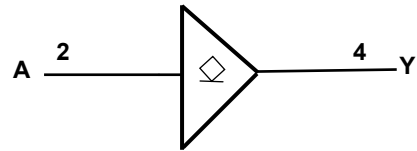


Pin Descriptions

Pin Name	Description
NC	No Connection
A	Data Input
GND	Ground
Y	Data Output
V _{CC}	Supply Voltage

Logic Diagram



Function Table

Input	Output
A	Y
H	Z
L	L

Absolute Maximum Ratings (Notes 4 & 5) (@ 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
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	--0.5 to 6.5	V
I _{IK}	Input Clamp Current V _I < 0	-50	mA
I _{OK}	Output Clamp Current	-50	mA
I _O	Continuous Output Current	50	mA
I _{CC} , I _{GN}	Continuous Current Through V _{CC} or GND	±100	mA
T _J	Operating Junction Temperature	-40 to +150	°C
T _{STG}	Storage Temperature	-65 to +150	°C

- Notes:
- Stresses beyond the absolute maximum can 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 6) (@ $T_A = +25^{\circ}\text{C}$, 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_{IH}	High-Level Input Voltage	$V_{CC} = 1.65\text{V to }1.95\text{V}$	$0.65 \times V_{CC}$	—	V
		$V_{CC} = 2.3\text{V to }2.7\text{V}$	1.7	—	
		$V_{CC} = 3\text{V to }3.6\text{V}$	2	—	
		$V_{CC} = 4.5\text{V to }5.5\text{V}$	$0.7 \times V_{CC}$	—	
V_{IL}	Low-Level Input Voltage	$V_{CC} = 1.65\text{V to }1.95\text{V}$	—	$0.35 \times V_{CC}$	V
		$V_{CC} = 2.3\text{V to }2.7\text{V}$	—	0.7	
		$V_{CC} = 3\text{V to }3.6\text{V}$	—	0.8	
		$V_{CC} = 4.5\text{V to }5.5\text{V}$	—	$0.3 \times V_{CC}$	
V_I	Input Voltage		0	5.5	V
V_O	Output Voltage		0	5.5	V
I_{OL}	Low-Level Output Current	$V_{CC} = 1.65\text{V}$	—	4	mA
		$V_{CC} = 2.3\text{V}$	—	8	
		$V_{CC} = 2.7\text{V}$	—	12	
		$V_{CC} = 3\text{V}$	—	16	
		$V_{CC} = 4.5\text{V}$	—	24	
$\Delta t/\Delta V$	Input Transition Rise or Fall Rate	$V_{CC} = 1.8\text{V} \pm 0.15\text{V}, 2.5\text{V} \pm 0.2\text{V}$	—	20	ns/V
		$V_{CC} = 3.3\text{V} \pm 0.3\text{V}$	—	10	
		$V_{CC} = 5\text{V} \pm 0.5\text{V}$	—	5	
T_A	Operating Free-Air Temperature		—	—	$^{\circ}\text{C}$

Note: 6. Unused inputs should be held at V_{CC} or Ground.

Electrical Characteristics (All typical values are at $V_{CC} = 3.3V$, $T_A = +25^\circ C$.)

Symbol	Parameter	Test Conditions	V_{CC}	-40°C to +85°C			-40°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
V_{OL}	Low Level Output Voltage	$I_{OL} = 100\mu A$	1.65V to 5.5V	—	—	0.1	—	0.1	V
		$I_{OL} = 4mA$	1.65V	—	—	0.45	—	0.45	
		$I_{OL} = 8mA$	2.3V	—	—	0.3	—	0.3	
		$I_{OL} = 12mA$	2.7V	—	—	0.4	—	0.6	
		$I_{OL} = 16mA$	3V	—	—	0.4	—	0.4	
		$I_{OL} = 24mA$		—	—	0.55	—	0.55	
		$I_{OL} = 32mA$	4.5V	—	—	0.55	—	0.55	
I_I	Input Current	$V_I = 5.5V$ or GND	0 to 5.5V	—	± 0.1	± 5	—	± 5	μA
I_{OFF}	Power Down Leakage Current	V_I or $V_O = 5.5V$	0V	—	—	± 10	—	± 10	μA
I_{CC}	Supply Current	$V_I = 5.5V$ or GND $I_O = 0$	5.5V	—	0.1	10	—	10	μA
ΔI_{CC}	Additional Supply Current	Input at $V_{CC} - 0.6V$	3V to 5.5V	—	—	500	—	500	μA
C_I	Input Capacitance	$V_I = V_{CC}$ or GND	3.3V	—	5	—	—	—	pF

Package Characteristics (All typical values are at $V_{CC} = 3.3V$, $T_A = +25^\circ C$.)

