

# SNx4HC257, SNx4HC258 Quadruple 2-Line to 1-Line Data Selectors/Multiplexers With 3-State Outputs

## 1 Features

- Wide operating voltage range of 2 V to 6 V
- High-current inverting outputs can drive up to 15 LSTTL loads
- Low power consumption, 80- $\mu$ A max  $I_{CC}$
- 'HC257 typical  $t_{pd} = 9$  ns
- 'HC258 typical  $t_{pd} = 12$  ns
- $\pm 6$ -mA output drive at 5 V
- Low input current of 1  $\mu$ A max
- Provides bus interface from multiple sources in high-performance systems

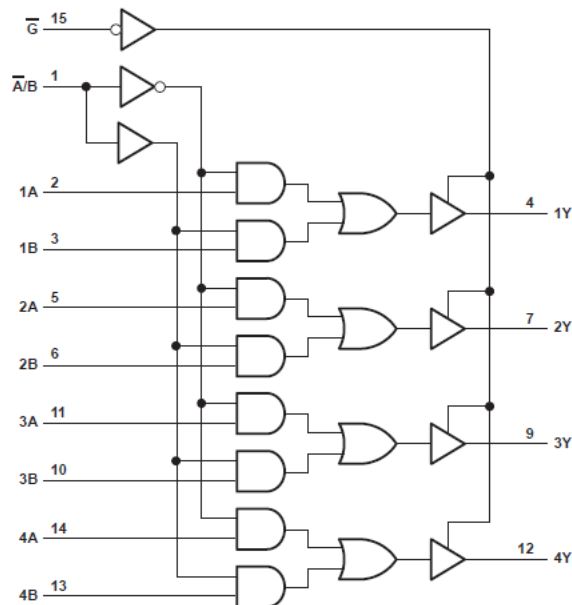
## 2 Description

The SNx4HC257 and '258 contain four data selectors/multiplexers to select one of two data sources. All channels are controlled by the same address select ( $\bar{A}/B$ ) input, and active-low strobe ( $\bar{G}$ ) input. A high level at the  $\bar{G}$  terminal forces all outputs into the high-impedance state. The '257 has non-inverted outputs and the '258 has inverted outputs.

### Device Information

PART NUMBER	PACKAGE <sup>(1)</sup>	BODY SIZE (NOM)
SN74HC257D	SOIC (16)	9.90 mm × 3.90 mm
SN74HC257N	PDIP (16)	19.31 mm × 6.35 mm
SN74HC257NS	SO (16)	6.20 mm × 5.30 mm
SN74HC257PW	TSSOP (16)	5.00 mm × 4.40 mm
SN74HC258D	SOIC (16)	9.90 mm × 3.90 mm
SN74HC258N	PDIP (16)	19.31 mm × 6.35 mm
SN74HC258NS	SO (16)	6.20 mm × 5.30 mm
SN74HC258PW	TSSOP (16)	5.00 mm × 4.40 mm
SN54HC257J	CDIP (16)	24.38 mm × 6.92 mm
SNJ54HC257FK	LCCC (20)	8.89 mm × 8.45 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.



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

**SN74HC257 Functional Block Diagram**



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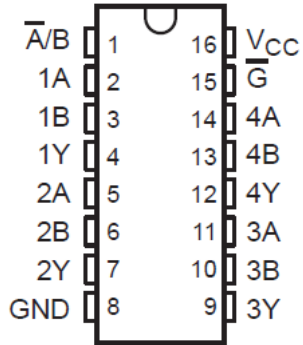
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### 3 Revision History

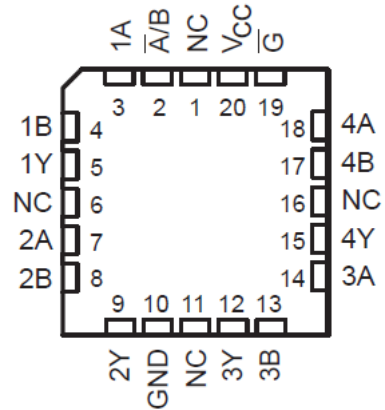
NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision B (September 2003) to Revision C (March 2022)	Page
• Updated the numbering, formatting, tables, figures, and cross-references throughout the document to reflect modern data sheet standards.....	1

