

# Octal D Flip-Flop with Common Clock and Reset

## High-Performance Silicon-Gate CMOS

### MC74HC273A, MC74HCT273A

The MC74HC273A/MC74HCT273A is identical in pinout to the LS273. The MC74HC273A inputs are compatible with Standard CMOS outputs; with pull-up resistors, the device is compatible with LSTTL outputs. The MC74HCT273A may be used as a level converter for interfacing TTL or NMOS outputs to high speed CMOS inputs.

The HC273A/HCT273A consists of eight D flip-flops with common Clock and Reset inputs. Each flip-flop is loaded with a low-to-high transition of the Clock input. Reset is asynchronous and active low.

#### Features

- Output Drive Capability: 10 LSTTL Loads
- Outputs Directly Interface to CMOS, NMOS and TTL
- Operating Voltage Range: 2.0 to 6.0 V (HC), 4.5 to 5.5 V (HCT)
- Low Input Current: 1.0  $\mu$ A
- High Noise Immunity Characteristic of CMOS Devices
- In Compliance with the Requirements Defined by JEDEC Standard No. 7 A
- Chip Complexity: 284 FETs or 71 Equivalent Gates
- -Q Suffix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free and are RoHS Compliant

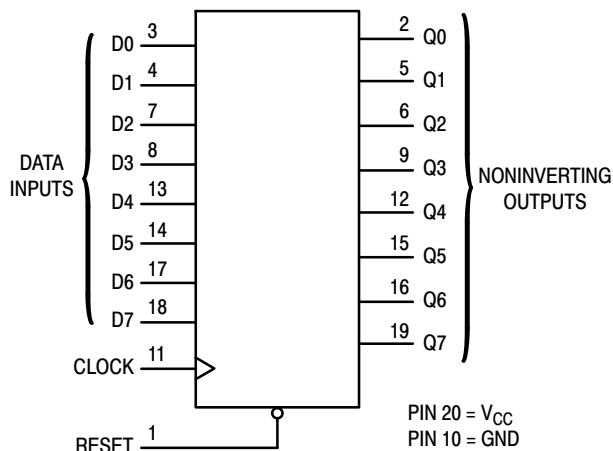
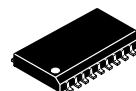


Figure 1. Logic Diagram



SOIC-20  
DW SUFFIX  
CASE 751D

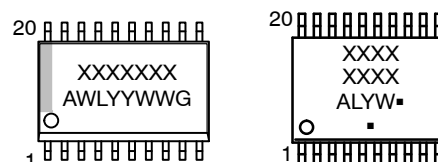


TSSOP-20  
DT SUFFIX  
CASE 948E

#### PIN ASSIGNMENT

|       |    |    |                 |
|-------|----|----|-----------------|
| RESET | 1  | 20 | V <sub>CC</sub> |
| Q0    | 2  | 19 | Q7              |
| D0    | 3  | 18 | D7              |
| D1    | 4  | 17 | D6              |
| Q1    | 5  | 16 | Q6              |
| Q2    | 6  | 15 | Q5              |
| D2    | 7  | 14 | D5              |
| D3    | 8  | 13 | D4              |
| Q3    | 9  | 12 | Q4              |
| GND   | 10 | 11 | CLOCK           |

#### MARKING DIAGRAMS



#### SOIC-20

XXXXXXX = Specific Device Code  
A = Assembly Location  
WL, L = Wafer Lot  
YY, Y = Year  
WW, W = Work Week  
G or ■ = Pb-Free Package

#### TSSOP-20

(Note: Microdot may be in either location)

#### FUNCTION TABLE

| Inputs |       |   | Output    |
|--------|-------|---|-----------|
| Reset  | Clock | D | Q         |
| L      | X     | X | L         |
| H      | ↗     | H | H         |
| H      | ↘     | L | L         |
| H      | L     | X | No Change |
| H      | ↗     | X | No Change |

#### ORDERING INFORMATION

See detailed ordering and shipping information on page 8 of this data sheet.

