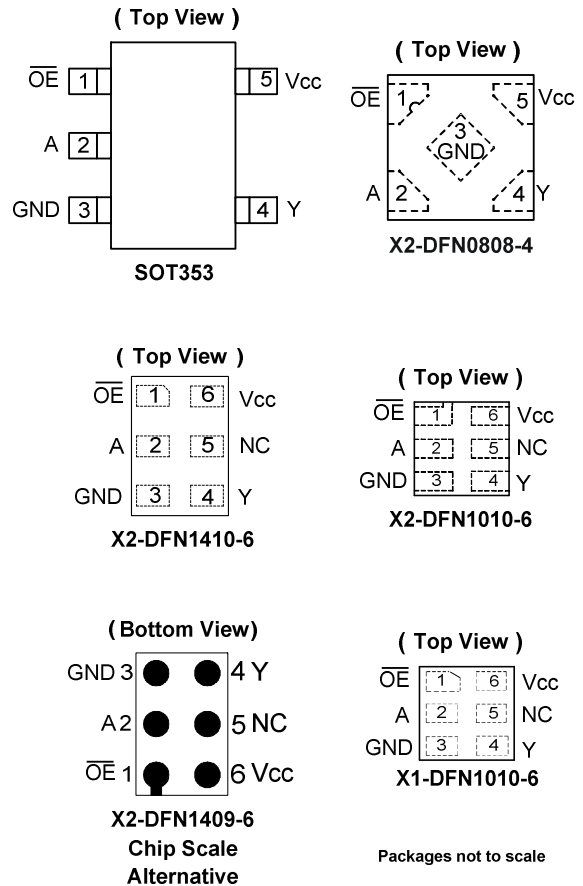


## Description

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

The 74AUP1G125 is a single, non-inverting buffer/bus driver, designed for operation over a power supply range of 0.8V to 3.6V. The device has a three-state output that enters a high-impedance state when a high level is applied to the output enable (OE) pin. The device is fully specified for partial power down applications using I<sub>OFF</sub>. The I<sub>OFF</sub> circuitry disables the output, preventing damaging current backflow when the device is powered down.

## Pin Assignments



## 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<sub>CC</sub> < 0.9µA
- Low Dynamic Power Consumption  
C<sub>PD</sub> = 6.3pF (Typical at 3.6V)
- Schmitt Trigger Action at all inputs makes the circuit tolerant for slower input rise and fall time. The hysteresis is typically 250mV at V<sub>CC</sub> = 3.0V.
- I<sub>OFF</sub> Supports Partial-Power-Down Mode Operation
- ESD Protection Exceeds JESD 22  
2000-V Human Body Model (A114)  
Exceeds 1000-V Charged Device Model (C101)
- Latch-Up Exceeds 100mA per JESD 78, Class I
- Leadless Packages Named per JESD30E
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

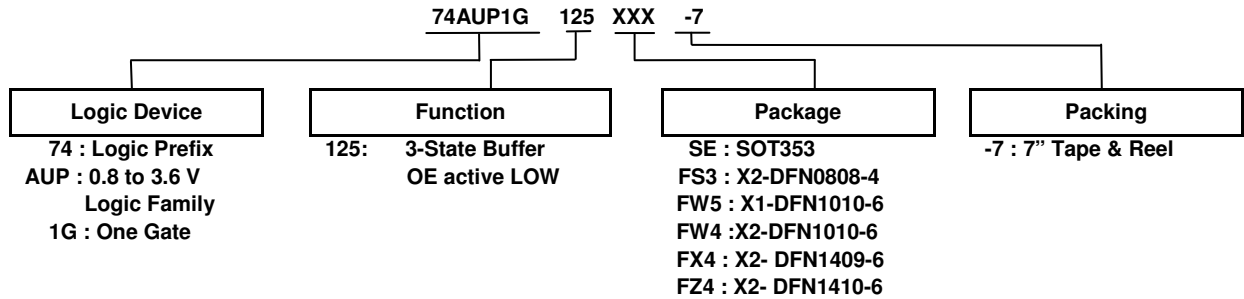
Notes:

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.

