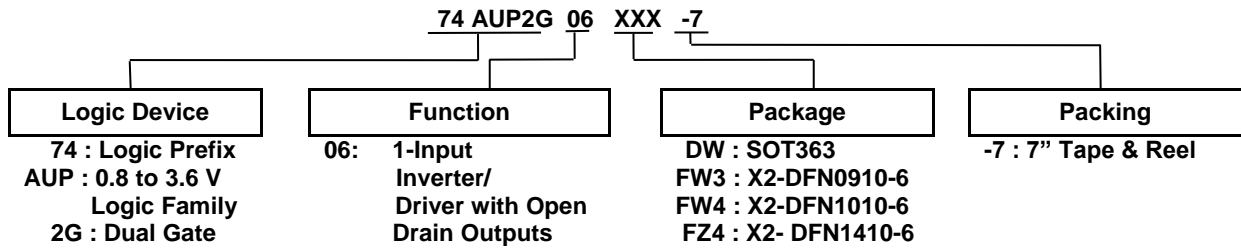




## Ordering Information



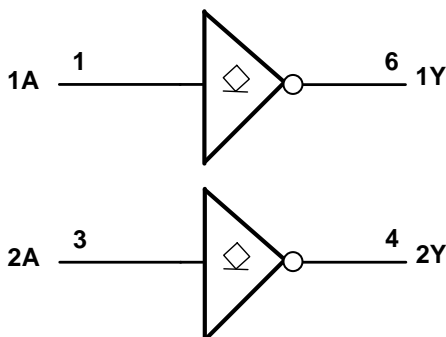
Part Number	Package Code	Package (Notes 4,5)	Package Size	7" Tape and Reel	
				Quantity	Part Number Suffix
74AUP2G06DW-7	DW	SOT363	2.0mm X 2.0mm X 1.1mm 0.65 mm lead pitch	3000/Tape & Reel	-7
74AUP2G06FW3-7	FW3	X2-DFN0910-6	0.9mm X 1.0mm X 0.35mm 0.35 mm pad pitch	5000/Tape & Reel	-7
74AUP2G06FW4-7	FW4	X2-DFN1010-6	1.0mm X 1.0mm X 0.4mm 0.35 mm pad pitch	5000/Tape & Reel	-7
74AUP2G06FZ4-7	FZ4	X2-DFN1410-6	1.4mm X 1.0mm X 0.4mm 0.5 mm pad 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 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 Table

Inputs	Output
nA	nY
H	L
L	Z

**Absolute Maximum Ratings** (Notes 6, 7) (@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 +4.6	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	3.6	V
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:
- 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 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>OL</sub>	Low-Level Output 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, V <sub>I</sub> = GND to 3.6V	0V to 3.6V	—	±0.1	—	±0.5	μA
I <sub>OZ</sub>	Z State Leakage Current	V <sub>O</sub> = 3.6V, V <sub>I</sub> = 3.6V	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 inputs at V <sub>CC</sub> or GND	3.3V	—	40	—	50	μA

**Electrical Characteristics** (@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>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	—	0.33 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>OZ</sub>	Z State Leakage Current	V <sub>O</sub> = 3.6V, V <sub>I</sub> = 3.6V	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	—	± 0.75	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 inputs at V <sub>CC</sub> or GND	3.3V	—	75	μA

**Operating 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	0.5	pF
			1.2V ± 0.1V	0.6	
			1.5V ± 0.1V	0.7	
			1.8V ± 0.15V	0.7	
			2.5V ± 0.2V	1.0	
			3.3V ± 0.3V	1.2	
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	2.0	pF

## 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	—	12.8	—	—	—	—	—	ns
			1.2V ± 0.1V	2.6	5.8	11.3	2.3	12.5	2.3	15.9	
			1.5V ± 0.1V	1.8	3.6	6.4	1.6	7.4	1.6	8.2	
			1.8V ± 0.15V	1.5	2.9	5	1.4	5.9	1.4	6.5	
			2.5V ± 0.2V	1.2	2.4	3.9	1.1	4.5	1.1	5	
3.3V ± 0.3V	0.9	3	3.5	0.8	3.9	0.8	4.3				

