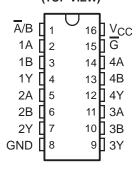
SCLS113D - DECEMBER 1982 - REVISED SEPTEMBER 2003

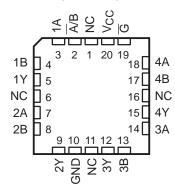
- Wide Operating Voltage Range of 2 V to 6 V
- **Outputs Can Drive Up To 15 LSTTL Loads**
- Low Power Consumption, 80-µA Max ICC

SN54HC157...J OR W PACKAGE SN74HC157...D, DB, N, NS, OR PW PACKAGE (TOP VIEW)



- Typical $t_{pd} = 11 \text{ ns}$
- ±6-mA Output Drive at 5 V
- Low Input Current of 1 µA Max

SN54HC157 . . . FK PACKAGE (TOP VIEW)



NC - No internal connection

description/ordering information

These data selectors/multiplexers contain inverters and drivers to supply full data selection to the four output gates. A separate strobe (\overline{G}) input is provided. A 4-bit word is selected from one of two sources and is routed to the four outputs. The 'HC157 devices present true data.

ORDERING INFORMATION

| TA | PACKAGE [†] | PACKAGE† | ORDERABLE PART NUMBER | TOP-SIDE MARKING |
|----------------|----------------------|--------------|--------------------------|---------------------|
| | PDIP – N | Tube of 25 | SN74HC157N | SN74HC157N |
| | | Tube of 40 | SN74HC157D | |
| | SOIC - D | Reel of 2500 | SN74HC157DR | HC157 |
| | | Reel of 250 | SN74HC157DT | |
| -40°C to 85°C | SOP - NS | Reel of 2000 | SN74HC157NSR | HC157 |
| | SSOP – DB | Reel of 2000 | SN74HC157DBR | HC157 |
| | | Tube of 90 | SN74HC157PW | |
| | TSSOP - PW | Reel of 2000 | SN74HC157PWR | HC157 |
| | | Reel of 250 | SN74HC157PWT | |
| | CDIP – J | Tube of 25 | SNJ54HC157J | SNJ54HC157J |
| -55°C to 125°C | CFP – W | Tube of 150 | SNJ54HC157W | SNJ54HC157W |
| | LCCC – FK | Tube of 55 | SNJ54HC157FK | SNJ54HC157FK |

[†] Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

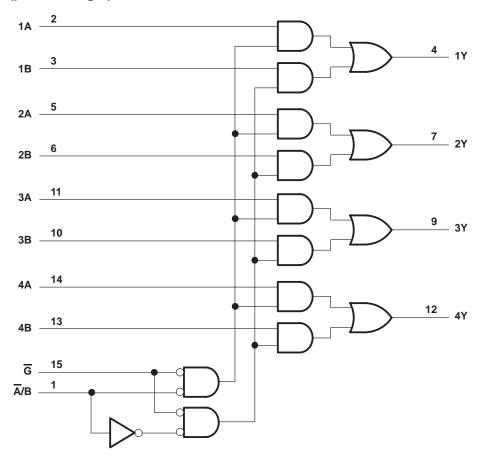


SCLS113D - DECEMBER 1982 - REVISED SEPTEMBER 2003

FUNCTION TABLE

| | INPU | ΓS | | |
|---|--------|--------|---|---|
| G | SELECT | OUTPUT | | |
| G | A/B | Α | В | · |
| Н | Х | Х | Х | L |
| L | L | L | X | L |
| L | L | Н | X | Н |
| L | Н | Χ | L | L |
| L | Н | Х | Н | Н |

logic diagram (positive logic)



Pin numbers shown are for the D, DB, J, N, NS, PW, and W packages.

