

Description

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

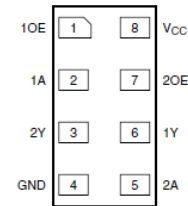
The 74AUP2G126 is a dual 3-State Buffer. Each buffer has an individual output enable pin while asserted LOW will place the output in a high impedance state. The device is designed for operation over a power supply range of 0.8V to 3.6V. The device is fully specified for partial power down applications 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
- ±4mA Output Drive at 3.0V
- Low Static Power Consumption
- I_{CC} < 0.9µA
- Low Dynamic Power Consumption
- C_{PD} = 6pF 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} = 3.0V
- I_{OFF} Supports Partial-Power-Down Mode Operation
- ESD Protection per JESD 22
 - Exceeds 200-V Machine Model (A115)
 - Exceeds 2000-V Human Body Model (A114)
 - Exceeds 1000-V Charged Device Model (C101)
- Latch-Up Exceeds 100mA per JESD 78, Class I
- Leadless Packages per JESD30E
 - DFN1210 Denoted as X2-DFN1210-8
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Pin Assignments

(Top View)



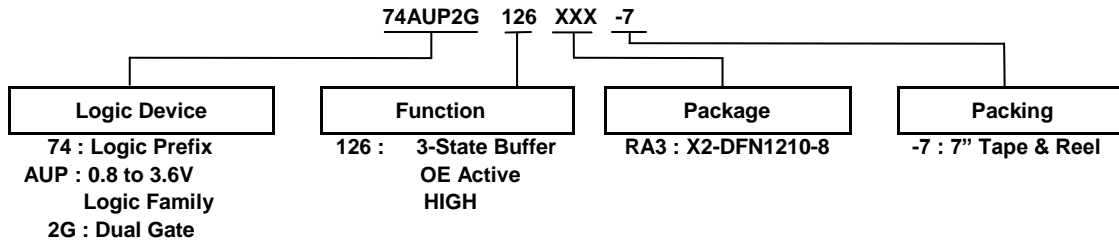
X2-DFN1210-8

Applications

- Suited for Battery and Low Power Needs
- Wide Array of Products Such as:
 - Tablets, E-readers
 - Cell Phones, Personal Navigation / GPS
 - MP3 Players, Cameras, Video Recorders
 - PCs, Ultrabooks, Notebooks, Netbooks
 - Computer Peripherals, Hard Drives, SSD, CD/DVD ROM
 - TV, DVD, DVR, Set-Top Box

- 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 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.

Ordering Information



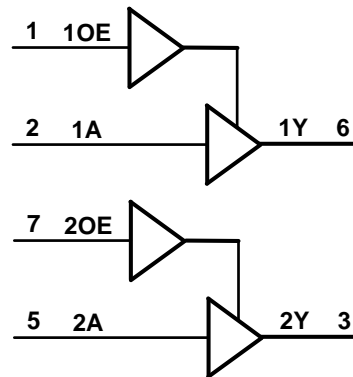
| Device | Package Code | Package (Notes 4, 5) | Package Size | 7" Tape and Reel | |
|-----------------|--------------|----------------------|--|------------------|--------------------|
| | | | | Quantity | Part Number Suffix |
| 74AUP2G126RA3-7 | RA3 | X2-DFN1210-8 | 1.2mm X 1.0mm X 0.35mm 0.3mm Lead Pitch | 5000/Tape & Reel | -7 |

Notes: 4. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>
5. The taping orientation is located on our website at <http://www.diodes.com/datasheets/ap02007.pdf>

Pin Descriptions

| Pin NO. | Pin Name | Description |
|---------|-----------------|---------------------------|
| 1 | 1OE | Output Enable Active HIGH |
| 2 | 1A | Data Input |
| 3 | 2Y | Data Output |
| 4 | GND | Ground |
| 5 | 2A | Data Input |
| 6 | 1Y | Data Output |
| 7 | 2OE | Output Enable Active HIGH |
| 8 | V _{CC} | Supply Voltage |

Logic Diagram



Function Table

| Inputs | | Output |
|--------|---|--------|
| OE | A | Y |
| H | H | H |
| H | L | L |
| L | X | Z |

