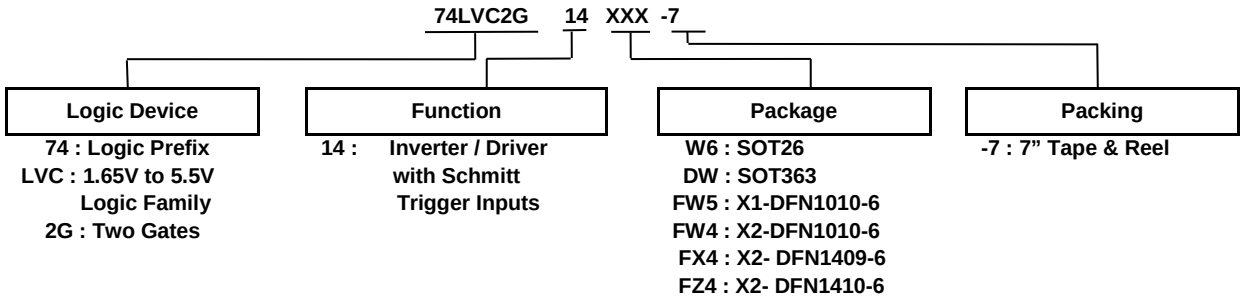
Ordering Information



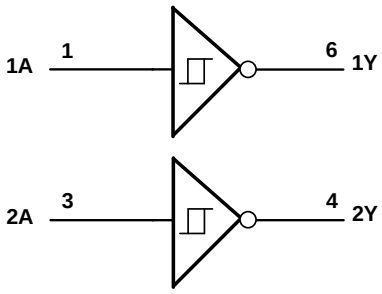
Part Number	Package Code	Package (Note 4)	Package Size	7" Tape and Reel (Note 5)	
				Quantity	Part Number Suffix
74LVC2G14W6-7	W6	SOT26	2.8mm × 2.2mm × 1.1mm 0.95mm lead pitch	3000/Tape & Reel	-7
74LVC2G14DW-7	DW	SOT363	2.0mm × 2.0mm × 1.1mm 0.65mm lead pitch	3000/Tape & Reel	-7
74LVC2G14FW5-7	FW5	X1-DFN1010-6	1.0mm × 1.0mm × 0.5mm 0.35mm pad pitch	5000/Tape & Reel	-7
74LVC2G14FW4-7	FW4	X2-DFN1010-6	1.0mm × 1.0mm × 0.4mm 0.35mm pad pitch	5000/Tape & Reel	-7
74LVC2G14FX4-7	FX4	X2-DFN1409-6 Chip Scale Alternative	1.4mm × 0.9mm × 0.4mm 0.5mm pad pitch	5000/Tape & Reel	-7
74LVC2G14FZ4-7	FZ4	X2-DFN1410-6	1.4mm × 1.0mm × 0.4mm 0.5mm 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 Number	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
A	Y
H	L
L	H

Absolute Maximum Ratings (Notes 6 and 7) (@T_A = +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
ESD MM	Machine Model ESD Protection	200	V
V_{CC}	Supply Voltage Range	-0.5 to +6.5	V
V_I	Input Voltage Range	-0.5 to +6.5	V
V_O	Voltage Applied to Output in High Impedance or I_{OFF} State	-0.5 to +6.5	V
V_O	Voltage Applied to Output in High or Low State	-0.3 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	-50	mA
—	Continuous Current Through V_{DD} or GND	±100	mA
T_J	Operating Junction Temperature	-40 to +150	°C
T_{STG}	Storage Temperature	-65 to +150	°C