SCLS113D - DECEMBER 1982 - REVISED SEPTEMBER 2003

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

| Supply voltage range, V _{CC} | | 0.5 V to 7 V |
|--|-----------------|----------------|
| Input clamp current, I_{IK} ($V_I < 0$ or $V_I > V_{CC}$) (see | e Note 1) | ±20 mA |
| Output clamp current, IOK (VO < 0 or VO > VCC | ;) (see Note 1) | ±20 mA |
| Continuous output current, I_O ($V_O = 0$ to V_{CC}) | | |
| Continuous current through V _{CC} or GND | | ±70 mA |
| Package thermal impedance, θ_{JA} (see Note 2): | D package | 73°C/W |
| • | DB package | 82°C/W |
| | N package | 67°C/W |
| | NS package | 64°C/W |
| | PW package | 108°C/W |
| Storage temperature range, T _{stg} | | –65°C to 150°C |

[†] Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

2. The package thermal impedance is calculated in accordance with JESD 51-7.

recommended operating conditions (see Note 3)

| | | | SN | N54HC15 | 7 | SN | 174HC15 | 57 | |
|-----------------|---------------------------------|--------------------------|------|---------|------|------|---------|------|------|
| | | | MIN | NOM | MAX | MIN | NOM | MAX | UNIT |
| Vcc | Supply voltage | | 2 | 5 | 6 | 2 | 5 | 6 | V |
| | | V _{CC} = 2 V | 1.5 | | | 1.5 | | | |
| ٧ _{IH} | High-level input voltage | V _{CC} = 4.5 V | 3.15 | | | 3.15 | | | V |
| | | VCC = 6 V | 4.2 | | | 4.2 | | | |
| | | V _{CC} = 2 V | | | 0.5 | | | 0.5 | |
| VIL | Low-level input voltage | V _{CC} = 4.5 V | | | 1.35 | | | 1.35 | V |
| | | $V_{CC} = 6 V$ | | | 1.8 | | | 1.8 | |
| VI | Input voltage | | 0 | | VCC | 0 | | VCC | V |
| Vo | Output voltage | | 0 | | VCC | 0 | | VCC | V |
| | | V _{CC} = 2 V | | | 1000 | | | 1000 | |
| Δt/Δν | Input transition rise/fall time | $V_{CC} = 4.5 \text{ V}$ | | | 500 | | | 500 | ns |
| | | V _{CC} = 6 V | | | 400 | | | 400 | |
| TA | Operating free-air temperature | | -55 | | 125 | -40 | | 85 | °C |

NOTE 3: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation. Refer to the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

NOTES: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

SCLS113D – DECEMBER 1982 – REVISED SEPTEMBER 2003

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

| | | NIDITIONS | ., | Т | A = 25°C | ; | SN54H | C157 | SN74H | IC157 | |
|-----------|----------------------|----------------------------|------------|------|----------|------|-------|-------|-------|-------|------|
| PARAMETER | IESI CC | ONDITIONS | VCC | MIN | TYP | MAX | MIN | MAX | MIN | MAX | UNIT |
| | | | 2 V | 1.9 | 1.998 | | 1.9 | | 1.9 | | |
| | | $I_{OH} = -20 \mu A$ | 4.5 V | 4.4 | 4.499 | | 4.4 | | 4.4 | | |
| Voн | VI = VIH or VIL | | 6 V | 5.9 | 5.999 | | 5.9 | | 5.9 | | V |
| | | $I_{OH} = -6 \text{ mA}$ | 4.5 V | 3.98 | 4.3 | | 3.7 | | 3.84 | | |
| | | $I_{OH} = -7.8 \text{ mA}$ | 6 V | 5.48 | 5.8 | | 5.2 | | 5.34 | | |
| | | | 2 V | | 0.002 | 0.1 | | 0.1 | | 0.1 | |
| | | $I_{OL} = 20 \mu\text{A}$ | 4.5 V | | 0.001 | 0.1 | | 0.1 | | 0.1 | |
| VOL | VI = VIH or VIL | | 6 V | | 0.001 | 0.1 | | 0.1 | | 0.1 | V |
| | | I _{OL} = 6 mA | 4.5 V | | 0.17 | 0.26 | | 0.4 | | 0.33 | |
| | | I _{OL} = 7.8 mA | 6 V | | 0.15 | 0.26 | | 0.4 | | 0.33 | |
| lį | $V_I = V_{CC}$ or 0 | | 6 V | | ±0.1 | ±100 | | ±1000 | | ±1000 | nA |
| Icc | $V_I = V_{CC}$ or 0, | IO = 0 | 6 V | | | 8 | | 160 | | 80 | μΑ |
| Ci | | | 2 V to 6 V | | 3 | 10 | | 10 | | 10 | pF |

