

## Description

The 74LVC273A provides eight positive-edge-triggered D-type flip-flops with a direct clear (CLR) input.

The device is designed for operation with a power supply range of 1.65V to 3.6V. The device is fully specified for partial power down applications using  $I_{OFF}$ . The  $I_{OFF}$  circuitry disables the output preventing damaging current backflow when the device is powered down.

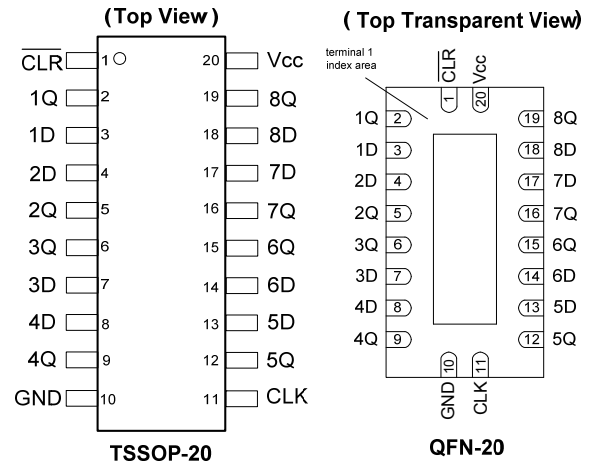
## Features

- Supply Voltage Range from 1.65V to 3.6V
- Sinks or Sources 24mA at  $V_{CC} = 3V$
- CMOS Low Power Consumption
- $I_{OFF}$  Supports Partial Power Down Operation
- Inputs or Outputs accept up to 5.5V
- Inputs Can Be Driven by 3.3V or 5V Allowing for Mixed Voltage Applications
- Schmitt Trigger Action at All Inputs
- Typical  $V_{OLP}$  (Quiet Output Ground Bounce) less than 0.8V with  $V_{CC} = 3.3V$  and  $T_A = +25^\circ C$
- Typical  $V_{OHV}$  (Quiet Output dynamic VOH) greater than 2.0V with  $V_{CC} = 3.3V$  and  $T_A = +25^\circ C$
- ESD Protection Tested per JESD 22
  - Exceeds 200-V Machine Model (A115-A)
  - Exceeds 2000-V Human Body Model (A114-A)
  - Exceeds 1000-V Charged Device Model (C101C)
- Latch-Up Exceeds 250mA per JESD 78, Class II
- All devices are:
  - **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
  - **Halogen and Antimony Free. "Green" Device (Note 3)**

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen and Antimony free, "Green" and Lead-Free.
3. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

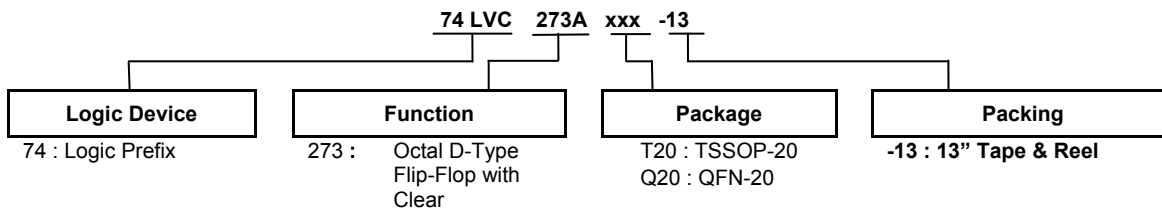
## Pin Assignments



## Applications

- General Purpose Logic
- Bus Driving
- Power Down Signal Isolation
- Wide array of products such as:
  - PCs, Notebooks, Netbooks, Ultrabooks
  - Networking Computer Peripherals, Hard Drives, CD/DVD ROM
  - TV, DVD, DVR, Set Top Box

## Ordering Information



| Device          | Package Code | Package (Note 4 & 5) | Package Size                                 | 13" Tape and Reel |                    |
|-----------------|--------------|----------------------|----------------------------------------------|-------------------|--------------------|
|                 |              |                      |                                              | Quantity          | Part Number Suffix |
| 74LVC273AT20-13 | T20          | TSSOP-20             | 6.4mm X 6.5mm X 1.2mm<br>0.65 mm lead pitch  | 2500/Tape & Reel  | -13                |
| 74LVC273AQ20-13 | Q20          | V-QFN4525-20         | 2.5mm X 4.5mm X 0.95mm<br>0.50 mm lead pitch | 2500/Tape & Reel  | -13                |

