# QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS

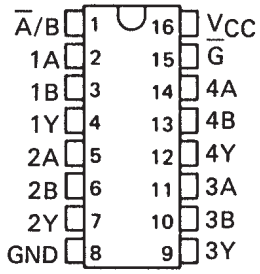
SDLS148 – OCTOBER 1976 – REVISED MARCH 1988

- **Three-State Outputs Interface Directly with System Bus**
- **'LS257B and 'LS258B Offer Three Times the Sink-Current Capability of the Original 'LS257 and 'LS258**
- **Same Pin Assignments as SN54LS157, SN74LS157, SN54S157, SN74S157, and SN54LS158, SN74LS158, SN54S158, SN74S158**
- **Provides Bus Interface from Multiple Sources in High-Performance Systems**

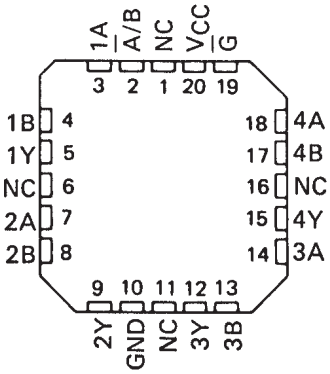
| | AVERAGE PROPAGATION DELAY FROM DATA INPUT | TYPICAL POWER DISSIPATION† |
|---|---|---|
| 'LS257B | 9 ns | 55 mW |
| 'LS258B | 9 ns | 55 mW |
| 'S257 | 4.8 ns | 320 mW |
| 'S258 | 4 ns | 280 mW |

†Off state (worst case)

**SN54LS257B, SN54S257, SN54LS258B, SN54S258 . . . J OR W PACKAGE**
**SN74LS257B, SN74S257, SN74LS258B, SN74S258 . . . D OR N PACKAGE**
**(TOP VIEW)**




**SN54LS257B, SN54S257, SN54LS258B, SN54S258 . . . FK PACKAGE**
**(TOP VIEW)**




NC–No internal connection.

## description

These devices are designed to multiplex signals from four-bit data sources to four-output data lines in bus-organized systems. The 3-state outputs will not load the data lines when the output control pin ($\overline{G}$) is at a high-logic level.

Series 54LS and 54S are characterized for operation over the full military temperature range of −55°C to 125°C; Series 74LS and 74S are characterized for operation from 0°C to 70°C.

**FUNCTION TABLE**

| INPUTS | | | | OUTPUT Y | |
|---|---|---|---|---|---|
| OUTPUT CONTROL | SELECT | A | B | 'LS257B 'S257 | 'LS258B 'S258 |
| H | X | X | X | Z | Z |
| L | L | L | X | L | H |
| L | L | H | X | H | L |
| L | H | X | L | L | H |
| L | H | X | H | H | L |

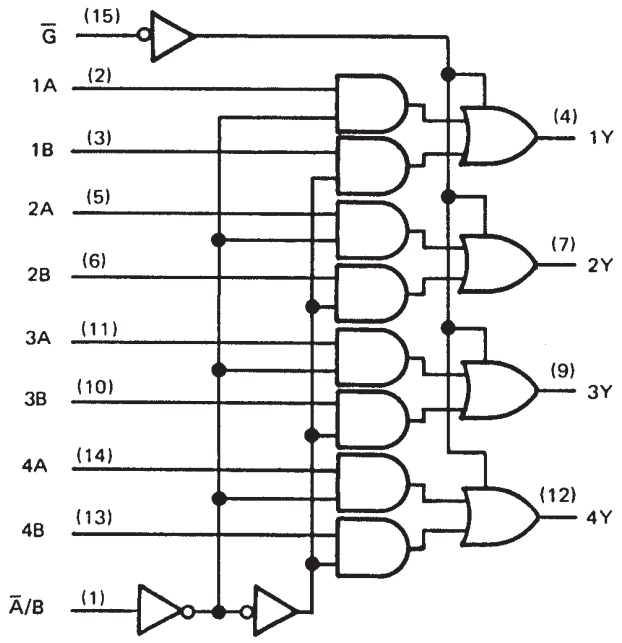
H = high level, L = low level, X = irrelevant,
Z = high impedance (off)

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

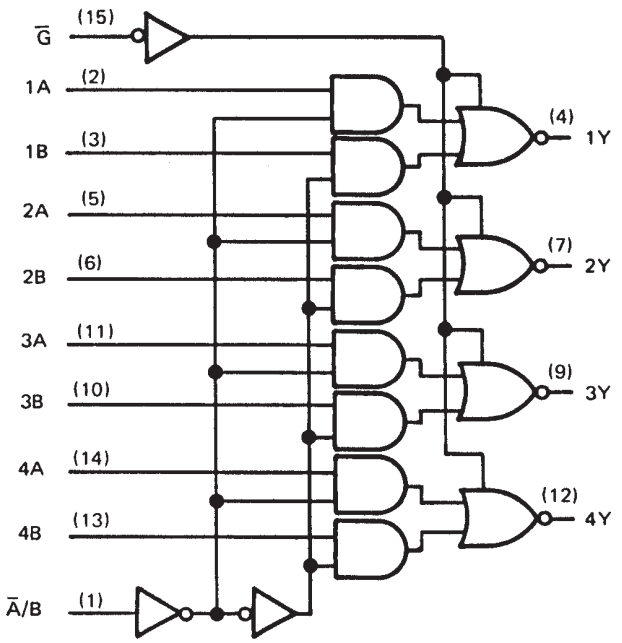
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## logic diagrams (positive logic)

