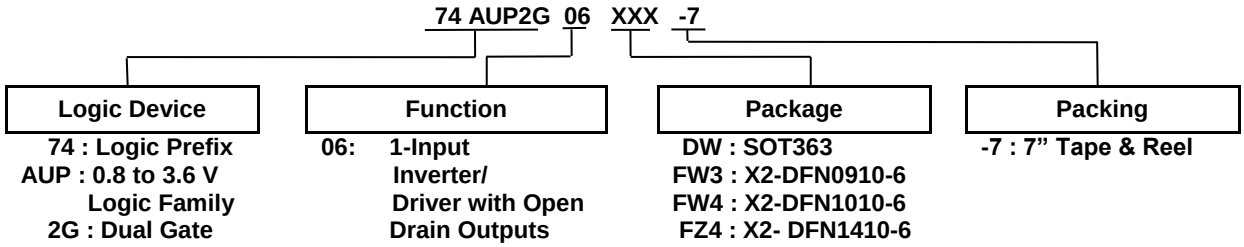
Ordering Information



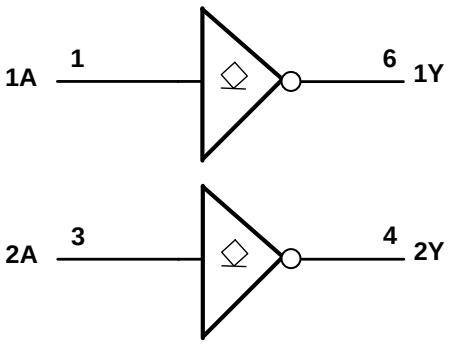
Part Number	Package Code	Package (Notes 4,5)	Package Size	7" Tape and Reel	
				Quantity	Part Number Suffix
74AUP2G06DW-7	DW	SOT363	2.0mm X 2.0mm X 1.1mm 0.65 mm lead pitch	3000/Tape & Reel	-7
74AUP2G06FW3-7	FW3	X2-DFN0910-6	0.9mm X 1.0mm X 0.35mm 0.35 mm pad pitch	5000/Tape & Reel	-7
74AUP2G06FW4-7	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_{CC}	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_A = +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_{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 +4.6	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	°C
T_{STG}	Storage Temperature	-65 to +150	°C

Notes: 6. 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.
7. 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_A = +25°C, unless otherwise specified.)

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	3.6	V
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	
Δt/ΔV	Input Transition Rise or Fall Rate	V_{CC} = 0.8V to 3.6V	—	200	ns/V
T_A	Operating Free-Air Temperature	—	-40	+125	°C

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

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	V_{CC}	T_A = +25°C		T_A = -40 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_{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	0V to 3.6V	—	±0.1	—	±0.5	µA
I_{OZ}	Z State Leakage Current	V_O = 3.6V, V_i = 3.6V	3.6V	—	±0.1	—	±0.5	µA
I_{OFF}	Power Down Leakage Current	V_I or V_O = 0V to 3.6V	0V	—	±0.2	—	±0.6	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	One input at V_{CC} -0.6V Other inputs at V_{CC} or GND	3.3V	—	40	—	50	µA

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

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_{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	0V to 3.6V	—	± 0.75	μA
I_{OZ}	Z State Leakage Current	V_O = 3.6V, V_i = 3.6V	3.6V	—	± 0.75	μA
I_{OFF}	Power Down Leakage Current	V_I or V_O = 0V to 3.6V	0V	—	± 0.75	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	—	1.4	μA
ΔI_{CC}	Additional Supply Current	Input at V_{CC} -0.6V Other inputs at V_{CC} or GND	3.3V	—	75	μA

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

Parameter		Test Conditions	V_{CC}	Typ	Unit
C_{pd}	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_I	Input Capacitance	V_I = V_{CC} or GND	0V or 3.3V	2.0	pF
C_O	Output Capacitance	V_O = V_{CC} or GND	0V	2.0	pF