 $C_L = 10\text{pF}$  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	—	14.5	—	—	—	—	—	ns
			1.2V ± 0.1V	3.1	7	13.4	2.9	15.1	2.9	19.2	
			1.5V ± 0.1V	2.3	4.8	7.5	2.1	8.7	2.1	10.5	
			1.8V ± 0.15V	2	3.8	4.8	1.8	7	1.8	7.7	
			2.5V ± 0.2V	1.6	3.1	4.6	1.5	5.4	1.5	6	
3.3V ± 0.3V	1.2	4.3	4.9	1.1	5.4	1.1	5.9				

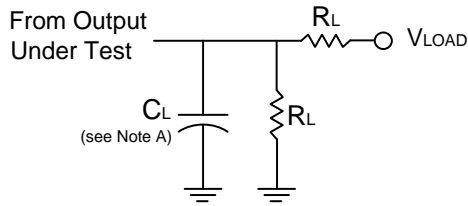
 $C_L = 15\text{pF}$  see Figure 1

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	—	16.2	—	—	—	—	—	ns
			1.2V ± 0.1V	3.5	8.2	14.3	3.3	17.4	3.3	22.5	
			1.5V ± 0.1V	2.6	6.2	8.6	2.4	10.5	2.4	13.7	
			1.8V ± 0.15V	2.3	5	6.7	2.1	8	2.1	9.8	
			2.5V ± 0.2V	2.1	3.9	5.1	1.8	6.1	1.8	6.8	
3.3V ± 0.3V	1.6	5.6	6.4	1.4	7.1	1.4	7.8				

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

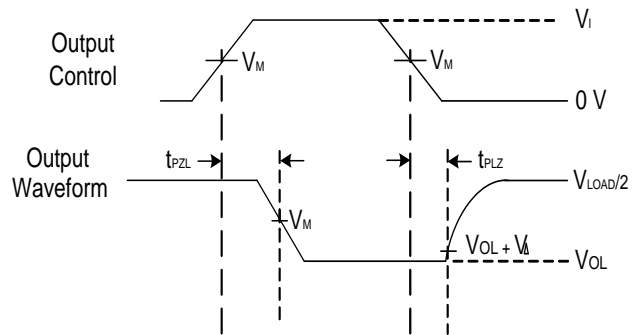
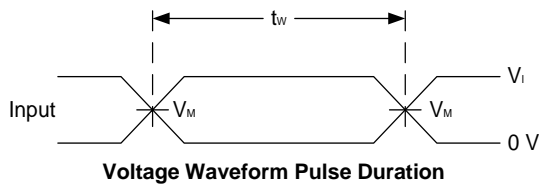
Parameter	From Input	TO OUTPUT	V <sub>cc</sub>	T <sub>A</sub> = +25°C			T <sub>A</sub> = -40°C to +85°C		T <sub>A</sub> = -40°C to +125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t <sub>pd</sub>	A	Y	0.8V	—	19.8	—	—	—	—	—	ns
			1.2V ± 0.1V	4.8	9.8	18.4	4.4	18.4	4.4	25.8	
			1.5V ± 0.1V	3.6	8.2	13.9	3.2	13.9	3.2	18	
			1.8V ± 0.15V	3.2	7.8	12.2	2.9	12.2	2.9	15.2	
			2.5V ± 0.2V	2.4	7.5	9.9	2.6	9.9	2.6	11.4	
3.3V ± 0.3V	1.8	9.2	10.6	2.1	11.6	2.1	12.8				

**Parameter Measurement Information**



TEST	Condition
$t_{PLZ}$ (See Notes D & E)	Vload
$t_{PZL}$ (See Notes D & F)	Vload

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



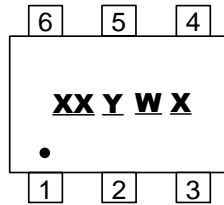
**Voltage Waveform Propagation Delay Times**

**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. The inputs are measured one at a time with one transition per measurement.
  - D. For the open drain device  $t_{PLZ}$  and  $t_{PZL}$  are the same as  $t_{PD}$ .
  - E.  $t_{PZL}$  is measured at  $V_M$ .
  - D.  $t_{PLZ}$  is measured at  $V_{OL} + V_{\Delta}$ .