## 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, SSDs, CD/DVD ROMs
  - TVs, DVDs, DVRs, Set-Top Boxes

## Ordering Information



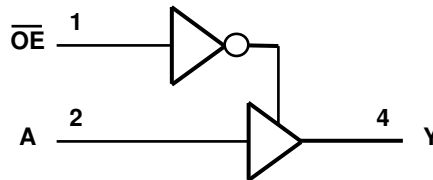
Device	Package Code	Package (Notes 4 & 5)	Package Size	7" Tape and Reel	
				Quantity	Part Number Suffix
74AUP1G125SE-7	SE	SOT353	2.0mm x 2.0mm x 1.1mm 0.65 mm lead pitch	3,000/Tape & Reel	-7
74AUP1G125FS3-7	FS3	X2-DFN0808-4	0.8mm x 0.8mm x 0.35mm 0.5 mm pad pitch (diamond)	5,000/Tape & Reel	-7
74AUP1G125FW5-7	FW5	X1-DFN1010-6	1.0mm x 1.0mm x 0.5mm 0.35 mm pad pitch	5,000/Tape & Reel	-7
74AUP1G125FW4-7	FW4	X2-DFN1010-6	1.0mm x 1.0mm x 0.4mm 0.35 mm pad pitch	5,000/Tape & Reel	-7
74AUP1G125FX4-7	FX4	X2-DFN1409-6 Chip Scale Alternative	1.4mm x 0.9mm x 0.4mm 0.5 mm pad pitch	5,000/Tape & Reel	-7
74AUP1G125FZ4-7	FZ4	X2-DFN1410-6	1.4mm x 1.0mm x 0.4mm 0.5 mm pad pitch	5,000/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 Name	Function
$\overline{OE}$	Output Enable
A	Data Input
GND	Ground
Y	Data Output
V <sub>CC</sub>	Supply Voltage

### Logic Diagram



### Function Table

Inputs		Output
$\overline{OE}$	A	Y
L	H	H
L	L	L
H	X	Z

**Absolute Maximum Ratings** (Notes 6 & 7) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Symbol	Parameter	Rating	Unit
ESD HBM	Human Body Model ESD Protection	2	kV
ESD CDM	Charged Device Model ESD Protection	1	kV
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

- 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) (@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	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		
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: 8. Unused inputs should be held at V<sub>CC</sub> or Ground.

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Symbol	Parameter	Test Conditions	$V_{CC}$	$T_A = +25^\circ\text{C}$		$T_A = -40^\circ\text{C to } +85^\circ\text{C}$		Unit
				Min	Max	Min	Max	
$V_{IH}$	High-Level Input Voltage	—	0.8V to 1.65V	$0.80 \times V_{CC}$	—	$0.80 \times V_{CC}$	—	V
		—	1.65V to 1.95V	$0.65 \times V_{CC}$	—	$0.65 \times V_{CC}$	—	
		—	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	—	$0.30 \times V_{CC}$	—	$0.30 \times V_{CC}$	V
		—	1.65V to 1.95V	—	$0.35 \times V_{CC}$	—	$0.35 \times V_{CC}$	
		—	2.3V to 2.7V	—	0.7	—	0.7	
		—	3.0V to 3.6V	—	0.9	—	0.9	
$V_{OH}$	High-Level Output Voltage	$I_{OH} = -20\mu\text{A}$	0.8V to 3.6V	$V_{CC} - 0.1$	—	$V_{CC} - 0.1$	—	V
		$I_{OH} = -1.1\text{mA}$	1.1V	$0.75 \times V_{CC}$	—	$0.7 \times V_{CC}$	—	
		$I_{OH} = -1.7\text{mA}$	1.4V	1.11	—	1.03	—	
		$I_{OH} = -1.9\text{mA}$	1.65V	1.32	—	1.3	—	
		$I_{OH} = -2.3\text{mA}$	2.3V	2.05	—	1.97	—	
		$I_{OH} = -3.1\text{mA}$		1.9	—	1.85	—	
		$I_{OH} = -2.7\text{mA}$	3V	2.72	—	2.67	—	
		$I_{OH} = -4\text{mA}$		2.6	—	2.55	—	
$V_{OL}$	Low-Level Output Voltage	$I_{OL} = 20\mu\text{A}$	0.8V to 3.6V	—	0.1	—	0.1	V
		$I_{OL} = 1.1\text{mA}$	1.1V	—	$0.3 \times V_{CC}$	—	$0.3 \times V_{CC}$	
		$I_{OL} = 1.7\text{mA}$	1.4V	—	0.31	—	0.37	
		$I_{OL} = 1.9\text{mA}$	1.65V	—	0.31	—	0.35	
		$I_{OL} = 2.3\text{mA}$	2.3V	—	0.31	—	0.33	
		$I_{OL} = 3.1\text{mA}$		—	0.44	—	0.45	
		$I_{OL} = 2.7\text{mA}$	3V	—	0.31	—	0.33	
		$I_{OL} = 4\text{mA}$		—	0.44	—	0.45	
$I_I$	Input Current	A or B Input $V_I = \text{GND to } 3.6\text{V}$	0 to 3.6V	—	$\pm 0.1$	—	$\pm 0.5$	$\mu\text{A}$
$I_{OFF}$	Power Down Leakage Current	$V_I$ or $V_O = 0\text{V to } 3.6\text{V}$	0	—	$\pm 0.2$	—	$\pm 0.5$	$\mu\text{A}$
$I_{OZ}$	Z State Leakage Current	$V_O = 3.6\text{V}$ $V_I = 3.6\text{V}$	3.6V	—	$\pm 0.2$	—	$\pm 0.5$	$\mu\text{A}$
$\Delta I_{OFF}$	Delta Power Down Leakage Current	$V_I$ or $V_O = 0\text{V to } 3.6\text{V}$	0 to 0.2V	—	0.2	—	0.6	$\mu\text{A}$
$I_{CC}$	Supply Current	$V_I = \text{GND or } V_{CC}$ , $I_O = 0$	0.8V to 3.6V	—	0.5	—	0.9	$\mu\text{A}$
$\Delta I_{CC}$	Additional Supply Current	Data input at $V_{CC} - 0.6\text{V}$ $OE = \text{GND}$ , $I_O = 0\text{A}$	3.3V	—	40	—	50	$\mu\text{A}$
		$OE$ input at $V_{CC} - 0.6\text{V}$ Data Input = GND or $V_{CC}$ , $I_O = 0\text{A}$	3.3V	—	110	—	120	$\mu\text{A}$
		$OE$ input at $V_{CC}$ Data Input = GND to 3.6V $I_O = 0\text{A}$	0.8V to 3.6V	—	1	—	1	$\mu\text{A}$