Absolute Maximum Ratings (Notes 6, 7)

| Symbol | Description | Rating | Unit |
|-----------|---|----------------------|-------------|
| ESD HBM | Human Body Model ESD Protection | 2 | kV |
| ESD CDM | Charged Device Model ESD Protection | 1 | kV |
| V_{CC} | Supply Voltage Range | -0.5 to +4.6 | V |
| V_I | Input Voltage Range | -0.5 to +4.6 | V |
| V_O | Voltage Applied to Output in High or Low State | -0.5 to $V_{CC}+0.5$ | V |
| I_{IK} | Input Clamp Current ($V_I < 0$) | 50 | mA |
| I_{OK} | Output Clamp Current ($V_O < 0$) | 50 | mA |
| I_O | Continuous Output Current ($V_O = 0$ to V_{CC}) | ± 20 | mA |
| I_{CC} | Continuous Current Through V_{CC} | 50 | mA |
| I_{GND} | Continuous Current Through GND | -50 | mA |
| T_J | Operating Junction Temperature | -40 to +150 | $^{\circ}C$ |
| T_{STG} | Storage Temperature | -65 to +150 | $^{\circ}C$ |

- Notes:
- 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.
 - Forcing the maximum allowed voltage could cause a condition exceeding the maximum current or conversely forcing the maximum current could cause a condition exceeding the maximum voltage. The ratings of both current and voltage must be maintained within the controlled range.

Recommended Operating Conditions (Note 8)

| Symbol | Parameter | | Min | Max | Unit |
|---------------------|------------------------------------|---------------------------|-----|----------|-------------|
| V_{CC} | Operating Voltage | | 0.8 | 3.6 | V |
| V_I | Input Voltage | | 0 | 3.6 | V |
| V_O | Output Voltage | | 0 | V_{CC} | V |
| I_{OH} | High-Level Output Current | $V_{CC} = 0.8V$ | — | -20 | μA |
| | | $V_{CC} = 1.1V$ | — | -1.1 | mA |
| | | $V_{CC} = 1.4V$ | — | -1.7 | |
| | | $V_{CC} = 1.65V$ | — | -1.9 | |
| | | $V_{CC} = 2.3V$ | — | -3.1 | |
| | | $V_{CC} = 3.0V$ | — | -4 | |
| I_{OL} | Low-Level Output Current | $V_{CC} = 0.8V$ | — | 20 | μA |
| | | $V_{CC} = 1.1V$ | — | 1.1 | mA |
| | | $V_{CC} = 1.4V$ | — | 1.7 | |
| | | $V_{CC} = 1.65V$ | — | 1.9 | |
| | | $V_{CC} = 2.3V$ | — | 3.1 | |
| | | $V_{CC} = 3.0V$ | — | 4 | |
| $\Delta t/\Delta V$ | Input Transition Rise or Fall Rate | $V_{CC} = 0.8V$ to $3.6V$ | — | 200 | ns/V |
| T_A | Operating Free-Air Temperature | | -40 | +125 | $^{\circ}C$ |

- Note: 8. Unused inputs should be held at V_{CC} or Ground.