## Marking Information

(1) SOT363

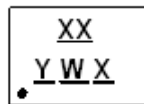


XX : Identification code  
Y : Year 0~9  
W : Week : A~Z : 1~26 week;  
           a~z : 27~52 week; z represents  
           52 and 53 week  
X : A~Z : Internal Code

Part Number	Package	Identification Code
74AUP2G06DW-7	SOT363	SN

(2) 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
74AUP2G06FZ4	X2-DFN1410-6	RN
74AUP2G06FW4	X2-DFN1010-6	SN
74AUP2G06FW3	X2-DFN0910-6	MN

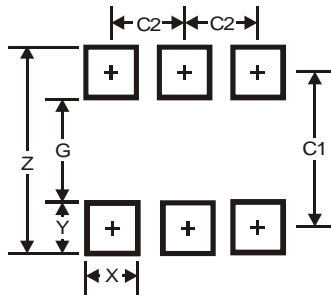


**SOT363 Package Outline Dimensions and Suggested Pad Layout**

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



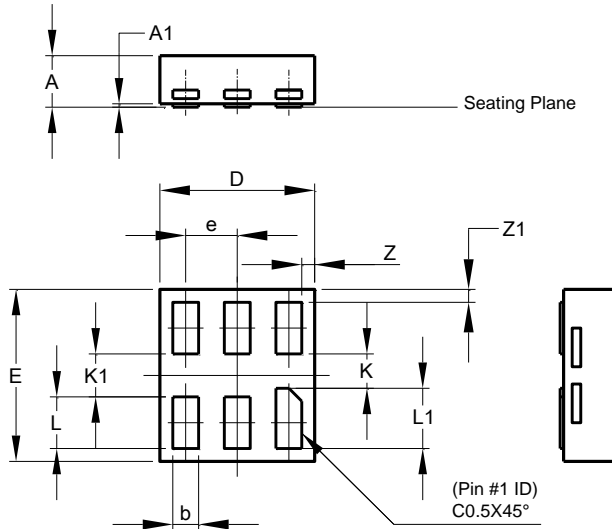
SOT363			
Dim	Min	Max	Typ
A	0.10	0.30	0.25
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	0.65 Typ		
F	0.40	0.45	0.425
H	1.80	2.20	2.15
J	0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.22	0.11
α	0°	8°	-
All Dimensions in mm			



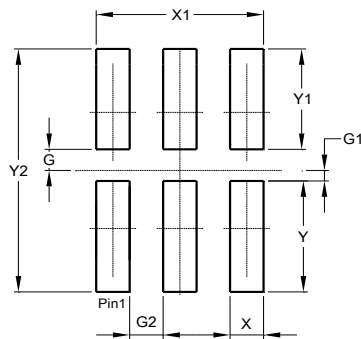
Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

**X2-DFN0910-6 Package Outline Dimensions and Suggested Pad Layout**

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



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			



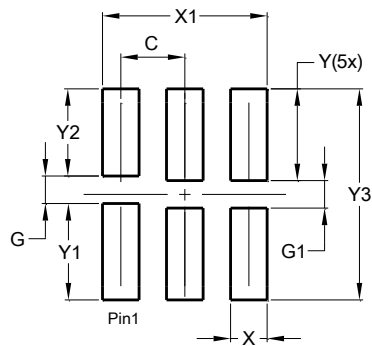
Dimensions	Value (in mm)
G	0.100
G1	0.050
G2	0.150
X	0.150
X1	0.750
Y	0.525
Y1	0.475
Y2	1.150

**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
G1	0.150
X	0.200
X1	0.900
Y	0.500
Y1	0.525
Y2	0.475
Y3	1.150

**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

**IMPORTANT NOTICE**

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