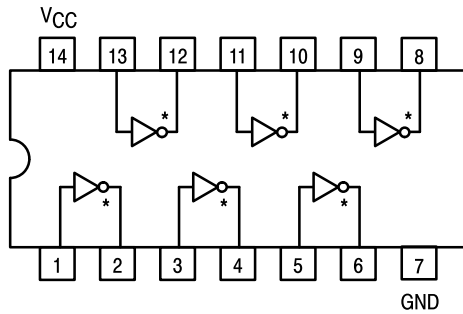




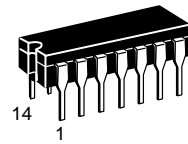
# HEX INVERTER

## SN54/74LS05

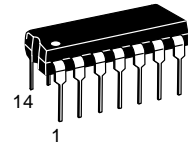
HEX INVERTER  
LOW POWER SCHOTTKY



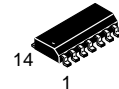
\*OPEN COLLECTOR OUTPUTS



**J SUFFIX**  
CERAMIC  
CASE 632-08



**N SUFFIX**  
PLASTIC  
CASE 646-06



**D SUFFIX**  
SOIC  
CASE 751A-02

### ORDERING INFORMATION

SN54LSXXJ Ceramic  
SN74LSXXN Plastic  
SN74LSXXD SOIC

### GUARANTEED OPERATING RANGES

| Symbol          | Parameter                           |        | Min  | Typ | Max  | Unit |
|-----------------|-------------------------------------|--------|------|-----|------|------|
| V <sub>CC</sub> | Supply Voltage                      | 54     | 4.5  | 5.0 | 5.5  | V    |
|                 |                                     | 74     | 4.75 | 5.0 | 5.25 |      |
| T <sub>A</sub>  | Operating Ambient Temperature Range | 54     | -55  | 25  | 125  | °C   |
|                 |                                     | 74     | 0    | 25  | 70   |      |
| V <sub>OH</sub> | Output Voltage — High               | 54, 74 |      |     | 5.5  | V    |
| I <sub>OL</sub> | Output Current — Low                | 54     |      |     | 4.0  | mA   |
|                 |                                     | 74     |      |     | 8.0  |      |

# SN54/74LS05

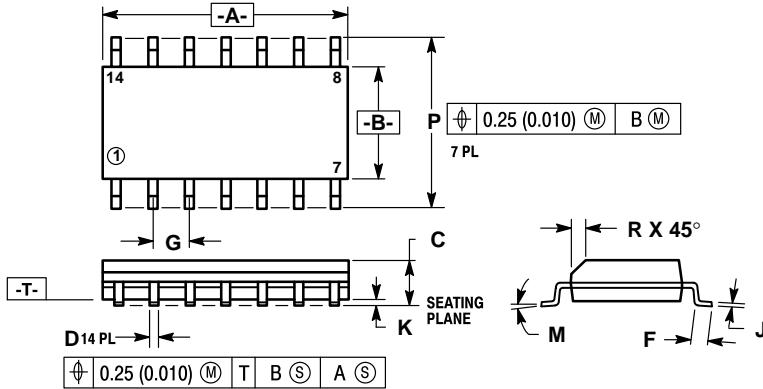
## DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

| 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   | 54     |       | 0.7  | V             | Guaranteed Input LOW Voltage for All Inputs   |
|          |   | 74     |       | 0.8  |               |   |
| $V_{IK}$ | Input Clamp Diode Voltage                                       |        | -0.65 | -1.5 | V             | $V_{CC} = \text{MIN}$ , $I_{IN} = -18 \text{ mA}$   |
| $I_{OH}$ | Output HIGH Current   | 54, 74 |       | 100  | $\mu\text{A}$ | $V_{CC} = \text{MIN}$ , $V_{OH} = \text{MAX}$   |
| $V_{OL}$ | Output LOW Voltage  | 54, 74 | 0.25  | 0.4  | V             | $I_{OL} = 4.0 \text{ mA}$<br>$V_{CC} = V_{CC} \text{ MIN}$ ,<br>$V_{IN} = V_{IL} \text{ or } V_{IH}$<br>per Truth Table |
|          |   | 74     | 0.35  | 0.5  | V             |   |
| $I_{IH}$ | 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            | $V_{CC} = \text{MAX}$ , $V_{IN} = 0.4 \text{ V}$  |
| $I_{CC}$ | Power Supply Current<br>Total, Output HIGH<br>Total, Output LOW |        |       | 2.4  | mA            | $V_{CC} = \text{MAX}$   |
|          |   |        |       | 6.6  |               |   |

## 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 |        | 17  | 32  | ns   | $V_{CC} = 5.0 \text{ V}$<br>$C_L = 15 \text{ pF}$ , $R_L = 2.0 \text{ k}\Omega$ |
| $t_{PHL}$ | Turn-On Delay, Input to Output  |        | 15  | 28  | ns   |   |