'LS257B, 'S257

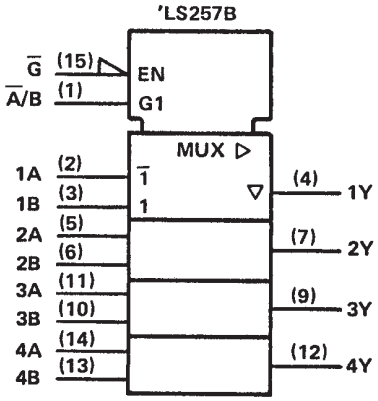



'LS258B, 'S258

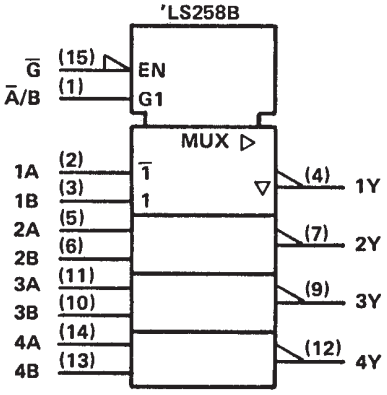



## logic symbols†

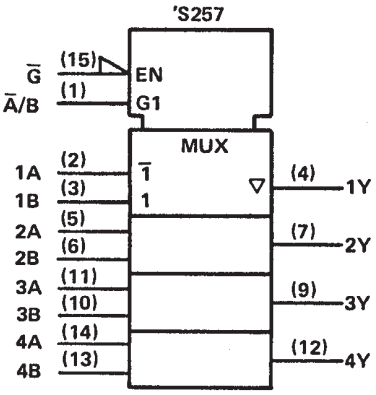
'LS257B



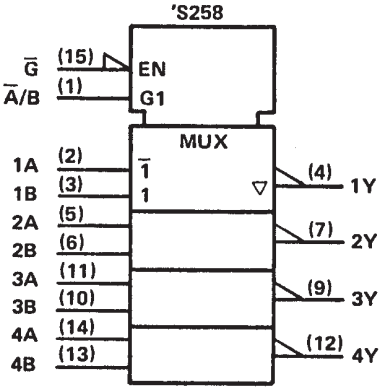

'LS258B




'S257



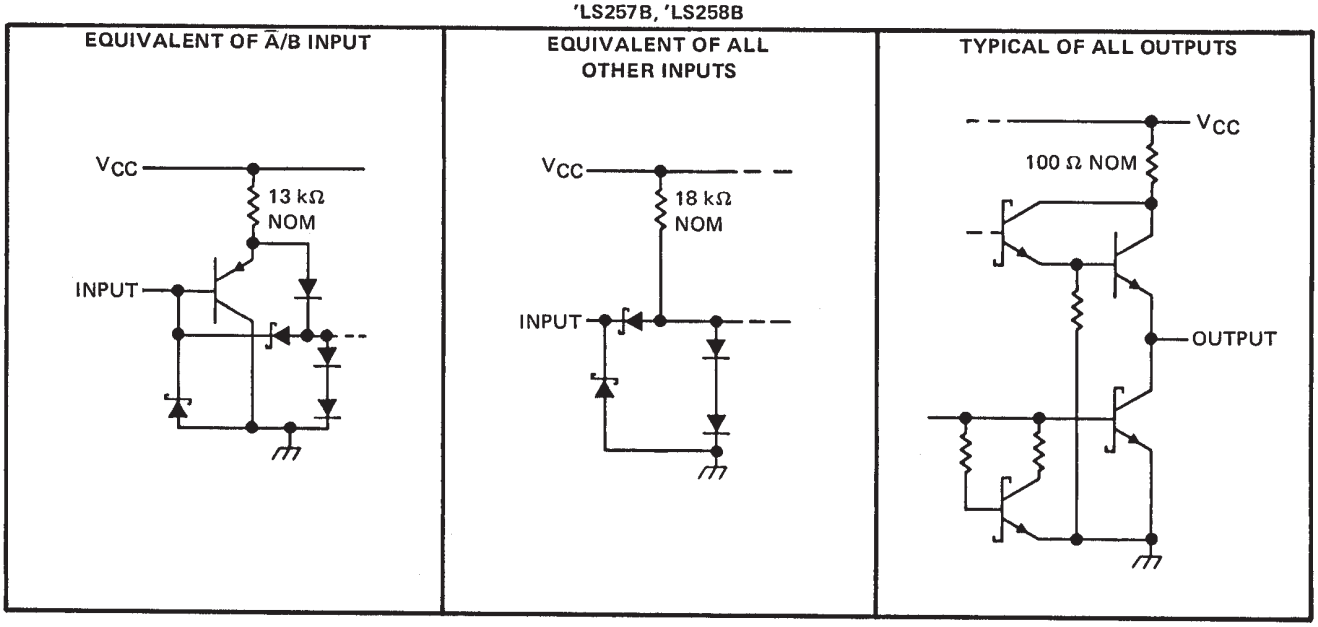

'S258



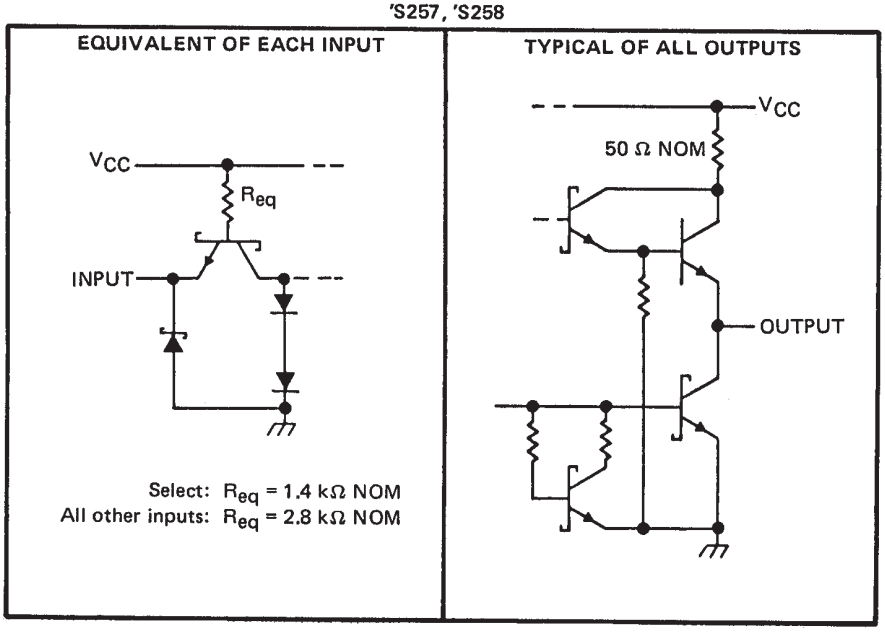

†These symbols are in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.
Pin numbers shown are for D, J, N, and W packages.

## schematics of inputs and outputs

'LS257B, 'LS258B




'S257, 'S258




## absolute maximum ratings over operating free-air temperature range (unless otherwise noted)

Supply voltage, $V_{CC}$ (see Note 1) . . . . . 7 V
Input voltage: 'LS257B, 'LS258B Circuits . . . . . 7 V
'S257, 'S258 Circuits . . . . . 5.5 V
Off-state output voltage . . . . . 5.5 V
Operating free-air temperature range: SN54LS', SN54S' Circuits . . . . . –55°C to 125°C
SN74LS', SN74S' Circuits . . . . . 0°C to 70°C
Storage temperature range . . . . . –65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

## recommended operating conditions

| | | SN54LS' | | | SN74LS' | | | UNIT |
|---|---|---|---|---|---|---|---|---|
| | | MIN | NOM | MAX | MIN | NOM | MAX | |
| $V_{CC}$ | Supply voltage | 4.5 | 5 | 5.5 | 4.75 | 5 | 5.25 | V |
| $V_{IH}$ | High-level input voltage | 2 | | | 2 | | | V |
| $V_{IL}$ | Low-level input voltage | | | 0.7 | | | 0.8 | V |
| $I_{OH}$ | High-level output current | | | – 1 | | | – 2.6 | mA |
| $I_{OL}$ | Low-level output current | | | 12 | | | 24 | mA |
| $T_A$ | Operating free-air temperature | – 55 | | 125 | 0 | | 70 | °C |

## electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

| PARAMETER | | TEST CONDITIONS† | | | SN54LS' | | | SN74LS' | | | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MIN | TYP‡ | MAX | MIN | TYP‡ | MAX | |
| $V_{IK}$ | | $V_{CC}$ = MIN, $I_I$ = – 18 mA | | | | | – 1.5 | | | – 1.5 | V |
| $V_{OH}$ | | $V_{CC}$ = MIN, $V_{IH}$ = 2 V, $V_{IL}$ = MAX, $I_{OH}$ = MAX | | | 2.4 | 3.4 | | 2.4 | 3.1 | | V |
| $V_{OL}$ | | $V_{CC}$ = MIN, $V_{IH}$ = 2 V, $V_{IL}$ = MAX, | $I_{OL}$ = 12 mA | | | 0.25 | 0.4 | | 0.25 | 0.4 | V |
| | | | $I_{OL}$ = 24 mA | | | | | | 0.35 | 0.5 | |
| $I_{OZH}$ | | $V_{CC}$ = MAX, $V_{IH}$ = 2 V, $V_O$ = 2.7 V | | | | | 20 | | | 20 | μA |
| $I_{OZL}$ | | $V_{CC}$ - MAX, $V_{IH}$ = 2 V, $V_O$ = 0.4 V | | | | | – 20 | | | – 20 | μA |
| $I_I$ | | $V_{CC}$ = MAX, $V_I$ = 7 V | | | | | 0.1 | | | 0.1 | mA |
| $I_{IH}$ | | $V_{CC}$ = MAX, $V_I$ = 2.7 V | | | | | 20 | | | 20 | μA |
| $I_{IL}$ | | $V_{CC}$ = MAX, $V_I$ = 0.4 V | | | | | – 0.4 | | | – 0.4 | mA |
| $I_{OS}$§ | | $V_{CC}$ = MAX, | | | – 30 | | – 130 | – 30 | | – 130 | mA |
| $I_{CC}$ | All outputs high | $V_{CC}$ = MAX, See Note 2 | | 'LS257B | | 8 | 12 | | 8 | 12 | mA |
| | All outputs low | | | | | 12 | 18 | | 12 | 18 | |
| | All outputs off | | | | | 13 | 19 | | 13 | 19 | |
| | All outputs high | | | 'LS258B | | 6 | 9 | | 6 | 9 | |
| | All outputs low | | | | | 10 | 15 | | 10 | 15 | |
| | All outputs off | | | | | 11 | 16 | | 11 | 16 | |

†For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡All typical values are at $V_{CC}$ = 5 V, $T_A$ = 25°C.
§Not more than one output should be shorted at a time and duration of the short-circuit should not exceed one second.
NOTE 2: $I_{CC}$ is measured with all outputs open and all possible inputs grounded while achieving the stated output conditions.

