurement.
  - D.  $t_{PLH}$  and  $t_{PHL}$  are the same as  $t_{PD}$ .

## Ordering Information

### 74AUP2G 3404 XX - 7



| Device             | Package Code | Packaging<br>(Note 7) | 7" Tape and Reel |                    |
|--------------------|--------------|-----------------------|------------------|--------------------|
|                    |              |                       | Quantity         | Part Number Suffix |
| 74AUP2G3404FZ4-7** | FZ4          | X2-DFN1410-6          | 5000/Tape & Reel | -7                 |
| 74AUP2G3404FW4-7** | FW4          | X2-DFN1010-6          | 5000/Tape & Reel | -7                 |
| 74AUP2G3404FW3-7   | FW3          | X2-DFN0910-6          | 5000/Tape & Reel | -7                 |

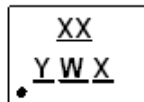
Note: 7. The taping orientation is located on our website at <http://www.diodes.com/datasheets/ap02007.pdf>

\*\* Future Products

## Marking Information

(1) X2-DFN1410-6, X2-DFN1010-6, X2-DFN0910-6

(Top View)



XX : Identification Code

Y : Year : 0~9

W : Week : A~Z : 1~26 week;

a~z : 27~52 week; z represents  
52 and 53 week

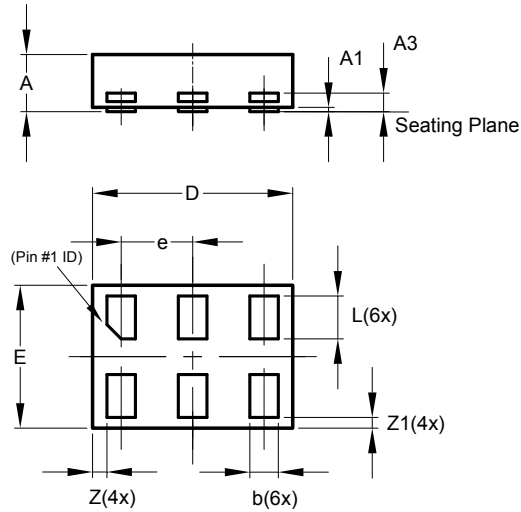
X : A~Z : Internal code

| Part Number    | Package      | Identification Code |
|----------------|--------------|---------------------|
| 74AUP2G3404FZ4 | X2-DFN1410-6 | RU                  |
| 74AUP2G3404FW4 | X2-DFN1010-6 | SU                  |
| 74AUP2G3404FW3 | X2-DFN0910-6 | MU                  |

## Package Outline Dimensions (All dimensions in mm.)

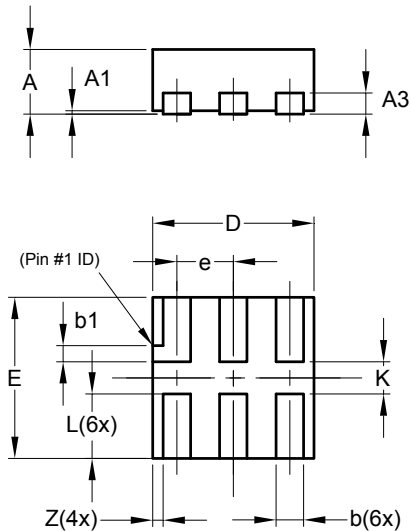
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.

### (1) Package Type X2-DFN1410-6



| X2-DFN1410-6         |       |       |       |
|----------------------|-------|-------|-------|
| Dim                  | Min   | Max   | Typ   |
| A                    | —     | 0.40  | 0.39  |
| A1                   | 0.00  | 0.05  | 0.02  |
| A3                   | —     | —     | 0.13  |
| b                    | 0.15  | 0.25  | 0.20  |
| D                    | 1.35  | 1.45  | 1.40  |
| E                    | 0.95  | 1.05  | 1.00  |
| e                    | —     | —     | 0.50  |
| L                    | 0.25  | 0.35  | 0.30  |
| Z                    | —     | —     | 0.10  |
| Z1                   | 0.045 | 0.105 | 0.075 |
| All Dimensions in mm |       |       |       |