Note: 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	Operating	1.65	5.5	V
		Data Retention Only	1.5	—	V
V_I	Input Voltage		0	5.5	V
V_O	Output Voltage		0	V_{CC}	V
I_{OH}	High-Level Output Current	V_{CC} = 1.65V	—	-4	mA
		V_{CC} = 2.3V	—	-8	
		V_{CC} = 3V	—	-16	
			—	-24	
		V_{CC} = 4.5V	—	-32	
I_{OL}	Low-Level Output Current	V_{CC} = 1.65V	—	4	mA
		V_{CC} = 2.3V	—	8	
		V_{CC} = 3V	—	16	
			—	24	
		V_{CC} = 4.5V	—	32	
$\Delta t/\Delta V$	Input Transition Rise or Fall Rate	V_{CC} = 1.8V ± 0.15V, 2.5V ± 0.2V	—	20	ns/V
		V_{CC} = 3.3V ± 0.3V	—	10	
		V_{CC} = 5V ± 0.5V	—	5	
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}	-40°C to +85°C		-40°C to +125°C		Unit
				Min	Max	Min	Max	
V_{T+}	Positive-going Input Threshold Voltage	—	1.8V	0.70	1.50	0.70	1.70	V
			2.3V	1.00	1.80	1.00	2.00	
			3V	1.30	2.20	1.30	2.40	
			4.5V	1.90	3.10	1.90	3.30	
			5.5V	2.20	3.60	2.20	3.80	
V_{T-}	Negative-Going Input Threshold Voltage	—	1.8V	0.25	0.90	0.25	1.10	V
			2.3V	0.40	1.15	0.4	1.35	
			3V	0.60	1.50	0.6	1.7	
			4.5V	1.00	2.00	1	2.2	
			5.5V	1.20	2.30	1.2	2.5	
ΔV_T	Hysteresis (V_{T+} -V_{T-})	—	1.8V	0.15	1.00	0.15	1.20	V
			2.3V	0.25	1.10	0.25	1.30	
			3V	0.40	1.20	0.40	1.40	
			4.5V	0.60	1.50	0.60	1.70	
			5.5V	0.70	1.70	0.70	1.90	
V_{OH}	High-Level Output Voltage	I_{OH} = -100µA	1.65V to 5.5V	V_{CC} – 0.1	—	V_{CC} – 0.1	—	V
		I_{OH} = -4mA	1.65V	1.2	—	0.95	—	
		I_{OH} = -8mA	2.3V	1.9	—	1.7	—	
		I_{OH} = -16mA	3V	2.4	—	1.9	—	
		I_{OH} = -24mA		2.3	—	2.0	—	
		I_{OH} = -32mA	4.5V	3.8	—	3.4	—	
V_{OL}	Low-Level Output Voltage	I_{OL} = 100µA	1.65V to 5.5V	—	0.1	—	0.10	V
		I_{OL} = 4mA	1.65V	—	0.45	—	0.70	
		I_{OL} = 8mA	2.3V	—	0.3	—	0.45	
		I_{OL} = 16mA	3V	—	0.4	—	0.60	
		I_{OL} = 24mA		—	0.55	—	0.80	
		I_{OL} = 32mA	4.5V	—	0.55	—	0.80	
I_I	Input Current	V_I = 5.5V or GND	0 to 5.5V	—	± 5	—	±20	µA
I_{OFF}	Power Down Leakage Current	V_I or V_O = 5.5V	0	—	± 10	—	±20	µA
I_{CC}	Supply Current	V_I = 5.5V or GND, I_O = 0	1.65V to 5.5V	—	10	—	40	µA

Package Characteristics ((@T_A = +25°C, V_{CC} = 3.3V, unless otherwise specified.)

Symbol	Parameter	Package	Conditions	Min	Typ	Max	Unit
C_I	Input Capacitance	Typical of all packages	V_{CC} = 3.3V V_I = V_{CC} or GND	—	3.5	—	pF
Θ_{JA}	Thermal Resistance Junction-to-Ambient	SOT26	(Note 9)	—	204	—	°C/W
		SOT363		—	371	—	
		X2-DFN1410-6		—	430	—	
		X2-DFN1409-6		—	450	—	
		X1-DFN1010-6		—	495	—	
		X2-DFN1010-6		—	510	—	
Θ_{JC}	Thermal Resistance Junction-to-Case	SOT26	(Note 9)	—	52	—	°C/W
		SOT363		—	143	—	
		X2-DFN1410-6		—	190	—	
		X2-DFN1409-6		—	225	—	
		X1-DFN1010-6		—	245	—	
		X2-DFN1010-6		—	250	—	

Note: 9. Test condition for all packages: Device mounted on FR-4 substrate PC board, 2oz copper with minimum recommended pad layout.