Symbol	Parameter	Test Conditions	V_{CC}	Min	Typ	Max	Unit
θ_{JA}	Thermal Resistance Junction-to-Ambient	SOT25	(Note 7)	—	204	—	$^\circ C/W$
		SOT353		—	371	—	
		SOT553		—	231	—	
		X2-DFN0808-4		—	400	—	
		X1-DFN1010-6 (Type B)		—	435	—	
		X2-DFN1010-6		—	445	—	
		X2-DFN1409-6		—	470	—	
		X2-DFN1410-6		—	460	—	
θ_{JC}	Thermal Resistance Junction-to-Case	SOT25	(Note 7)	—	52	—	$^\circ C/W$
		SOT353		—	143	—	
		SOT553		—	105	—	
		X2-DFN0808-4		—	225	—	
		X1-DFN1010-6 (Type B)		—	250	—	
		X2-DFN1010-6		—	250	—	
		X2-DFN1409-6		—	275	—	
		X2-DFN1410-6		—	265	—	

Note: 7. Test condition for each of the 8 package types: Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

Switching Characteristics

Figure 1 Typical Values at $T_A = +25^\circ\text{C}$ and nominal voltages 1.8V, 2.5V, 2.7V, 3.3V, and 5.0V.

Parameter	From Input	To Output	V_{CC}	$T_A = -40^\circ\text{C to } +85^\circ\text{C}$			$T_A = -40^\circ\text{C to } +125^\circ\text{C}$		Unit
				Min	Typ	Max	Min	Max	
t_{PD}	A or B	Y	$1.8\text{V} \pm 0.15\text{V}$	1.0	3.0	6.5	1.0	8.5	ns
			$2.5\text{V} \pm 0.2\text{V}$	0.5	1.9	4.0	0.5	5.5	
			2.7V	0.5	2.5	4.5	0.5	6.0	
			$3.3\text{V} \pm 0.3\text{V}$	0.5	2.3	4.0	0.5	5.5	
			$5.0\text{V} \pm 0.5\text{V}$	0.5	1.7	3.0	0.5	4.0	

Operating Characteristics

$T_A = +25^\circ\text{C}$

Parameter		Test Conditions	$V_{CC} = 1.8\text{V}$	$V_{CC} = 2.5\text{V}$	$V_{CC} = 3.3\text{V}$	$V_{CC} = 5\text{V}$	Unit
			Typ	Typ	Typ	Typ	
C_{PD}	Power Dissipation Capacitance	$f = 10\text{MHz}$	3	3	4	6	pF

TEST	Condition
t _{PLZ} (Notes D & F)	V _{LOAD}
t _{PZL} (Notes D & E)	V _{LOAD}

V _{CC}	Inputs		V _M	V _{LOAD}	C _L	R _L	V _Δ
	V _I	t _R /t _F					
1.8V±0.15V	V _{CC}	≤2ns	V _{CC} /2	2 × V _{CC}	30pF	1kΩ	0.15V
2.5V±0.2V	V _{CC}	≤2ns	V _{CC} /2	2 × V _{CC}	30pF	500Ω	0.15V
2.7V	2.7V	≤2.5ns	1.5V	6V	50pF	500Ω	0.3V
3.3V±0.3V	3V	≤2.5ns	1.5V	6V	50pF	500Ω	0.3V
5V±0.5V	V _{CC}	≤2.5ns	V _{CC} /2	2 × V _{CC}	50pF	500Ω	0.3V