# MC74HC273A, MC74HCT273A

## MAXIMUM RATINGS

| Symbol        | Parameter                                                                         | Value                       | Unit |
|---------------|-----------------------------------------------------------------------------------|-----------------------------|------|
| $V_{CC}$      | DC Supply Voltage                                                                 | -0.5 to +6.5                | V    |
| $V_{IN}$      | DC Input Voltage                                                                  | -0.5 to $V_{CC}+0.5$        | V    |
| $V_{OUT}$     | DC Output Voltage                                                                 | -0.5 to $V_{CC}+0.5$        | V    |
| $I_{IN}$      | DC Input Diode Current, per Pin                                                   | $\pm 20$                    | mA   |
| $I_{OUT}$     | DC Input Diode Current, Per Pin                                                   | $\pm 35$                    | mA   |
| $I_{CC}$      | DC Supply Current, $V_{CC}$ and GND Pins                                          | $\pm 75$                    | mA   |
| $I_{IK}$      | Input Clamp Current ( $V_{IN} < 0$ or $V_{IN} > V_{CC}$ )                         | $\pm 20$                    | mA   |
| $I_{OK}$      | Output Clamp Current ( $V_{OUT} < 0$ or $V_{OUT} > V_{CC}$ )                      | $\pm 20$                    | mA   |
| $T_{STG}$     | Storage Temperature Range                                                         | -65 to +150                 | °C   |
| $T_L$         | Lead Temperature, 1 mm from Case for 10 secs                                      | 260                         | °C   |
| $T_J$         | Junction Temperature Under Bias                                                   | +150                        | °C   |
| $\theta_{JA}$ | Thermal Resistance (Note 1)<br>SOIC-20W<br>WQFN20<br>QFN20<br>TSSOP-20            | 96<br>99<br>111<br>150      | °C/W |
| $P_D$         | Power Dissipation in Still Air at 25°C<br>SOIC-20W<br>WQFN20<br>QFN20<br>TSSOP-20 | 1302<br>1256<br>1127<br>833 | mW   |
| MSL           | Moisture Sensitivity<br>SOIC-20W<br>All Other Packages                            | Level 3<br>Level 1          | -    |
| $F_R$         | Flammability Rating<br>Oxygen Index: 28 to 34                                     | UL 94 V-0 @ 0.125 in        | -    |
| $V_{ESD}$     | ESD Withstand Voltage (Note 2)<br>Human Body Model<br>Charged Device Model        | > 2000<br>> 1000            | V    |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Measured with minimum pad spacing on an FR4 board, using 76 mm-by-114 mm, 2-ounce copper trace no air flow per JESD51-7.
2. HBM tested to EIA / JESD22-A114-A. CDM tested to JESD22-C101-A. JEDEC recommends that ESD qualification to EIA/JESD22-A115A (Machine Model) be discontinued.
3. Tested to EIA/JESD78 Class II.

## RECOMMENDED OPERATING CONDITIONS

| Symbol | Parameter | Min | Max | Unit |
|--------|-----------|-----|-----|------|
|--------|-----------|-----|-----|------|

### MC74HC

|                   |                                                                                     |             |                    |    |
|-------------------|-------------------------------------------------------------------------------------|-------------|--------------------|----|
| $V_{CC}$          | DC Supply Voltage                                                                   | 2.0         | 6.0                | V  |
| $V_{IN}, V_{OUT}$ | DC Input Voltage, Output Voltage (Note 4)                                           | 0           | $V_{CC}$           | V  |
| $T_A$             | Operating Free-Air Temperature                                                      | -55         | +125               | °C |
| $t_r, t_f$        | Input Rise or Fall Time<br>$V_{CC} = 2.0$ V<br>$V_{CC} = 4.5$ V<br>$V_{CC} = 6.0$ V | 0<br>0<br>0 | 1000<br>500<br>400 | ns |

### MC74HCT

|                   |                                           |     |          |    |
|-------------------|-------------------------------------------|-----|----------|----|
| $V_{CC}$          | DC Supply Voltage                         | 4.5 | 5.5      | V  |
| $V_{IN}, V_{OUT}$ | DC Input Voltage, Output Voltage (Note 4) | 0   | $V_{CC}$ | V  |
| $T_A$             | Operating Free-Air Temperature            | -55 | +125     | °C |
| $t_r, t_f$        | Input Rise or Fall Time                   | 0   | 500      | ns |

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

4. Unused inputs must always be tied to an appropriate logic voltage level (e.g., either GND or  $V_{CC}$ ). Unused outputs must be left open.