switching characteristics over recommended operating free-air temperature range, C_L = 50 pF (unless otherwise noted) (see Figure 1)

| DADAMETED | FROM | то | \ \ \ | T, | ղ = 25°C | ; | SN54H | IC157 | SN74H | IC157 | LINUT | | | | | | | |
|-----------------|---------|----------|-------|-----|----------|-----|-------|-------|-------|-------|-------|--|----|----|--|----|--|----|
| PARAMETER | (INPUT) | (OUTPUT) | vcc | MIN | TYP | MAX | MIN | MAX | MIN | MAX | UNIT | | | | | | | |
| | | | 2 V | | 63 | 125 | | 190 | | 160 | | | | | | | | |
| | A or B | Υ | 4.5 V | | 13 | 25 | | 38 | | 32 | | | | | | | | |
| | | | 6 V | | 11 | 21 | | 32 | | 27 | | | | | | | | |
| | | | 2 V | | 67 | 125 | | 190 | | 160 | | | | | | | | |
| t _{pd} | Ā/B | Υ | 4.5 V | | 18 | 25 | | 38 | | 31 | ns | | | | | | | |
| | | | 6 V | | 14 | 21 | | 32 | | 27 | | | | | | | | |
| | | Y | 2 V | | 59 | 115 | | 170 | | 145 | | | | | | | | |
| | G | | Υ | Y | Y | Y | Y | Υ | Υ | Υ | 4.5 V | | 16 | 23 | | 34 | | 29 |
| | | | 6 V | | 13 | 20 | | 29 | | 25 | | | | | | | | |
| | | | | | | 2 V | | 28 | 60 | | 90 | | 75 | | | | | |
| t _t | | Υ | 4.5 V | | 8 | 12 | | 18 | | 15 | ns | | | | | | | |
| | | | 6 V | | 6 | 10 | | 15 | | 13 | | | | | | | | |

SCLS113D - DECEMBER 1982 - REVISED SEPTEMBER 2003

switching characteristics over recommended operating free-air temperature range, $C_L = 150 \text{ pF}$ (unless otherwise noted) (see Figure 1)

| 212115 | FROM | то | ., | T, | ղ = 25°C | ; | SN54H | IC157 | SN74H | C157 | |
|-----------------|----------------------------------|-----------|-------|-----|----------|-----|-------|-------|-------|------|------|
| PARAMETER | (INPUT) | (OUTPUT) | VCC | MIN | TYP | MAX | MIN | MAX | MIN | MAX | UNIT |
| | | | 2 V | | 81 | 190 | | 290 | | 235 | |
| | A or B | Υ | 4.5 V | | 23 | 38 | | 58 | | 47 | |
| | | | 6 V | | 18 | 33 | | 49 | | 41 | |
| | | | 2 V | | 81 | 210 | | 320 | | 260 | |
| t _{pd} | t _{pd} \overline{A}/B | Υ | 4.5 V | | 23 | 42 | | 64 | | 52 | ns |
| · | | 6 V 18 36 | | | | | | | | 45 | |
| | | | 2 V | | 91 | 190 | | 290 | | 235 | |
| | G | Υ | 4.5 V | | 24 | 38 | | 58 | | 47 | |
| | | | 6 V | | 18 | 33 | | 49 | | 41 | |
| | | | 2 V | | 45 | 210 | · | 315 | | 265 | |
| t _t | | Υ | 4.5 V | | 17 | 42 | | 63 | | 53 | ns |
| | ` | | 6 V | | 13 | 36 | · | 53 | | 45 | |

operating characteristics, T_A = 25°C

| | PARAMETER | TEST CONDITIONS | TYP | UNIT |
|-----------------|-------------------------------|-----------------|-----|------|
| C _{pd} | Power dissipation capacitance | No load | 40 | pF |