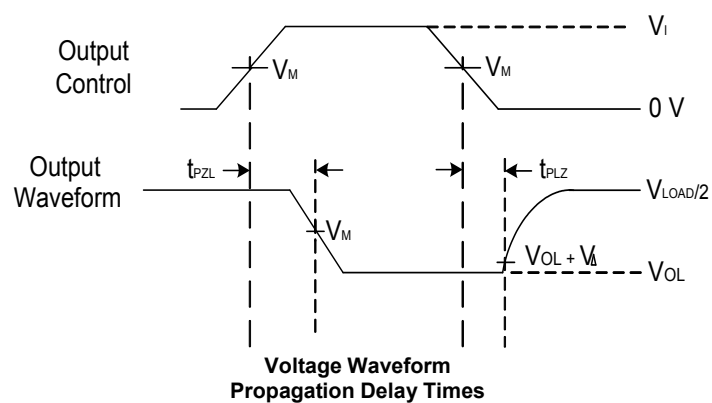
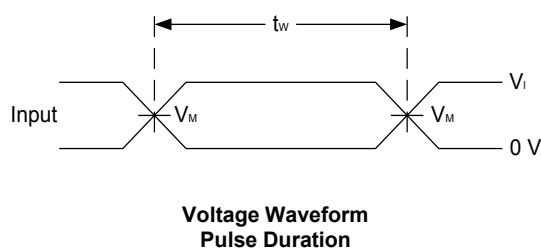
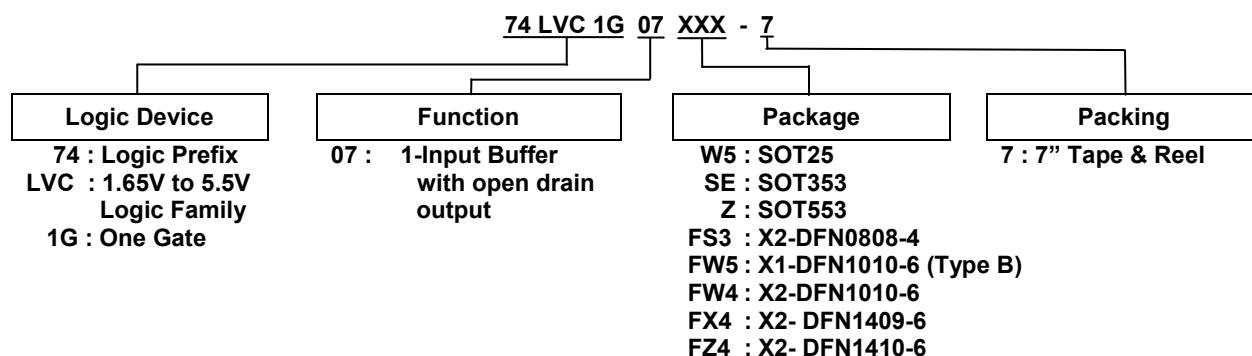


Figure 1. Load Circuit and Voltage Waveforms

- A. Includes test lead and test apparatus capacitance.
- B. All pulses are supplied at pulse repetition rate $\leq 10\text{MHz}$.
- 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 .
- F. t_{PLZ} is measured at $V_{OL} + V_{\Delta}$.

Ordering Information (Note 8)


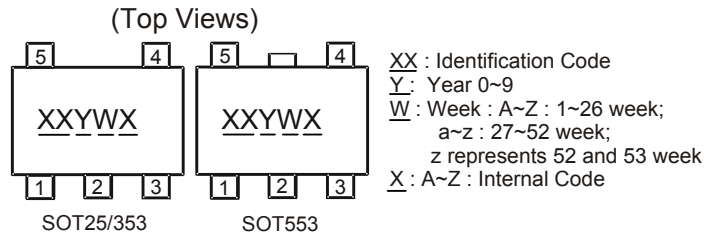
Part Number	Package Code	Package (Notes 9 & 10)	7" Tape and Reel	
			Quantity	Part Number Suffix
74LVC1G07W5-7	W5	SOT25	3,000/Tape & Reel	-7
74LVC1G07SE-7	SE	SOT353	3,000/Tape & Reel	-7
74LVC1G07Z-7	Z	SOT553	4,000/Tape & Reel	-7
74LVC1G07FS3-7	FS3	X2-DFN0808-4	5,000/Tape & Reel	-7
74LVC1G07FW5-7	FW5	X1-DFN1010-6 (Type B)	5,000/Tape & Reel	-7
74LVC1G07FW4-7	FW4	X2-DFN1010-6	5,000/Tape & Reel	-7
74LVC1G07FX4-7	FX4	X2-DFN1409-6 Chip scale alternative	5,000/Tape & Reel	-7
74LVC1G07FZ4-7	FZ4	X2-DFN1410-6	5,000/Tape & Reel	-7

Notes:

8. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
9. Pad layout as shown in Diodes Incorporated's package outline PDFs, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
10. The taping orientation is located on our website at <https://www.diodes.com/assets/Packaging-Support-Docs/ap02007.pdf>.