Electrical Characteristics

| Symbol | Parameter | Test Conditions | V _{CC} | T _A = +25°C | | T _A = -40°C to +85°C | | Unit |
|-------------------|----------------------------------|--|-----------------|------------------------|------------------------|---------------------------------|------------------------|------|
| | | | | Min | Max | Min | Max | |
| V _{IH} | High-Level Input Voltage | — | 0.8V to 1.65V | 0.80 X V _{CC} | — | 0.80 X V _{CC} | — | V |
| | | — | 1.65V to 1.95V | 0.65 X V _{CC} | — | 0.65 X V _{CC} | — | |
| | | — | 2.3V to 2.7V | 1.6 | — | 1.6 | — | |
| | | — | 3.0V to 3.6V | 2.0 | — | 2.0 | — | |
| V _{IL} | Low-Level Input Voltage | — | 0.8V to 1.65V | — | 0.30 X V _{CC} | — | 0.30 X V _{CC} | V |
| | | — | 1.65V to 1.95V | — | 0.35 X V _{CC} | — | 0.35 X V _{CC} | |
| | | — | 2.3V to 2.7V | — | 0.7 | — | 0.7 | |
| | | — | 3.0V to 3.6V | — | 0.9 | — | 0.9 | |
| V _{OH} | High-Level Output Voltage | I _{OH} = -20μA | 0.8V to 3.6V | V _{CC} - 0.1 | — | V _{CC} - 0.1 | — | V |
| | | I _{OH} = -1.1mA | 1.1V | 0.75 X V _{CC} | — | 0.7 X V _{CC} | — | |
| | | I _{OH} = -1.7mA | 1.4V | 1.11 | — | 1.03 | — | |
| | | I _{OH} = -1.9mA | 1.65V | 1.32 | — | 1.3 | — | |
| | | I _{OH} = -2.3mA | 2.3V | 2.05 | — | 1.97 | — | |
| | | I _{OH} = -3.1mA | | 1.9 | — | 1.85 | — | |
| | | I _{OH} = -2.7mA | 3V | 2.72 | — | 2.67 | — | |
| | | I _{OH} = -4mA | | 2.6 | — | 2.55 | — | |
| V _{OL} | Low-Level Output Voltage | I _{OL} = 20μA | 0.8V to 3.6V | — | 0.1 | — | 0.1 | V |
| | | I _{OL} = 1.1mA | 1.1V | — | 0.3 X V _{CC} | — | 0.3 X V _{CC} | |
| | | I _{OL} = 1.7mA | 1.4V | — | 0.31 | — | 0.37 | |
| | | I _{OL} = 1.9mA | 1.65V | — | 0.31 | — | 0.35 | |
| | | I _{OL} = 2.3mA | 2.3V | — | 0.31 | — | 0.33 | |
| | | I _{OL} = 3.1mA | | — | 0.44 | — | 0.45 | |
| | | I _{OL} = 2.7mA | 3V | — | 0.31 | — | 0.33 | |
| | | I _{OL} = 4mA | | — | 0.44 | — | 0.45 | |
| I _I | Input Current | A or B Input V _I = GND to 3.6V | 0 to 3.6V | — | ±0.1 | — | ±0.5 | μA |
| I _{OZ} | Z-State Leakage Current | V _I or V _O = 0V to 3.6V | 0 to 3.6V | — | 0.2 | — | ±0.5 | μA |
| I _{OFF} | Power Down Leakage Current | V _I or V _O = 0V to 3.6V | 0V | — | ±0.2 | — | ±0.5 | μA |
| ΔI _{OFF} | Delta Power Down Leakage Current | V _I or V _O = 0V to 3.6V | 0V to 0.2V | — | 0.2 | — | 0.6 | μA |
| I _{CC} | Supply Current | V _I = GND or V _{CC} , I _O = 0 | 0.8V to 3.6V | — | 0.5 | — | 0.9 | μA |
| ΔI _{CC} | Additional Supply Current | Data Input at V _{CC} -0.6V OE = GND, I _O = 0A | 3.3V | — | 40 | — | 50 | μA |
| | | OE Input at V _{CC} -0.6V Data Input = GND or V _{CC} , I _O = 0A | 3.3V | — | 110 | — | 120 | μA |
| | | OE Input at V _{CC} Data Input = GND to 3.6V, I _O = 0A | 0.8V to 3.6V | — | 1 | — | 1 | μA |

Electrical Characteristics (Cont.)