### (2) Package Type: X2-DFN1010-6

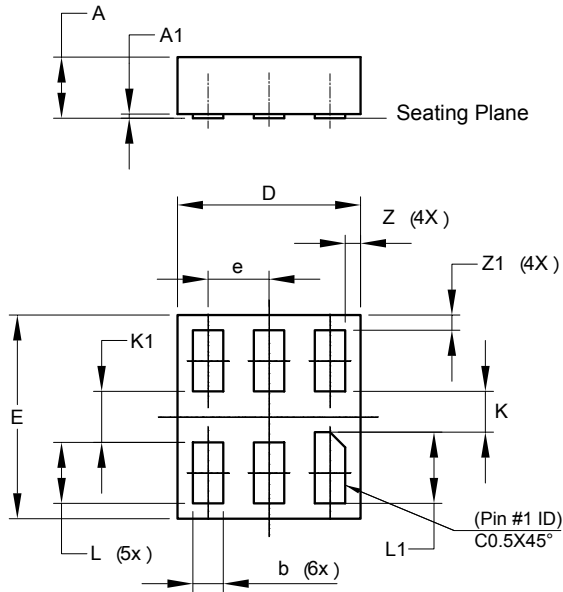


| X2-DFN1010-6         |      |      |       |
|----------------------|------|------|-------|
| Dim                  | Min  | Max  | Typ   |
| A                    | —    | 0.40 | 0.39  |
| A1                   | 0.00 | 0.05 | 0.02  |
| A3                   | —    | —    | 0.13  |
| b                    | 0.14 | 0.20 | 0.17  |
| b1                   | 0.05 | 0.15 | 0.10  |
| D                    | 0.95 | 1.05 | 1.00  |
| E                    | 0.95 | 1.05 | 1.00  |
| e                    | —    | —    | 0.35  |
| L                    | 0.35 | 0.45 | 0.40  |
| K                    | 0.15 | —    | —     |
| Z                    | —    | —    | 0.065 |
| All Dimensions in mm |      |      |       |

**Package Outline Dimensions** (cont.) (All dimensions in mm.)

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.

**(3) Package Type: X2-DFN0910-6**

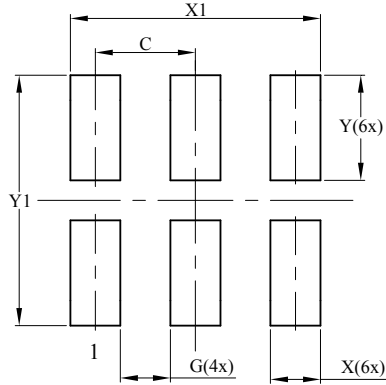


| X2-DFN0910-6         |      |      |       |
|----------------------|------|------|-------|
| Dim                  | Min  | Max  | Typ   |
| A                    | -    | 0.35 | 0.30  |
| A1                   | 0    | 0.03 | 0.02  |
| b                    | 0.10 | 0.20 | 0.15  |
| D                    | 0.85 | 0.95 | 0.90  |
| E                    | 0.95 | 1.05 | 1.00  |
| e                    | -    | -    | 0.30  |
| K                    | 0.20 | -    | -     |
| K1                   | 0.25 | -    | -     |
| L                    | 0.25 | 0.35 | 0.30  |
| L1                   | 0.30 | 0.40 | 0.35  |
| Z                    | -    | -    | 0.075 |
| Z1                   | -    | -    | 0.075 |
| All Dimensions in mm |      |      |       |

## Suggested Pad Layout

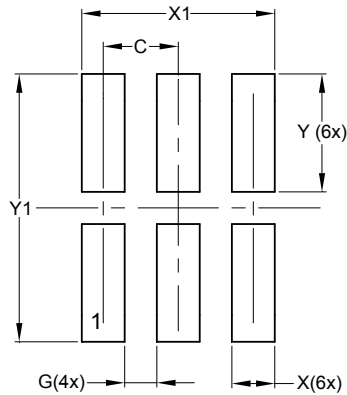
Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

### (1) Package Type X2-DFN1410-6



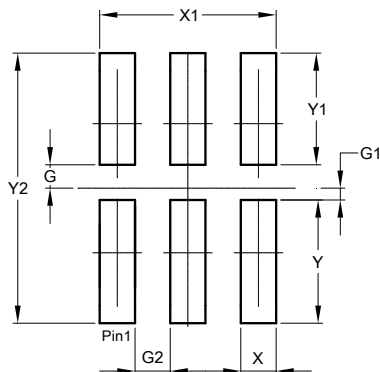
| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.500         |
| G          | 0.250         |
| X          | 0.250         |
| X1         | 1.250         |
| Y          | 0.525         |
| Y1         | 1.250         |

### (2) Package Type: X2-DFN1010-6



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.350         |
| G          | 0.150         |
| X          | 0.200         |
| X1         | 0.900         |
| Y          | 0.550         |
| Y1         | 1.250         |

### (3) Package Type: X2-DFN0910-6



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 0.100         |
| G1         | 0.050         |
| G2         | 0.150         |
| X          | 0.150         |
| X1         | 0.750         |
| Y          | 0.525         |
| Y1         | 0.475         |
| Y2         | 1.150         |

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