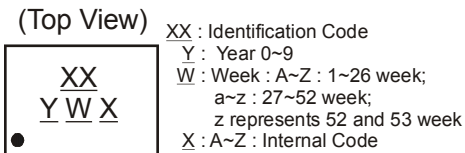
Marking Information

(1) SOT25, SOT353 and SOT553



Part Number	Package	Identification Code
74LVC1G07W5-7	SOT25	UN
74LVC1G07SE-7	SOT353	UN
74LVC1G07Z-7	SOT553	UN

(2) DFN Packages

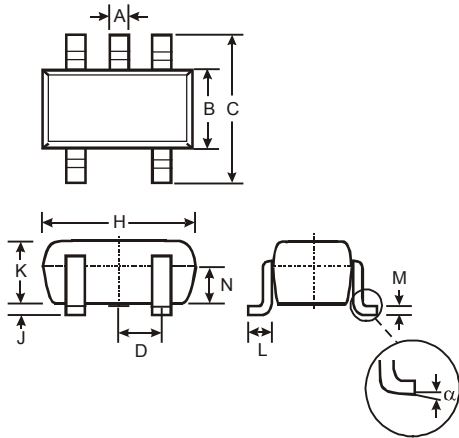


Part Number	Package	Identification Code
74LVC1G07FS3-7	X2-DFN0808-4	WN
74LVC1G07FW5-7	X1-DFN1010-6 (Type B)	V6
74LVC1G07FW4-7	X2-DFN1010-6	UN
74LVC1G07FX4-7	X2-DFN1409-6	ME
74LVC1G07FZ4-7	X2-DFN1410-6	UN

Package Outline Dimensions

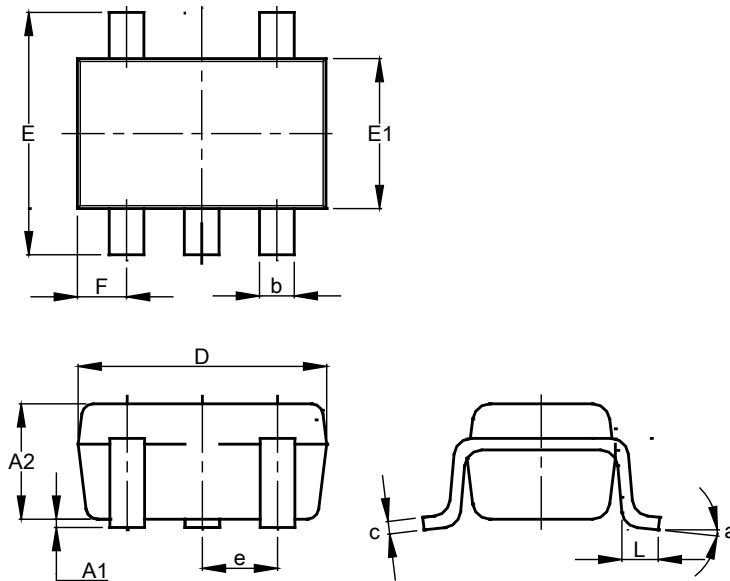
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(1) Package Type: SOT25



SOT25			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

(2) Package Type: SOT353

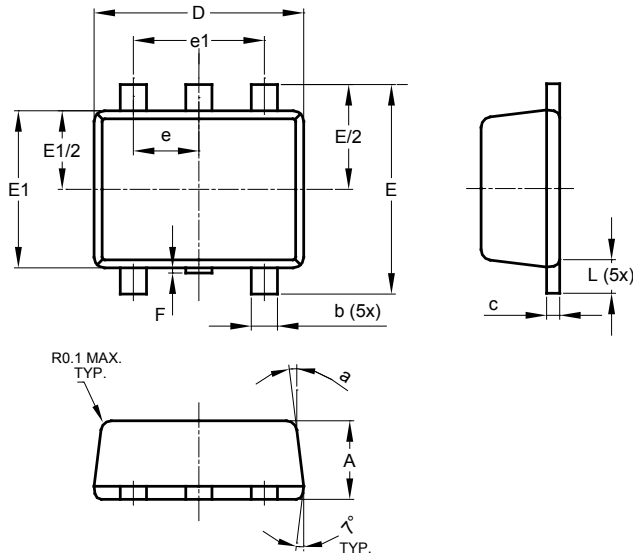


SOT353			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Package Outline Dimensions (continued)