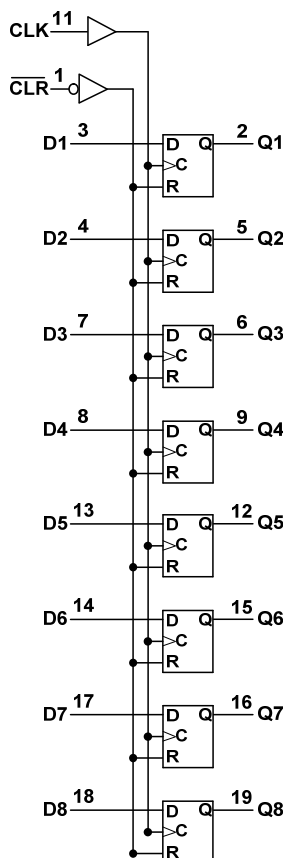
Notes:

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. V-QFN4525-20 is a JEDEC recognized naming convention that specifies the package thickness category as V and the number 4525 describes the package as 4.5mm X 2.5mm.

## Pin Descriptions

| Pin Number | Pin Name | Description    |
|------------|----------|----------------|
| 1          | CLR      | Clear          |
| 2          | Q1       | Latch Output   |
| 3          | D1       | Data Input     |
| 4          | D2       | Data Input     |
| 5          | Q2       | Latch Output   |
| 6          | Q3       | Latch Output   |
| 7          | D3       | Data Input     |
| 8          | D4       | Data Input     |
| 9          | Q4       | Latch Output   |
| 10         | GND      | Ground         |
| 11         | CLK      | Clock          |
| 12         | Q5       | Latch Output   |
| 13         | D5       | Data Input     |
| 14         | D6       | Data Input     |
| 15         | Q6       | Latch Output   |
| 16         | Q7       | Latch Output   |
| 17         | D7       | Data Input     |
| 18         | D8       | Data Input     |
| 19         | Q8       | Latch Output   |
| 20         | Vcc      | Supply Voltage |

## Logic Diagram



## Function Table

| (Each Flip-Flop) |     |   |                |
|------------------|-----|---|----------------|
| INPUTS           |     |   | OUTPUT         |
| CLR              | CLK | D | Q              |
| L                | X   | X | L              |
| H                | ↑   | H | H              |
| H                | ↑   | L | L              |
| H                | L   | X | Q <sub>0</sub> |

**Absolute Maximum Ratings** (Notes 6 & 7)

| 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 +7.0 | V    |
| $V_I$     | Input Voltage Range                                     | -0.5 to +7.0 | V    |
| $I_{IK}$  | Input Clamp Current $V_I < 0V$                          | -20          | mA   |
| $I_{OK}$  | Output Clamp Current $V_O < 0V$                         | -50          | mA   |
| $I_O$     | Continuous output current $-0.5V < V_O < V_{CC} + 0.5V$ | $\pm 50$     | mA   |
| $I_{CC}$  | Continuous Current Through $V_{CC}$                     | 100          | mA   |
| $I_{GND}$ | Continuous Current Through GND                          | -100         | mA   |
| $T_J$     | Operating Junction Temperature                          | -40 to +150  | °C   |
| $T_{STG}$ | Storage Temperature                                     | -65 to +150  | °C   |
| $P_{TOT}$ | Total Power Dissipation                                 | 500          | mW   |

- Notes:
- 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.
  - 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)

| Symbol              | Parameter                          | Conditions          | Min  | Max      | Unit |
|---------------------|------------------------------------|---------------------|------|----------|------|
| $V_{CC}$            | Supply Voltage                     | Operating           | 1.65 | 3.6      | 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       |      |
|                     |                                    | $V_{CC} = 2.7V$     | —    | -12      |      |
|                     |                                    | $V_{CC} = 3.0V$     | —    | -24      |      |
| $I_{OL}$            | Low-Level Output Current           | $V_{CC} = 1.65V$    | —    | 4        | mA   |
|                     |                                    | $V_{CC} = 2.3V$     | —    | 8        |      |
|                     |                                    | $V_{CC} = 2.7V$     | —    | 12       |      |
|                     |                                    | $V_{CC} = 3.0V$     | —    | 24       |      |
| $\Delta t/\Delta V$ | Input Transition Rise or Fall Rate | —                   | —    | 10       | ns/V |
| $T_A$               | Operating Free-Air Temperature     | —                   | -40  | +125     | °C   |

- Note:
- Unused inputs should be held at  $V_{CC}$  or ground.