PARAMETER MEASUREMENT INFORMATION **From Output VCC Test** Input 50% 50% **Under Test Point** 0 V C_L - tPHL (see Note A) VOH In-Phase 90% 90% 50% Output 10% _{VOL} **LOAD CIRCUIT** - tPHL - VCC Vон Input 90% **Out-of-Phase** 10% 10% Output VOL **VOLTAGE WAVEFORM VOLTAGE WAVEFORMS** PROPAGATION DELAY AND OUTPUT TRANSITION TIMES **INPUT RISE AND FALL TIMES**

- NOTES: A. C_L includes probe and test-fixture capacitance.
 - B. Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics: PRR \leq 1 MHz, $Z_O = 50 \ \Omega$, $t_f = 6 \ ns$, $t_f = 6 \ ns$.
 - C. The outputs are measured one at a time with one input transition per measurement.
 - D. tpLH and tpHL are the same as tpd.

Figure 1. Load Circuit and Voltage Waveforms







25-Sep-2013

PACKAGING INFORMATION

| Orderable Device | Status | Package Type | | Pins | | Eco Plan | Lead/Ball Finish | MSL Peak Temp | Op Temp (°C) | Device Marking | Samples |
|------------------|--------|--------------|---------|------|------|----------------------------|------------------|--------------------|--------------|--|---------|
| | (1) | | Drawing | | Qty | (2) | | (3) | | (4/5) | |
| 5962-86061012A | ACTIVE | LCCC | FK | 20 | 1 | TBD | POST-PLATE | N / A for Pkg Type | -55 to 125 | 5962- 86061012A SNJ54HC 157FK | Samples |
| 5962-8606101EA | ACTIVE | CDIP | J | 16 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | 5962-8606101EA SNJ54HC157J | Samples |
| 5962-8606101VEA | ACTIVE | CDIP | J | 16 | 1 | TBD | A42 | N / A for Pkg Type | | 5962-8606101VE A SNV54HC157J | Samples |
| 5962-8606101VFA | ACTIVE | CFP | W | 16 | 25 | TBD | A42 | N / A for Pkg Type | | 5962-8606101VF A SNV54HC157W | Samples |
| SN54HC157J | ACTIVE | CDIP | J | 16 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | SN54HC157J | Samples |
| SN74HC157D | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Samples |
| SN74HC157DBR | ACTIVE | SSOP | DB | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Samples |
| SN74HC157DBRE4 | ACTIVE | SSOP | DB | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Samples |
| SN74HC157DBRG4 | ACTIVE | SSOP | DB | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Samples |
| SN74HC157DE4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157DG4 | ACTIVE | SOIC | D | 16 | 40 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157DR | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157DRE4 | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157DRG4 | ACTIVE | SOIC | D | 16 | 2500 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Samples |
| SN74HC157DT | ACTIVE | SOIC | D | 16 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Samples |



