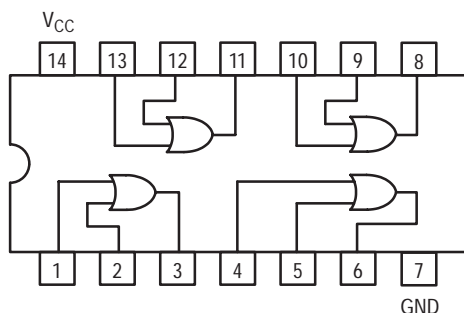


# SN74LS32

## Quad 2-Input OR Gate



**ON Semiconductor**

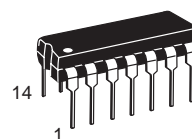
*Formerly a Division of Motorola*

<http://onsemi.com>

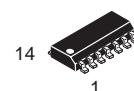
**LOW  
POWER  
SCHOTTKY**

### GUARANTEED OPERATING RANGES

| Symbol   | Parameter                           | Min  | Typ | Max  | Unit |
|----------|-------------------------------------|------|-----|------|------|
| $V_{CC}$ | Supply Voltage                      | 4.75 | 5.0 | 5.25 | V    |
| $T_A$    | Operating Ambient Temperature Range | 0    | 25  | 70   | °C   |
| $I_{OH}$ | Output Current – High               |      |     | –0.4 | mA   |
| $I_{OL}$ | Output Current – Low                |      |     | 8.0  | mA   |



**PLASTIC  
N SUFFIX  
CASE 646**



**SOIC  
D SUFFIX  
CASE 751A**

### ORDERING INFORMATION

| Device    | Package    | Shipping         |
|-----------|------------|------------------|
| SN74LS32N | 14 Pin DIP | 2000 Units/Box   |
| SN74LS32D | 14 Pin     | 2500/Tape & Reel |

# SN74LS32

## DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

| Symbol   | Parameter                                  | Limits |       |      | Unit          | Test Conditions   |
|----------|--|--------|-------|------|---------------|---|
|          |  | Min    | Typ   | Max  |               |   |
| $V_{IH}$ | Input HIGH Voltage                         | 2.0    |       |      | V             | Guaranteed Input HIGH Voltage for All Inputs  |
| $V_{IL}$ | Input LOW Voltage                          |        |       | 0.8  | V             | Guaranteed Input LOW Voltage for All Inputs   |
| $V_{IK}$ | Input Clamp Diode Voltage                  |        | -0.65 | -1.5 | V             | $V_{CC} = \text{MIN}$ , $I_{IN} = -18 \text{ mA}$   |
| $V_{OH}$ | Output HIGH Voltage                        | 2.7    | 3.5   |      | V             | $V_{CC} = \text{MIN}$ , $I_{OH} = \text{MAX}$ , $V_{IN} = V_{IH}$ or $V_{IL}$ per Truth Table |
| $V_{OL}$ | Output LOW Voltage                         |        | 0.25  | 0.4  | V             | $I_{OL} = 4.0 \text{ mA}$   |
|          |  |        | 0.35  | 0.5  | V             | $I_{OL} = 8.0 \text{ mA}$   |
| $I_{IH}$ | Input HIGH Current                         |        |       | 20   | $\mu\text{A}$ | $V_{CC} = \text{MAX}$ , $V_{IN} = 2.7 \text{ V}$  |
|          |  |        |       | 0.1  | mA            | $V_{CC} = \text{MAX}$ , $V_{IN} = 7.0 \text{ V}$  |
| $I_{IL}$ | Input LOW Current                          |        |       | -0.4 | mA            | $V_{CC} = \text{MAX}$ , $V_{IN} = 0.4 \text{ V}$  |
| $I_{OS}$ | Short Circuit Current (Note 1)             | -20    |       | -100 | mA            | $V_{CC} = \text{MAX}$   |
| $I_{CC}$ | Power Supply Current<br>Total, Output HIGH |        |       | 6.2  | mA            | $V_{CC} = \text{MAX}$   |
|          | Total, Output LOW                          |        |       | 9.8  |               |   |

Note 1: Not more than one output should be shorted at a time, nor for more than 1 second.