## switching characteristics, $V_{CC}$ = 5 V, $T_A$ = 25°C, $R_L$ = 667 Ω

| PARAMETER¶ | FROM (INPUT) | TO (OUTPUT) | TEST CONDITIONS | 'LS257B | | | 'LS258B | | | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | MIN | TYP | MAX | MIN | TYP | MAX | |
| $t_{PLH}$ | Data | Any | $C_L$ = 45 pF, See Note 3 | | 8 | 13 | | 7 | 12 | ns |
| $t_{PHL}$ | | | | | 10 | 15 | | 11 | 17 | |
| $t_{PLH}$ | Select | Any | | | 16 | 21 | | 14 | 21 | ns |
| $t_{PHL}$ | | | | | 17 | 24 | | 19 | 24 | |
| $t_{PZH}$ | Output Control | Any | | | 15 | 30 | | 15 | 30 | ns |
| $t_{PZL}$ | | | | | 19 | 30 | | 20 | 30 | |
| $t_{PHZ}$ | Output Control | Any | $C_L$ = 5 pF, See Note 3 | | 18 | 30 | | 18 | 30 | ns |
| $t_{PLZ}$ | | | | | 16 | 25 | | 16 | 25 | |

¶$t_{PLH}$ = propagation delay time, low-to-high-level output
$t_{PHL}$ = propagation delay time, high-to-low-level output
$t_{PZH}$ = output enable time to high level
$t_{PZL}$ = output enable time to low level
$t_{PHZ}$ = output disable time from high level
$t_{PLZ}$ = output disable time from low level
NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

## recommended operating conditions

| | SN54S' | | | SN74S' | | | UNIT |
|---|---|---|---|---|---|---|---|
| | MIN | NOM | MAX | MIN | NOM | MAX | |
| Supply voltage, $V_{CC}$ | 4.5 | 5 | 5.5 | 4.75 | 5 | 5.25 | V |
| High-level output current, $I_{OH}$ | | | −2 | | | −6.5 | mA |
| Low-level output current, $I_{OL}$ | | | 20 | | | 20 | mA |
| Operating free-air temperature, $T_A$ | −55 | | 125 | 0 | | 70 | °C |

## electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

| PARAMETER | | | TEST CONDITIONS† | | 'S257 | | | 'S258 | | | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MIN | TYP‡ | MAX | MIN | TYP‡ | MAX | |
| $V_{IH}$ | High-level input voltage | | | | 2 | | | 2 | | | V |
| $V_{IL}$ | Low-level input voltage | | | | | | 0.8 | | | 0.8 | V |
| $V_{IK}$ | Input clamp voltage | | $V_{CC}$ = MIN, $I_I$ = −18 mA | | | | −1.2 | | | −1.2 | V |
| $V_{OH}$ | High-level output voltage | | $V_{CC}$ = MIN, $V_{IH}$ = 2 V, $V_{IL}$ = 0.8 V, $I_{OH}$ = −1 mA | SN74S' | 2.7 | | | 2.7 | | | V |
| | | | $V_{CC}$ = MIN, $V_{IH}$ = 2 V, $V_{IL}$ = 0.8 V, $I_{OH}$ = MAX | SN54S' | 2.4 | 3.4 | | 2.4 | 3.4 | | |
| | | | | SN74S' | 2.4 | 3.2 | | 2.4 | 3.2 | | |
| $V_{OL}$ | Low-level output voltage | | $V_{CC}$ = MIN, $V_{IH}$ = 2 V, $V_{IL}$ = 0.8 V, $I_{OL}$ = 20 mA | | | | 0.5 | | | 0.5 | V |
| $I_{OZH}$ | Off-state output current, high-level voltage applied | | $V_{CC}$ = MAX, $V_{IH}$ = 2 V, $V_O$ = 2.4 V | | | | 50 | | | 50 | μA |
| $I_{OZL}$ | Off-state output current, low-level voltage applied | | $V_{CC}$ = MAX, $V_{IH}$ = 2 V, $V_O$ = 0.5 V | | | | −50 | | | −50 | μA |
| $I_I$ | Input current at maximum input voltage | | $V_{CC}$ = MAX, $V_I$ = 5.5 V | | | | 1 | | | 1 | mA |
| $I_{IH}$ | High-level input current | S input | $V_{CC}$ = MAX, $V_I$ = 2.7 V | | | | 100 | | | 100 | μA |
| | | Any other | | | | | 50 | | | 50 | |
| $I_{IL}$ | Low-level input current | S input | $V_{CC}$ = MAX $V_I$ = 0.5 V | | | | −4 | | | −4 | mA |
| | | Any other | | | | | −2 | | | −2 | |
| $I_{OS}$ | Short-circuit output current§ | | $V_{CC}$ = MAX | | −40 | | −100 | −40 | | −100 | mA |
| $I_{CC}$ | Supply current | All outputs high | $V_{CC}$ = MAX, See Note 2 | | | 44 | 68 | | 36 | 56 | mA |
| | | All outputs low | | | | 60 | 93 | | 52 | 81 | |
| | | All outputs off | | | | 64 | 99 | | 56 | 87 | |

†For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.
‡All typical values are at $V_{CC}$ = 5 V, $T_A$ = 25°C.
§Not more than one output should be shorted at a time and duration of the short-circuit should not exceed one second.
NOTE 2: $I_{CC}$ is measured with all outputs open and all possible inputs grounded while achieving the stated output conditions.

## switching characteristics, $V_{CC}$ = 5 V, $T_A$ = 25°C, $R_L$ = 280 Ω

| PARAMETER¶ | FROM (INPUT) | TO (OUTPUT) | TEST CONDITIONS | 'S257 | | | 'S258 | | | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | MIN | TYP | MAX | MIN | TYP | MAX | |
| $t_{PLH}$ | Data | Any | $C_L$ = 15 pF, See Note 3 | | 5 | 7.5 | | 4 | 6 | ns |
| $t_{PHL}$ | | | | | 4.5 | 6.5 | | 4 | 6 | |
| $t_{PLH}$ | Select | Any | | | 8.5 | 15 | | 8 | 12 | ns |
| $t_{PHL}$ | | | | | 8.5 | 15 | | 7.5 | 12 | |
| $t_{PZH}$ | Output Control | Any | | | 13 | 19.5 | | 13 | 19.5 | ns |
| $t_{PZL}$ | | | | | 14 | 21 | | 14 | 21 | |
| $t_{PHZ}$ | Output Control | Any | $C_L$ = 5 pF, See Note 3 | | 5.5 | 8.5 | | 5.5 | 8.5 | ns |
| $t_{PLZ}$ | | | | | 9 | 14 | | 9 | 14 | |

¶$f_{max}$ = Maximum clock frequency
$t_{PLH}$ = propagation delay time, low-to-high-level output
$t_{PHL}$ = propagation delay time, high-to-low-level output
$t_{PZH}$ = output enable time to high level
$t_{PZL}$ ≡ output enable time to low level
$t_{PHZ}$ ≡ output disable time from high level
$t_{PLZ}$ ≡ output disable time from low level
NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

## PACKAGING INFORMATION

| Orderable part number | Status (1) | Material type (2) | Package \| Pins | Package qty \| Carrier | RoHS (3) | Lead finish/ Ball material (4) | MSL rating/ Peak reflow (5) | Op temp (°C) | Part marking (6) |
|---|---|---|---|---|---|---|---|---|---|
| 7603701EA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701EA SNJ54LS257BJ |
| 7603701FA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701FA SNJ54LS257BW |
| 7603701FA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701FA SNJ54LS257BW |
| 7603801EA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603801EA SNJ54LS258BJ |
| 7603801EA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603801EA SNJ54LS258BJ |
| 8002301EA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301EA SNJ54S258J |
| 8002301EA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301EA SNJ54S258J |
| 8002301FA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301FA SNJ54S258W |
| 8002301FA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301FA SNJ54S258W |
| JM38510/07906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BEA |
| JM38510/07906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BEA |
| JM38510/07906BEA.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BEA |
| JM38510/07906BEA.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BEA |
| JM38510/07906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BFA |
| JM38510/07906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BFA |
| JM38510/07906BFA.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BFA |

| Orderable part number | Status (1) | Material type (2) | Package \| Pins | Package qty \| Carrier | RoHS (3) | Lead finish/ Ball material (4) | MSL rating/ Peak reflow (5) | Op temp (°C) | Part marking (6) |
|---|---|---|---|---|---|---|---|---|---|
| JM38510/07906BFA.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BFA |
| JM38510/30906B2A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906B2A |
| JM38510/30906B2A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906B2A |
| JM38510/30906B2A.A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906B2A |
| JM38510/30906B2A.A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906B2A |
| JM38510/30906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BEA |
| JM38510/30906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BEA |
| JM38510/30906BEA.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BEA |
| JM38510/30906BEA.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BEA |
| JM38510/30906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BFA |
| JM38510/30906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BFA |
| JM38510/30906BFA.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BFA |
| JM38510/30906BFA.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BFA |
| M38510/07906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BEA |
| M38510/07906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BEA |
| M38510/07906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BFA |
| M38510/07906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 07906BFA |