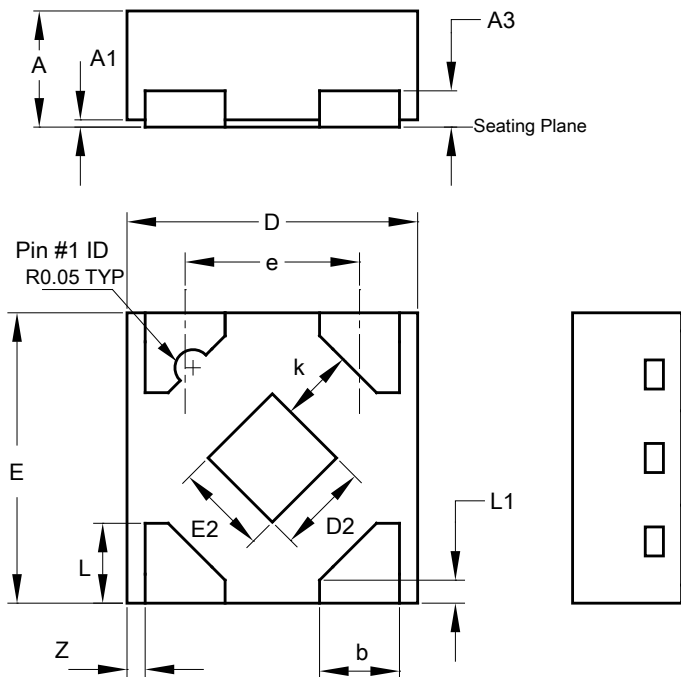
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(3) Package Type: SOT553



SOT553			
Dim	Min	Max	Typ
A	0.55	0.62	0.60
b	0.15	0.30	0.20
c	0.10	0.18	0.15
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
e	0.50 BSC		
e1	1.00 BSC		
F	0.00	0.10	—
L	0.10	0.30	0.20
a	6°	8°	7°
All Dimensions in mm			

(4) Package Type: X2-DFN0808-4

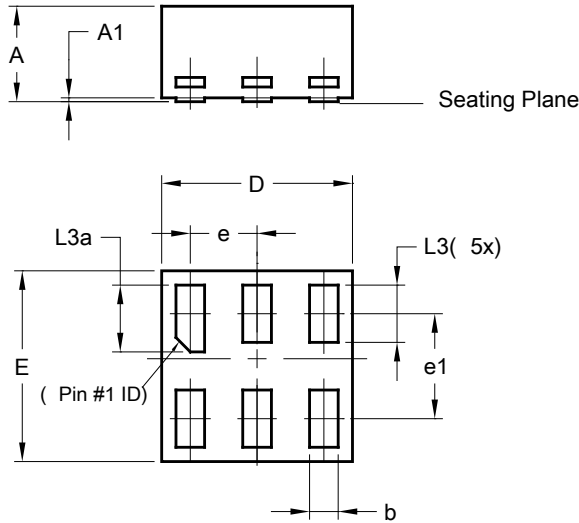


X2-DFN0808-4			
Dim	Min	Max	Typ
A	0.25	0.35	0.30
A1	0	0.04	0.02
A3	-	-	0.13
b	0.17	0.27	0.22
D	0.75	0.85	0.80
D2	0.15	0.35	0.25
E	0.75	0.85	0.80
E2	0.15	0.35	0.25
e	-	-	0.48
k	0.20	-	-
L	0.17	0.27	0.22
L1	0.02	0.12	0.07
z	-	-	0.05
All Dimensions in mm			

Package Outline Dimensions (continued)

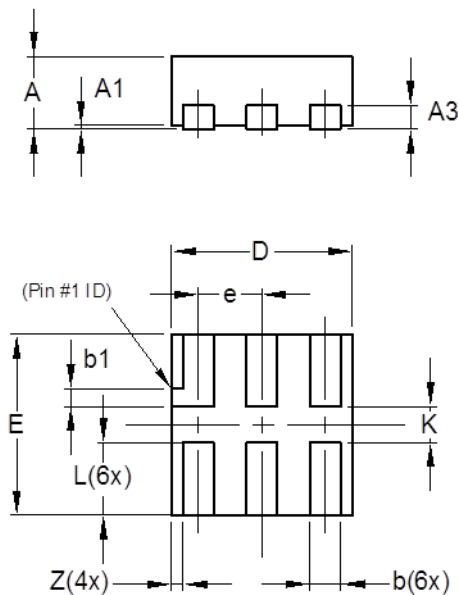
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(5) Package Type: 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			

