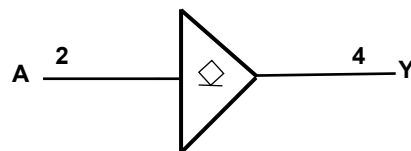


Pin Descriptions

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.

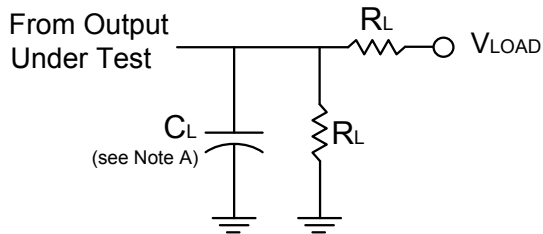
Parameter	From Input	To Output	V_{CC}	$T_A = -40^\circ\text{C to } +85^\circ\text{C}$			$T_A = -40^\circ\text{C to } +125^\circ\text{C}$		Unit
				Min	Typ	Max	Min	Max	
t_{PD}	A or B	Y	$1.8\text{V} \pm 0.15\text{V}$	1.0	3.0	6.5	1.0	8.5	ns
			$2.5\text{V} \pm 0.2\text{V}$	0.5	1.9	4.0	0.5	5.5	
			2.7V	0.5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

Parameter Measurement Information



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					
$1.8V \pm 0.15V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	$2 \times V_{CC}$	30pF	1k Ω	0.15V
$2.5V \pm 0.2V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	$2 \times V_{CC}$	30pF	500 Ω	0.15V
2.7V	2.7V	$\leq 2.5ns$	1.5V	6V	50pF	500 Ω	0.3V
$3.3V \pm 0.3V$	3V	$\leq 2.5ns$	1.5V	6V	50pF	500 Ω	0.3V
$5V \pm 0.5V$	V_{CC}	$\leq 2.5ns$	$V_{CC}/2$	$2 \times V_{CC}$	50pF	500 Ω	0.3V

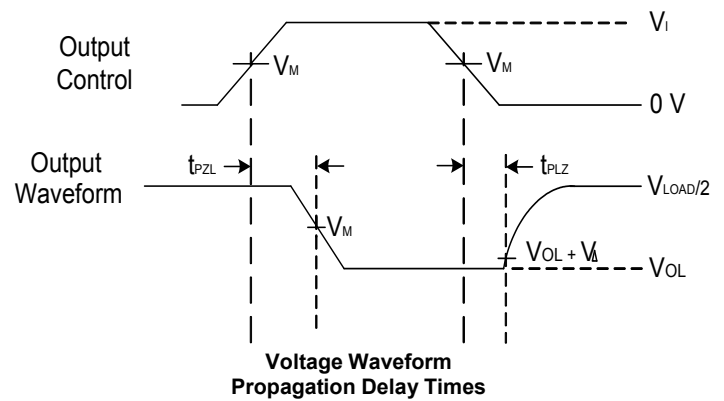
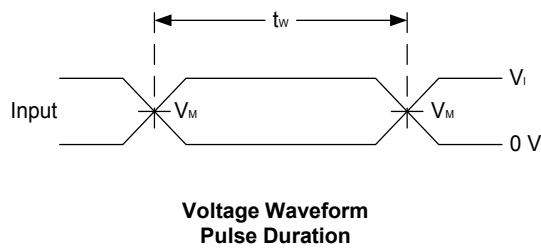
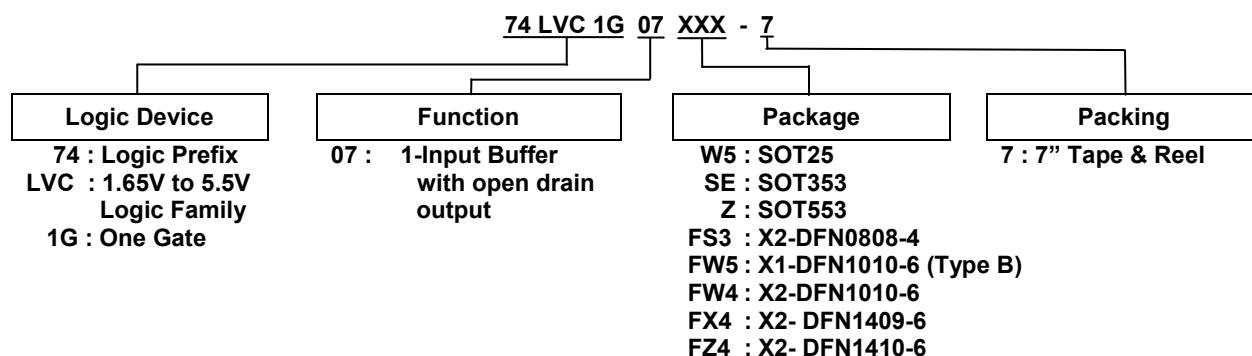