25-Sep-2013

| Orderable Device | Status | Package Type | Package Drawing | Pins I | Package Qty | Eco Plan | Lead/Ball Finish | MSL Peak Temp | Op Temp (°C) | Device Marking | Sample |
|------------------|----------|--------------|--------------------|--------|----------------|-----------------------------------|------------------|---------------------------|--------------|--|--------|
| SN74HC157DTE4 | ACTIVE | SOIC | Diawing | 16 | 250 | (2) Green (RoHS & no Sb/Br) | CU NIPDAU | (3) Level-1-260C-UNLIM | -40 to 85 | (4/5) HC157 | Sample |
| SN74HC157DTG4 | ACTIVE | SOIC | D | 16 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157N | ACTIVE | PDIP | N | 16 | 25 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -40 to 85 | SN74HC157N | Sample |
| SN74HC157N3 | OBSOLETE | PDIP | N | 16 | | TBD | Call TI | Call TI | -40 to 85 | | |
| SN74HC157NE4 | ACTIVE | PDIP | N | 16 | 25 | Pb-Free (RoHS) | CU NIPDAU | N / A for Pkg Type | -40 to 85 | SN74HC157N | Sample |
| SN74HC157NSR | ACTIVE | SO | NS | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157NSRG4 | ACTIVE | so | NS | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PW | ACTIVE | TSSOP | PW | 16 | 90 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWE4 | ACTIVE | TSSOP | PW | 16 | 90 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWG4 | ACTIVE | TSSOP | PW | 16 | 90 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWR | ACTIVE | TSSOP | PW | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWRE4 | ACTIVE | TSSOP | PW | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWRG4 | ACTIVE | TSSOP | PW | 16 | 2000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWT | ACTIVE | TSSOP | PW | 16 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWTE4 | ACTIVE | TSSOP | PW | 16 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SN74HC157PWTG4 | ACTIVE | TSSOP | PW | 16 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | HC157 | Sample |
| SNJ54HC157FK | ACTIVE | LCCC | FK | 20 | 1 | TBD | POST-PLATE | N / A for Pkg Type | -55 to 125 | 5962- 86061012A SNJ54HC 157FK | Sample |
| SNJ54HC157J | ACTIVE | CDIP | J | 16 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | 5962-8606101EA | Sample |



PACKAGE OPTION ADDENDUM

25-Sep-2013

| Orderable Device | Status | Package Type | Package | Pins | Package | Eco Plan | Lead/Ball Finish | MSL Peak Temp | Op Temp (°C) | Device Marking | Samples |
|------------------|--------|--------------|---------|------|---------|----------|------------------|--------------------|--------------|----------------|---------|
| | (1) | | Drawing | | Qty | (2) | | (3) | | (4/5) | |
| | | | | | | | | | | SNJ54HC157J | |
| SNJ54HC157W | ACTIVE | CFP | W | 16 | 1 | TBD | A42 | N / A for Pkg Type | -55 to 125 | SNJ54HC157W | Samples |

(1) The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

- (3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.
- (4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.
- (5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device 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 SN54HC157, SN54HC157-SP, SN74HC157:

Catalog: SN74HC157, SN54HC157



PACKAGE OPTION ADDENDUM

25-Sep-2013

• Military: SN54HC157

• Space: SN54HC157-SP

NOTE: Qualified Version Definitions:

Catalog - TI's standard catalog product

• Military - QML certified for Military and Defense Applications

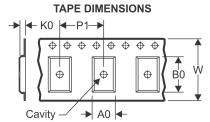
• Space - Radiation tolerant, ceramic packaging and qualified for use in Space-based application

PACKAGE MATERIALS INFORMATION

www.ti.com 8-Apr-2013

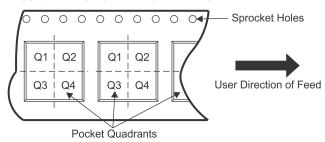
TAPE AND REEL INFORMATION





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

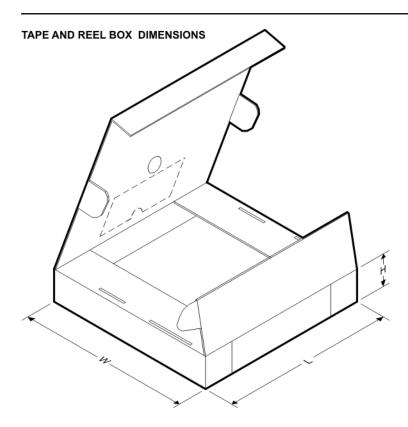
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

| All differsions are norminal | | | | | | | | | | | | |
|------------------------------|-----------------|--------------------|----|------|--------------------------|--------------------------|------------|------------|------------|------------|-----------|------------------|
| Device | Package Type | Package Drawing | | SPQ | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
| SN74HC157DBR | SSOP | DB | 16 | 2000 | 330.0 | 16.4 | 8.2 | 6.6 | 2.5 | 12.0 | 16.0 | Q1 |
| SN74HC157DR | SOIC | D | 16 | 2500 | 330.0 | 16.4 | 6.5 | 10.3 | 2.1 | 8.0 | 16.0 | Q1 |
| SN74HC157PWR | TSSOP | PW | 16 | 2000 | 330.0 | 12.4 | 6.9 | 5.6 | 1.6 | 8.0 | 12.0 | Q1 |
| SN74HC157PWT | TSSOP | PW | 16 | 250 | 330.0 | 12.4 | 6.9 | 5.6 | 1.6 | 8.0 | 12.0 | Q1 |