| Orderable part number | Status (1) | Material type (2) | Package \| Pins | Package qty \| Carrier | RoHS (3) | Lead finish/ Ball material (4) | MSL rating/ Peak reflow (5) | Op temp (°C) | Part marking (6) |
|---|---|---|---|---|---|---|---|---|---|
| M38510/30906B2A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906B2A |
| M38510/30906B2A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906B2A |
| M38510/30906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BEA |
| M38510/30906BEA | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BEA |
| M38510/30906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BFA |
| M38510/30906BFA | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | JM38510/ 30906BFA |
| SN54LS257BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS257BJ |
| SN54LS257BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS257BJ |
| SN54LS257BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS257BJ |
| SN54LS257BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS257BJ |
| SN54LS258BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS258BJ |
| SN54LS258BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS258BJ |
| SN54LS258BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS258BJ |
| SN54LS258BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54LS258BJ |
| SN54S257J | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54S257J |
| SN54S257J | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54S257J |
| SN54S257J.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54S257J |
| SN54S257J.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SN54S257J |
| SN74LS257BD | Obsolete | Production | SOIC (D) \| 16 | - | - | Call TI | Call TI | 0 to 70 | LS257B |
| SN74LS257BD | Obsolete | Production | SOIC (D) \| 16 | - | - | Call TI | Call TI | 0 to 70 | LS257B |
| SN74LS257BDR | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS257B |
| SN74LS257BDR | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS257B |
| SN74LS257BDR.A | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS257B |
| SN74LS257BDR.A | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS257B |
| SN74LS257BN | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS257BN |
| SN74LS257BN | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS257BN |

| Orderable part number | Status (1) | Material type (2) | Package \| Pins | Package qty \| Carrier | RoHS (3) | Lead finish/ Ball material (4) | MSL rating/ Peak reflow (5) | Op temp (°C) | Part marking (6) |
|---|---|---|---|---|---|---|---|---|---|
| SN74LS257BN.A | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS257BN |
| SN74LS257BN.A | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS257BN |
| SN74LS257BNSR | Active | Production | SOP (NS) \| 16 | 2000 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | 74LS257B |
| SN74LS257BNSR | Active | Production | SOP (NS) \| 16 | 2000 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | 74LS257B |
| SN74LS257BNSR.A | Active | Production | SOP (NS) \| 16 | 2000 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | 74LS257B |
| SN74LS257BNSR.A | Active | Production | SOP (NS) \| 16 | 2000 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | 74LS257B |
| SN74LS258BD | Obsolete | Production | SOIC (D) \| 16 | - | - | Call TI | Call TI | 0 to 70 | LS258B |
| SN74LS258BD | Obsolete | Production | SOIC (D) \| 16 | - | - | Call TI | Call TI | 0 to 70 | LS258B |
| SN74LS258BDR | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS258B |
| SN74LS258BDR | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS258B |
| SN74LS258BDR.A | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS258B |
| SN74LS258BDR.A | Active | Production | SOIC (D) \| 16 | 2500 \| LARGE T&R | Yes | NIPDAU | Level-1-260C-UNLIM | 0 to 70 | LS258B |
| SN74LS258BN | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS258BN |
| SN74LS258BN | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS258BN |
| SN74LS258BN.A | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS258BN |
| SN74LS258BN.A | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74LS258BN |
| SN74S257N | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74S257N |
| SN74S257N | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74S257N |
| SN74S257N.A | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74S257N |
| SN74S257N.A | Active | Production | PDIP (N) \| 16 | 25 \| TUBE | Yes | NIPDAU | N/A for Pkg Type | 0 to 70 | SN74S257N |
| SNJ54LS257BFK | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54LS 257BFK |
| SNJ54LS257BFK | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54LS 257BFK |
| SNJ54LS257BFK.A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54LS 257BFK |
| SNJ54LS257BFK.A | Active | Production | LCCC (FK) \| 20 | 55 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54LS 257BFK |
| SNJ54LS257BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701EA SNJ54LS257BJ |
| SNJ54LS257BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701EA SNJ54LS257BJ |

| Orderable part number | Status (1) | Material type (2) | Package \| Pins | Package qty \| Carrier | RoHS (3) | Lead finish/ Ball material (4) | MSL rating/ Peak reflow (5) | Op temp (°C) | Part marking (6) |
|---|---|---|---|---|---|---|---|---|---|
| SNJ54LS257BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701EA SNJ54LS257BJ |
| SNJ54LS257BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701EA SNJ54LS257BJ |
| SNJ54LS257BW | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701FA SNJ54LS257BW |
| SNJ54LS257BW | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701FA SNJ54LS257BW |
| SNJ54LS257BW.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701FA SNJ54LS257BW |
| SNJ54LS257BW.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603701FA SNJ54LS257BW |
| SNJ54LS258BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603801EA SNJ54LS258BJ |
| SNJ54LS258BJ | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603801EA SNJ54LS258BJ |
| SNJ54LS258BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603801EA SNJ54LS258BJ |
| SNJ54LS258BJ.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 7603801EA SNJ54LS258BJ |
| SNJ54S257J | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257J |
| SNJ54S257J | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257J |
| SNJ54S257J.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257J |
| SNJ54S257J.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257J |
| SNJ54S257W | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257W |
| SNJ54S257W | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257W |
| SNJ54S257W.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257W |
| SNJ54S257W.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | SNJ54S257W |
| SNJ54S258J | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301EA SNJ54S258J |
| SNJ54S258J | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301EA SNJ54S258J |
| SNJ54S258J.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301EA SNJ54S258J |

| Orderable part number | Status (1) | Material type (2) | Package \| Pins | Package qty \| Carrier | RoHS (3) | Lead finish/ Ball material (4) | MSL rating/ Peak reflow (5) | Op temp (°C) | Part marking (6) |
|---|---|---|---|---|---|---|---|---|---|
| SNJ54S258J.A | Active | Production | CDIP (J) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301EA SNJ54S258J |
| SNJ54S258W | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301FA SNJ54S258W |
| SNJ54S258W | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301FA SNJ54S258W |
| SNJ54S258W.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301FA SNJ54S258W |
| SNJ54S258W.A | Active | Production | CFP (W) \| 16 | 25 \| TUBE | No | SNPB | N/A for Pkg Type | -55 to 125 | 8002301FA SNJ54S258W |

(1) **Status:** For more details on status, see our product life cycle.

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

**Important Information and Disclaimer:**The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

**OTHER QUALIFIED VERSIONS OF SN54LS257B, SN54LS258B, SN54S257, SN74LS257B, SN74LS258B, SN74S257 :**

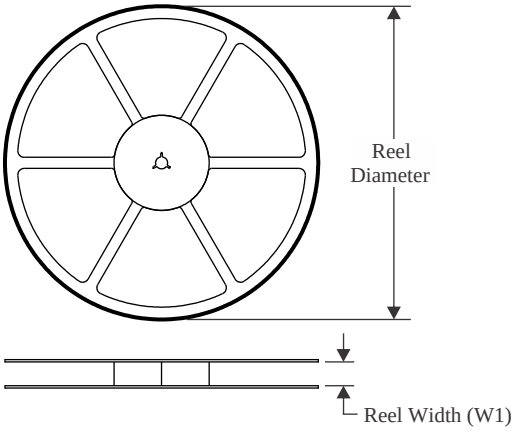
- Catalog : SN74LS257B, SN74LS258B, SN74S257
- Military : SN54LS257B, SN54LS258B, SN54S257

NOTE: Qualified Version Definitions:

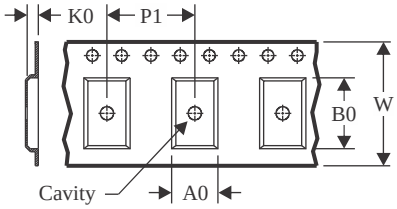
- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