Switching Characteristics

T_A = -40°C to +85°C, C_L = 30 or 50pF (see Figure 1)

Parameter	From (Input)	TO (OUTPUT)	V_{CC} = 1.8V ± 0.15V		V_{CC} = 2.5V ± 0.2V		V_{CC} = 3.3V ± 0.3V		V_{CC} = 5V ± 0.5V		Unit
			Min	Max	Min	Max	Min	Max	Min	Max	
t_{PD}	A	Y	0.5	11.0	0.5	6.5	0.5	6.0	0.5	4.3	ns

T_A = -40°C to +125°C, C_L = 30 or 50pF (see Figure 1)

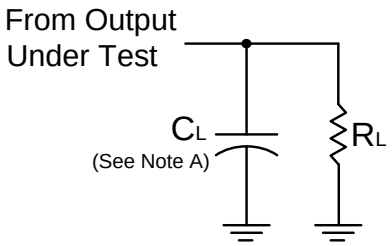
Parameter	From (Input)	TO (OUTPUT)	V_{CC} = 1.8V ± 0.15V		V_{CC} = 2.5V ± 0.2V		V_{CC} = 3.3V ± 0.3V		V_{CC} = 5V ± 0.5V		Unit
			Min	Max	Min	Max	Min	Max	Min	Max	
t_{PD}	A	Y	0.5	12.0	0.5	7.2	0.5	6.7	0.5	4.7	ns

Operating Characteristics

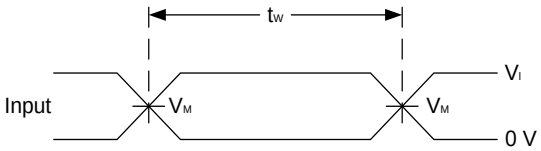
T_A = +25°C

Parameter		Test Conditions	V_{CC} = 1.8V	V_{CC} = 2.5V	V_{CC} = 3.3V	V_{CC} = 5V	Unit
			Typ	Typ	Typ	Typ	
C_{PD}	Power Dissipation Capacitance	f = 10MHz	17	19	20	21	pF

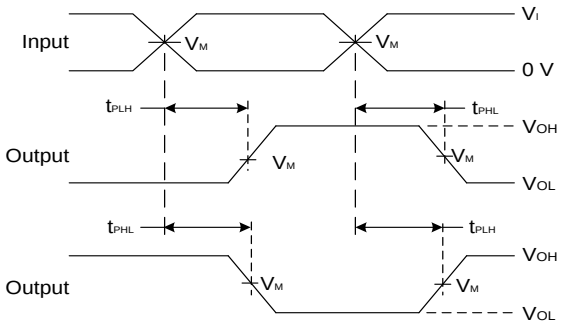
Parameter Measurement Information



VCC	Inputs		VM	CL	RL
	VI	tR/tF			
1.8V±0.15V	VCC	≤2ns	VCC/2	30pF	1kΩ
2.5V±0.2V	VCC	≤2ns	VCC/2	30pF	500Ω
3.3V±0.3V	3V	≤2.5ns	1.5V	5pF	500Ω
5V±0.5V	VCC	≤2.5ns	VCC/2	50 pF	500Ω



Voltage Waveform Pulse Duration



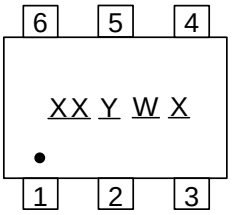
Voltage Waveform Propagation Delay Times
Inverting and Non Inverting Outputs

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 ≤ 10MHz.
C. Inputs are measured separately one transition per measurement.
D. t_{PLH} and t_{PHL} are the same as t_{PD}.