# MC74HC273A, MC74HCT273A

## DC ELECTRICAL CHARACTERISTICS (MC74HC273A)

| Symbol          | Parameter                                      | Test Conditions                                                           | V <sub>CC</sub><br>V     | Guaranteed Limit          |                           |                           | Unit |
|-----------------|------------------------------------------------|---------------------------------------------------------------------------|--------------------------|---------------------------|---------------------------|---------------------------|------|
|                 |                                                |                                                                           |                          | –55 to<br>25°C            | ≤ 85°C                    | ≤ 125°C                   |      |
| V <sub>IH</sub> | Minimum High–Level Input Voltage               | V <sub>out</sub> = V <sub>CC</sub> – 0.1 V<br> I <sub>out</sub>   ≤ 20 μA | 2.0<br>3.0<br>4.5<br>6.0 | 1.5<br>2.1<br>3.15<br>4.2 | 1.5<br>2.1<br>3.15<br>4.2 | 1.5<br>2.1<br>3.15<br>4.2 | V    |
| V <sub>IL</sub> | Maximum Low–Level Input Voltage                | V <sub>out</sub> = 0.1 V<br> I <sub>out</sub>   ≤ 20 μA                   | 2.0<br>3.0<br>4.5<br>6.0 | 0.5<br>0.9<br>1.35<br>1.8 | 0.5<br>0.9<br>1.35<br>1.8 | 0.5<br>0.9<br>1.35<br>1.8 | V    |
| V <sub>OH</sub> | Minimum High–Level Output Voltage              | V <sub>in</sub> = V <sub>IH</sub><br> I <sub>out</sub>   ≤ 20 μA          | 2.0<br>4.5<br>6.0        | 1.9<br>4.4<br>5.9         | 1.9<br>4.4<br>5.9         | 1.9<br>4.4<br>5.9         | V    |
|                 |                                                | V <sub>in</sub> = V <sub>IH</sub>  I <sub>out</sub>   ≤ 2.4 mA            | 3.0                      | 2.48                      | 2.34                      | 2.2                       |      |
|                 |                                                | I <sub>out</sub>   ≤ 6.0 mA                                               | 4.5                      | 3.98                      | 3.84                      | 3.7                       |      |
| V <sub>OL</sub> | Maximum Low–Level Output Voltage               | V <sub>in</sub> = V <sub>IH</sub>  I <sub>out</sub>   ≤ 7.8 mA            | 6.0                      | 5.48                      | 5.34                      | 5.2                       | V    |
|                 |                                                | V <sub>in</sub> = V <sub>IL</sub><br> I <sub>out</sub>   ≤ 20 μA          | 2.0<br>4.5<br>6.0        | 0.1<br>0.1<br>0.1         | 0.1<br>0.1<br>0.1         | 0.1<br>0.1<br>0.1         |      |
|                 |                                                | V <sub>in</sub> = V <sub>IL</sub>  I <sub>out</sub>   ≤ 2.4 mA            | 3.0                      | 0.26                      | 0.33                      | 0.4                       |      |
| I <sub>in</sub> | Maximum Input Leakage Current                  | I <sub>out</sub>   ≤ 6.0 mA                                               | 4.5                      | 0.26                      | 0.33                      | 0.4                       | μA   |
|                 |                                                | I <sub>out</sub>   ≤ 7.8 mA                                               | 6.0                      | 0.26                      | 0.33                      | 0.4                       |      |
|                 |                                                |                                                                           |                          |                           |                           |                           |      |
| I <sub>CC</sub> | Maximum Quiescent Supply Current (per Package) | V <sub>in</sub> = V <sub>CC</sub> or GND<br>I <sub>out</sub> = 0 μA       | 6.0                      | 4.0                       | 40                        | 160                       | μA   |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