Figure 1. Load Circuit and Voltage Waveforms

- Notes:
- A. Includes test lead and test apparatus capacitance.
 - B. All pulses are supplied at pulse repetition rate $\leq 10MHz$.
 - C. 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)


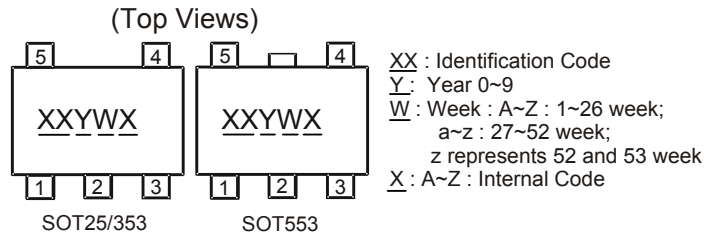
Part Number	Package Code	Package (Notes 9 & 10)	7" Tape and Reel	
			Quantity	Part Number Suffix
74LVC1G07W5-7	W5	SOT25	3,000/Tape & Reel	-7
74LVC1G07SE-7	SE	SOT353	3,000/Tape & Reel	-7
74LVC1G07Z-7	Z	SOT553	4,000/Tape & Reel	-7
74LVC1G07FS3-7	FS3	X2-DFN0808-4	5,000/Tape & Reel	-7
74LVC1G07FW5-7	FW5	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>.

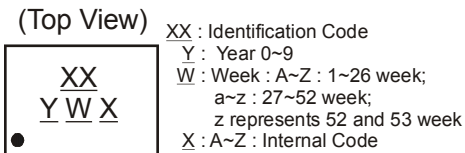
Marking Information

(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

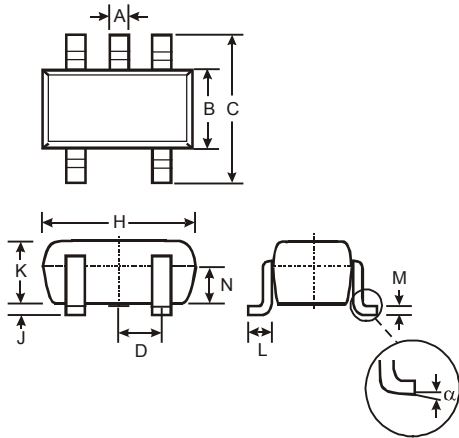


Part Number	Package	Identification Code
74LVC1G07FS3-7	X2-DFN0808-4	WN
74LVC1G07FW5-7	X1-DFN1010-6 (Type B)	V6
74LVC1G07FW4-7	X2-DFN1010-6	UN
74LVC1G07FX4-7	X2-DFN1409-6	ME
74LVC1G07FZ4-7	X2-DFN1410-6	UN

