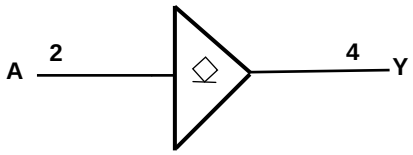
NEW PRODUCT

Pin Descriptions

Pin Name	Description
NC	No connection
A	Data Input
GND	Ground
Y	Data Output Open Drain
Vcc	Supply Voltage

Logic Diagram



Function Table

Inputs	Output
A	**Y**
H	Z
L	L

NEW PRODUCT

Absolute Maximum Ratings (Note 3)

Symbol	Description	Rating	Unit
ESD HBM	Human Body Model ESD Protection	2	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	-50	mA
I_O	Continuous output current	±50	mA
	Continuous current through Vdd or GND	±100	mA
T_J	Operating Junction Temperature	-40 to 150	°C
T_{STG}	Storage Temperature	-65 to 150	°C

Notes: 3. 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.

NEW PRODUCT

Recommended Operating Conditions (Note 4)

Symbol	Parameter		Min	Max	Unit
V_{CC}	Operating Voltage	Operating	1.4	5.5	V
		Data retention only	1.2		V
V_{IH}	High-level Input Voltage	V_{CC} = 1.4 V to 1.95 V	0.65 X V_{CC}		V
		V_{CC} = 2.3 V to 2.7 V	1.7		
		V_{CC} = 3 V to 3.6 V	2		
		V_{CC} = 4.5 V to 5.5 V	0.7 X V_{CC}		
V_{IL}	Low-level input voltage	V_{CC} = 1.4 V to 1.95 V		0.35 X V_{CC}	V
		V_{CC} = 2.3 V to 2.7 V		0.7	
		V_{CC} = 3 V to 3.6 V		0.8	
		V_{CC} = 4.5 V to 5.5 V		0.3 X V_{CC}	
V_I	Input Voltage		0	5.5	V
V_O	Output Voltage		0	V_{CC}	V
I_{OL}	Low-level output current	Vcc=1.4 V		3	mA
		V_{CC} = 1.65 V		4	
		V_{CC} = 2.3 V		8	
		V_{CC} = 3 V		16	
				24	
		V_{CC} = 4.5 V		32	
Δt/ΔV	Input transition rise or fall rate	V_{CC} = 1.4 V to 3.0 V		20	ns/V
		V_{CC} = 3.3 V ± 0.3 V		10	
		V_{CC} = 5 V ± 0.5 V		5	
T_A	Operating free-air temperature		-40	85	ºC

Notes: 4. Unused inputs should be held at Vcc or Ground.

NEW PRODUCT

Electrical Characteristics (All typical values are at Vcc = 3.3V, T_A = 25°C)

Over recommended free-air temperature range (unless otherwise noted)

Symbol	Parameter	Test Conditions	Vcc	Min	Typ	Max	Unit
V_{OL}	Low Level Output Voltage	I_{OL} = 100 µA	1.4 V to 5.5 V			0.1	V
		I_{OL} = 3 mA	1.4 V			0.4	
		I_{OL} = 4 mA	1.65 V			0.45	
		I_{OL} = 8 mA	2.3 V			0.3	
		I_{OL} = 16 mA	3 V			0.4	
		I_{OL} = 24 mA				0.55	
		I_{OL} = 32 mA	4.5 V			0.55	
I_I	Input Current	V_I = 5.5 V or GND	0 to 5.5 V			± 5	µA
I_{OZ}	Z State Leakage Current	V_O = 5.5V	3.6 V			± 10	µA
I_{OFF}	Power Down Leakage Current	V_I or V_O = 5.5V	0 V			± 10	µA
I_{CC}	Supply Current	V_I = 5.5 V or GND I_O=0	1.4 V to 5.5 V			10	µA
ΔI_{CC}	Additional Supply Current	Input at V_{CC} –0.6 V	3 V to 5.5 V			500	µA
C_{Ii}	Input Capacitance	V_I = V_{CC} or GND	3.3V		4		pF
C_O	Output Capacitance	V_O= V_{CC} or GND	3.3V		5		pF
θ_{JA}	Thermal Resistance Junction-to-Case	SOT25	(Note 5)		204		ºC/W
		SOT353	(Note 5)		371		
		DFN1410	(Note 5)		430		
θ_{JC}	Thermal Resistance Junction-to-Case	SOT25	(Note 5)		52		ºC/W
		SOT353	(Note 5)		143		
		DFN1410	(Note 5)		190		

Notes: 5. Test condition for SOT25, SOT353, and DFN1410: Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

NEW PRODUCT

Switching Characteristics

Over recommended free-air temperature range, CL = 15pF (see Figure 1)