**Electrical Characteristics**

| Symbol           | Parameter                  | Test Conditions                                              |                                         | V <sub>CC</sub> | T <sub>A</sub> = -40°C to +85°C |                        | T <sub>A</sub> = +85°C to +125°C |                        | Unit |
|------------------|----------------------------|--------------------------------------------------------------|-----------------------------------------|-----------------|---------------------------------|------------------------|----------------------------------|------------------------|------|
|                  |                            |                                                              |                                         |                 | Min                             | Max                    | Min                              | Max                    |      |
| V <sub>IH</sub>  | High-Level Input Voltage   |                                                              |                                         | 1.65V to 1.95V  | V <sub>CC</sub> X 0.65          |                        | V <sub>CC</sub> X 0.65           |                        | V    |
|                  |                            |                                                              |                                         | 2.3V to 2.7V    | 1.7                             |                        | 1.7                              |                        |      |
|                  |                            |                                                              |                                         | 3.0V to 3.6V    | 2                               |                        | 2                                |                        |      |
| V <sub>IL</sub>  | Low-Level Input voltage    |                                                              |                                         | 1.65V to 1.95V  |                                 | V <sub>CC</sub> X 0.35 |                                  | V <sub>CC</sub> X 0.35 | V    |
|                  |                            |                                                              |                                         | 2.3V to 2.7V    |                                 | 0.7                    |                                  | 0.7                    |      |
|                  |                            |                                                              |                                         | 3.0V to 3.6V    |                                 | 0.8                    |                                  | 0.8                    |      |
| V <sub>OH</sub>  | High-Level Output Voltage  | I <sub>OH</sub> = -50μA                                      |                                         | 1.65V to 3.6V   | V <sub>CC</sub> -0.2            |                        | V <sub>CC</sub> -0.3             |                        | V    |
|                  |                            | I <sub>OH</sub> = -4mA                                       |                                         | 1.65V           | 1.2                             |                        | 1.05                             |                        |      |
|                  |                            | I <sub>OH</sub> = -8mA                                       |                                         | 2.3V            | 1.7                             |                        | 1.65                             |                        |      |
|                  |                            | I <sub>OH</sub> = -12mA                                      |                                         | 2.7V            | 2.2                             |                        | 2.05                             |                        |      |
|                  |                            |                                                              |                                         | 3.0V            | 2.4                             |                        | 2.48                             |                        |      |
|                  |                            | I <sub>OH</sub> = -24mA                                      |                                         | 3.0V            | 2.3                             |                        | 2.0                              |                        |      |
| V <sub>OL</sub>  | Low-Level Output Voltage   | I <sub>OL</sub> = 100μA                                      |                                         | 1.65V to 3.6V   |                                 | 0.2                    |                                  | 0.3                    | V    |
|                  |                            | I <sub>OL</sub> = 4mA                                        |                                         | 1.65V           |                                 | 0.45                   |                                  | 0.65                   |      |
|                  |                            | I <sub>OL</sub> = 8mA                                        |                                         | 2.3V            |                                 | 0.60                   |                                  | 0.80                   |      |
|                  |                            | I <sub>OL</sub> = 12mA                                       |                                         | 2.7V            |                                 | 0.40                   |                                  | 0.60                   |      |
|                  |                            | I <sub>OL</sub> = 24mA                                       |                                         | 3.0V            |                                 | 0.55                   |                                  | 0.80                   |      |
|                  |                            |                                                              |                                         |                 |                                 |                        |                                  |                        |      |
| I <sub>OFF</sub> | Power Down Leakage Current | V <sub>I</sub> or V <sub>O</sub> = 0 or 5.5V                 |                                         | 0V              |                                 | ±10                    |                                  | 20                     | μA   |
| I <sub>I</sub>   | Input Current Control Pins | V <sub>I</sub> = GND or 5.5V                                 |                                         | 0 to 3.6V       |                                 | ±5                     |                                  | ± 20                   | μA   |
| I <sub>CC</sub>  | Supply Current             | V <sub>I</sub> = GND or V <sub>CC</sub> , I <sub>O</sub> = 0 |                                         | 6.0V            |                                 | 10                     |                                  | 40                     | μA   |
| ΔI <sub>CC</sub> | Additional Supply Current  | One input at V <sub>CC</sub> -0.6V<br>I <sub>O</sub> = 0A    |                                         | 2.7V to 3.6V    |                                 | 500                    |                                  | 5000                   | μA   |
| C <sub>i</sub>   | Input Capacitance          | Control Pins                                                 | V <sub>I</sub> = GND or V <sub>CC</sub> | 0V to 3.6V      | 4.0 typical                     |                        | 4.0 typical                      |                        | pF   |
|                  |                            | I/O Pins                                                     |                                         |                 | 5.5 typical                     |                        | 5.5 typical                      |                        |      |