NEW PRODUCT

| Symbol | Parameter | Test Conditions | V _{CC} | T _A = -40°C to +125°C | | Unit |
|-------------------|----------------------------------|---|-----------------|----------------------------------|------------------------|------|
| | | | | Min | Max | |
| V _{IH} | High-Level Input Voltage | — | 0.8V to 1.65V | 0.80 X V _{CC} | — | V |
| | | — | 1.65V to 1.95V | 0.70 X V _{CC} | — | |
| | | — | 2.3V to 2.7V | 1.6 | — | |
| | | — | 3.0V to 3.6V | 2.0 | — | |
| V _{IL} | Low-Level Input Voltage | — | 0.8V to 1.65V | — | 0.25 X V _{CC} | V |
| | | — | 1.65V to 1.95V | — | 0.30 X V _{CC} | |
| | | — | 2.3V to 2.7V | — | 0.7 | |
| | | — | 3.0V to 3.6V | — | 0.9 | |
| V _{OH} | High-Level Output Voltage | I _{OH} = -20μA | 0.8V to 3.6V | V _{CC} - 0.11 | — | V |
| | | I _{OH} = -1.1mA | 1.1V | 0.6 X V _{CC} | — | |
| | | I _{OH} = -1.7mA | 1.4V | 0.93 | — | |
| | | I _{OH} = -1.9mA | 1.65V | 1.17 | — | |
| | | I _{OH} = -2.3mA | 2.3V | 1.77 | — | |
| | | I _{OH} = -3.1mA | | 1.67 | — | |
| | | I _{OH} = -2.7mA | 3V | 2.40 | — | |
| | | I _{OH} = -4mA | | 2.30 | — | |
| V _{OL} | Low-Level Output Voltage | I _{OL} = 20μA | 0.8V to 3.6V | — | 0.11 | V |
| | | I _{OL} = 1.1mA | 1.1V | — | 0.33 X V _{CC} | |
| | | I _{OL} = 1.7mA | 1.4V | — | 0.41 | |
| | | I _{OL} = 1.9mA | 1.65V | — | 0.39 | |
| | | I _{OL} = 2.3mA | 2.3V | — | 0.36 | |
| | | I _{OL} = 3.1mA | | — | 0.50 | |
| | | I _{OL} = 2.7mA | 3V | — | 0.36 | |
| | | I _{OL} = 4mA | | — | 0.50 | |
| I _I | Input Current | A or B Input, V _I = GND to 3.6V | 0 to 3.6V | — | ±0.75 | μA |
| I _{oz} | Z-State Leakage Current | V _I or V _O = 0V to 3.6V | 0 to 3.6V | — | ±1.5 | μA |
| I _{OFF} | Power Down Leakage Current | V _I or V _O = 0V to 3.6V | 0 | — | ±3.5 | μA |
| ΔI _{OFF} | Delta Power Down Leakage Current | V _I or V _O = 0V to 3.6V | 0V to 0.2V | — | ±2.5 | μA |
| I _{CC} | Supply Current | V _I = GND or V _{CC} , I _O = 0 | 0.8V to 3.6V | — | 3.0 | μA |
| ΔI _{CC} | Additional Supply Current | Data Input at V _{CC} -0.6V OE = GND, I _O =0A | 3.3V | — | 75 | μA |
| | | OE Input at V _{CC} -0.6V Data Input = GND or V _{CC} , I _O =0A | 3.3V | — | 180 | μA |
| | | OE Input at V _{CC} Data Input = GND to 3.6V, I _O = 0A | 0.8V to 3.6V | — | 1 | μA |

Operating and Package Characteristics (@T_A = +25°C, unless otherwise specified.)

| Parameter | | Test Conditions | | V _{CC} | Typ | Unit |
|-----------------|--|---|----------|-----------------|-----|------|
| C _{PD} | Power Dissipation Capacitance per Gate | f = 1MHz Output Enabled No Load | | 0.8V | 6.5 | pF |
| | | | | 1.2V ± 0.1V | 6.3 | |
| | | | | 1.5V ± 0.1V | 6.3 | |
| | | | | 1.8V ± 0.15V | 6.2 | |
| | | | | 2.5V ± 0.2V | 6.2 | |
| | | | | 3.3V ± 0.3V | 6.1 | |
| C _I | Input Capacitance | V _I = V _{CC} or GND | | 0V or 3.3V | 1.5 | pF |
| C _O | Output Capacitance | Output Enabled V _O = GND | | 0V | 2.9 | pF |
| | | Output Disabled V _O = GND or V _{CC} | | 0V or 3.6V | 2.1 | pF |
| θ _{JA} | Thermal Resistance Junction-to-Ambient | X2-DFN1210-8 | (Note 9) | — | 395 | °C/W |
| θ _{JC} | Thermal Resistance Junction-to-Case | X2-DFN1210-8 | (Note 9) | — | 236 | °C/W |

Note: 9. Test condition, X2-DFN1210-8 device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