Package Outline Dimensions

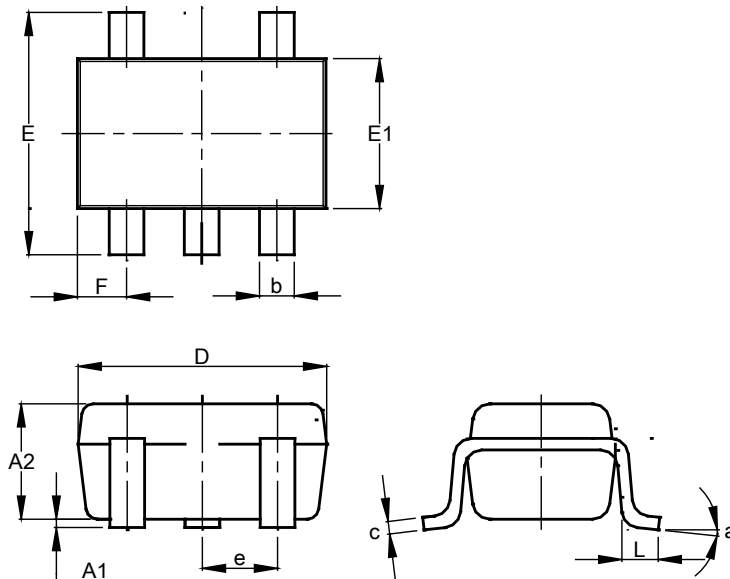
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(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

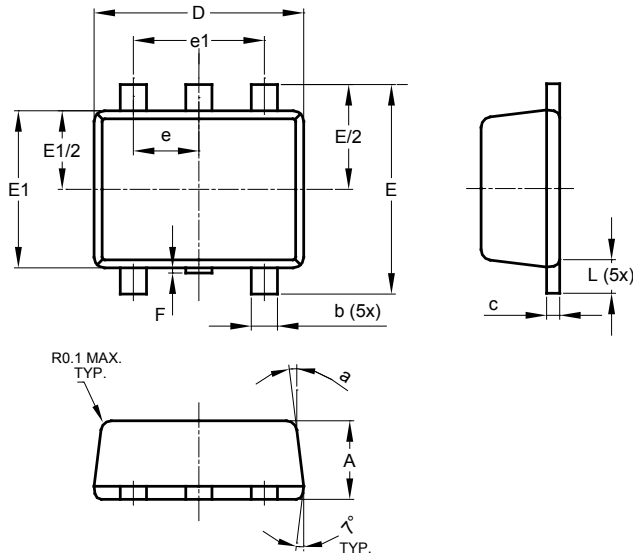


SOT353			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Package Outline Dimensions (continued)

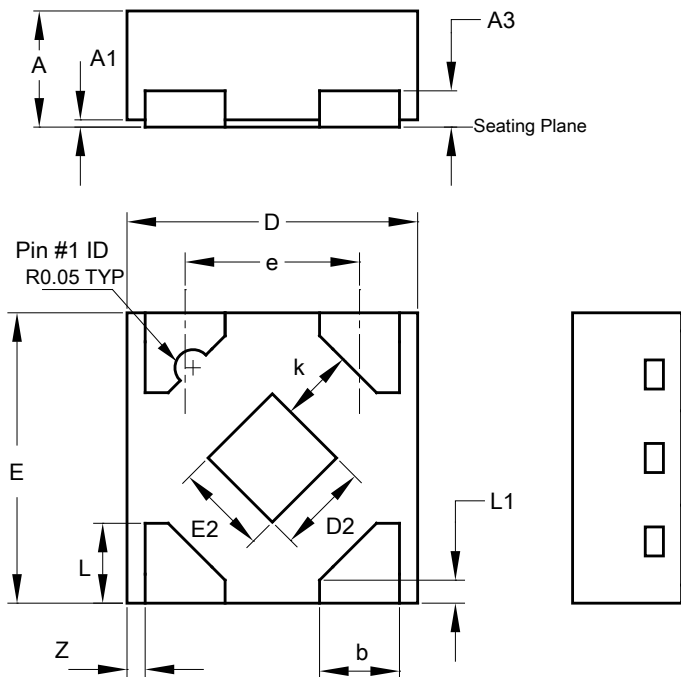
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(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

