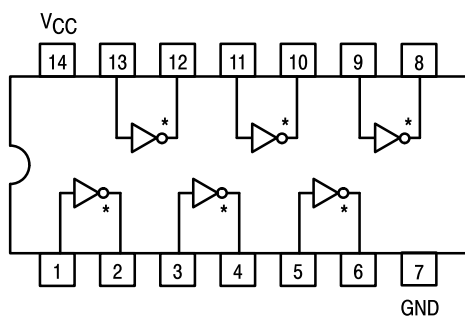




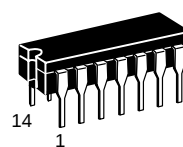
# HEX INVERTER



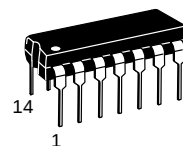
\*OPEN COLLECTOR OUTPUTS

SN54/74LS05

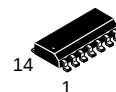
HEX INVERTER  
LOW POWER SCHOTTKY



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

# SN54/74LS05

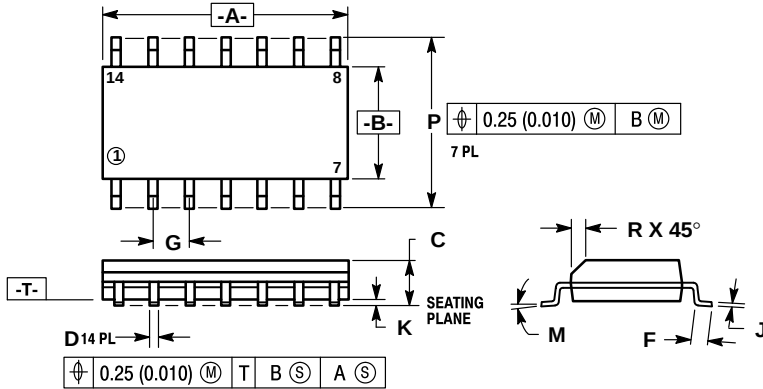
## DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

| 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             | $I_{OL} = 4.0 \text{ mA}$                         |
|          |                                            | 74     |        | 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            | $V_{CC} = \text{MAX}$ , $V_{IN} = 0.4 \text{ V}$  |
| $I_{CC}$ | Power Supply Current<br>Total, Output HIGH |        |        |       | 2.4  | mA            | $V_{CC} = \text{MAX}$                             |
|          | Total, Output LOW                          |        |        |       | 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   |                                                                                 |

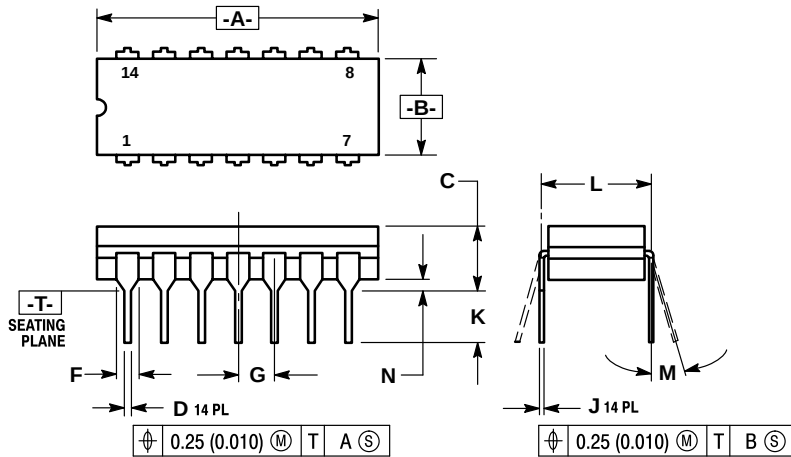
**Case 751A-02 D Suffix**  
**14-Pin Plastic**  
**SO-14**



- NOTES:
- DIMENSIONS "A" AND "B" ARE DATUMS AND "T" IS A DATUM SURFACE.
  - DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  - CONTROLLING DIMENSION: MILLIMETER.
  - DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
  - MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
  - 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 |

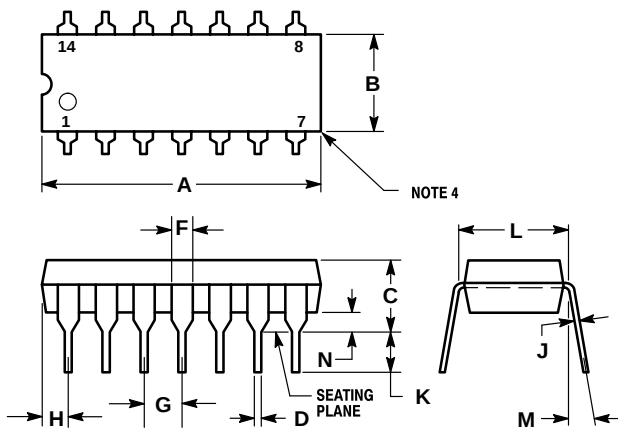
**Case 632-08 J Suffix**  
**14-Pin Ceramic Dual In-Line**



- NOTES:
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  - CONTROLLING DIMENSION: INCH.
  - DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
  - DIM F MAY NARROW TO 0.76 (0.030) WHERE THE LEAD ENTERS THE CERAMIC BODY.
  - 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:
- LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
  - DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.
  - DIMENSION "B" DOES NOT INCLUDE MOLD FLASH.
  - ROUNDED CORNERS OPTIONAL.
  - 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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