Switching Characteristics

C_L = 5pF 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	—	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 = 10pF 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	—	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	

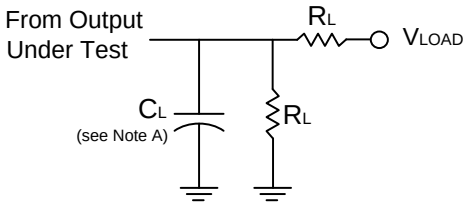
C_L = 15pF see Figure 1

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	—	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 = 30pF see Figure 1

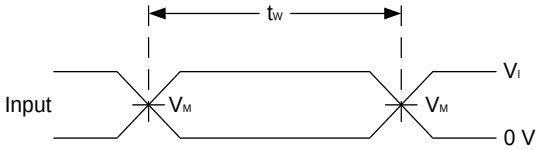
Parameter	From Input	TO OUTPUT	V_{CC}	T_A = +25°C			T_A = -40°C to +85°C		T_A = -40°C to +125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t_{pd}	A	Y	0.8V	—	19.8	—	—	—	—	—	ns
			1.2V ± 0.1V	4.8	9.8	18.4	4.4	18.4	4.4	25.8	
			1.5V ± 0.1V	3.6	8.2	13.9	3.2	13.9	3.2	18	
			1.8V ± 0.15V	3.2	7.8	12.2	2.9	12.2	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

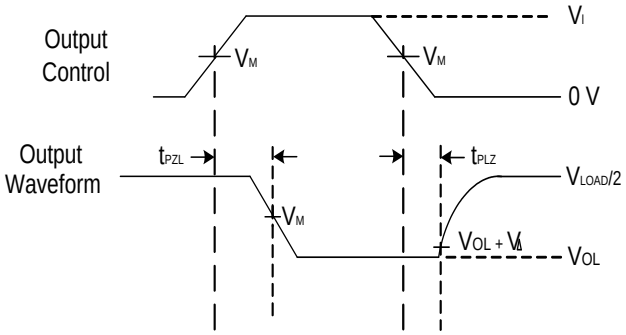


TEST	Condition
t_{PLZ} (See Notes D & E)	Vload
t_{PZL}(See Notes D & F)	Vload

V_{CC}	Inputs		V_M	V_{LOAD}	C_L	R_L	V_Δ
	V_I	t_r/t_f					
0.8V	V_{CC}	≤3 ns	$V_{CC}/2$	2 X V_{CC}	5, 10, 15, 30pF	5kΩ	0.1V
1.2V±0.1V	V_{CC}	≤3 ns	$V_{CC}/2$	2 X V_{CC}	5, 10, 15, 30pF	5kΩ	0.1V
1.5V±0.1V	V_{CC}	≤3 ns	$V_{CC}/2$	2 X V_{CC}	5, 10, 15, 30pF	5kΩ	0.15V
1.8V±0.15V	V_{CC}	≤3 ns	$V_{CC}/2$	2 X V_{CC}	5, 10, 15, 30pF	5kΩ	0.15V
2.5V±0.2V	V_{CC}	≤3 ns	$V_{CC}/2$	2 X V_{CC}	5, 10, 15, 30pF	5kΩ	0.15V
3.3V±0.3V	V_{CC}	≤3 ns	$V_{CC}/2$	2 X V_{CC}	5, 10, 15, 30pF	5kΩ	0.3V



Voltage Waveform Pulse Duration



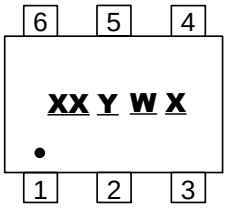
Voltage Waveform Propagation Delay Times

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 ≤ 10MHz.
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_Δ.