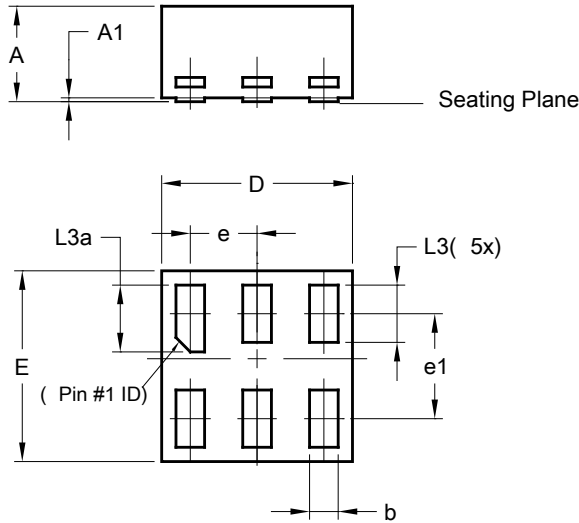


X2-DFN0808-4			
Dim	Min	Max	Typ
A	0.25	0.35	0.30
A1	0	0.04	0.02
A3	-	-	0.13
b	0.17	0.27	0.22
D	0.75	0.85	0.80
D2	0.15	0.35	0.25
E	0.75	0.85	0.80
E2	0.15	0.35	0.25
e	-	-	0.48
k	0.20	-	-
L	0.17	0.27	0.22
L1	0.02	0.12	0.07
z	-	-	0.05
All Dimensions in mm			

Package Outline Dimensions (continued)

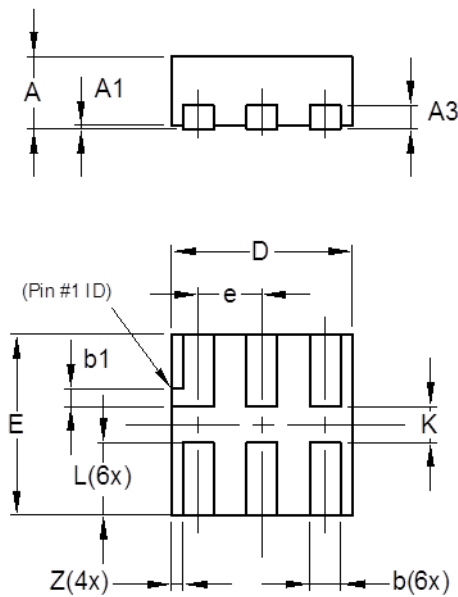
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(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

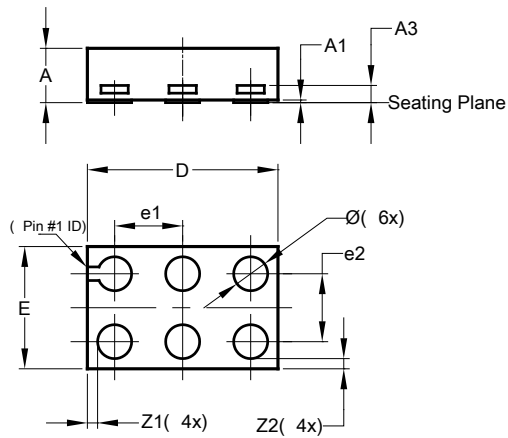


X2-DFN1010-6			
Dim	Min	Max	Typ
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.14	0.20	0.17
b1	0.05	0.15	0.10
D	0.95	1.05	1.00
E	0.95	1.05	1.00
e	—	—	0.35
L	0.35	0.45	0.40
K	0.15	—	—
Z	—	—	0.065
All Dimensions in mm			

Package Outline Dimensions (continued)

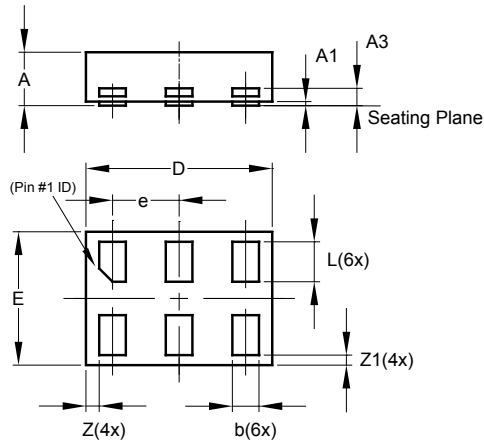
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(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