## AC ELECTRICAL CHARACTERISTICS (MC74HC273A)

| Symbol                               | Parameter                                                       | V <sub>CC</sub><br>V     | Guaranteed Limit      |                        |                        | Unit |
|--------------------------------------|-----------------------------------------------------------------|--------------------------|-----------------------|------------------------|------------------------|------|
|                                      |                                                                 |                          | –55 to<br>25°C        | ≤ 85°C                 | ≤ 125°C                |      |
| f <sub>max</sub>                     | Maximum Clock Frequency (50% Duty Cycle)<br>(Figures 2 and 3)   | 2.0<br>3.0<br>4.5<br>6.0 | 6.0<br>15<br>30<br>35 | 5.0<br>10<br>24<br>28  | 4.0<br>8.0<br>20<br>24 | MHz  |
| t <sub>PLH</sub><br>t <sub>PHL</sub> | Maximum Propagation Delay, Clock to Q<br>(Figures 2 and 3)      | 2.0<br>3.0<br>4.5<br>6.0 | 145<br>90<br>29<br>25 | 180<br>120<br>36<br>31 | 220<br>140<br>44<br>38 | ns   |
| t <sub>PHL</sub>                     | Maximum Propagation Delay, Reset to Q<br>(Figures 2 and 3)      | 2.0<br>3.0<br>4.5<br>6.0 | 145<br>90<br>29<br>25 | 180<br>120<br>36<br>31 | 220<br>140<br>44<br>38 | ns   |
| t <sub>TLH</sub><br>t <sub>THL</sub> | Maximum Output Transition Time, Any Output<br>(Figures 2 and 3) | 2.0<br>3.0<br>4.5<br>6.0 | 75<br>27<br>15<br>13  | 95<br>32<br>19<br>16   | 110<br>36<br>22<br>19  | ns   |
| C <sub>in</sub>                      | Maximum Input Capacitance                                       |                          | 10                    | 10                     | 10                     | pF   |

| C <sub>PD</sub> | Power Dissipation Capacitance (Per Enabled Output)* | Typical @ 25°C, V <sub>CC</sub> = 5.0 V | pF |
|-----------------|-----------------------------------------------------|-----------------------------------------|----|
|                 |                                                     | 48                                      |    |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

\*Used to determine the no-load dynamic power consumption: P<sub>D</sub> = C<sub>PD</sub> V<sub>CC</sub><sup>2</sup>f + I<sub>CC</sub> V<sub>CC</sub>.

# MC74HC273A, MC74HCT273A

## TIMING REQUIREMENTS (MC74HC273A)

| Symbol                          | Parameter                                      | Figure | V <sub>CC</sub><br>Volts | Guaranteed Limit         |                           |                          |                           |                          |                           | Unit |
|---------------------------------|------------------------------------------------|--------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|---------------------------|------|
|                                 |                                                |        |                          | −55 to 25°C              |                           | ≤ 85°C                   |                           | ≤ 125°C                  |                           |      |
|                                 |                                                |        |                          | Min                      | Max                       | Min                      | Max                       | Min                      | Max                       |      |
| t <sub>su</sub>                 | Minimum Setup Time, Data to Clock              | 5      | 2.0<br>3.0<br>4.5<br>6.0 | 60<br>23<br>12<br>10     |                           | 75<br>27<br>15<br>13     |                           | 90<br>32<br>18<br>15     |                           | ns   |
| t <sub>h</sub>                  | Minimum Hold Time, Clock to Data               | 5      | 2.0<br>3.0<br>4.5<br>6.0 | 3.0<br>3.0<br>3.0<br>3.0 |                           | 3.0<br>3.0<br>3.0<br>3.0 |                           | 3.0<br>3.0<br>3.0<br>3.0 |                           | ns   |
| t <sub>rec</sub>                | Minimum Recovery Time, Reset Inactive to Clock | 4      | 2.0<br>3.0<br>4.5<br>6.0 | 5.0<br>5.0<br>5.0<br>5.0 |                           | 5.0<br>5.0<br>5.0<br>5.0 |                           | 5.0<br>5.0<br>5.0<br>5.0 |                           | ns   |
| t <sub>w</sub>                  | Minimum Pulse Width, Clock                     | 3      | 2.0<br>3.0<br>4.5<br>6.0 | 60<br>23<br>12<br>10     |                           | 75<br>27<br>15<br>13     |                           | 90<br>32<br>18<br>15     |                           | ns   |
| t <sub>w</sub>                  | Minimum Pulse Width, Reset                     | 4      | 2.0<br>3.0<br>4.5<br>6.0 | 60<br>23<br>12<br>10     |                           | 75<br>27<br>15<br>13     |                           | 90<br>32<br>18<br>15     |                           | ns   |
| t <sub>r</sub> , t <sub>f</sub> | Maximum Input Rise and Fall Times              | 3      | 2.0<br>3.0<br>4.5<br>6.0 |                          | 1000<br>800<br>500<br>400 |                          | 1000<br>800<br>500<br>400 |                          | 1000<br>800<br>500<br>400 | ns   |