## TAPE AND REEL INFORMATION

**REEL DIMENSIONS**

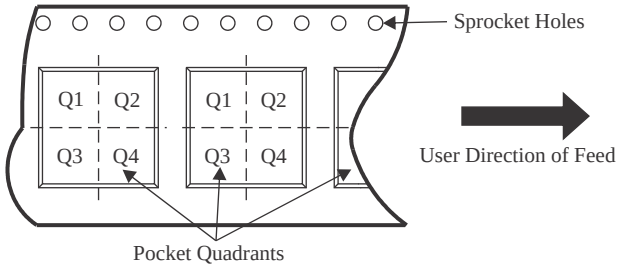



**TAPE DIMENSIONS**




| | |
|---|---|
| A0 | Dimension designed to accommodate the component width |
| B0 | Dimension designed to accommodate the component length |
| K0 | Dimension designed to accommodate the component thickness |
| W | Overall width of the carrier tape |
| P1 | Pitch between successive cavity centers |

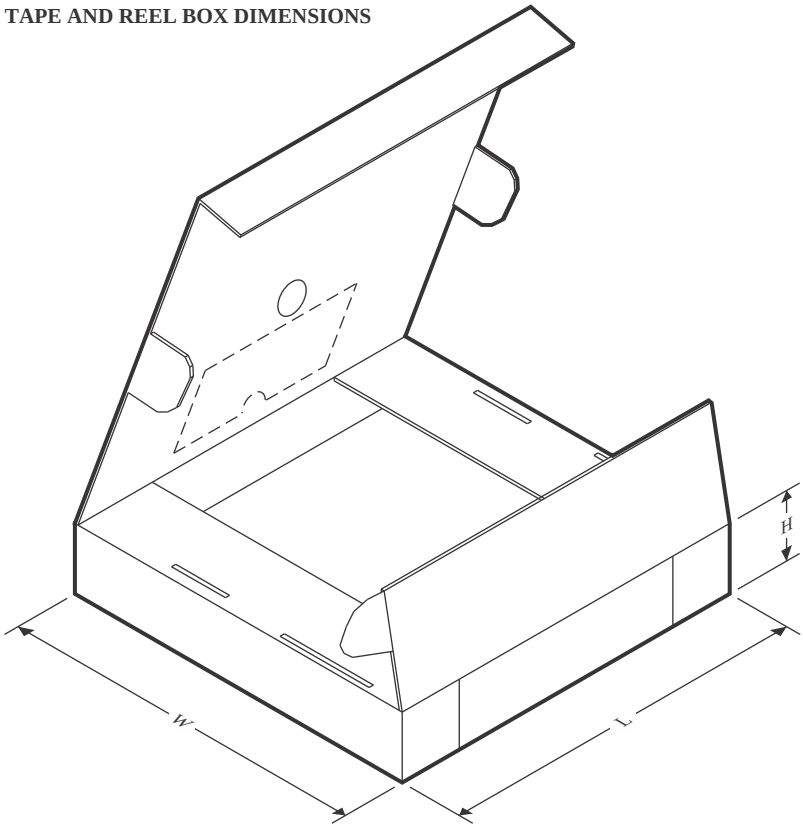
**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**




*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SN74LS257BDR | SOIC | D | 16 | 2500 | 330.0 | 16.4 | 6.5 | 10.3 | 2.1 | 8.0 | 16.0 | Q1 |
| SN74LS257BNSR | SOP | NS | 16 | 2000 | 330.0 | 16.4 | 8.1 | 10.4 | 2.5 | 12.0 | 16.0 | Q1 |
| SN74LS258BDR | SOIC | D | 16 | 2500 | 330.0 | 16.4 | 6.5 | 10.3 | 2.1 | 8.0 | 16.0 | Q1 |

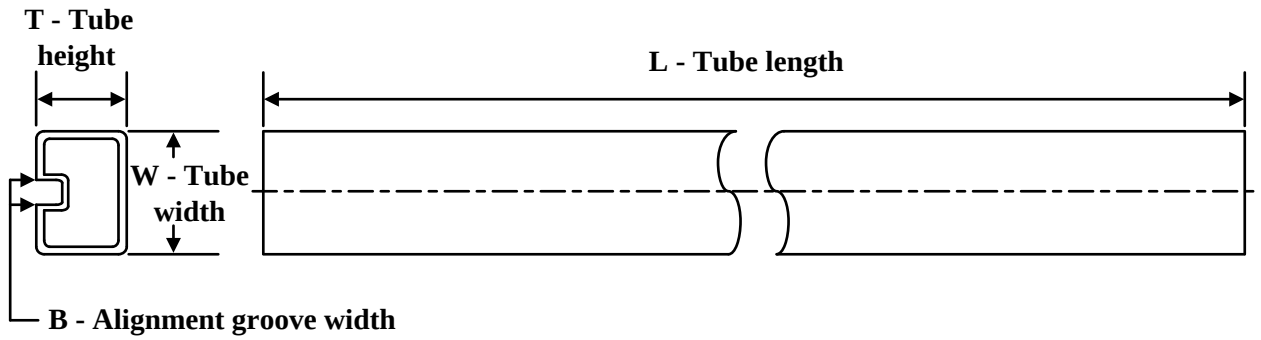
TAPE AND REEL BOX DIMENSIONS




*All dimensions are nominal

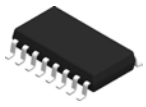
| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|---|---|---|---|---|---|---|---|
| SN74LS257BDR | SOIC | D | 16 | 2500 | 340.5 | 336.1 | 32.0 |
| SN74LS257BNSR | SOP | NS | 16 | 2000 | 353.0 | 353.0 | 32.0 |
| SN74LS258BDR | SOIC | D | 16 | 2500 | 353.0 | 353.0 | 32.0 |

## TUBE




*All dimensions are nominal

| Device | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (µm) | B (mm) |
|---|---|---|---|---|---|---|---|---|
| 7603701FA | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| JM38510/07906BFA | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| JM38510/07906BFA.A | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| JM38510/30906B2A | FK | LCCC | 20 | 55 | 506.98 | 12.06 | 2030 | NA |
| JM38510/30906B2A.A | FK | LCCC | 20 | 55 | 506.98 | 12.06 | 2030 | NA |
| JM38510/30906BFA | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| JM38510/30906BFA.A | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| M38510/07906BFA | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| M38510/30906B2A | FK | LCCC | 20 | 55 | 506.98 | 12.06 | 2030 | NA |
| M38510/30906BFA | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| SN74LS257BN | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74LS257BN | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74LS257BN.A | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74LS257BN.A | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74LS258BN | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74LS258BN | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74LS258BN.A | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74LS258BN.A | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74S257N | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74S257N | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74S257N.A | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SN74S257N.A | N | PDIP | 16 | 25 | 506 | 13.97 | 11230 | 4.32 |
| SNJ54LS257BFK | FK | LCCC | 20 | 55 | 506.98 | 12.06 | 2030 | NA |
| SNJ54LS257BFK.A | FK | LCCC | 20 | 55 | 506.98 | 12.06 | 2030 | NA |
| SNJ54LS257BW | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |
| SNJ54LS257BW.A | W | CFP | 16 | 25 | 506.98 | 26.16 | 6220 | NA |