(6) Package Type: X2-DFN1010-6

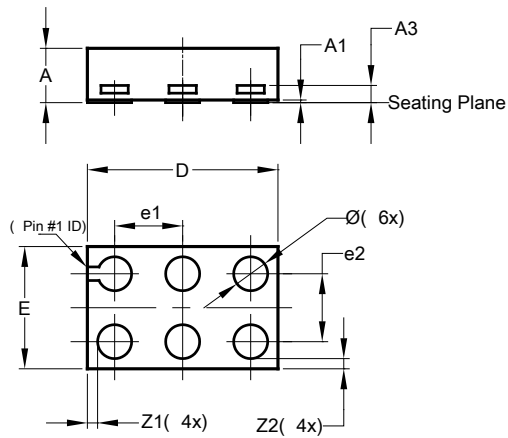


X2-DFN1010-6			
Dim	Min	Max	Typ
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.14	0.20	0.17
b1	0.05	0.15	0.10
D	0.95	1.05	1.00
E	0.95	1.05	1.00
e	—	—	0.35
L	0.35	0.45	0.40
K	0.15	—	—
Z	—	—	0.065
All Dimensions in mm			

Package Outline Dimensions (continued)

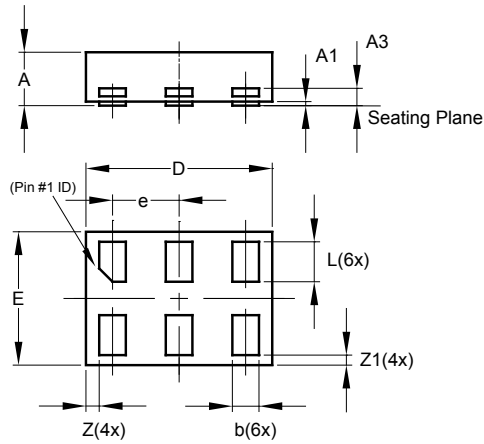
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(7) Package Type: 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			

(8) Package Type: X2-DFN1410-6

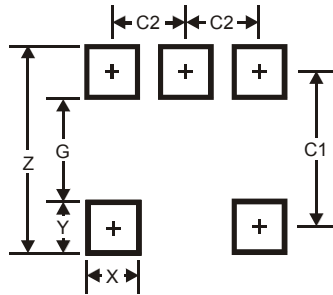


X2-DFN1410-6			
Dim	Min	Max	Typ
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.15	0.25	0.20
D	1.35	1.45	1.40
E	0.95	1.05	1.00
e	—	—	0.50
L	0.25	0.35	0.30
Z	—	—	0.10
Z1	0.045	0.105	0.075
All Dimensions in mm			

Suggested Pad Layout

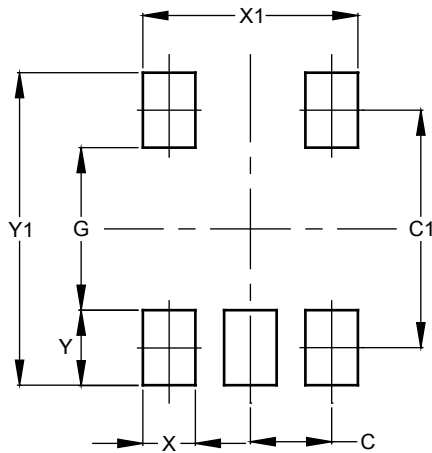
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(1) Package Type: SOT25



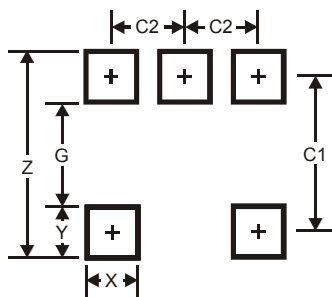
Dimensions	Value
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

(2) Package Type: SOT353



Dimensions	Value (in mm)
C	0.650
C1	1.900
G	1.300
X	0.420
X1	1.720
Y	0.600
Y1	2.500