# MC74HC273A, MC74HCT273A

## DC ELECTRICAL CHARACTERISTICS (MC74HCT273A)

| Symbol          | Parameter                                      | Test Conditions                                                                      | V <sub>CC</sub><br>V | Guaranteed Limit |            |            | Unit |
|-----------------|------------------------------------------------|--------------------------------------------------------------------------------------|----------------------|------------------|------------|------------|------|
|                 |                                                |                                                                                      |                      | -55 to<br>25°C   | ≤ 85°C     | ≤ 125°C    |      |
| V <sub>IH</sub> | Minimum High-Level Input Voltage               | V <sub>out</sub> = 0.1 V or V <sub>CC</sub> - 0.1 V<br> I <sub>out</sub>   ≤ 20 μA   | 4.5<br>5.5           | 2.0<br>2.0       | 2.0<br>2.0 | 2.0<br>2.0 | V    |
| V <sub>IL</sub> | Maximum Low-Level Input Voltage                | V <sub>out</sub> = 0.1 V or V <sub>CC</sub> - 0.1 V<br> I <sub>out</sub>   ≤ 20 μA   | 4.5<br>5.5           | 0.8<br>0.8       | 0.8<br>0.8 | 0.8<br>0.8 | V    |
| V <sub>OH</sub> | Minimum High-Level Output Voltage              | V <sub>in</sub> = V <sub>IH</sub> or V <sub>IL</sub><br> I <sub>out</sub>   ≤ 20 μA  | 4.5<br>5.5           | 4.4<br>5.4       | 4.4<br>5.4 | 4.4<br>5.4 | V    |
|                 |                                                | V <sub>in</sub> = V <sub>IH</sub> or V <sub>IL</sub><br> I <sub>out</sub>   ≤ 4.0 mA | 4.5                  | 3.98             | 3.84       | 3.7        |      |
| V <sub>OL</sub> | Maximum Low-Level Output Voltage               | V <sub>in</sub> = V <sub>IH</sub> or V <sub>IL</sub><br> I <sub>out</sub>   ≤ 20 μA  | 4.5<br>5.5           | 0.1<br>0.1       | 0.1<br>0.1 | 0.1<br>0.1 | V    |
|                 |                                                | V <sub>in</sub> = V <sub>IH</sub> or V <sub>IL</sub><br> I <sub>out</sub>   ≤ 4.0 mA | 4.5                  | 0.26             | 0.33       | 0.4        |      |
| I <sub>in</sub> | Maximum Input Leakage Current                  | V <sub>in</sub> = V <sub>CC</sub> or GND                                             | 5.5                  | ±0.1             | ±1.0       | ±1.0       | μA   |
| I <sub>CC</sub> | Maximum Quiescent Supply Current (per Package) | V <sub>in</sub> = V <sub>CC</sub> or GND<br>I <sub>out</sub> = 0 μA                  | 5.5                  | 4.0              | 40         | 160        | μA   |

|                  |                                     |                                                                                                                             |     |         |               |    |
|------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----|---------|---------------|----|
| ΔI <sub>CC</sub> | Additional Quiescent Supply Current | V <sub>in</sub> = 2.4 V, Any One Input<br>V <sub>in</sub> = V <sub>CC</sub> or GND, Other Inputs<br>I <sub>out</sub> = 0 μA | 5.5 | ≥ -55°C | 25°C to 125°C | mA |
|                  |                                     |                                                                                                                             |     | 2.9     | 2.4           |    |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

# MC74HC273A, MC74HCT273A

## AC ELECTRICAL CHARACTERISTICS (MC74HCT273A)

| Symbol                                 | Parameter                                                       | Guaranteed Limit |        |         | Unit |
|----------------------------------------|-----------------------------------------------------------------|------------------|--------|---------|------|
|                                        |                                                                 | -55 to 25°C      | ≤ 85°C | ≤ 125°C |      |
| f <sub>max</sub>                       | Maximum Clock Frequency (50% Duty Cycle)<br>(Figures 2 and 3)   | 30               | 24     | 20      | MHz  |
| t <sub>PLH</sub> ,<br>t <sub>PHL</sub> | Maximum Propagation Delay, Clock to Q<br>(Figures 2 and 3)      | 25               | 28     | 35      | ns   |
| t <sub>PHL</sub>                       | Maximum Propagation Delay, Reset to Q                           | 25               | 28     | 35      | ns   |
| t <sub>TLH</sub> ,<br>t <sub>THL</sub> | Maximum Output Transition Time, Any Output<br>(Figures 2 and 3) | 18               | 20     | 22      | ns   |

| C <sub>PD</sub> | Power Dissipation Capacitance (Per Gate)* | Typical @ 25°C, V <sub>CC</sub> = 5.0 V | pF |
|-----------------|-------------------------------------------|-----------------------------------------|----|
|                 |                                           | 30                                      |    |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