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

Symbol	Parameter	Test Conditions	V <sub>CC</sub>	T <sub>A</sub> = -40 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	—	0.35 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 Output Voltage	I <sub>OL</sub> = 20μA	0.8V to 3.6V	—	0.11	V
		I <sub>OL</sub> = 1.1mA	1.1V	—	0.3 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	0 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	0	—	±3.5	μA
I <sub>OZ</sub>	Z State Leakage Current	V <sub>O</sub> = 3.6V V <sub>I</sub> = 3.6V	3.6V	—	±1.5	μA
ΔI <sub>OFF</sub>	Delta Power Down Leakage Current	V <sub>O</sub> = 3.6V V <sub>I</sub>	0V to 0.2V	—	±2.5	
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	—	3.0	μA
ΔI <sub>CC</sub>	Additional Supply Current	Data Input at V <sub>CC</sub> - 0.6V OE = GND I <sub>O</sub> = 0A	3.3V	—	75	μA
		OE Input at V <sub>CC</sub> - 0.6V Data Input = GND or V <sub>CC</sub> I <sub>O</sub> = 0A	3.3V	—	180	μA
		OE Input at V <sub>CC</sub> Data Input = GND to 3.6V I <sub>O</sub> = 0A	0.8V to 3.6V	—	1	μA

## Switching Characteristics

 $C_L = 5\text{pF}$ , See Figure 1

Parameter	From Input	To Output	V <sub>CC</sub>	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		T <sub>A</sub> = -40°C to +125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t <sub>pd</sub>	A	Y	0.8V	—	20.6	—	—	—	—	—	ns
			1.2V ± 0.1V	2.8	5.5	10.5	2.5	11.7	2.5	12.9	
			1.5V ± 0.1V	2.0	3.9	6.1	1.9	7.3	1.9	8.1	
			1.8V ± 0.15V	1.9	3.2	4.8	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	1.2	2.4	3.1	1.2	3.9	1.2	4.4	
t <sub>en</sub>	$\overline{\text{OE}}$	Y	0.8V	—	69.9	—	—	—	—	—	ns
			1.2V ± 0.1V	3.1	6.1	11.8	2.9	13.9	2.9	15.4	
			1.5V ± 0.1V	2.3	4.2	6.6	2.2	7.7	2.2	8.3	
			1.8V ± 0.15V	2.0	3.4	5.1	1.9	6.2	1.9	6.8	
			2.5V ± 0.2V	1.8	2.6	3.7	1.7	4.5	1.7	5.0	
			3.3V ± 0.3V	1.7	2.4	3.1	1.7	3.5	1.7	3.9	
t <sub>dis</sub>	$\overline{\text{OE}}$	Y	0.8V	—	14.3	—	—	—	—	—	ns
			1.2V ± 0.1V	2.7	4.3	6.5	2.7	7.3	2.7	8.2	
			1.5V ± 0.1V	2.1	3.2	5.1	2.1	5.7	2.1	5.7	
			1.8V ± 0.15V	2.0	3.0	4.9	2.0	5.4	2.0	5.7	
			2.5V ± 0.2V	1.4	2.7	3.9	1.4	4.0	1.4	4.1	
			3.3V ± 0.3V	1.3	2.5	3.2	1.3	3.4	1.3	3.9	