## Switching Characteristics

| Symbol           | Parameter                                  | Test Conditions | V <sub>CC</sub> | T <sub>A</sub> = +25°C |     |      | -40°C to +85°C |     | +85°C to +125°C |                 | Unit |
|------------------|--------------------------------------------|-----------------|-----------------|------------------------|-----|------|----------------|-----|-----------------|-----------------|------|
|                  |                                            |                 |                 | Min                    | Typ | Max  | Min            | Max | Min             | Max             |      |
| f <sub>MAX</sub> | Maximum Frequency                          | Figure 1        | 1.8V ± 0.15V    | 35                     | 40  |      | 35             |     | 30              |                 | Mhz  |
|                  |                                            |                 | 2.5V ± 0.3V     | 75                     | 60  |      | 50             |     | 45              |                 |      |
|                  |                                            |                 | 2.7V            | 150                    | 175 |      | 150            |     | 100             |                 |      |
|                  |                                            |                 | 3.3V ± 0.3      | 150                    | 230 |      | 150            |     | 125             |                 |      |
| t <sub>W</sub>   | Pulse Width<br>CLK<br>High or Low          | Figure 1        | 1.8V ± 0.15V    | 5.0                    | 2.5 |      | 5.0            |     | 5.5             |                 | ns   |
|                  |                                            |                 | 2.5V ± 0.3V     | 4.0                    | 2.0 |      | 4.0            |     | 4.5             |                 |      |
|                  |                                            |                 | 2.7V            | 3.3                    | 1.7 |      | 3.3            |     | 3.5             |                 |      |
|                  |                                            |                 | 3.3V ± 0.3V     | 3.0                    | 1.5 |      | 3.0            |     | 3.5             |                 |      |
| t <sub>W</sub>   | Pulse Width<br>CLR Low                     | Figure 1        | 1.8V ± 0.15V    | 5.0                    | 2.5 |      | 5.0            |     | 5.5             |                 | ns   |
|                  |                                            |                 | 2.5V ± 0.3V     | 4.0                    | 2.0 |      | 4.0            |     | 4.5             |                 |      |
|                  |                                            |                 | 2.7V            | 3.3                    | 1.7 |      | 3.3            |     | 3.5             |                 |      |
|                  |                                            |                 | 3.3V ± 0.3V     | 3.0                    | 1.5 |      | 3.0            |     | 3.5             |                 |      |
| t <sub>SU</sub>  | Set-up Time D <sub>N</sub><br>to CLK       | Figure 1        | 1.8V ± 0.15V    | 4.0                    | 2.0 |      | 4.0            |     | 4.5             | t <sub>SU</sub> | ns   |
|                  |                                            |                 | 2.5V ± 0.3V     | 3.0                    | 1.5 |      | 3.0            |     | 3.5             |                 |      |
|                  |                                            |                 | 2.7V            | 2.0                    | 1.0 |      | 2.0            |     | 2.5             |                 |      |