Marking Information

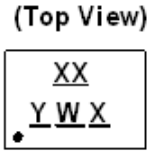
(1) SOT26, SOT363



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
74LVC2G14W6-7	SOT26	Z5
74LVC2G14DW-7	SOT363	Z5

(2) X1-DFN1010-6, X2-DFN1010-6, X2-DFN1409-6, X2-DFN1410-6



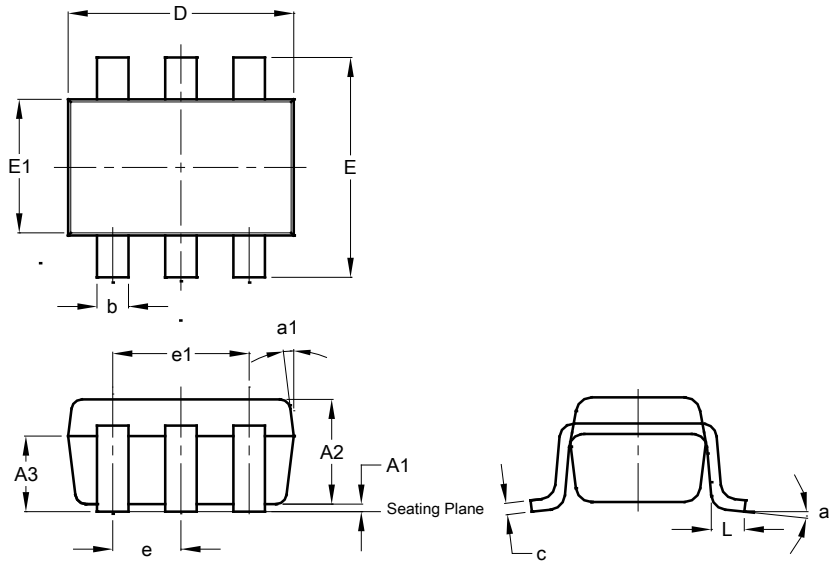
XX : Identification Code
Y : Year : 0~9
W : Week : A~Z : 1~26 week;
a~z : 27~52 week; z represents 52 and 53 week
X : A~Z : Internal code

Part Number	Package	Identification Code
74LVC2G14FW4-7	X2-DFN1010-6	Z5
74LVC2G14FW5-7	X1-DFN1010-6	W5
74LVC2G14FX4-7	X2-DFN1409-6	X5
74LVC2G14FZ4-7	X2-DFN1410-6	Z5

Package Outline Dimensions

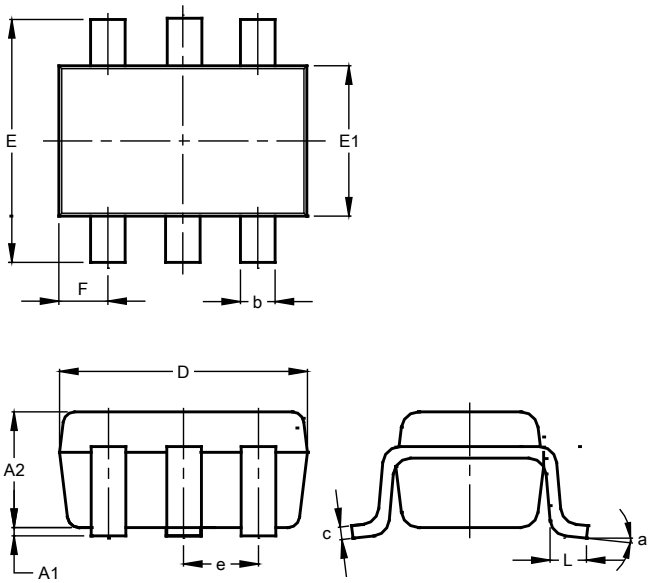
Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT26 (SC74R)



SOT26 (SC74R)			
Dim	**Min**	**Max**	**Typ**
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