 $C_L = 10\text{pF}$ , See Figure 1

Parameter	From Input	To Output	V <sub>CC</sub>	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		T <sub>A</sub> = -40°C to +125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t <sub>pd</sub>	A	Y	0.8V	—	24.0	—	—	—	—	—	ns
			1.2V ± 0.1V	3.2	6.4	12.3	3.0	13.8	3.0	15.2	
			1.5V ± 0.1V	2.1	4.5	7.3	1.9	8.5	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	1.7	3.2	4.2	1.6	5.3	1.6	5.9	
			3.3V ± 0.3V	1.4	3.0	3.8	1.4	4.6	1.4	5.2	
t <sub>en</sub>	$\overline{\text{OE}}$	Y	0.8V	—	73.7	—	—	—	—	—	ns
			1.2V ± 0.1V	3.6	6.9	13.5	3.4	15.8	3.4	17.5	
			1.5V ± 0.1V	2.3	4.8	7.7	2.2	8.6	2.2	9.4	
			1.8V ± 0.15V	2.0	3.9	5.8	1.9	6.8	1.9	7.4	
			2.5V ± 0.2V	1.8	3.2	4.3	1.7	5.3	1.7	5.9	
			3.3V ± 0.3V	1.7	3.0	3.9	1.7	4.3	1.7	4.8	
t <sub>dis</sub>	$\overline{\text{OE}}$	Y	0.8V	—	32.7	—	—	—	—	—	ns
			1.2V ± 0.1V	3.4	5.4	7.9	3.4	8.8	3.4	9.9	
			1.5V ± 0.1V	2.2	4.1	5.5	2.2	6.2	2.2	7.1	
			1.8V ± 0.15V	2.2	4.2	5.6	1.9	6.3	1.9	7.1	
			2.5V ± 0.2V	1.7	3.0	5.2	1.7	5.5	1.7	6.1	
			3.3V ± 0.3V	1.9	3.8	4.8	1.7	5.0	1.7	5.6	

**Switching Characteristics** (continued)

 $C_L=15\text{pF}$ , See Figure 1

Parameter	From Input	To Output	V <sub>CC</sub>	T <sub>A</sub> = +25 °C			T <sub>A</sub> = -40 °C to +85 °C		T <sub>A</sub> = -40 °C to +125 °C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t <sub>pd</sub>	A	Y	0.8V	—	27.4	—	—	—	—	—	ns
			1.2V ± 0.1V	3.6	7.2	14.1	3.3	15.8	3.3	17.5	
			1.5V ± 0.1V	3.0	5.1	8.1	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	1.5	3.5	4.4	1.5	5.4	1.5	6.1	
t <sub>en</sub>	$\overline{\text{OE}}$	Y	0.8V	—	77.5	—	—	—	—	—	ns
			1.2V ± 0.1V	4.0	7.7	15.2	3.7	17.6	3.7	19.6	
			1.5V ± 0.1V	3.0	5.3	8.4	2.5	9.8	2.5	10.7	
			1.8V ± 0.15V	2.3	4.4	6.5	2.1	7.7	2.1	8.5	
			2.5V ± 0.2V	2.1	3.6	5.0	2.0	6.1	2.0	6.8	
			3.3V ± 0.3V	2.0	3.5	4.5	1.9	4.9	1.9	5.5	
t <sub>dis</sub>	$\overline{\text{OE}}$	Y	0.8V	—	60.8	—	—	—	—	—	ns
			1.2V ± 0.1V	3.8	6.5	12.3	3.7	13.3	3.7	13.3	
			1.5V ± 0.1V	2.8	5.8	10.1	2.5	10.5	2.5	10.5	
			1.8V ± 0.15V	2.2	5.3	9.0	2.1	9.4	2.1	9.9	
			2.5V ± 0.2V	2.1	5.1	7.9	2.0	8.1	2.0	8.4	
			3.3V ± 0.3V	1.9	5.0	7.0	1.9	7.5	1.9	7.5	

 $C_L=30\text{pF}$ , See Figure 1

Parameter	From Input	To Output	V <sub>CC</sub>	T <sub>A</sub> = +25 °C			T <sub>A</sub> = -40 °C to +85 °C		T <sub>A</sub> = -40 °C to +125 °C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t <sub>pd</sub>	A	Y	0.8V	—	37.4	—	—	—	—	—	ns
			1.2V ± 0.1V	4.8	9.5	19.0	4.4	21.6	4.4	24.0	
			1.5V ± 0.1V	4.0	6.7	10.8	3.0	13.0	3.0	14.5	
			1.8V ± 0.15V	2.4	5.6	8.4	2.4	10.3	2.4	11.5	
			2.5V ± 0.2V	2.1	4.8	6.3	2.1	7.8	2.1	8.7	
			3.3V ± 0.3V	2.0	4.6	5.8	2.0	7.5	2.0	8.3	
t <sub>en</sub>	$\overline{\text{OE}}$	Y	0.8V	—	88.9	—	—	—	—	—	ns
			1.2V ± 0.1V	5.2	9.9	19.8	4.8	22.8	4.8	25.3	
			1.5V ± 0.1V	4.0	6.8	10.8	3.1	12.6	3.1	14.1	
			1.8V ± 0.15V	3.0	5.6	8.5	2.8	10.2	2.8	11.3	
			2.5V ± 0.2V	2.2	4.8	6.5	2.2	8.1	2.2	8.8	
			3.3V ± 0.3V	2.1	4.6	6.0	2.1	7.5	2.1	7.7	
t <sub>dis</sub>	$\overline{\text{OE}}$	Y	0.8V	—	49.9	—	—	—	—	—	ns
			1.2V ± 0.1V	6.0	9.9	13.3	4.8	16.5	4.8	16.5	
			1.5V ± 0.1V	2.8	9.0	12.0	3.1	13.2	3.1	14.2	
			1.8V ± 0.15V	2.6	8.8	11.1	2.8	12.4	2.8	13.8	
			2.5V ± 0.2V	2.6	8.7	10.9	2.6	11.6	2.6	13.5	
			3.3V ± 0.3V	2.5	8.6	10.5	2.5	10.8	2.5	13.1	