Switching Characteristics

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

| Parameter | From Input | To Output | V _{cc} | T _A = +25°C | | | T _A = -40°C to +85°C | | T _A = -40°C to +125°C | | Unit |
|------------------|------------------------|-----------|-----------------|------------------------|------|------|---------------------------------|------|----------------------------------|------|------|
| | | | | Min | Typ | Max | Min | Max | Min | Max | |
| t _{PD} | A | Y | 0.8V | — | 20.6 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 2.8 | 5.5 | 12.6 | 2.5 | 14 | 2.5 | 17 | |
| | | | 1.5V ± 0.1V | 2.2 | 3.9 | 7.3 | 2.0 | 7.6 | 2.0 | 8.1 | |
| | | | 1.8V ± 0.15V | 1.9 | 3.2 | 4.1 | 1.7 | 6.1 | 1.7 | 6.7 | |
| | | | 2.5V ± 0.2V | 1.6 | 2.6 | 3.6 | 1.4 | 4.3 | 1.4 | 4.9 | |
| | | | 3.3V ± 0.3V | 1.4 | 2.4 | 3.1 | 1.2 | 3.9 | 1.2 | 4.4 | |
| t _{EN} | $\overline{\text{OE}}$ | Y | 0.8V | — | 71.6 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 2.8 | 6.2 | 14.9 | 2.6 | 19.6 | 2.6 | 19.8 | |
| | | | 1.5V ± 0.1V | 2.3 | 4.2 | 8.3 | 2.2 | 8.8 | 2.2 | 9.2 | |
| | | | 1.8V ± 0.15V | 1.9 | 3.3 | 6.4 | 1.7 | 7.1 | 1.7 | 7.4 | |
| | | | 2.5V ± 0.2V | 1.5 | 2.4 | 4.3 | 1.4 | 4.6 | 1.4 | 4.9 | |
| | | | 3.3V ± 0.3V | 1.3 | 2.0 | 3.8 | 1.2 | 4.2 | 1.2 | 4.4 | |
| t _{DIS} | $\overline{\text{OE}}$ | Y | 0.8V | — | 10.3 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 2.6 | 4.2 | 8.9 | 2.9 | 9.2 | 2.9 | 9.4 | |
| | | | 1.5V ± 0.1V | 2.1 | 3.2 | 6.4 | 2.2 | 6.6 | 2.2 | 6.7 | |
| | | | 1.8V ± 0.15V | 2.1 | 3.1 | 5.6 | 1.7 | 5.8 | 1.7 | 6.1 | |
| | | | 2.5V ± 0.2V | 1.7 | 2.4 | 4.0 | 1.4 | 4.3 | 1.4 | 4.5 | |
| | | | 3.3V ± 0.3V | 2.1 | 2.8 | 4.9 | 1.2 | 5.0 | 1.2 | 5.1 | |

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

| Parameter | From Input | To Output | V _{cc} | T _A = +25°C | | | T _A = -40°C to +85°C | | T _A = -40°C to +125°C | | Unit |
|------------------|------------------------|-----------|-----------------|------------------------|------|------|---------------------------------|------|----------------------------------|------|------|
| | | | | Min | Typ | Max | Min | Max | Min | Max | |
| t _{PD} | A | Y | 0.8V | — | 24.0 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 3.2 | 6.4 | 14.8 | 3.0 | 16.6 | 3.0 | 18.3 | |
| | | | 1.5V ± 0.1V | 2.1 | 4.5 | 8.8 | 1.9 | 9.1 | 1.9 | 9.4 | |
| | | | 1.8V ± 0.15V | 1.9 | 3.8 | 5.5 | 1.7 | 6.8 | 1.7 | 7.6 | |
| | | | 2.5V ± 0.2V | 2.1 | 3.2 | 4.2 | 1.6 | 5.3 | 1.6 | 5.9 | |
| | | | 3.3V ± 0.3V | 1.8 | 3.0 | 3.8 | 1.6 | 4.6 | 1.6 | 5.2 | |
| t _{EN} | $\overline{\text{OE}}$ | Y | 0.8V | — | 75.3 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 3.2 | 7.1 | 16.9 | 3.0 | 22.2 | 3.0 | 22.4 | |
| | | | 1.5V ± 0.1V | 2.2 | 4.8 | 9.6 | 2.1 | 10.0 | 2.1 | 10.3 | |
| | | | 1.8V ± 0.15V | 1.8 | 3.9 | 7.1 | 1.7 | 7.8 | 1.7 | 8.2 | |
| | | | 2.5V ± 0.2V | 1.5 | 2.9 | 5.0 | 1.4 | 5.4 | 1.4 | 5.8 | |
| | | | 3.3V ± 0.3V | 1.4 | 2.6 | 4.7 | 1.3 | 4.9 | 1.3 | 5.2 | |
| t _{DIS} | $\overline{\text{OE}}$ | Y | 0.8V | — | 12.2 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 3.5 | 5.3 | 10.9 | 3.3 | 11.4 | 3.3 | 11.6 | |
| | | | 1.5V ± 0.1V | 2.2 | 4.1 | 8.0 | 2.1 | 8.2 | 2.1 | 8.5 | |
| | | | 1.8V ± 0.15V | 2.4 | 4.2 | 7.1 | 1.7 | 7.4 | 1.7 | 7.6 | |
| | | | 2.5V ± 0.2V | 1.9 | 3.2 | 5.1 | 1.4 | 5.5 | 1.4 | 5.7 | |
| | | | 3.3V ± 0.3V | 2.4 | 4.1 | 6.8 | 1.3 | 7.1 | 1.3 | 7.2 | |