|                  |                                            |                 | 3.3V ± 0.3V     | 1.5                    | 1.0 |      | 1.5            |     | 2.0             |                 |      |
| t <sub>H</sub>   | Hold Time<br>D <sub>N</sub> to CLK         | Figure 1        | 1.8V ± 0.15V    | 3.0                    | 1.5 |      | 3.0            |     | 3.5             |                 | ns   |
|                  |                                            |                 | 2.5V ± 0.3V     | 2.0                    | 1.0 |      | 2.0            |     | 2.5             |                 |      |
|                  |                                            |                 | 2.7V            | 1.5                    | 1.0 |      | 1.5            |     | 2.0             |                 |      |
|                  |                                            |                 | 3.3V ± 0.3V     | 1.5                    | 1.0 |      | 1.5            |     | 2.0             |                 |      |
| t <sub>REM</sub> | Removal Time<br>CLR to CLK                 | Figure 1        | 1.8V ± 0.15V    | 1                      | 7.8 | 16.5 | 1              | 17  | 1               | 14.2            | ns   |
|                  |                                            |                 | 2.5V ± 0.3V     | 1                      | 4   | 9    | 1              | 9.5 | 1               | 8.2             |      |
|                  |                                            |                 | 2.7V            | 1                      | 4.4 | 8.3  | 1              | 8.5 | 1               | 10.0            |      |
|                  |                                            |                 | 3.3V ± 0.3V     | 1.7                    | 4.1 | 7.3  | 1.7            | 7.5 | 1.7             | 9.0             |      |
| t <sub>PD</sub>  | Propagation Delay<br>CLK to Q <sub>N</sub> | Figure 1        | 1.8V ± 0.15V    | 1                      | 7.8 | 16.5 | 1              | 17  | 1               | 14.2            | ns   |
|                  |                                            |                 | 2.5V ± 0.3V     | 1                      | 4   | 9    | 1              | 9.5 | 1               | 8.2             |      |
|                  |                                            |                 | 2.7V            | 1                      | 4.4 | 8.3  | 1              | 8.5 | 1               | 10.0            |      |
|                  |                                            |                 | 3.3V ± 0.3V     | 1.7                    | 4.1 | 7.3  | 1.7            | 7.5 | 1.7             | 9.0             |      |
| t <sub>PD</sub>  | Propagation Delay<br>CLR to Q <sub>N</sub> | Figure 1        | 1.8V ± 0.15V    | 1                      | 7.8 | 16.5 | 1              | 17  | 1               | 14.2            | ns   |
|                  |                                            |                 | 2.5V ± 0.3V     | 1                      | 4   | 9    | 1              | 9.5 | 1               | 8.2             |      |
|                  |                                            |                 | 2.7V            | 1                      | 4.4 | 8.3  | 1              | 8.5 | 1               | 10.0            |      |
|                  |                                            |                 | 3.3V ± 0.3V     | 1.7                    | 4.1 | 7.3  | 1.7            | 7.5 | 1.7             | 9.0             |      |
| tsk(0)           | Output Skew Time                           |                 | 3.3V ± 0.3V     |                        |     | 1.0  |                |     |                 | 1.5             | ns   |