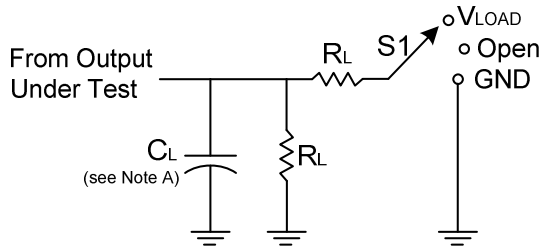
**Operating and Package Characteristics** (@T<sub>A</sub> = +25 °C, unless otherwise specified.)

Parameter		Test Conditions		V <sub>CC</sub>	Typ	Unit
C <sub>pd</sub>	Power Dissipation Capacitance	f = 1MHz No Load		0.8V	6.9	pF
				1.2V ± 0.1V	6.7	
				1.5V ± 0.1V	6.6	
				1.8V ± 0.15V	6.5	
				2.5V ± 0.2V	6.4	
				3.3V ± 0.3V	6.3	
C <sub>i</sub>	Input Capacitance	V <sub>i</sub> = V <sub>CC</sub> or GND		0V or 3.3V	1.5	pF
θ <sub>JA</sub>	Thermal Resistance Junction-to-Ambient	SOT353	(Note 9)	—	371	°C/W
		X2-DFN0808-4		—	430	
		X1-DFN1010-6		—	435	
		X2-DFN1010-6		—	445	
		X2-DFN1409-6		—	470	
		X2-DFN1410-6		—	460	
θ <sub>JC</sub>	Thermal Resistance Junction-to-Case	SOT353	(Note 9)	—	143	°C/W
		X2-DFN0808-4		—	240	
		X1-DFN1010-6		—	250	
		X2-DFN1010-6		—	250	
		X2-DFN1409-6		—	275	
		X2-DFN1410-6		—	265	

Note: 9. Test condition for each of the six package types: Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