SOT363

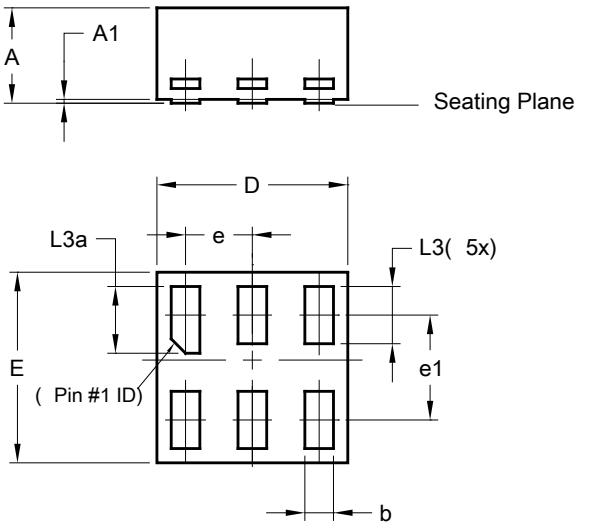


SOT363			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Package Outline Dimensions (continued)

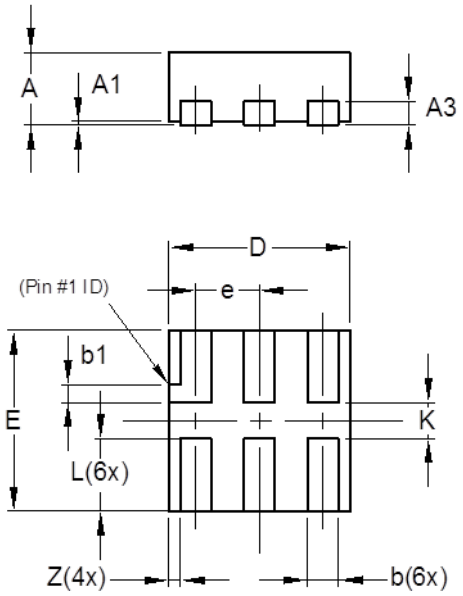
Please see http://www.diodes.com/package-outlines.html for the latest version.

X1-DFN1010-6 (Type B)



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			

X2-DFN1010-6

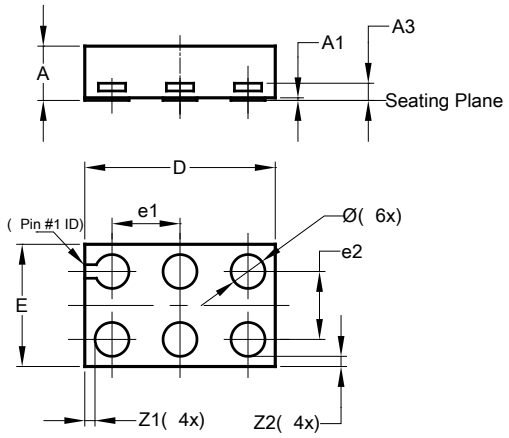


X2-DFN1010-6			
Dim	**Min**	**Max**	**Typ**
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.14	0.20	0.17
b1	0.05	0.15	0.10
D	0.95	1.05	1.00
E	0.95	1.05	1.00
e	—	—	0.35
L	0.35	0.45	0.40
K	0.15	—	—
Z	—	—	0.065
All Dimensions in mm			

Package Outline Dimensions (continued)

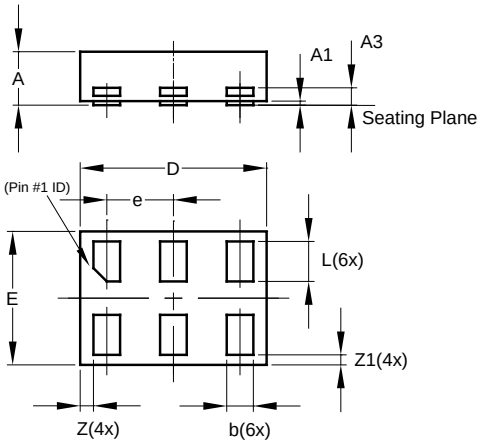
Please see http://www.diodes.com/package-outlines.html for the latest version.