Marking Information

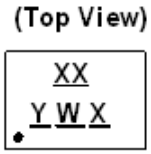
(1) SOT363



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

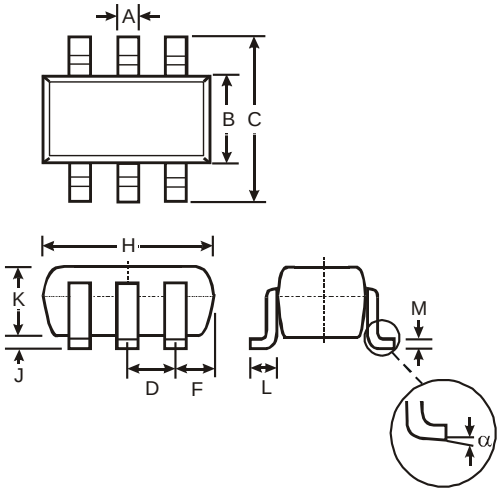


XX : Identification Code
Y : Year : 0~9
W : Week : A~Z : 1~26 week;
a~z : 27~52 week; z represents
52 and 53 week
X : A~Z : Internal code

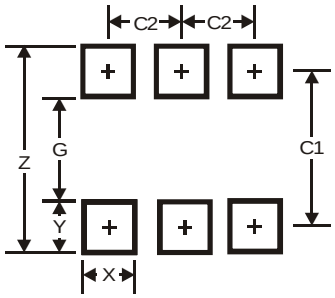
Part Number	Package	Identification Code
74AUP2G06FZ4	X2-DFN1410-6	RN
74AUP2G06FW4	X2-DFN1010-6	SN
74AUP2G06FW3	X2-DFN0910-6	MN

SOT363 Package Outline Dimensions and Suggested Pad Layout

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



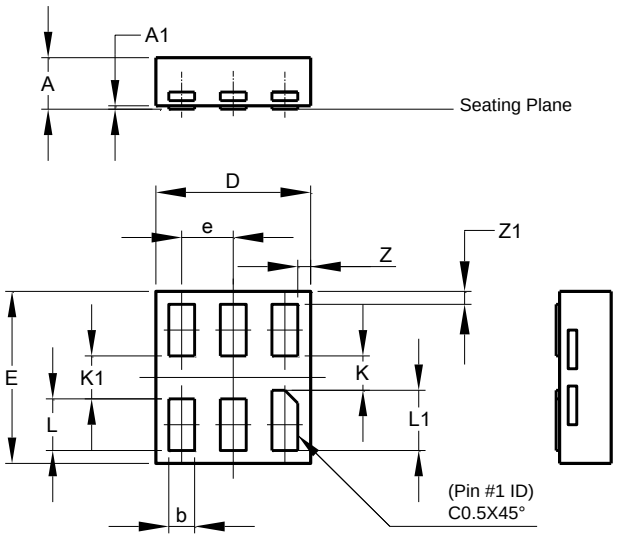
SOT363			
Dim	**Min**	**Max**	**Typ**
A	0.10	0.30	0.25
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	0.65 Typ		
F	0.40	0.45	0.425
H	1.80	2.20	2.15
J	0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.22	0.11
α	0°	8°	-
All Dimensions in mm			



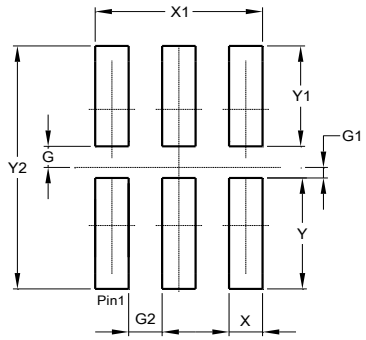
Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

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.