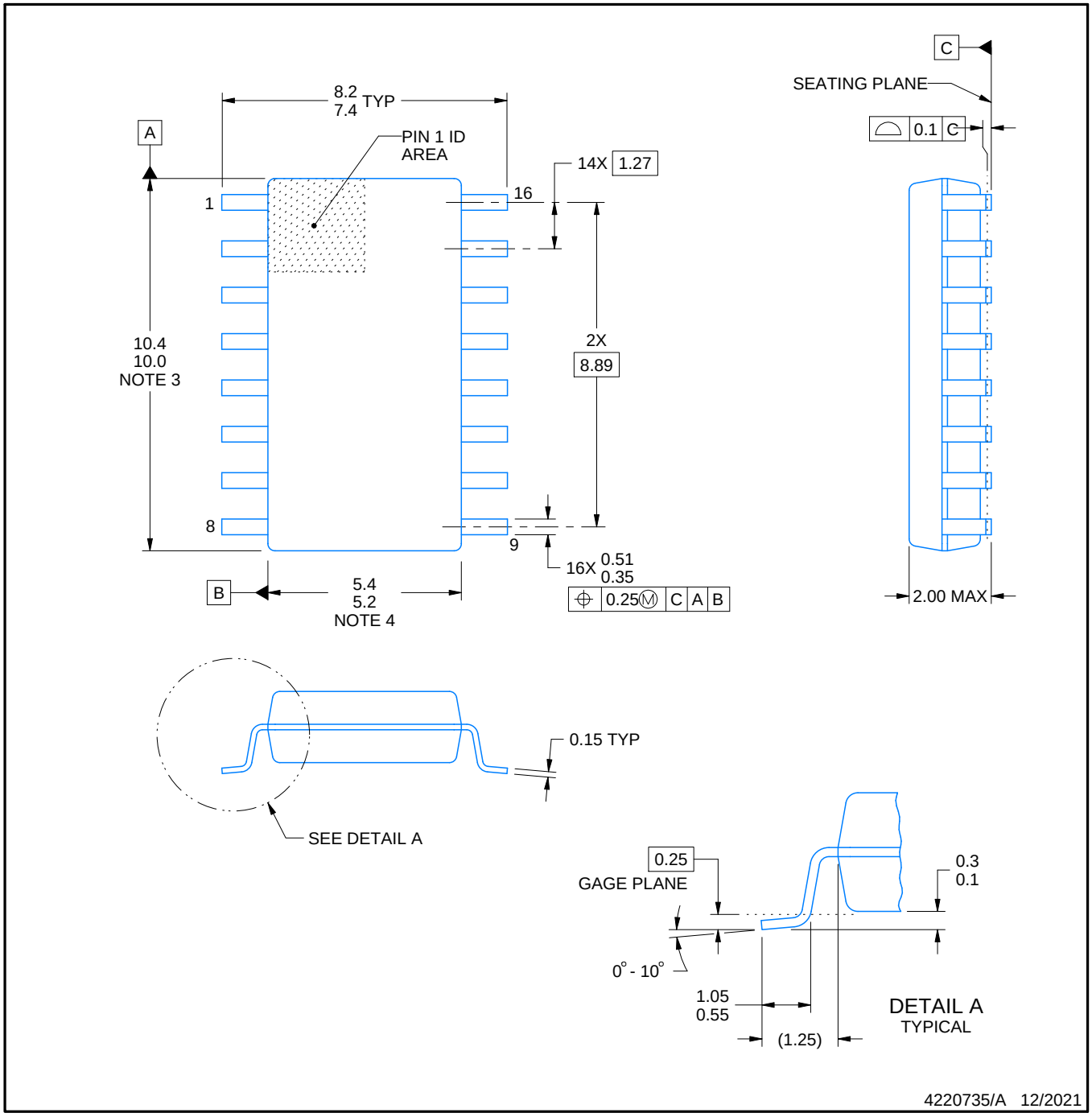


# PACKAGE OUTLINE

## NS0016A

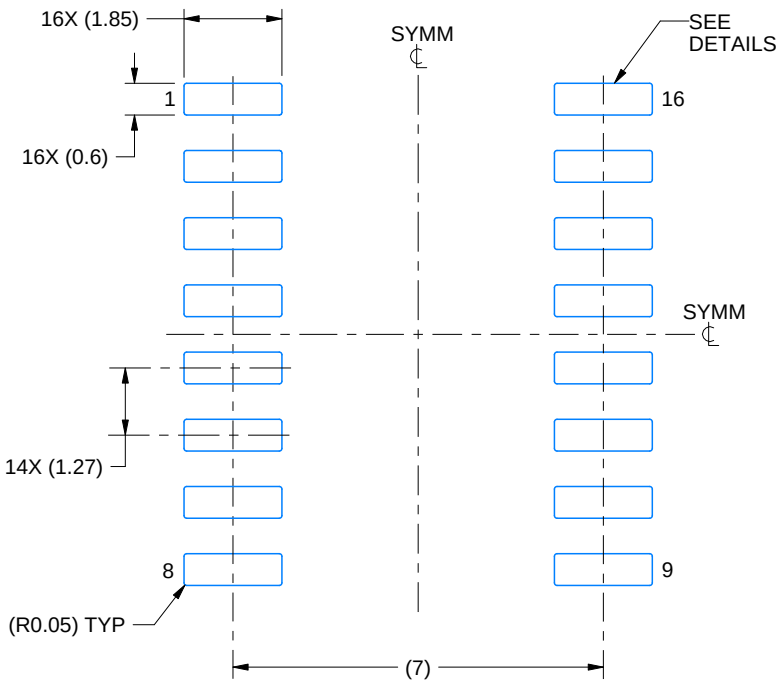
## SOP - 2.00 mm max height

SOP

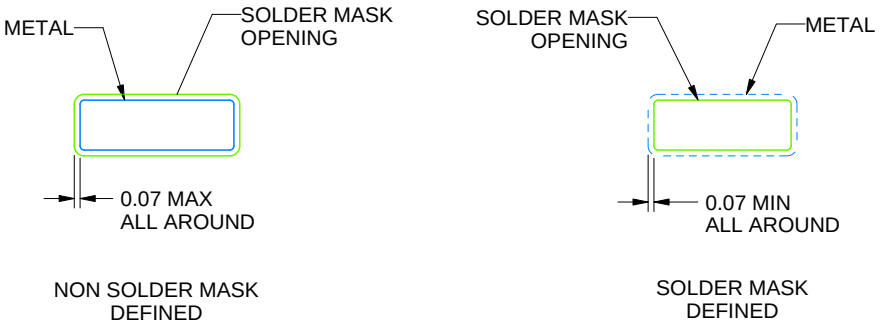



NOTES:

1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm, per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm, per side.




LAND PATTERN EXAMPLE
SCALE:7X




NON SOLDER MASK
DEFINED

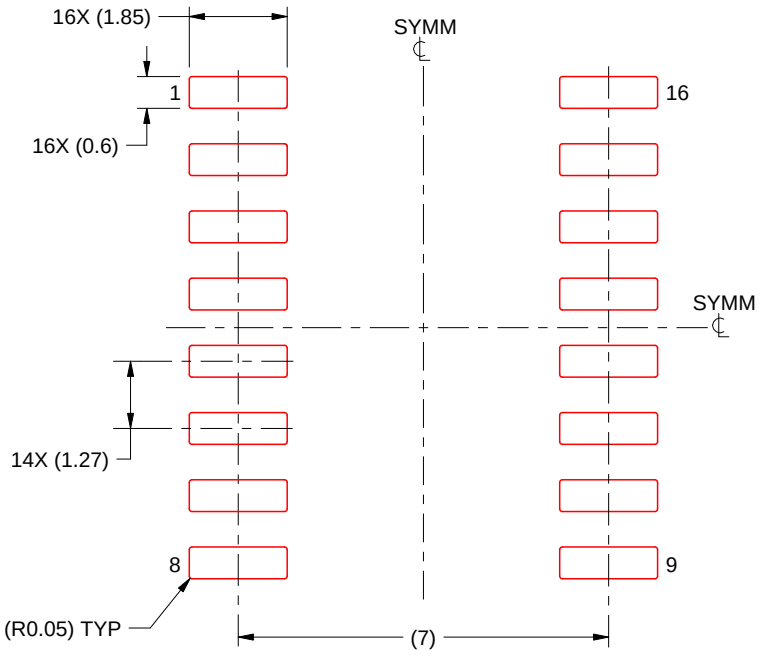
SOLDER MASK
DEFINED

SOLDER MASK DETAILS

4220735/A 12/2021

NOTES: (continued)