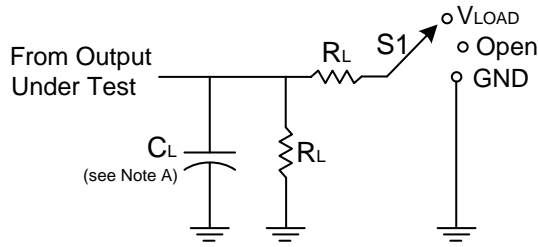
Switching Characteristics (Cont.)
 $C_L = 15\text{pF}$ see Figure 1

| Parameter | From Input | To Output | V _{CC} | T _A = +25°C | | | T _A = -40°C to +85°C | | T _A = -40°C to +125°C | | Unit |
|------------------|------------------------|-----------|-----------------|------------------------|------|------|---------------------------------|------|----------------------------------|------|------|
| | | | | Min | Typ | Max | Min | Max | Min | Max | |
| t _{PD} | A | Y | 0.8V | — | 27.4 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 3.6 | 7.2 | 15.5 | 3.3 | 22.4 | 3.3 | 22.5 | |
| | | | 1.5V ± 0.1V | 3.0 | 5.1 | 8.8 | 2.5 | 9.8 | 2.5 | 10.9 | |
| | | | 1.8V ± 0.15V | 2.2 | 4.3 | 6.3 | 2.0 | 7.9 | 2.0 | 8.8 | |
| | | | 2.5V ± 0.2V | 2.0 | 3.7 | 4.9 | 1.8 | 6.0 | 1.8 | 6.7 | |
| | | | 3.3V ± 0.3V | 2.0 | 3.5 | 4.4 | 1.8 | 5.4 | 1.8 | 6.1 | |
| t _{EN} | $\overline{\text{OE}}$ | Y | 0.8V | — | 79.2 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 3.6 | 7.8 | 19.0 | 3.3 | 21.8 | 3.3 | 22 | |
| | | | 1.5V ± 0.1V | 3.0 | 5.4 | 10.6 | 2.9 | 11.3 | 2.9 | 11.6 | |
| | | | 1.8V ± 0.15V | 2.1 | 4.3 | 8.0 | 2.0 | 8.8 | 2.0 | 9.2 | |
| | | | 2.5V ± 0.2V | 1.8 | 3.4 | 5.8 | 1.7 | 6.2 | 1.7 | 6.7 | |
| | | | 3.3V ± 0.3V | 1.6 | 3.1 | 5.3 | 1.5 | 5.9 | 1.5 | 6.1 | |
| t _{DIS} | $\overline{\text{OE}}$ | Y | 0.8V | — | 14.9 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 4.3 | 6.4 | 13.9 | 3.7 | 15.5 | 3.7 | 15.7 | |
| | | | 1.5V ± 0.1V | 3.0 | 5.0 | 8.8 | 2.5 | 9.7 | 2.5 | 9.9 | |
| | | | 1.8V ± 0.15V | 3.1 | 5.4 | 8.8 | 2.0 | 10.3 | 2.0 | 10.5 | |
| | | | 2.5V ± 0.2V | 2.4 | 4.0 | 8.2 | 1.7 | 8.4 | 1.7 | 8.6 | |
| | | | 3.3V ± 0.3V | 3.2 | 5.3 | 8.6 | 1.5 | 9.2 | 1.5 | 9.4 | |