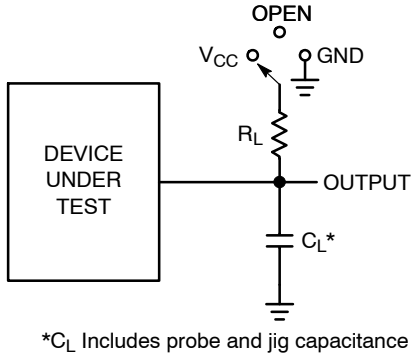
\*Used to determine the no-load dynamic power consumption:  $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$ .

## TIMING REQUIREMENTS (MC74HCT273A)

| Symbol                          | Parameter                                             | Fig. | Guaranteed Limit |     |        |     |         |     | Unit |
|---------------------------------|-------------------------------------------------------|------|------------------|-----|--------|-----|---------|-----|------|
|                                 |                                                       |      | −55 to 25°C      |     | ≤ 85°C |     | ≤ 125°C |     |      |
|                                 |                                                       |      | Min              | Max | Min    | Max | Min     | Max |      |
| t <sub>su</sub>                 | Minimum Setup Time, Data to Clock                     |      | 10               |     | 12     |     | 15      |     | ns   |
| t <sub>h</sub>                  | Minimum Hold Time, Clock to Data                      |      | 3.0              |     | 3.0    |     | 3.0     |     | ns   |
| t <sub>rec</sub>                | Minimum Recovery Time, Set or Reset Inactive to Clock |      | 5.0              |     | 5.0    |     | 5.0     |     | ns   |
| t <sub>w</sub>                  | Minimum Pulse Width, Clock                            | 4    | 12               |     | 15     |     | 18      |     | ns   |
| t <sub>w</sub>                  | Minimum Pulse Width, Set or Reset                     |      | 12               |     | 15     |     | 18      |     | ns   |
| t <sub>r</sub> , t <sub>f</sub> | Maximum Input Rise and Fall Times                     | 3    |                  | 500 |        | 500 |         | 500 | ns   |

# MC74HC273A, MC74HCT273A

## SWITCHING WAVEFORMS



| Test                                | Switch Position | C <sub>L</sub> | R <sub>L</sub> |
|-------------------------------------|-----------------|----------------|----------------|
| t <sub>PLH</sub> / t <sub>PHL</sub> | Open            | 50 pF          | 1 kΩ           |
| t <sub>PLZ</sub> / t <sub>PZL</sub> | V <sub>CC</sub> |                |                |
| t <sub>PHZ</sub> / t <sub>PZH</sub> | GND             |                |                |

Figure 2. Test Circuit

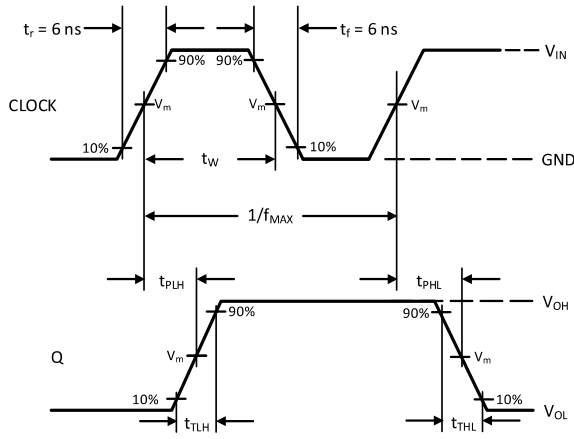


Figure 3.