Parameter	From (Input)	TO (OUTPUT)	Vcc = 1.5 V ± 0.1V		Vcc = 1.8 V ± 0.15V		Vcc = 2.5 V ± 0.2V		Vcc = 3.3 V ± 0.3V		Vcc = 5 V ± 0.5V		Unit
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
t_{pd}	A	Y	1.5	9.9	1	5.8	0.8	4.4	0.8	3.4	0.8	3.1	ns

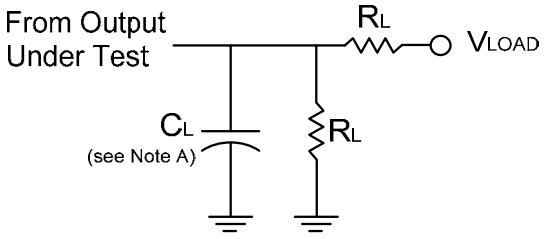
Operating Characteristics

T_A = 25 ºC

Parameter		Test Conditions	Vcc = 1.5 V	Vcc = 1.8 V	Vcc = 2.5 V	Vcc = 3.3 V	Vcc = 5 V	Unit
			TYP	TYP	TYP	TYP	TYP	
C_{pd}	Power dissipation capacitance	f = 10 MHz	3	3	3	4	6	pF

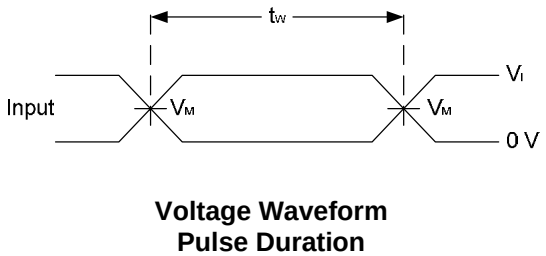
NEW PRODUCT

Parameter Measurement Information

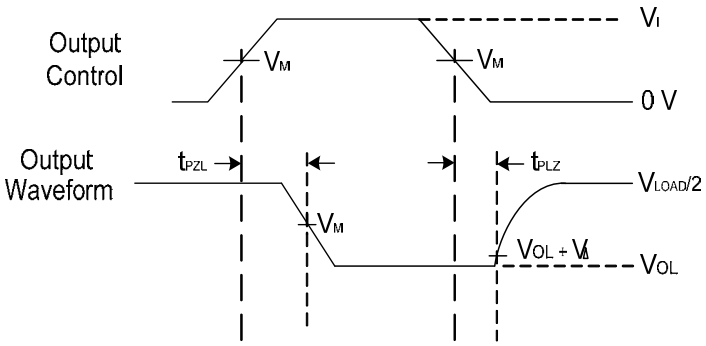


TEST	Condition
t_{PLZ} (see Notes D and E)	Vload
t_{PZL}(see Notes D and F)	Vload

Vcc	Inputs		V_M	V_{LOAD}	C_L	R_L	$V\Delta$
	V_I	t_r/t_f					
1.8V±0.15V	V_{CC}	≤2ns	$V_{CC}/2$	2 X V_{CC}	30pF	1KΩ	0.15V
2.5V±0.2V	V_{CC}	≤2ns	$V_{CC}/2$	2 X V_{CC}	30pF	500Ω	0.15V
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 X V_{CC}	50pF	500Ω	0.3V



Voltage Waveform Pulse Duration



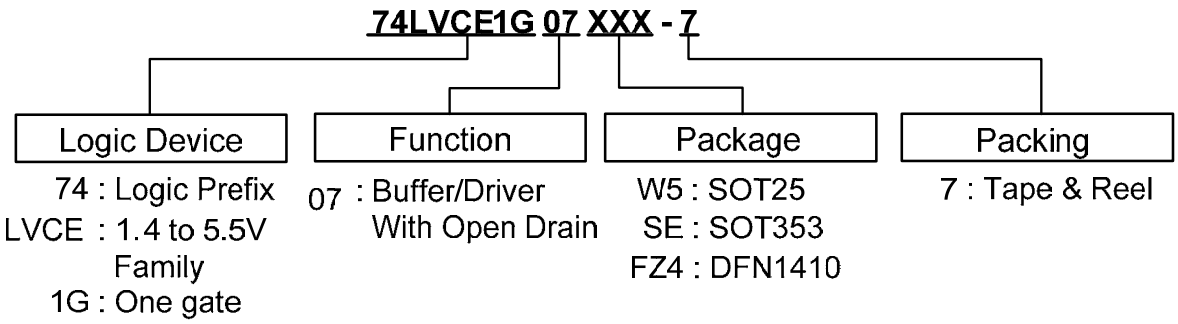
Voltage Waveform Propagation Delay Times

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 ≤ 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.
F. t_{PLZ} is measured at V_{OL} +V_Δ