www.ti.com 8-Apr-2013



*All dimensions are nominal

| 7 till dillitoriolorio di o riorininal | | | | | | | |
|--|--------------|-----------------|------|------|-------------|------------|-------------|
| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
| SN74HC157DBR | SSOP | DB | 16 | 2000 | 367.0 | 367.0 | 38.0 |
| SN74HC157DR | SOIC | D | 16 | 2500 | 333.2 | 345.9 | 28.6 |
| SN74HC157PWR | TSSOP | PW | 16 | 2000 | 367.0 | 367.0 | 35.0 |
| SN74HC157PWT | TSSOP | PW | 16 | 250 | 367.0 | 367.0 | 35.0 |

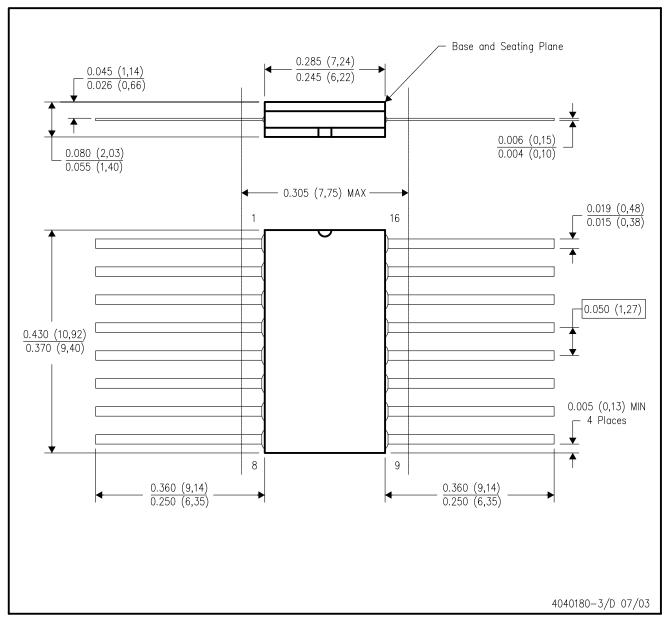
14 LEADS SHOWN



- 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.

W (R-GDFP-F16)

CERAMIC DUAL FLATPACK



- 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 GDFP1-F16 and JEDEC MO-092AC



FK (S-CQCC-N**)

LEADLESS CERAMIC CHIP CARRIER

28 TERMINAL SHOWN



- 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 metal lid.
- D. Falls within JEDEC MS-004



N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



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



D (R-PDS0-G16)

PLASTIC SMALL OUTLINE

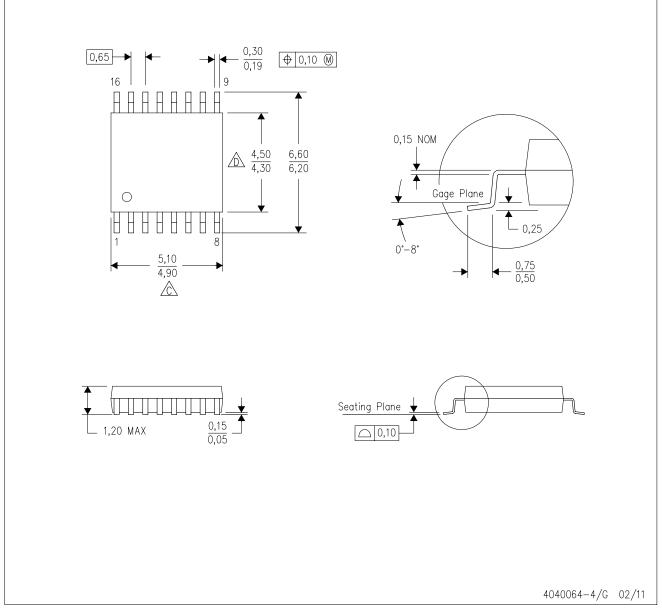


- A. All linear dimensions are in inches (millimeters).
- B. This drawing is subject to change without notice.
- Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.
- Body width does not include interlead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