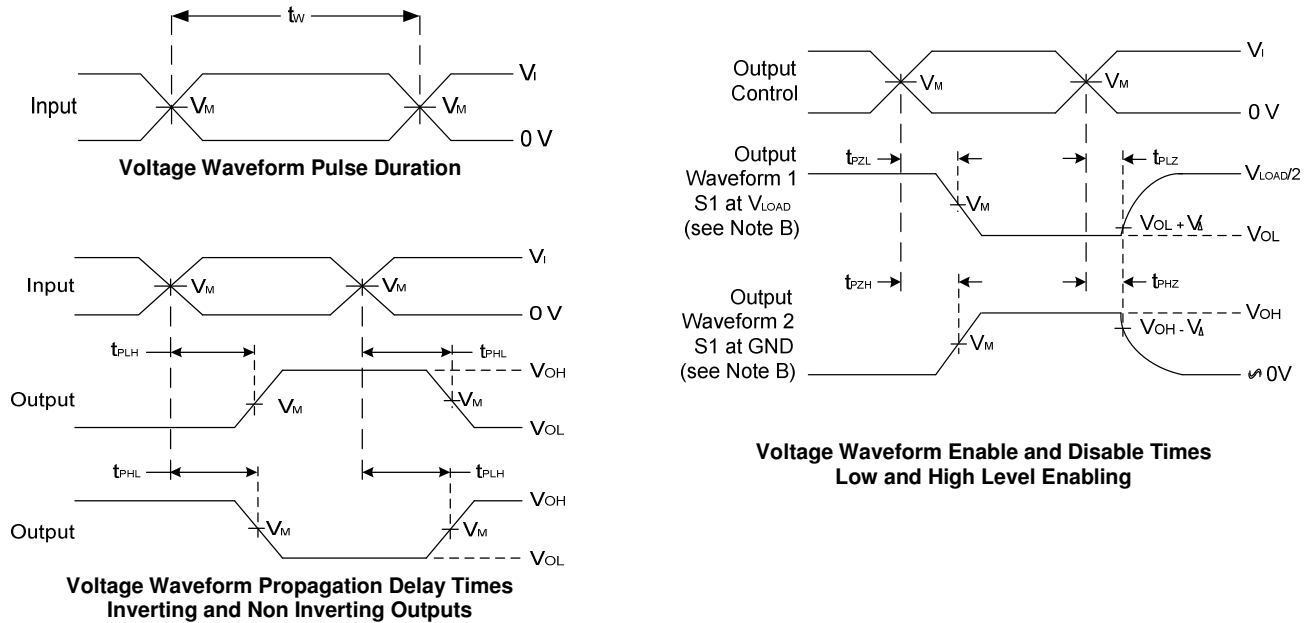


**Parameter Measurement Information**



TEST	S1	$R_L$
$t_{PLH}/t_{PHL}$	Open	1M $\Omega$
$t_{PLZ}/t_{PZL}$	Vload	5k $\Omega$
$t_{PHZ}/t_{PZH}$	GND	5k $\Omega$

$V_{CC}$	Inputs		$V_M$	$V_{LOAD}$	$C_L$	$V_{\Delta}$
	$V_I$	$t_r/t_f$				
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

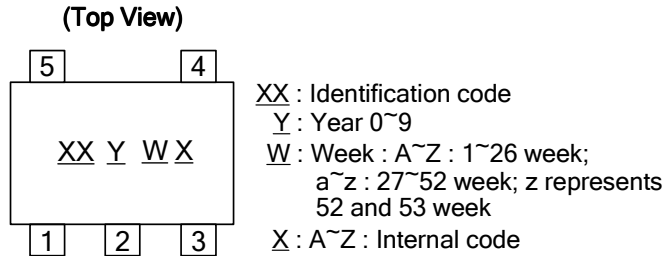


**Figure 1 Load Circuit and Voltage Waveforms**

- 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  $t_{PD}$ .

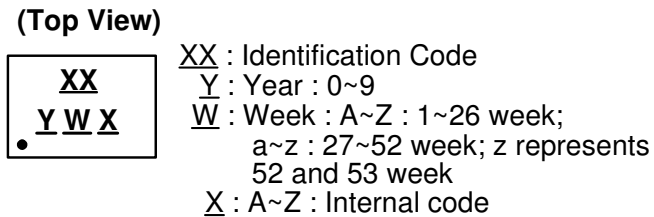
**Marking Information**

(1) SOT353



Part Number	Package	Identification Code
74AUP1G125SE-7	SOT353	XY

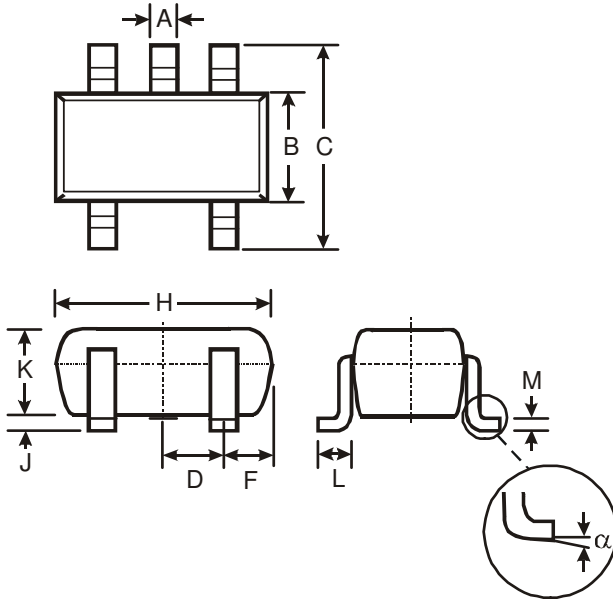
(2) X2-DFN0808-4, X1-DFN1010-6, X2-DFN1010-6, X2-DFN1409-6 and X2-DFN1410-6



Part Number	Package	Identification Code
74AUP1G125FS3-7	X2-DFN0808-4	YY
74AUP1G125FW5-7	X1-DFN1010-6	QX
74AUP1G125FW4-7	X2-DFN1010-6	XY
74AUP1G125FX4-7	X2-DFN1409-6	HP
74AUP1G125FZ4-7	X2-DFN1410-6	XY

**SOT353 Package Outline Dimensions and Suggested Pad Layout**

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



SOT353			
Dim	Min	Max	Typ
A	0.10	0.30	0.25
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	0.65 Typ		
F	0.40	0.45	0.425
H	1.80	2.20	2.15
J	0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.22	0.11
α	0°	8°	-