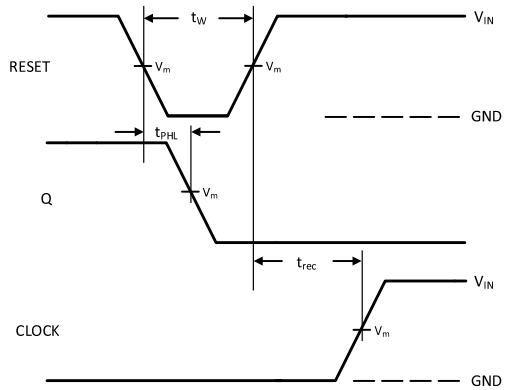


Figure 4.

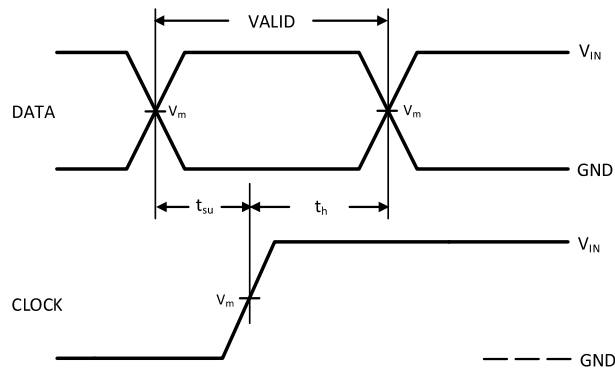


Figure 5.

| Device      | V <sub>IN</sub> , V | V <sub>m</sub> , V    |
|-------------|---------------------|-----------------------|
| MC74HC273A  | V <sub>CC</sub>     | 50% x V <sub>CC</sub> |
| MC74HCT273A | 3 V                 | 1.3 V                 |