## Operating Characteristics

 T<sub>A</sub> = +25°C

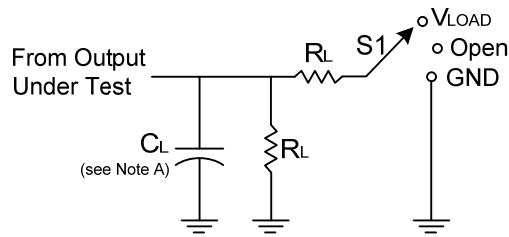
| Symbol          | Parameter                              | Test Conditions | V <sub>CC</sub> | TYP  | Unit |
|-----------------|----------------------------------------|-----------------|-----------------|------|------|
| C <sub>pd</sub> | Power dissipation capacitance per gate | F = 10 MHz      | 1.8V ± 0.15V    | 9.9  | pF   |
|                 |                                        |                 | 2.5V ± 0.3V     | 10.2 |      |
|                 |                                        |                 | 3.3V ± 0.3V     | 10.6 |      |

## Package Characteristics

| Symbol          | Parameter                              | Package      | Test Conditions | Min | Typ | Max | Unit |
|-----------------|----------------------------------------|--------------|-----------------|-----|-----|-----|------|
| θ <sub>JA</sub> | Thermal Resistance Junction-to-Ambient | TSSOP-20     | (Note 9)        | —   | 74  | —   | °C/W |
| θ <sub>JC</sub> | Thermal Resistance Junction-to-Case    | TSSOP-20     | (Note 9)        | —   | 15  | —   | °C/W |
| θ <sub>JA</sub> | Thermal Resistance Junction-to-Ambient | V-QFN4525-20 | (Note 9)        | —   | 67  | —   | °C/W |
| θ <sub>JC</sub> | Thermal Resistance Junction-to-Case    | V-QFN4525-20 | (Note 9)        | —   | 20  | —   | °C/W |

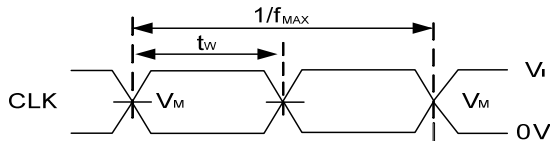
Note: 9. Test conditions for TSSOP-20 and V-QFN4525-20: Devices mounted on 4 layer FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout per JESD 51-7.

# Parameter Measurement Information

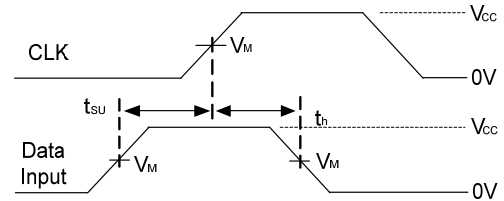


| TEST              | S1   |
|-------------------|------|
| $t_{PLH}/t_{PHL}$ | Open |

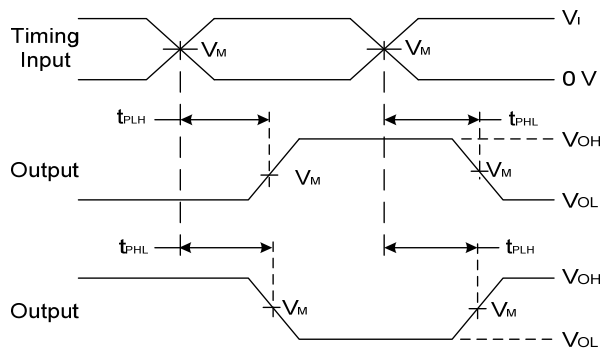
| $V_{CC}$         | Inputs   |              | $V_M$      | $V_{LOAD}$        | $C_L$ | $R_L$        | $V_{\Delta}$ |
|------------------|----------|--------------|------------|-------------------|-------|--------------|--------------|
|                  | $V_I$    | $t_r/t_f$    |            |                   |       |              |              |
| $1.8V \pm 0.15V$ | $V_{CC}$ | $\leq 2ns$   | $V_{CC}/2$ | $2 \times V_{CC}$ | 30pF  | 1K $\Omega$  | 0.15V        |
| $2.5V \pm 0.2V$  | $V_{CC}$ | $\leq 2ns$   | $V_{CC}/2$ | $2 \times V_{CC}$ | 30pF  | 500 $\Omega$ | 0.15V        |
| 2.7V             | 2.7V     | $\leq 2.5ns$ | 1.5V       | 6V                | 50pF  | 500 $\Omega$ | 0.3V         |
| $3.3V \pm 0.3V$  | 2.7V     | $\leq 2.5ns$ | 1.5V       | 6V                | 50pF  | 500 $\Omega$ | 0.3V         |



Voltage Waveform Pulse Duration



Voltage Waveform Set-up and Hold Times



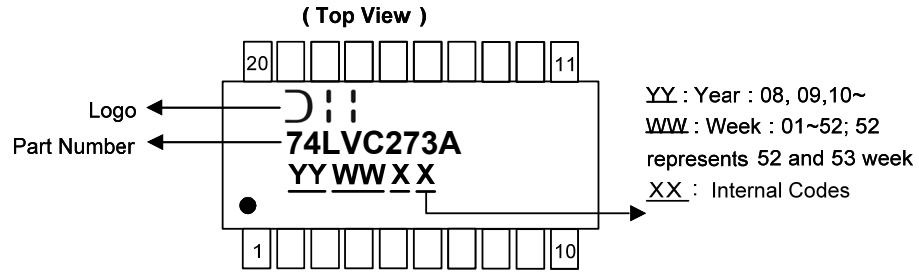
Voltage Waveform Propagation Delay Times  
Inverting and Non Inverting Outputs

- Notes:
- A. Includes test lead and test apparatus capacitance.
  - B. All pulses are supplied at pulse repetition rate  $\leq 10$  MHz.
  - C. Inputs are measured separately one transition per measurement.
  - D.  $t_{PLH}$  and  $t_{PHL}$  are the same as  $t_{PD}$ .