5. Publication IPC-7351 may have alternate designs.
6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.



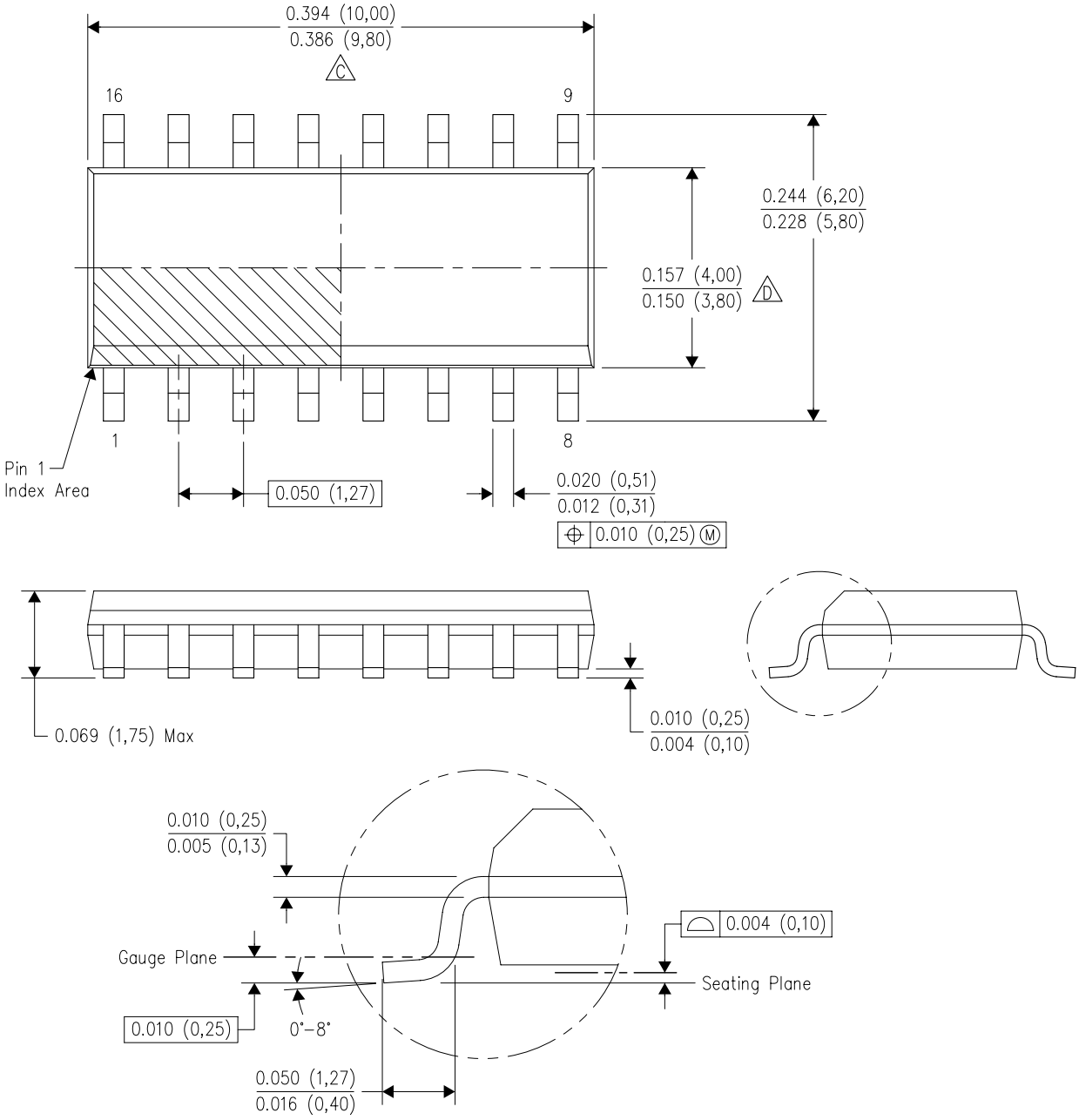

SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE:7X

4220735/A 12/2021

NOTES: (continued)

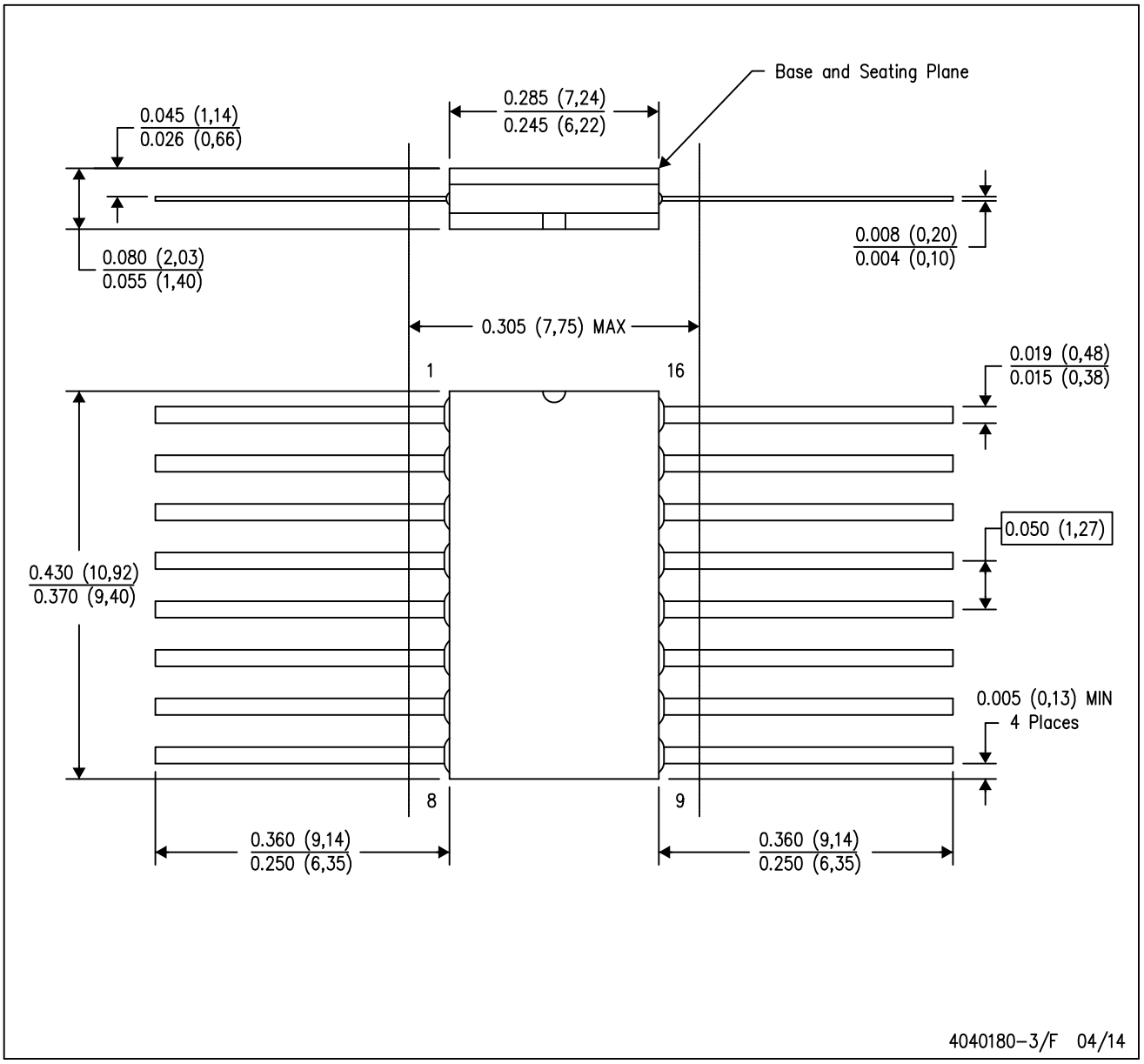
7. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
8. Board assembly site may have different recommendations for stencil design.

D (R–PDSO–G16) PLASTIC SMALL OUTLINE




NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.
D. Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
E. Reference JEDEC MS–012 variation AC.

W (R–GDFP–F16) CERAMIC DUAL FLATPACK




NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. This package can be hermetically sealed with a ceramic lid using glass frit.
D. Index point is provided on cap for terminal identification only.
E. Falls within MIL STD 1835 GDFP2–F16