NEW PRODUCT

Ordering Information



Device	Package Code	Packaging (Note 6)	7" Tape and Reel	
			Quantity	Part Number Suffix
74LVCE1G07W5-7	W5	SOT25	3000/Tape & Reel	-7
74LVCE1G07SE-7	SE	SOT353	3000/Tape & Reel	-7
74LVCE1G07FZ4-7	FZ4	DFN1410	5000/Tape & Reel	-7

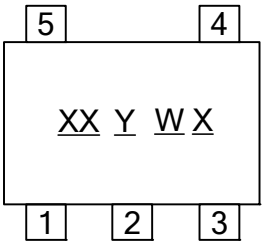
Notes: 6. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

NEW PRODUCT

Marking Information

(1) SOT25 and SOT353

(Top View)

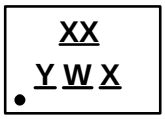


XX : Identification code
Y : Year 0~9
W : Week : A~Z : 1~26 week;
a~z : 27~52 week; z represents 52 and 53 week
X : A~Z : Internal code

Part Number	Package	Identification Code
74LVCE1G07W5	SOT25	PN
74LVCE1G07SE	SOT353	PN

(3) DFN1410

(Top View)



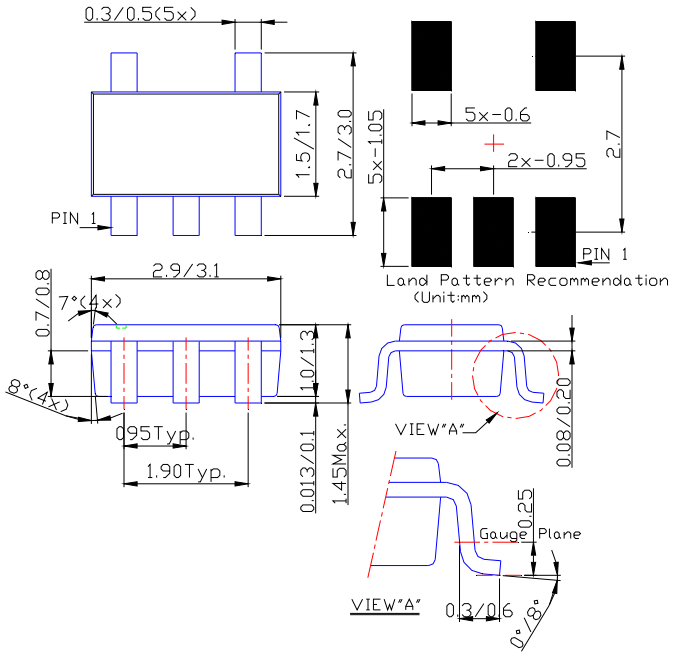
XX : Identification Code
Y : Year : 0~9
W : Week : A~Z : 1~26 week;
a~z : 27~52 week; z represents 52 and 53 week
X : A~Z : Internal code

Part Number	Package	Identification Code
74LVCE1G07FZ4	DFN1410	PN

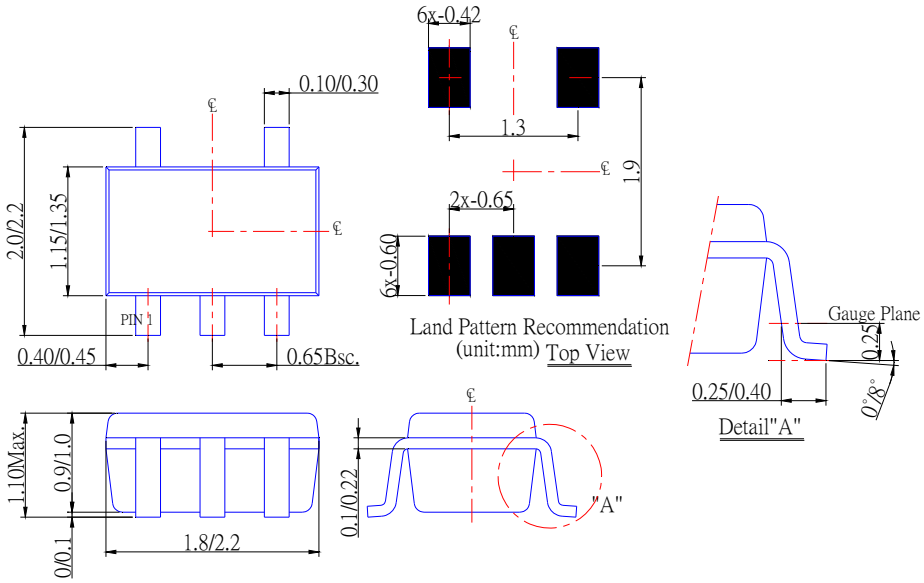
NEW PRODUCT

Package Outline Dimensions (All Dimensions in mm)