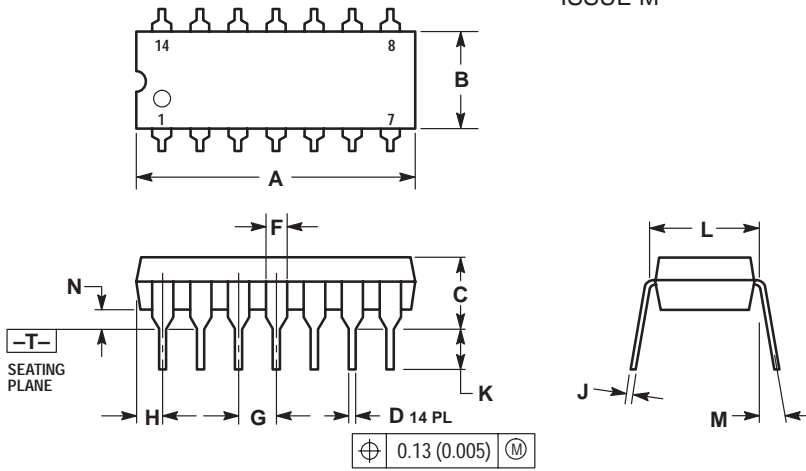
## AC CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

| Symbol    | Parameter                       | Limits |     |     | Unit | Test Conditions                                   |
|-----------|---------------------------------|--------|-----|-----|------|---|
|           |                                 | Min    | Typ | Max |      |   |
| $t_{PLH}$ | Turn-Off Delay, Input to Output |        | 14  | 22  | ns   | $V_{CC} = 5.0 \text{ V}$<br>$C_L = 15 \text{ pF}$ |
| $t_{PHL}$ | Turn-On Delay, Input to Output  |        | 14  | 22  | ns   |   |

# SN74LS32

## PACKAGE DIMENSIONS

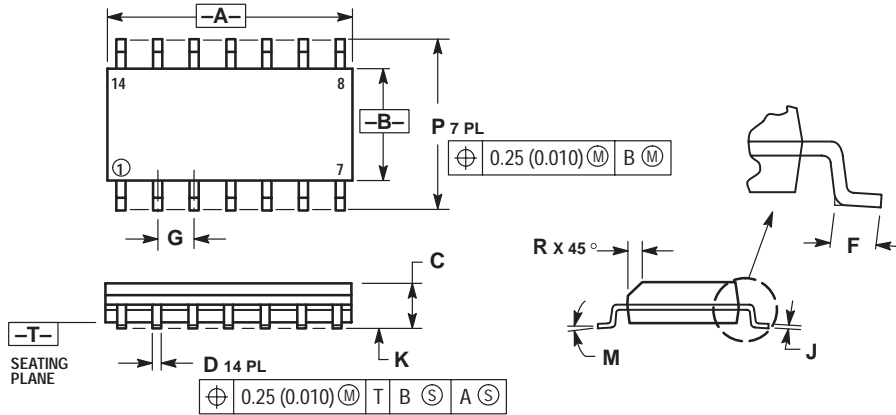
### N SUFFIX PLASTIC PACKAGE CASE 646-06 ISSUE M



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
  4. DIMENSION B DOES NOT INCLUDE MOLD FLASH.
  5. ROUNDED CORNERS OPTIONAL.


| DIM | INCHES    |          | MILLIMETERS |       |
|-----|-----------|----------|-------------|-------|
|     | MIN       | MAX      | MIN         | MAX   |
| A   | 0.715     | 0.770    | 18.16       | 18.80 |
| B   | 0.240     | 0.260    | 6.10        | 6.60  |
| C   | 0.145     | 0.185    | 3.69        | 4.69  |
| D   | 0.015     | 0.021    | 0.38        | 0.53  |
| F   | 0.040     | 0.070    | 1.02        | 1.78  |
| G   | 0.100 BSC | 2.54 BSC |             |       |
| H   | 0.052     | 0.095    | 1.32        | 2.41  |
| J   | 0.008     | 0.015    | 0.20        | 0.38  |
| K   | 0.115     | 0.135    | 2.92        | 3.43  |
| L   | 0.290     | 0.310    | 7.37        | 7.87  |
| M   | —         | 10°      | —           | 10°   |
| N   | 0.015     | 0.039    | 0.38        | 1.01  |

### D SUFFIX PLASTIC SOIC PACKAGE CASE 751A-03 ISSUE F



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETER.
  3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
  4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
  5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

| DIM | MILLIMETERS |           | INCHES |       |
|-----|-------------|-----------|--------|-------|
|     | MIN         | MAX       | MIN    | MAX   |
| A   | 8.55        | 8.75      | 0.337  | 0.344 |
| B   | 3.80        | 4.00      | 0.150  | 0.157 |
| C   | 1.35        | 1.75      | 0.054  | 0.068 |
| D   | 0.35        | 0.49      | 0.014  | 0.019 |
| F   | 0.40        | 1.25      | 0.016  | 0.049 |
| G   | 1.27 BSC    | 0.050 BSC |        |       |
| J   | 0.19        | 0.25      | 0.008  | 0.009 |
| K   | 0.10        | 0.25      | 0.004  | 0.009 |
| M   | 0°          | 7°        | 0°     | 7°    |
| P   | 5.80        | 6.20      | 0.228  | 0.244 |
| R   | 0.25        | 0.50      | 0.010  | 0.019 |

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