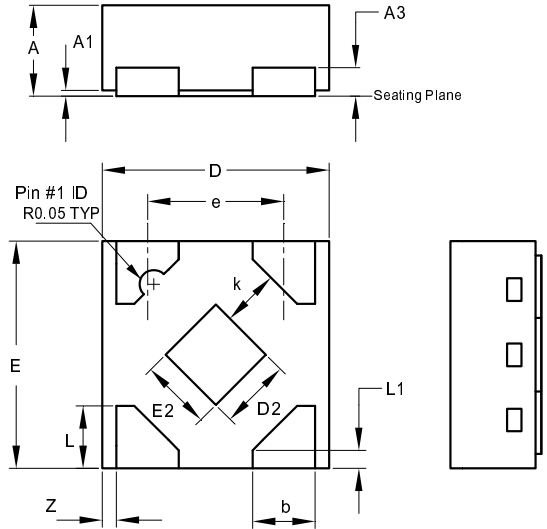
All Dimensions in mm



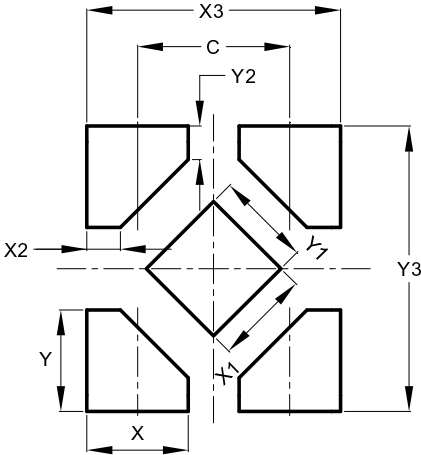
Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

**X2-DFN0808-4 Package Outline Dimensions and Suggested Pad Layout**

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



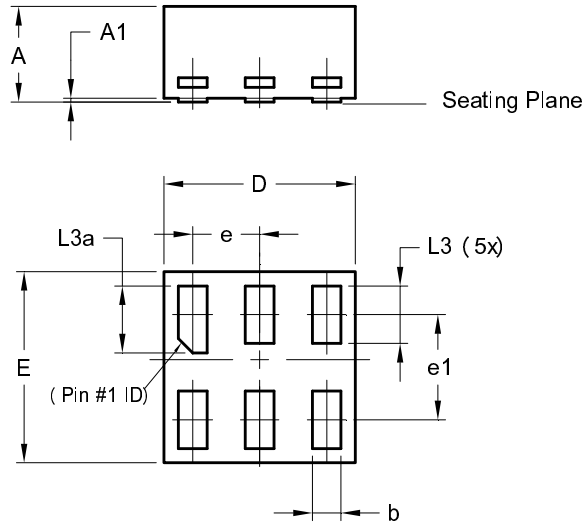
X2-DFN0808-4			
Dim	Min	Max	Typ
A	0.25	0.35	0.30
A1	0	0.04	0.02
A3	-	-	0.13
b	0.17	0.27	0.22
D	0.75	0.85	0.80
D2	0.15	0.35	0.25
E	0.75	0.85	0.80
E2	0.15	0.35	0.25
e	-	-	0.48
k	0.20	-	-
L	0.17	0.27	0.22
L1	0.02	0.12	0.07
z	-	-	0.05
All Dimensions in mm			



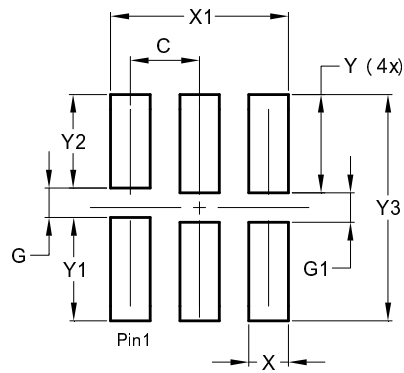
Dimensions	Value
C	0.480
X	0.320
X1	0.300
X2	0.106
X3	0.800
Y	0.320
Y1	0.300
Y2	0.106
Y3	0.900

**X1-DFN1010-6 (Type B) Package Outline Dimensions and Suggested Pad Layout**

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



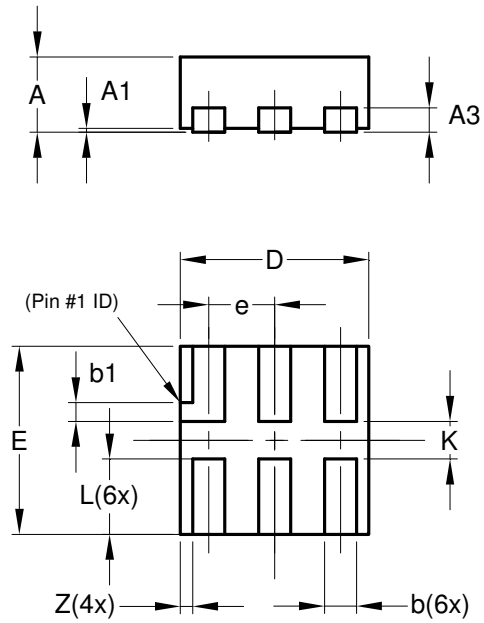
X1-DFN1010-6 (Type B)			
Dim	Min	Max	Typ
A	-	0.50	0.39
A1	-	0.04	-
b	0.12	0.20	0.15
D	0.95	1.050	1.00
E	0.95	1.050	1.00
e	0.35 BSC		
e1	0.55 BSC		
L3	0.27	0.30	0.30
L3a	0.32	0.40	0.35
All Dimensions in mm			