X2-DFN1409-6



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			

X2-DFN1410-6

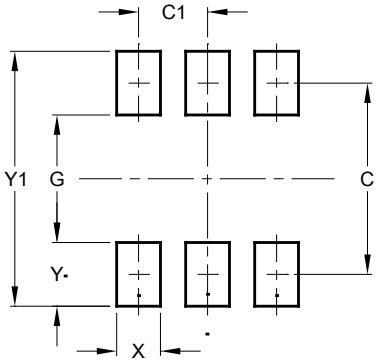


X2-DFN1410-6			
Dim	**Min**	**Max**	**Typ**
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.15	0.25	0.20
D	1.35	1.45	1.40
E	0.95	1.05	1.00
e	—	—	0.50
L	0.25	0.35	0.30
Z	—	—	0.10
Z1	0.045	0.105	0.075
All Dimensions in mm			

Suggested Pad Layout

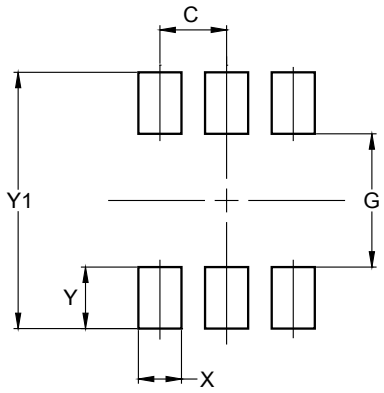
Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT26 (SC74R)



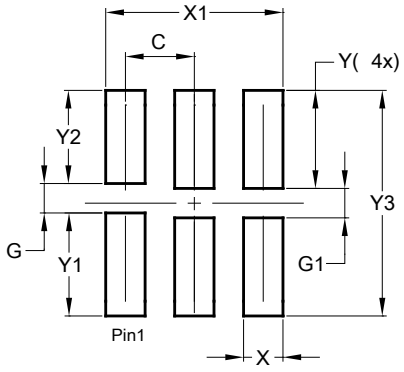
Dimensions	Value (in mm)
C	2.40
C1	0.95
G	1.60
X	0.55
Y	0.80
Y1	3.20

SOT363



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

X1-DFN1010-6 (Type B)

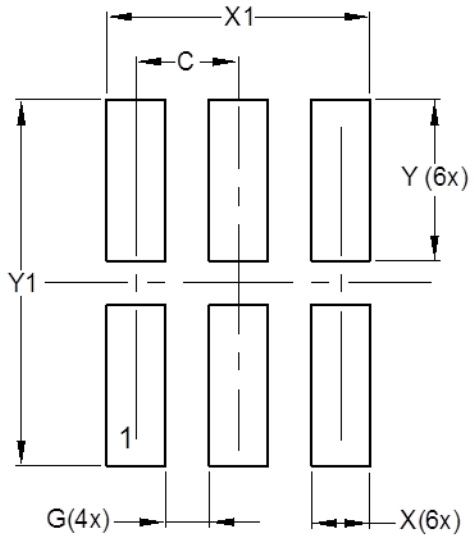


Dimensions	Value (in mm)
C	0.350
G	0.150
G1	0.150
X	0.200
X1	0.900
Y	0.500
Y1	0.525
Y2	0.475
Y3	1.150

Suggested Pad Layout (continued)

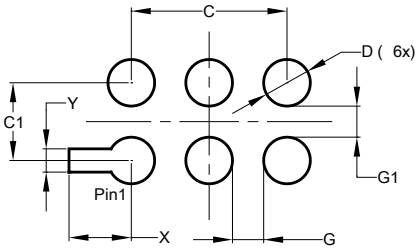
Please see http://www.diodes.com/package-outlines.html for the latest version.

X2-DFN1010-6



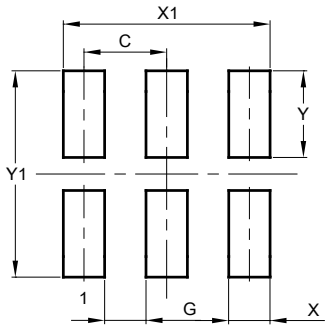
Dimensions	Value (in mm)
C	0.350
G	0.150
X	0.200
X1	0.900
Y	0.550
Y1	1.250

X2-DFN1409-6



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



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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