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

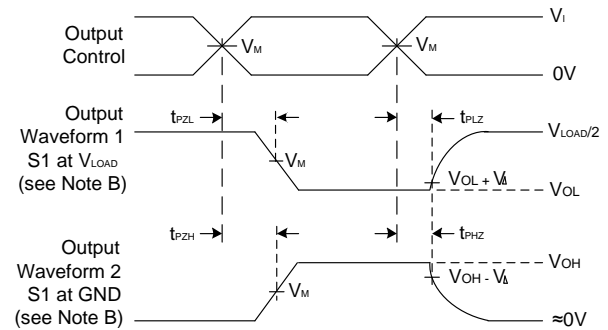
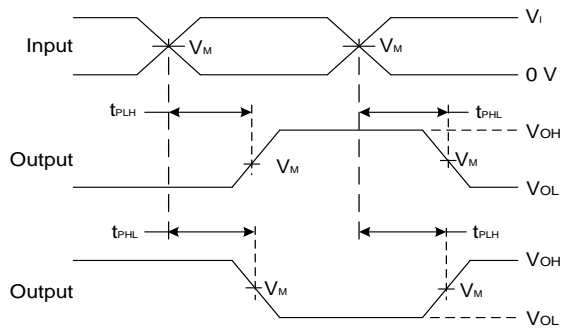
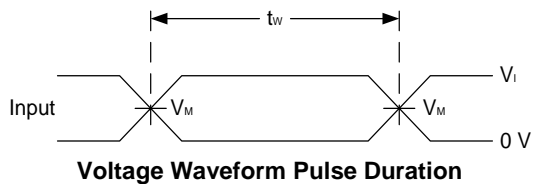
| Parameter | From Input | To Output | V _{CC} | T _A = +25°C | | | T _A = -40°C to +85°C | | T _A = -40°C to +125°C | | Unit |
|------------------|------------------------|-----------|-----------------|------------------------|------|------|---------------------------------|------|----------------------------------|------|------|
| | | | | Min | Typ | Max | Min | Max | Min | Max | |
| t _{PD} | A | Y | 0.8V | — | 37.4 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 4.8 | 9.5 | 20.7 | 4.4 | 27.6 | 4.4 | 27.8 | |
| | | | 1.5V ± 0.1V | 4.0 | 6.7 | 10.8 | 3.0 | 13.0 | 3.0 | 14.5 | |
| | | | 1.8V ± 0.15V | 2.9 | 5.6 | 8.4 | 2.6 | 10.3 | 2.6 | 11.5 | |
| | | | 2.5V ± 0.2V | 2.7 | 4.8 | 6.3 | 2.5 | 7.8 | 2.5 | 8.7 | |
| | | | 3.3V ± 0.3V | 2.7 | 4.6 | 5.8 | 2.5 | 7.0 | 2.5 | 8.3 | |
| t _{EN} | $\overline{\text{OE}}$ | Y | 0.8V | — | 90.6 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 4.7 | 10.0 | 24.5 | 4.3 | 26.4 | 4.3 | 26.6 | |
| | | | 1.5V ± 0.1V | 3.0 | 6.9 | 13.6 | 3.7 | 14.4 | 3.7 | 15.0 | |
| | | | 1.8V ± 0.15V | 2.6 | 5.6 | 10.3 | 3.2 | 11.4 | 3.2 | 12.1 | |
| | | | 2.5V ± 0.2V | 2.3 | 4.5 | 7.6 | 2.9 | 8.2 | 2.9 | 8.8 | |
| | | | 3.3V ± 0.3V | 2.2 | 4.2 | 7.5 | 2.7 | 8.3 | 2.7 | 8.7 | |
| t _{DIS} | $\overline{\text{OE}}$ | Y | 0.8V | — | 51.6 | — | — | — | — | — | ns |
| | | | 1.2V ± 0.1V | 6.0 | 9.8 | 16.3 | 4.7 | 18.7 | 4.7 | 18.9 | |
| | | | 1.5V ± 0.1V | 4.5 | 7.7 | 12.6 | 3.0 | 12.8 | 3.0 | 13.2 | |
| | | | 1.8V ± 0.15V | 5.2 | 8.8 | 13.7 | 2.6 | 13.8 | 2.6 | 13.9 | |
| | | | 2.5V ± 0.2V | 3.9 | 6.4 | 8.9 | 2.3 | 10.8 | 2.3 | 12.2 | |
| | | | 3.3V ± 0.3V | 5.5 | 9.0 | 13.9 | 2.2 | 14.0 | 2.2 | 15.6 | |