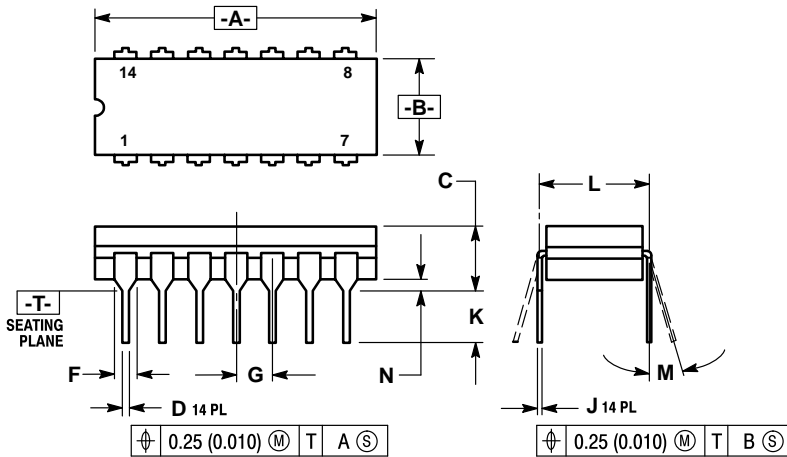
**Case 751A-02 D Suffix  
14-Pin Plastic  
SO-14**



- NOTES:
1. DIMENSIONS "A" AND "B" ARE DATUMS AND "T" IS A DATUM SURFACE.
  2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  3. CONTROLLING DIMENSION: MILLIMETER.
  4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
  5. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
  6. 751A-01 IS OBSOLETE, NEW STANDARD 751A-02.

| 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 | 0.229     | 0.244 |
| R   | 0.25        | 0.50 | 0.010     | 0.019 |

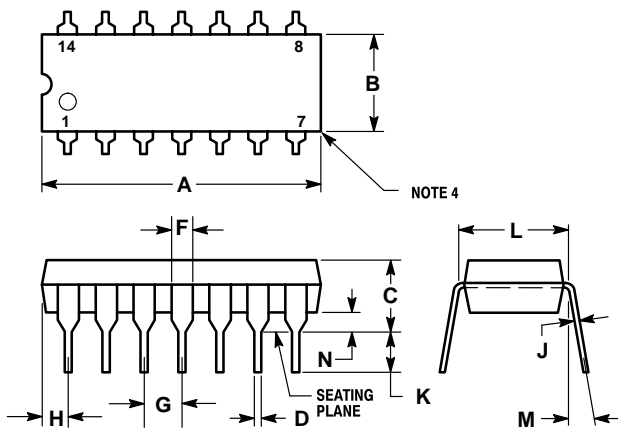
**Case 632-08 J Suffix  
14-Pin Ceramic Dual In-Line**



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
  4. DIM F MAY NARROW TO 0.76 (0.030) WHERE THE LEAD ENTERS THE CERAMIC BODY.
  5. 632-01 THRU -07 OBSOLETE, NEW STANDARD 632-08.

| DIM | MILLIMETERS |       | INCHES    |       |
|-----|-------------|-------|-----------|-------|
|     | MIN         | MAX   | MIN       | MAX   |
| A   | 19.05       | 19.94 | 0.750     | 0.785 |
| B   | 6.23        | 7.11  | 0.245     | 0.280 |
| C   | 3.94        | 5.08  | 0.155     | 0.200 |
| D   | 0.39        | 0.50  | 0.015     | 0.020 |
| F   | 1.40        | 1.65  | 0.055     | 0.065 |
| G   | 2.54 BSC    |       | 0.100 BSC |       |
| J   | 0.21        | 0.38  | 0.008     | 0.015 |
| K   | 3.18        | 4.31  | 0.125     | 0.170 |
| L   | 7.62 BSC    |       | 0.300 BSC |       |
| M   | 0°          | 15°   | 0°        | 15°   |
| N   | 0.51        | 1.01  | 0.020     | 0.040 |

**Case 646-06 N Suffix  
14-Pin Plastic**



- NOTES:
1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
  2. DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.
  3. DIMENSION "B" DOES NOT INCLUDE MOLD FLASH.
  4. ROUNDED CORNERS OPTIONAL.
  5. 646-05 OBSOLETE, NEW STANDARD 646-06.

| DIM | MILLIMETERS |       | INCHES    |       |
|-----|-------------|-------|-----------|-------|
|     | MIN         | MAX   | MIN       | MAX   |
| A   | 18.16       | 19.56 | 0.715     | 0.770 |
| B   | 6.10        | 6.60  | 0.240     | 0.260 |
| C   | 3.69        | 4.69  | 0.145     | 0.185 |
| D   | 0.38        | 0.53  | 0.015     | 0.021 |
| F   | 1.02        | 1.78  | 0.040     | 0.070 |
| G   | 2.54 BSC    |       | 0.100 BSC |       |
| H   | 1.32        | 2.41  | 0.052     | 0.095 |
| J   | 0.20        | 0.38  | 0.008     | 0.015 |
| K   | 2.92        | 3.43  | 0.115     | 0.135 |
| L   | 7.62 BSC    |       | 0.300 BSC |       |
| M   | 0°          | 10°   | 0°        | 10°   |
| N   | 0.39        | 1.01  | 0.015     | 0.039 |

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