PW (R-PDSO-G16)

PLASTIC SMALL OUTLINE

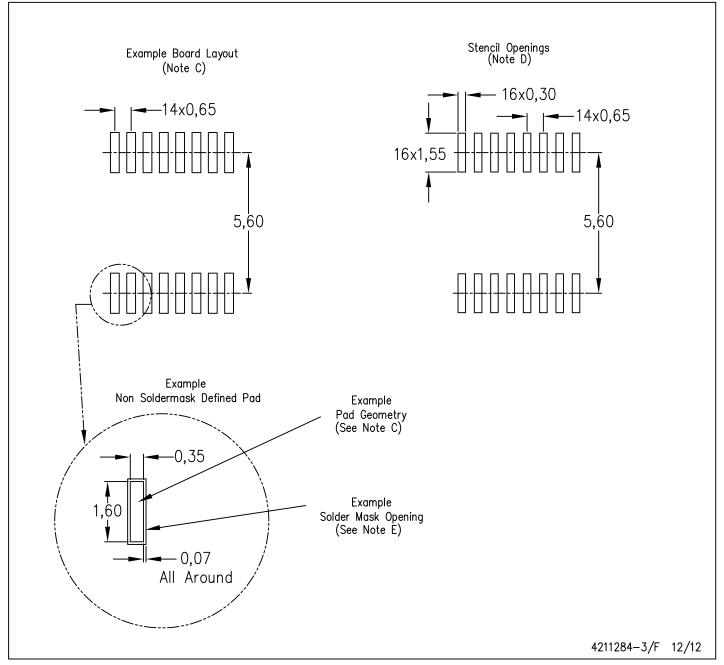


- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M—1994.
- B. This drawing is subject to change without notice.
- Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0,15 each side.
- Body width does not include interlead flash. Interlead flash shall not exceed 0,25 each side.
- E. Falls within JEDEC MO-153



PW (R-PDSO-G16)

PLASTIC SMALL OUTLINE



- A. All linear dimensions are in millimeters.
- B. This drawing is subject to change without notice.
- C. Publication IPC-7351 is recommended for alternate designs.
- D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525 for other stencil recommendations.
- E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.



MECHANICAL DATA

NS (R-PDSO-G**)

14-PINS SHOWN

PLASTIC SMALL-OUTLINE PACKAGE



- A. All linear dimensions are in millimeters.
- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.



DB (R-PDSO-G**)

PLASTIC SMALL-OUTLINE

28 PINS SHOWN



NOTES: A. All linear dimensions are in millimeters.

B. This drawing is subject to change without notice.

C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.

D. Falls within JEDEC MO-150

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as "components") are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have *not* been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Products Applications

Audio www.ti.com/audio Automotive and Transportation www.ti.com/automotive Communications and Telecom **Amplifiers** amplifier.ti.com www.ti.com/communications **Data Converters** dataconverter.ti.com Computers and Peripherals www.ti.com/computers **DLP® Products** www.dlp.com Consumer Electronics www.ti.com/consumer-apps

DSP **Energy and Lighting** dsp.ti.com www.ti.com/energy Clocks and Timers www.ti.com/clocks Industrial www.ti.com/industrial Interface interface.ti.com Medical www.ti.com/medical logic.ti.com Logic Security www.ti.com/security

Power Mgmt power.ti.com Space, Avionics and Defense www.ti.com/space-avionics-defense

Microcontrollers <u>microcontroller.ti.com</u> Video and Imaging <u>www.ti.com/video</u>

RFID www.ti-rfid.com

OMAP Applications Processors www.ti.com/omap TI E2E Community e2e.ti.com

Wireless Connectivity <u>www.ti.com/wirelessconnectivity</u>