Parameter Measurement Information



| TEST | S1 | R_L |
|-------------------|------------|-------------|
| t_{PLH}/t_{PHL} | Open | 1M Ω |
| t_{PLZ}/t_{PZL} | V_{LOAD} | 5K Ω |
| t_{PHZ}/t_{PZH} | GND | 5K Ω |

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



Voltage Waveform Enable and Disable Times Low and High Level Enabling

Voltage Waveform Propagation Delay Times Inverting and Non Inverting Outputs


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 $\leq 10MHz$.
 - C. Inputs are measured separately one transition per measurement.
 - D. t_{PLZ} and t_{PHZ} are the same as t_{DIS} .
 - E. t_{PZL} and t_{PZH} are the same as t_{EN} .
 - F. t_{PLH} and t_{PHL} are the same as t_{PD} .

Marking Information

X2-DFN1210-8

(Top View)

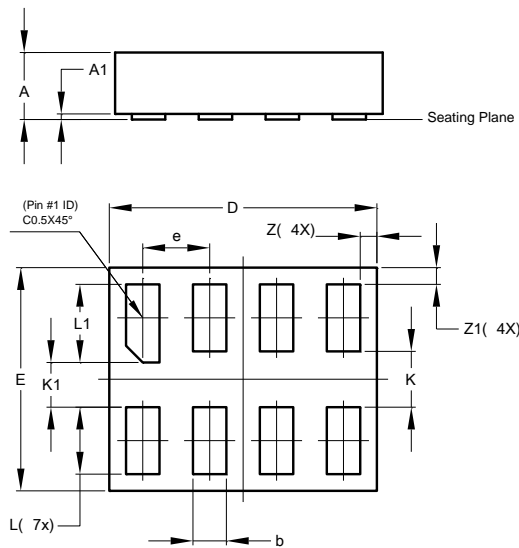


XX : Identification Code
Y : Year : 0~9
W : Week : A~Z : 1~26 Week
 a~z: 27~52 Week
 z Represents 52 and 53 Week
X : Week : A~Z : Internal Code

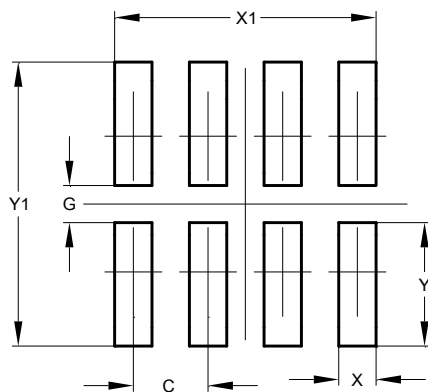
| Part Number | Package | Identification Code |
|-----------------|--------------|---------------------|
| 74AUP2G126RA3-7 | X2-DFN1210-8 | KT |

X2-DFN1210-8 Package Outline Dimensions and Suggested Pad Layout

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



| X2-DFN1210-8 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | - | 0.35 | 0.30 |
| A1 | 0 | 0.03 | 0.02 |
| b | 0.10 | 0.20 | 0.15 |
| D | 1.15 | 1.25 | 1.20 |
| E | 0.95 | 1.05 | 1.00 |
| e | - | - | 0.30 |
| K | - | - | 0.25 |
| K1 | - | - | 0.20 |
| L | 0.25 | 0.35 | 0.30 |
| L1 | 0.30 | 0.40 | 0.35 |
| Z | 0.050 | 0.100 | 0.075 |
| Z1 | 0.050 | 0.100 | 0.075 |
| All Dimensions in mm | | | |



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.300 |
| G | 0.150 |
| X | 0.150 |
| X1 | 1.050 |
| Y | 0.500 |
| Y1 | 1.150 |

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