Figure 1 Load Circuit and Voltage Waveforms

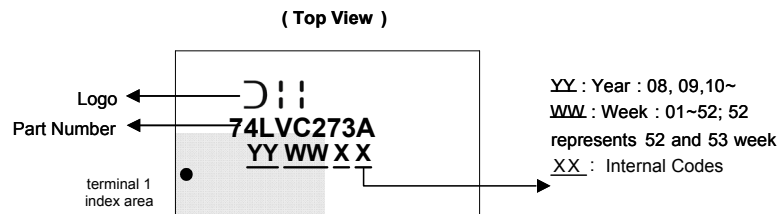
## Marking Information

### (1) TSSOP20



| Part Number  | Package  |
|--------------|----------|
| 74LVC273AT20 | TSSOP-20 |

### (2) QFN-20 (V-QFN4525-20)

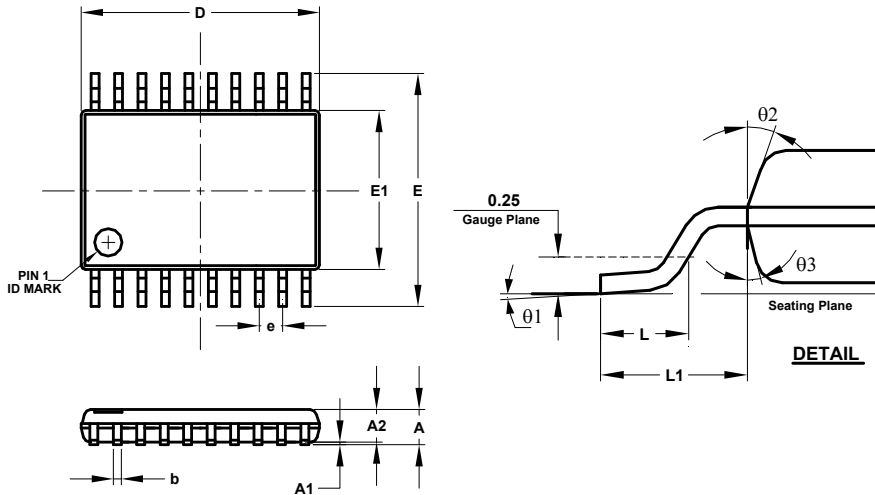


| Part Number  | Package      |
|--------------|--------------|
| 74LVC273AQ20 | V-QFN4525-20 |

# Package Outline Dimensions (All Dimensions in mm)

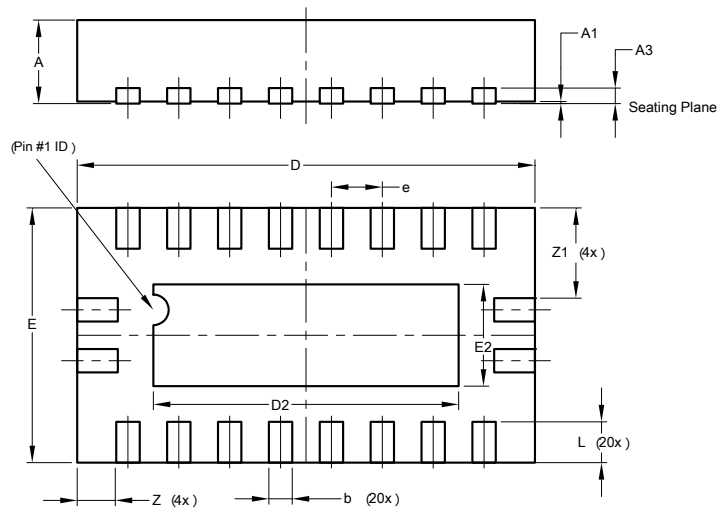
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