(3) Package Type: SOT553

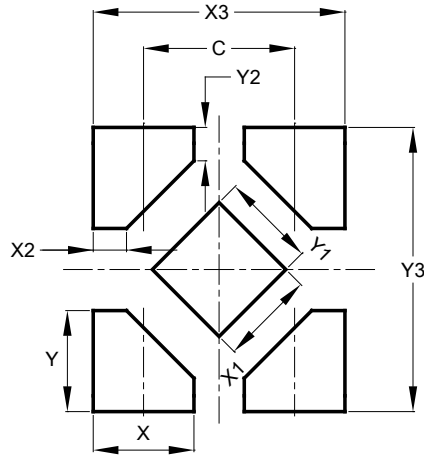


Dimensions	Value
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

Suggested Pad Layout (continued)

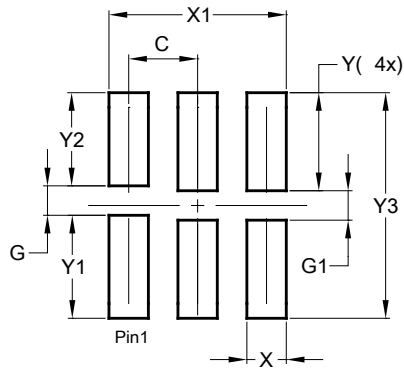
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(4) Package Type: X2-DFN0808-4



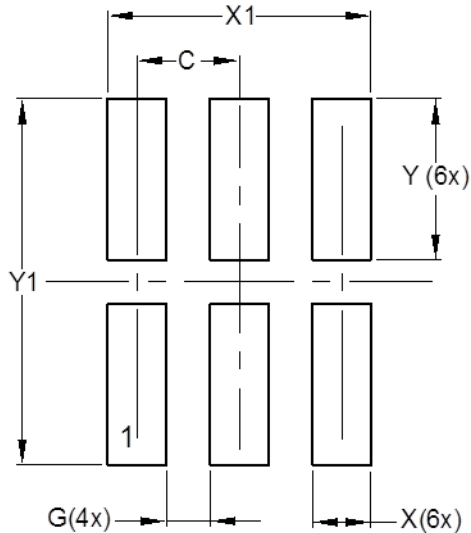
Dimensions	Value
C	0.480
X	0.320
X1	0.300
X2	0.106
X3	0.800
Y	0.320
Y1	0.300
Y2	0.106
Y3	0.900

(5) Package Type: 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

(6) Package Type: X2-DFN1010-6

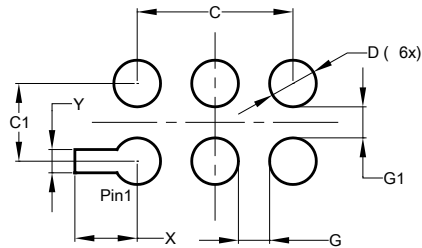


Dimensions	Value (in mm)
C	0.350
G	0.150
X	0.200
X1	0.900
Y	0.550
Y1	1.250

Suggested Pad Layout (continued)

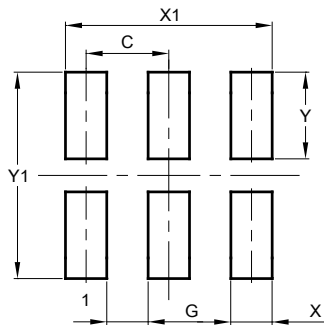
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(7) Package Type: 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

(8) Package Type: 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

Mechanical Data

SOT25

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 [e3](#)
- Weight: 0.016 grams (Approximate)

SOT353

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 [e3](#)
- Weight: 0.006 grams (Approximate)

SOT553

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 [e3](#)
- Weight: 0.003 grams (Approximate)

X2-DFN0808-4

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - NiPdAu Nickel Palladium Gold, Solderable per MIL-STD-202, Method 208 [e4](#)
- Weight: 0.001 grams (Approximate)

X1-DFN1010-6 (Type B)

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - NiPdAu Nickel Palladium Gold, Solderable per MIL-STD-202, Method 208 [e4](#)
- Weight: 0.001 grams (Approximate)

X2-DFN1010-6

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - NiPdAu Nickel Palladium Gold, Solderable per MIL-STD-202, Method 208 [e4](#)
- Weight: 0.001 grams (Approximate)

X2-DFN1409-6

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - NiPdAu Nickel Palladium Gold, Solderable per MIL-STD-202, Method 208 [e4](#)
- Weight: 0.002 grams (Approximate)

X2-DFN1410-6

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - NiPdAu Nickel Palladium Gold, Solderable per MIL-STD-202, Method 208 [e4](#)
- Weight: 0.002 grams (Approximate)

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