# GENERIC PACKAGE VIEW

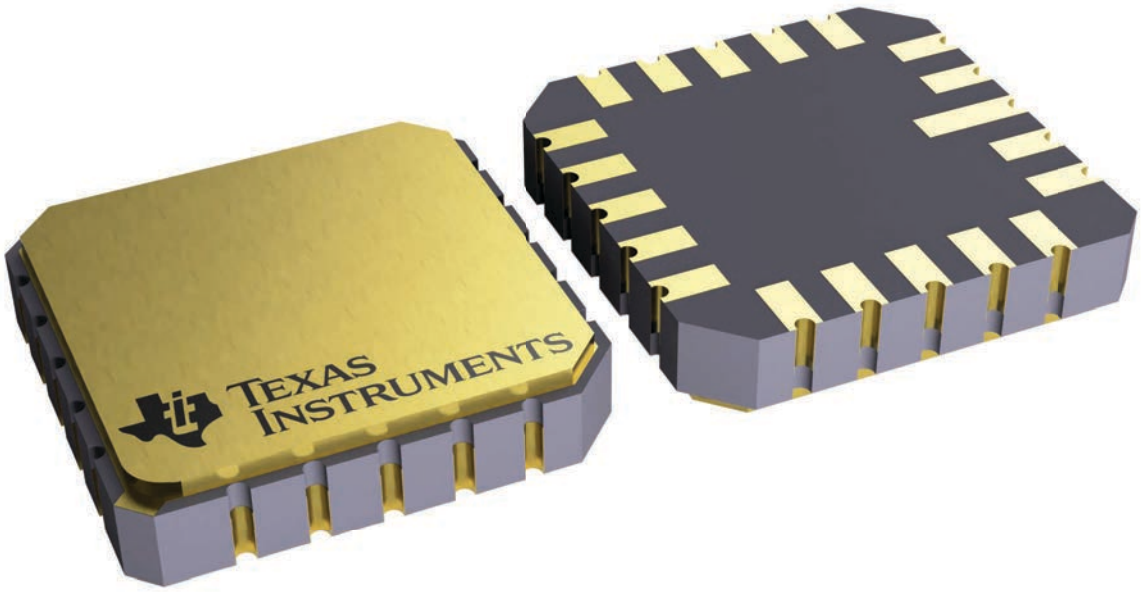
## FK 20

## LCCC - 2.03 mm max height

**8.89 x 8.89, 1.27 mm pitch**

LEADLESS CERAMIC CHIP CARRIER

This image is a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.

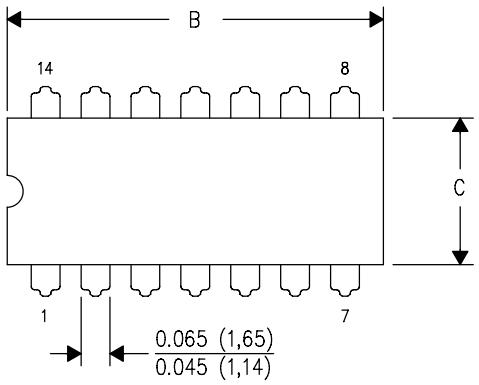



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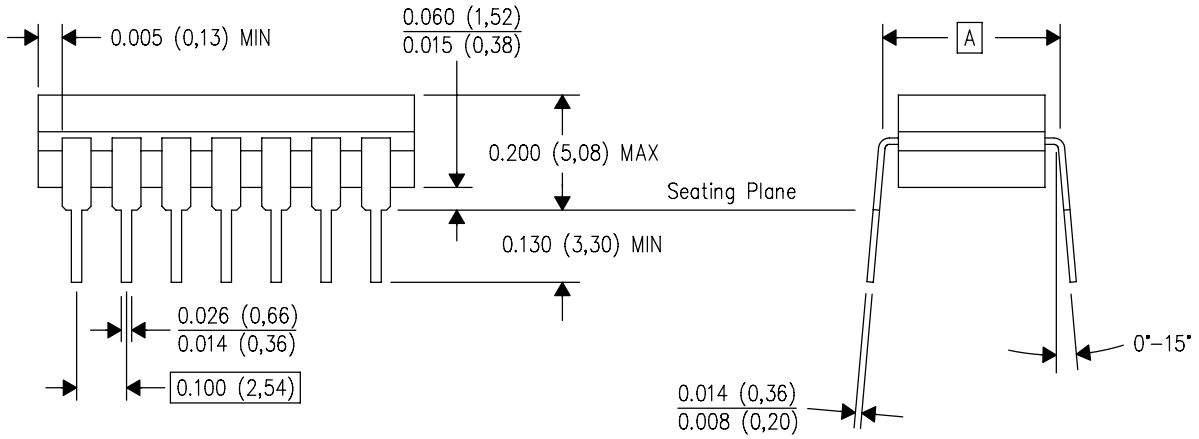
J (R–GDIP–T**)

14 LEADS SHOWN

# CERAMIC DUAL IN–LINE PACKAGE




| DIM \ PINS ** | 14 | 16 | 18 | 20 |
|---|---|---|---|---|
| A | 0.300 (7,62) BSC | 0.300 (7,62) BSC | 0.300 (7,62) BSC | 0.300 (7,62) BSC |
| B MAX | 0.785 (19,94) | .840 (21,34) | 0.960 (24,38) | 1.060 (26,92) |
| B MIN | — | — | — | — |
| C MAX | 0.300 (7,62) | 0.300 (7,62) | 0.310 (7,87) | 0.300 (7,62) |
| C MIN | 0.245 (6,22) | 0.245 (6,22) | 0.220 (5,59) | 0.245 (6,22) |



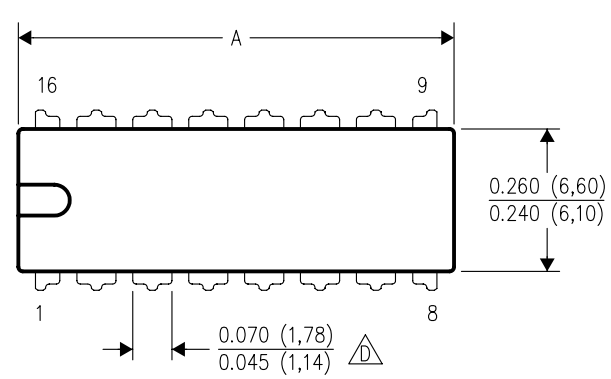

4040083/F 03/03

NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. This package is hermetically sealed with a ceramic lid using glass frit.
D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
E. Falls within MIL STD 1835 GDIP1–T14, GDIP1–T16, GDIP1–T18 and GDIP1–T20.

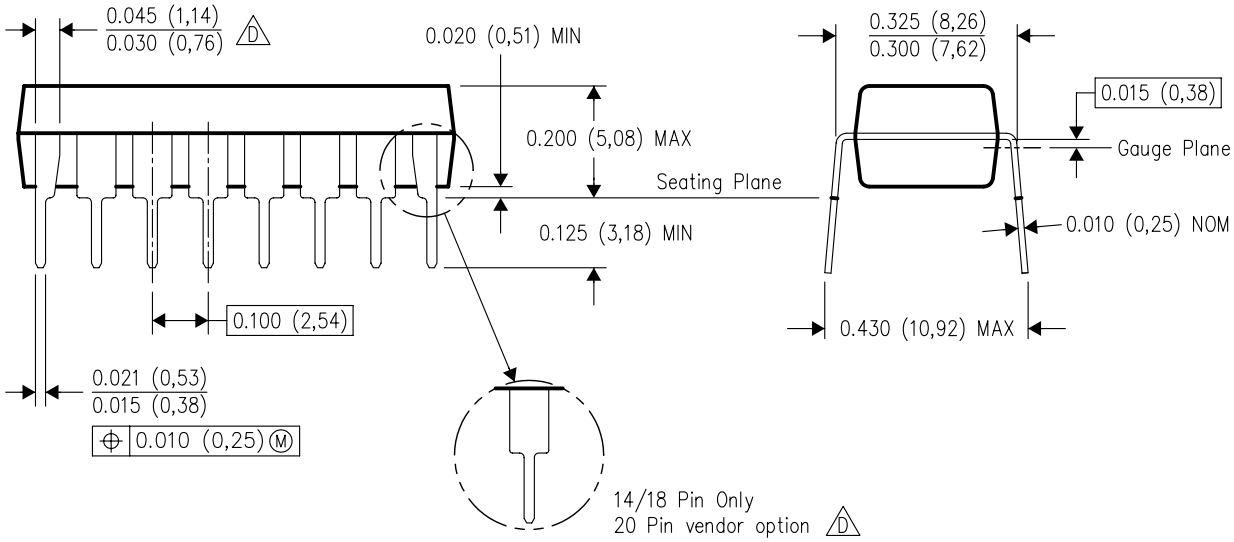
## N (R–PDIP–T**)

## PLASTIC DUAL–IN–LINE PACKAGE

16 PINS SHOWN




| DIM \ PINS ** | 14 | 16 | 18 | 20 |
|---|---|---|---|---|
| A MAX | 0.775 (19,69) | 0.775 (19,69) | 0.920 (23,37) | 1.060 (26,92) |
| A MIN | 0.745 (18,92) | 0.745 (18,92) | 0.850 (21,59) | 0.940 (23,88) |
| MS–001 VARIATION (C) | AA | BB | AC | AD |




4040049/E 12/2002

NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Falls within JEDEC MS–001, except 18 and 20 pin minimum body length (Dim A).
D. The 20 pin end lead shoulder width is a vendor option, either half or full width.

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