## (1) TSSOP-20



| TSSOP-20             |          |      |      |
|----------------------|----------|------|------|
| Dim                  | Min      | Max  | Typ  |
| A                    | -        | 1.20 | -    |
| A1                   | 0.05     | 0.15 | -    |
| A2                   | 0.80     | 1.05 | -    |
| b                    | 0.19     | 0.30 | -    |
| c                    | 0.09     | 0.20 | -    |
| D                    | 6.40     | 6.60 | 6.50 |
| E                    | 6.20     | 6.60 | 6.40 |
| E1                   | 4.30     | 4.50 | 4.40 |
| e                    | 0.65 BSC |      |      |
| L                    | 0.45     | 0.75 | 0.60 |
| L1                   | 1.0 REF  |      |      |
| θ1                   | 0°       | 8°   | -    |
| θ2                   | 10°      | 14°  | 12°  |
| θ3                   | 10°      | 14°  | 12°  |
| All Dimensions in mm |          |      |      |

## (2) QFN-20 (V-QFN4525-20)

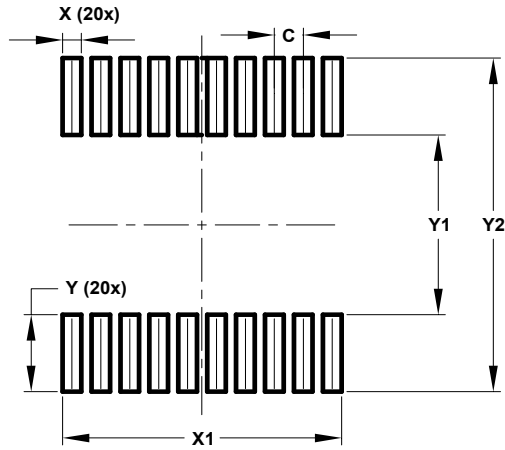


| V-QFN4525-20         |         |      |       |
|----------------------|---------|------|-------|
| Dim                  | Min     | Max  | Typ   |
| A                    | 0.75    | 0.85 | 0.80  |
| A1                   | 0.00    | 0.05 | 0.02  |
| A3                   | -       | -    | 0.15  |
| b                    | 0.18    | 0.30 | 0.23  |
| D                    | 4.45    | 4.55 | 4.50  |
| D2                   | 2.85    | 3.15 | 3.00  |
| E                    | 2.45    | 2.55 | 2.50  |
| E2                   | 0.85    | 1.15 | 1.00  |
| e                    | 0.50BSC |      |       |
| L                    | 0.30    | 0.50 | 0.40  |
| Z                    | -       | -    | 0.385 |
| Z1                   | -       | -    | 0.885 |
| All Dimensions in mm |         |      |       |

## Suggested Pad Layout

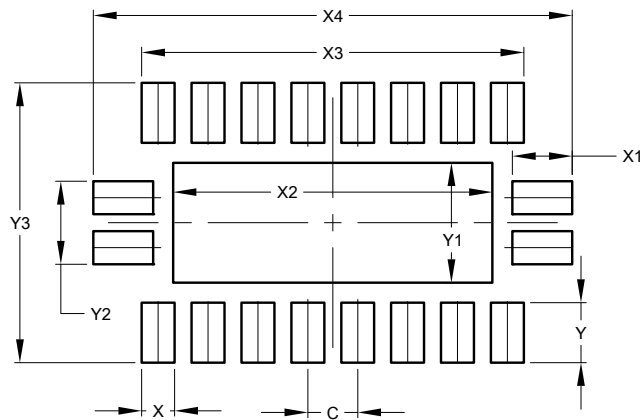
Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

### (1) TSSOP-20



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.650         |
| X          | 0.420         |
| X1         | 6.270         |
| Y          | 1.789         |
| Y1         | 4.160         |
| Y2         | 7.720         |

### (2) QFN-20 (V-QFN4525-20)



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 0.500         |
| X          | 0.330         |
| X1         | 0.600         |
| X2         | 3.200         |
| X3         | 3.830         |
| X4         | 4.800         |
| Y          | 0.600         |
| Y1         | 1.200         |
| Y2         | 0.830         |
| Y3         | 2.800         |

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