## MC74HC273A, MC74HCT273A

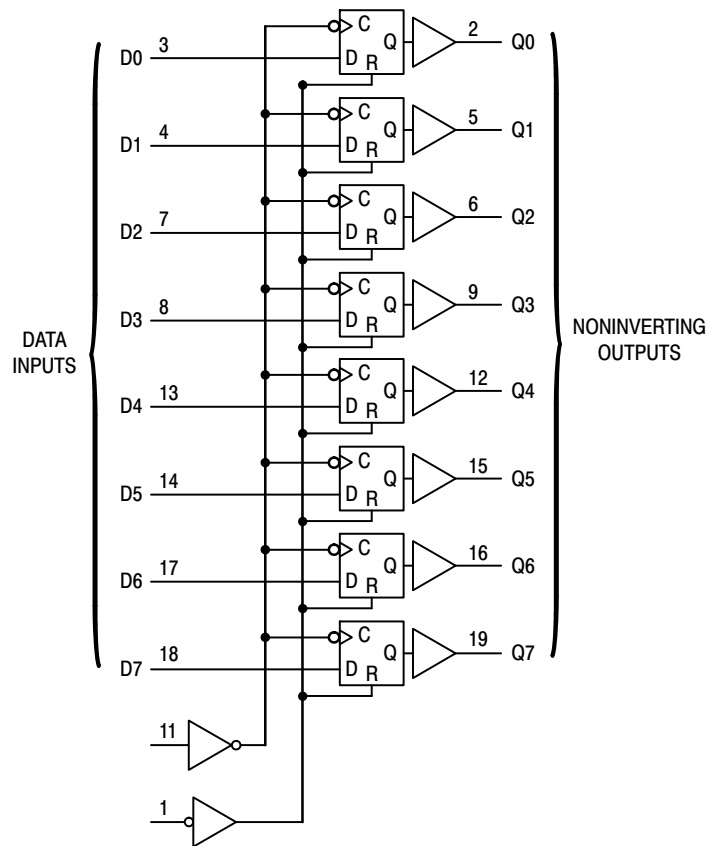


Figure 6. Expanded Logic Diagram

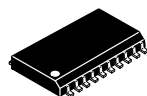
### ORDERING INFORMATION

| Device              | Marking     | Package      | Shipping <sup>†</sup> |
|---------------------|-------------|--------------|-----------------------|
| MC74HC273ADWG       | HC273A      | SOIC-20 Wide | 38 Units / Rail       |
| MC74HC273ADWR2G     | HC273A      | SOIC-20 Wide | 1000 / Tape & Reel    |
| MC74HC273ADWR2G-Q*  | HC273A      | SOIC-20 Wide | 1000 / Tape & Reel    |
| MC74HC273ADTG       | HC<br>273A  | TSSOP-20     | 75 Units / Rail       |
| MC74HC273ADTR2G     | HC<br>273A  | TSSOP-20     | 2500 / Tape & Reel    |
| MC74HC273ADTR2G-Q*  | HC<br>273A  | TSSOP-20     | 2500 / Tape & Reel    |
| MC74HCT273ADWG      | HCT273A     | SOIC-20 Wide | 38 Units / Rail       |
| MC74HCT273ADWR2G    | HCT273A     | SOIC-20 Wide | 1000 / Tape & Reel    |
| MC74HCT273ADWR2G-Q* | HCT273A     | SOIC-20 Wide | 1000 / Tape & Reel    |
| MC74HCT273ADTR2G    | HCT<br>273A | TSSOP-20     | 2500 / Tape & Reel    |

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

\*-Q Suffix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable.

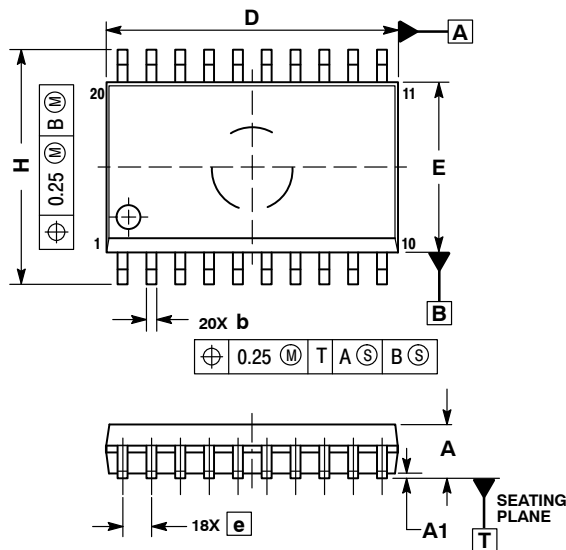




SCALE 1:1

SOIC-20 WB  
CASE 751D-05  
ISSUE H

DATE 22 APR 2015

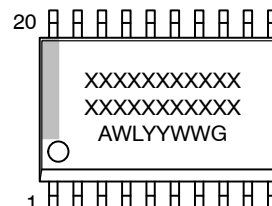


NOTES:

1. DIMENSIONS ARE IN MILLIMETERS.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
5. DIMENSION B DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF B DIMENSION AT MAXIMUM MATERIAL CONDITION.

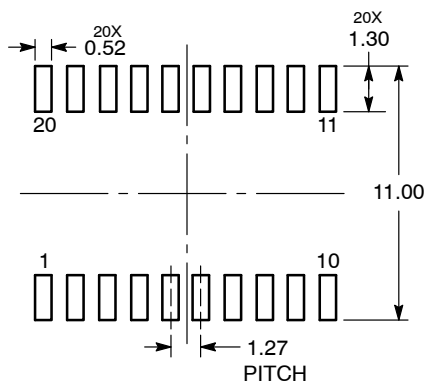
| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 2.35        | 2.65  |
| A1  | 0.10        | 0.25  |
| b   | 0.35        | 0.49  |
| c   | 0.23        | 0.32  |
| D   | 12.65       | 12.95 |
| E   | 7.40        | 7.60  |
| e   | 1.27 BSC    |       |
| H   | 10.05       | 10.55 |
| h   | 0.25        | 0.75  |
| L   | 0.50        | 0.90  |
| θ   | 0°          | 7°    |

GENERIC  
MARKING DIAGRAM\*



XXXXXX = Specific Device Code  
A = Assembly Location  
WL = Wafer Lot  
YY = Year  
WW = Work Week  
G = Pb-Free Package

RECOMMENDED  
SOLDERING FOOTPRINT\*



DIMENSIONS: MILLIMETERS

\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

|                  |             |                                                                                                                                                                                     |
|------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOCUMENT NUMBER: | 98ASB42343B | Electronic versions are uncontrolled except when accessed directly from the Document Repository.<br>Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| DESCRIPTION:     | SOIC-20 WB  | PAGE 1 OF 1                                                                                                                                                                         |

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## ADDITIONAL INFORMATION

### TECHNICAL PUBLICATIONS:

Technical Library: [www.onsemi.com/design/resources/technical-documentation](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

### ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at  
[www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)