(1) Package Type: SOT25



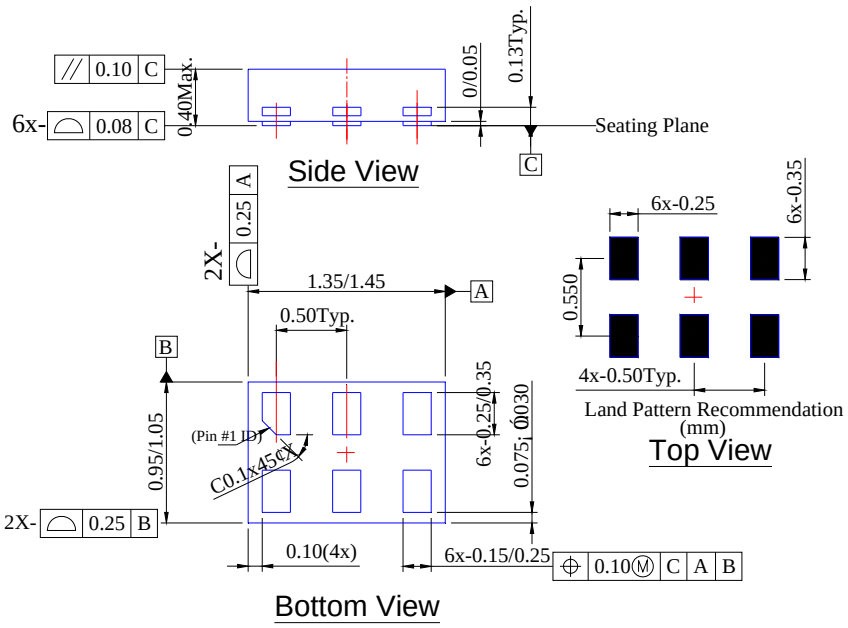
(2) Package Type: SOT353



NEW PRODUCT

Package Outline Dimensions (Continued)

(3) Package Type: DFN1410



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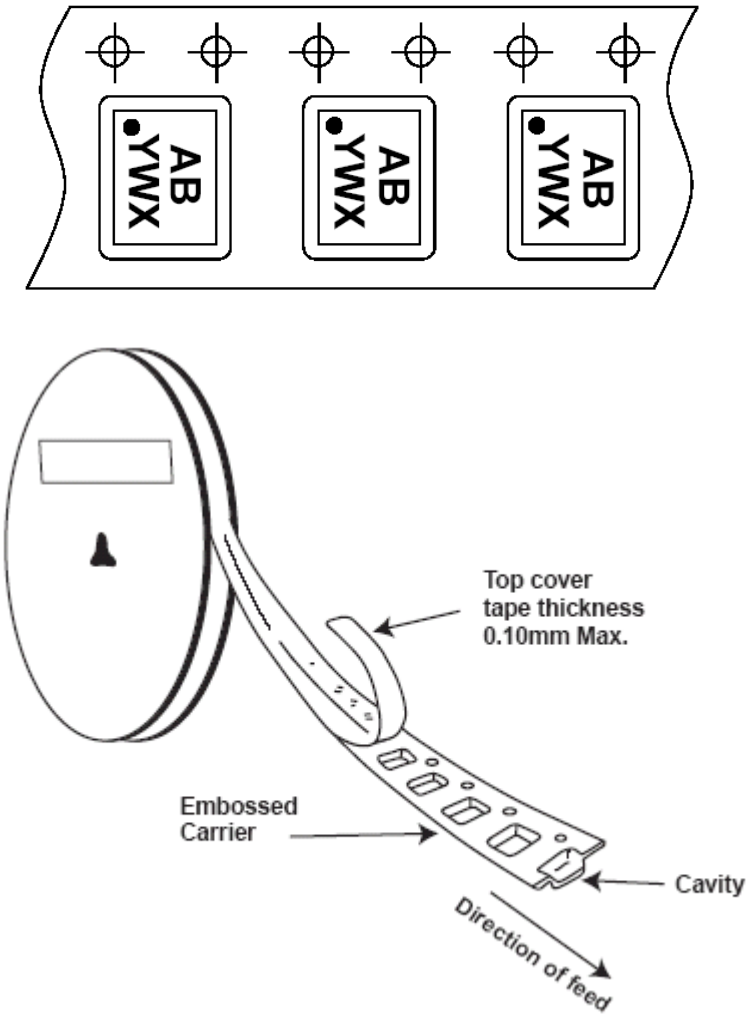
Taping Orientation (Note 7)

For DFN1410



Notes: 7. The taping orientation of the other package type can be found on our website at http://www.diodes.com/datasheets/ap02007.pdf

NEW PRODUCT

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