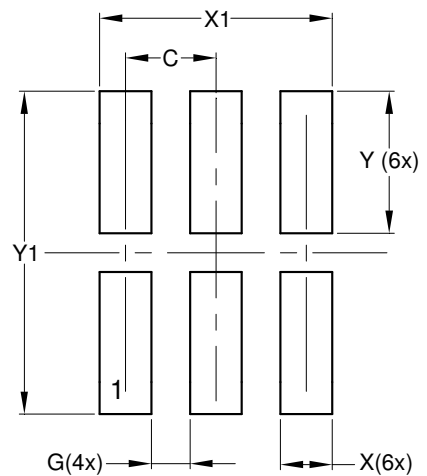
Dimensions	Value (in mm)
C	0.350
G	0.150
G1	0.150
X	0.200
X1	0.900
Y	0.500
Y1	0.525
Y2	0.475
Y3	1.150

**X2-DFN1010-6 Package Outline Dimensions and Suggested Pad Layout**

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



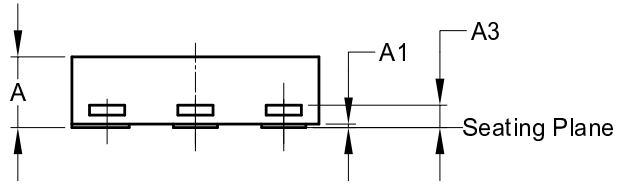
X2-DFN1010-6			
Dim	Min	Max	Typ
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.14	0.20	0.17
b1	0.05	0.15	0.10
D	0.95	1.05	1.00
E	0.95	1.05	1.00
e	—	—	0.35
L	0.35	0.45	0.40
K	0.15	—	—
Z	—	—	0.065
All Dimensions in mm			



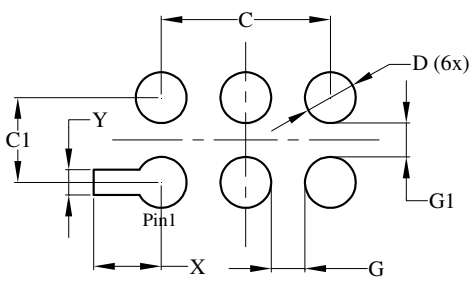
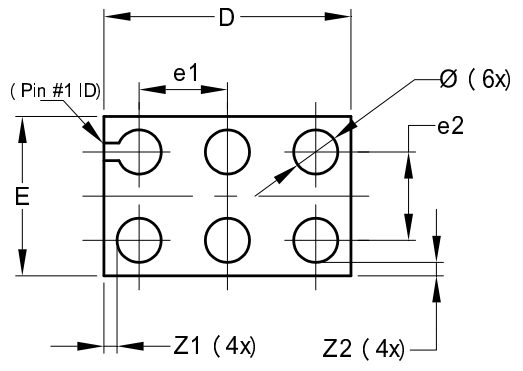
Dimensions	Value (in mm)
C	0.350
G	0.150
X	0.200
X1	0.900
Y	0.550
Y1	1.250

**X2-DFN1409-6 Package Outline Dimensions and Suggested Pad Layout**

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



X2-DFN1409-6			
Dim	Min	Max	Typ
A	-	0.40	0.39
A1	0	0.05	0.02
A3	-	-	0.13
Ø	0.20	0.30	0.25
D	1.35	1.45	1.40
E	0.85	0.95	0.90
e1	-	-	0.50
e2	-	-	0.50
Z1	-	-	0.075
Z2	-	-	0.075
All Dimensions in mm			



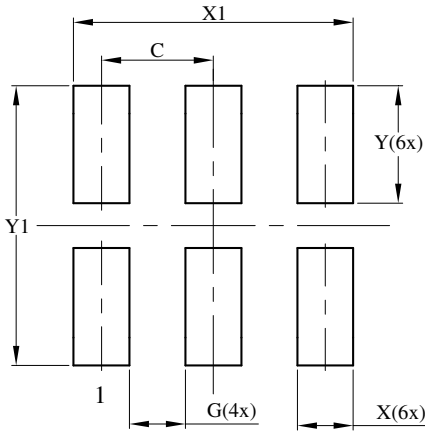
Dimensions	Value (in mm)
C	1.000
C1	0.500
D	0.300
G	0.200
G1	0.200
X	0.400
Y	0.150

**X2-DFN1410-6 Package Outline Dimensions and Suggested Pad Layout**

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



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			



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



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