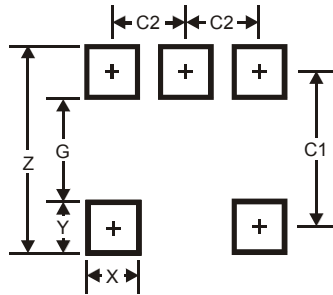


X2-DFN1410-6			
Dim	Min	Max	Typ
A	—	0.40	0.39
A1	0.00	0.05	0.02
A3	—	—	0.13
b	0.15	0.25	0.20
D	1.35	1.45	1.40
E	0.95	1.05	1.00
e	—	—	0.50
L	0.25	0.35	0.30
Z	—	—	0.10
Z1	0.045	0.105	0.075
All Dimensions in mm			

Suggested Pad Layout

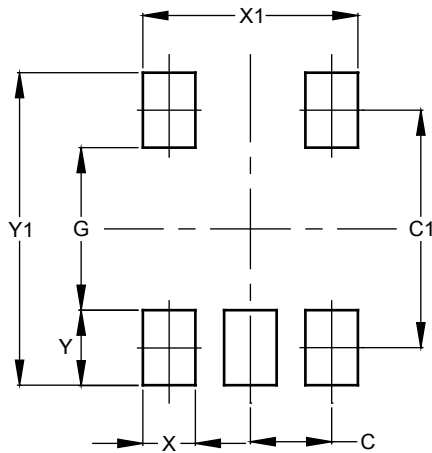
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(1) Package Type: SOT25



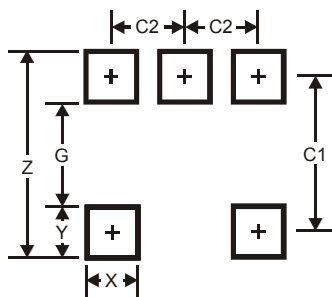
Dimensions	Value
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

(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

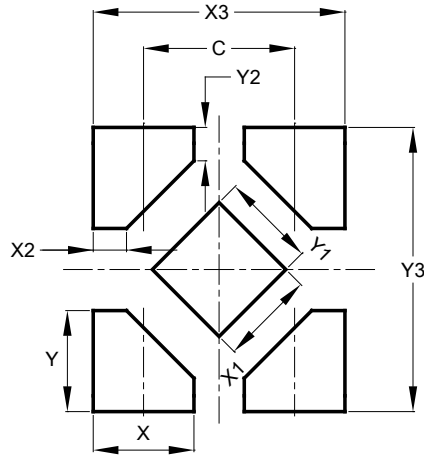


Dimensions	Value
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

Suggested Pad Layout (continued)

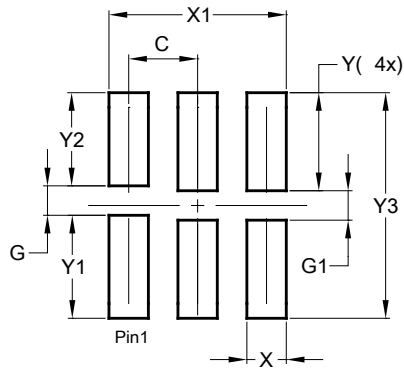
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(4) Package Type: X2-DFN0808-4



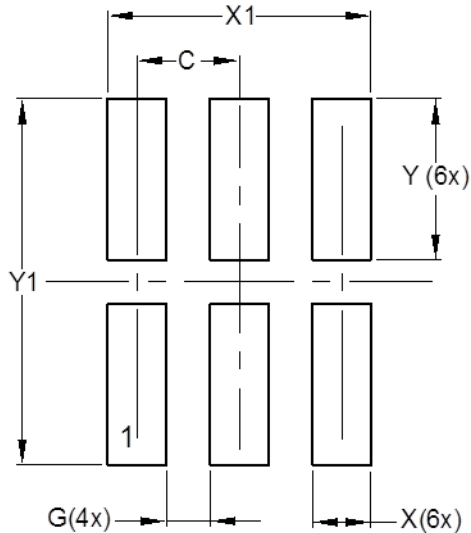
Dimensions	Value
C	0.480
X	0.320
X1	0.300
X2	0.106
X3	0.800
Y	0.320
Y1	0.300
Y2	0.106
Y3	0.900