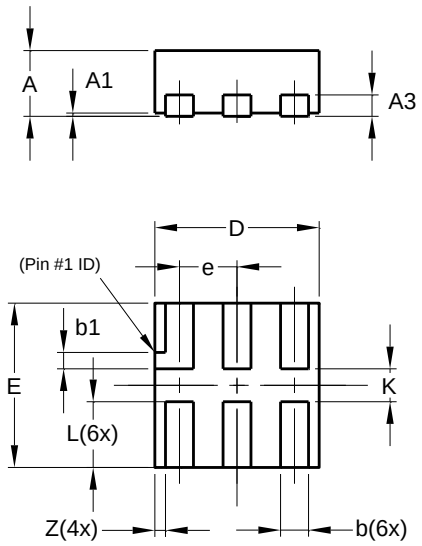
X2-DFN0910-6			
Dim	**Min**	**Max**	**Typ**
A	-	0.35	0.30
A1	0	0.03	0.02
b	0.10	0.20	0.15
D	0.85	0.95	0.90
E	0.95	1.05	1.00
e	-	-	0.30
K	0.20	-	-
K1	0.25	-	-
L	0.25	0.35	0.30
L1	0.30	0.40	0.35
Z	-	-	0.075
Z1	-	-	0.075
All Dimensions in mm			



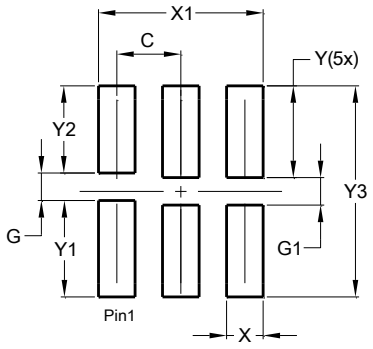
Dimensions	Value (in mm)
G	0.100
G1	0.050
G2	0.150
X	0.150
X1	0.750
Y	0.525
Y1	0.475
Y2	1.150

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.



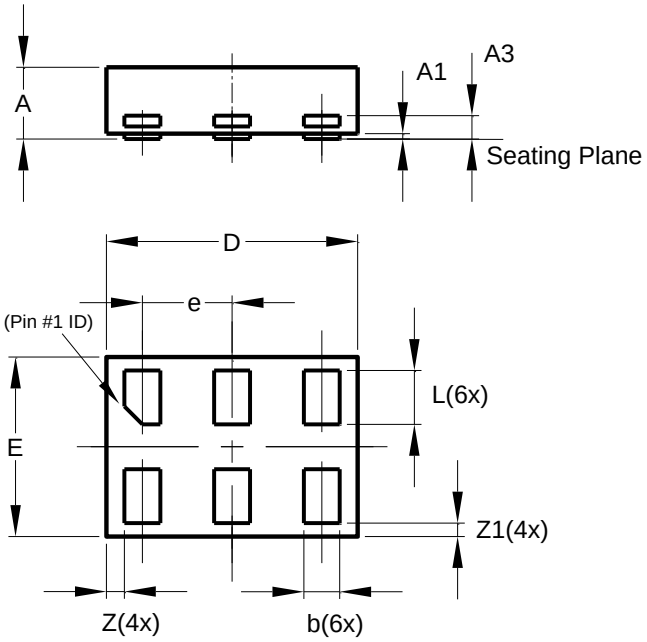
X2-DFN1010-6			
Dim	**Min**	**Max**	**Typ**
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.14	0.20	0.17
b1	0.05	0.15	0.10
D	0.95	1.05	1.00
E	0.95	1.05	1.00
e	—	—	0.35
L	0.35	0.45	0.40
K	0.15	—	—
Z	—	—	0.065
All Dimensions in mm			



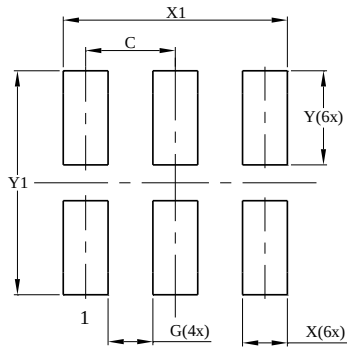
Dimensions	Value (in mm)
C	0.350
G	0.150
G1	0.150
X	0.200
X1	0.900
Y	0.500
Y1	0.525
Y2	0.475
Y3	1.150

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

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