(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

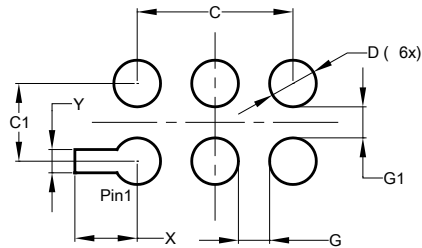


Dimensions	Value (in mm)
C	0.350
G	0.150
X	0.200
X1	0.900
Y	0.550
Y1	1.250

Suggested Pad Layout (continued)

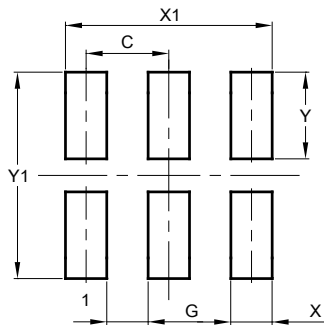
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(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)

IMPORTANT NOTICE

1. DIODES INCORPORATED AND ITS SUBSIDIARIES ("DIODES") MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO ANY INFORMATION CONTAINED IN THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).
2. The Information contained herein is for informational purpose only and is provided only to illustrate the operation of Diodes products described herein and application examples. Diodes does not assume any liability arising out of the application or use of this document or any product described herein. This document is intended for skilled and technically trained engineering customers and users who design with Diodes products. Diodes products may be used to facilitate safety-related applications; however, in all instances customers and users are responsible for (a) selecting the appropriate Diodes products for their applications, (b) evaluating the suitability of the Diodes products for their intended applications, (c) ensuring their applications, which incorporate Diodes products, comply the applicable legal and regulatory requirements as well as safety and functional-safety related standards, and (d) ensuring they design with appropriate safeguards (including testing, validation, quality control techniques, redundancy, malfunction prevention, and appropriate treatment for aging degradation) to minimize the risks associated with their applications.
3. Diodes assumes no liability for any application-related information, support, assistance or feedback that may be provided by Diodes from time to time. Any customer or user of this document or products described herein will assume all risks and liabilities associated with such use, and will hold Diodes and all companies whose products are represented herein or on Diodes' websites, harmless against all damages and liabilities.
4. Products described herein may be covered by one or more United States, international or foreign patents and pending patent applications. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks and trademark applications. Diodes does not convey any license under any of its intellectual property rights or the rights of any third parties (including third parties whose products and services may be described in this document or on Diodes' website) under this document.
5. Diodes products are provided subject to Diodes' Standard Terms and Conditions of Sale (<https://www.diodes.com/about/company/terms-and-conditions/terms-and-conditions-of-sales/>) or other applicable terms. This document does not alter or expand the applicable warranties provided by Diodes. Diodes does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.
6. Diodes products and technology may not be used for or incorporated into any products or systems whose manufacture, use or sale is prohibited under any applicable laws and regulations. Should customers or users use Diodes products in contravention of any applicable laws or regulations, or for any unintended or unauthorized application, customers and users will (a) be solely responsible for any damages, losses or penalties arising in connection therewith or as a result thereof, and (b) indemnify and hold Diodes and its representatives and agents harmless against any and all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim relating to any noncompliance with the applicable laws and regulations, as well as any unintended or unauthorized application.
7. While efforts have been made to ensure the information contained in this document is accurate, complete and current, it may contain technical inaccuracies, omissions and typographical errors. Diodes does not warrant that information contained in this document is error-free and Diodes is under no obligation to update or otherwise correct this information. Notwithstanding the foregoing, Diodes reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes.
8. Any unauthorized copying, modification, distribution, transmission, display or other use of this document (or any portion hereof) is prohibited. Diodes assumes no responsibility for any losses incurred by the customers or users or any third parties arising from any such unauthorized use.

Copyright © 2021 Diodes Incorporated

www.diodes.com