## 4 Pin Configuration and Functions



**J, D, N, NS, or PW package**  
**16-Pin CDIP, SOIC, PDIP, SO, TSSOP**  
**Top View**



NC – No internal connection

**FK package**  
**20-Pin LCCC**  
**Top View**

## 5 Specifications

### 5.1 Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted)<sup>(1)</sup>

		MIN	MAX	UNIT
V <sub>CC</sub>	Supply voltage range	-0.5	7	V
I <sub>IK</sub>	Input clamp current <sup>(2)</sup>	(V <sub>I</sub> < 0 or V <sub>I</sub> > V <sub>CC</sub> )		±20 mA
I <sub>OK</sub>	Output clamp current <sup>(2)</sup>	(V <sub>O</sub> < 0 or V <sub>O</sub> > V <sub>CC</sub> )		±20 mA
I <sub>O</sub>	Continuous output current	(V <sub>O</sub> = 0 to V <sub>CC</sub> )		±35 mA
	Continuous current through V <sub>CC</sub> or GND			±70 mA
T <sub>J</sub>	Junction temperature			150 °C
T <sub>stg</sub>	Storage temperature	-65	150	°C

- (1) 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 input and output voltage ratings may be exceeded if the input and output current ratings are observed.

### 5.2 Recommended Operating Conditions<sup>(1)</sup>

		SN54HC257, SN54HC258			SN74HC257, SN74HC258			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V <sub>CC</sub>	Supply voltage	2	5	6	2	5	6	V
V <sub>IH</sub>	High-level input voltage	V <sub>CC</sub> = 2 V		1.5	1.5			V
		V <sub>CC</sub> = 4.5 V		3.15	3.15			
		V <sub>CC</sub> = 6 V		4.2	4.2			
V <sub>IL</sub>	Low-level input voltage	V <sub>CC</sub> = 2 V			0.3		0.5	V
		V <sub>CC</sub> = 4.5 V			0.9		1.35	
		V <sub>CC</sub> = 6 V			1.2		1.8	
V <sub>I</sub>	Input voltage	0		V <sub>CC</sub>	0		V <sub>CC</sub>	V
V <sub>O</sub>	Output voltage	0		V <sub>CC</sub>	0		V <sub>CC</sub>	V
t <sub>t</sub>	Input transition rise/fall time	V <sub>CC</sub> = 2 V			1000		1000	ns
		V <sub>CC</sub> = 4.5 V			500		500	
		V <sub>CC</sub> = 6 V			400		400	
T <sub>A</sub>	Operating free-air temperature	-55		125	-40		85	°C

- (1) All unused inputs of the device must be held at V<sub>CC</sub> or GND to ensure proper device operation. Refer to the TI application report *Implications of Slow or Floating SMOS Inputs*, literature number [SCBA004](#).

### 5.3 Thermal Information

		D (SOIC)	N (PDIP)	NS (SO)	PW (TSSOP)	UNIT
THERMAL METRIC		16 PINS	16 PINS	16 PINS	16 PINS	
R <sub>θJA</sub>	Junction-to-ambient thermal resistance <sup>(1)</sup>	73	67	64	108	°C/W

- (1) For more information about traditional and new thermal metrics, see the [Semiconductor and IC package thermal metrics](#) application report.

## 5.4 Electrical Characteristics

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

PARAMETER	TEST CONDITIONS <sup>(1)</sup>	V <sub>CC</sub>	T <sub>A</sub> = 25°C			SN54HC257, SN54HC258		SN74HC257, SN74HC258		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
V <sub>OH</sub>	I <sub>OH</sub> = -20 μA	2 V	1.9	1.998		1.9		1.9	V	
		4.5 V	4.4	4.499		4.4		4.4		
		6 V	5.9	5.999		5.9		5.9		
	I <sub>OH</sub> = -6 mA	4.5 V	3.98	4.3		3.7		3.84		
	I <sub>OH</sub> = -7.8 mA	6 V	5.48	5.8		5.2		5.34		
V <sub>OL</sub>	I <sub>OL</sub> = 20 μA	2 V		0.002	0.1		0.1	0.1	V	
		4.5 V		0.001	0.1		0.1	0.1		
		6 V		0.001	0.1		0.1	0.1		
	I <sub>OL</sub> = 6 mA	4.5 V		0.17	0.26		0.4	0.33		
	I <sub>OL</sub> = 7.8 mA	6 V		0.15	0.26		0.4	0.33		
I <sub>I</sub>	V <sub>I</sub> = V <sub>CC</sub> or 0	6 V		±0.1	±100		±1000	±1000	nA	
I <sub>OZ</sub>	V <sub>O</sub> = V <sub>CC</sub> or 0	6 V		±0.01	±0.5		±10	±5	μA	
I <sub>CC</sub>	V <sub>I</sub> = V <sub>CC</sub> or 0, I <sub>O</sub> = 0	6 V			8		160	80	μA	
C <sub>i</sub>		2 V to 6 V		3	10		10	10	pF	

(1) V<sub>I</sub> = V<sub>IH</sub> or V<sub>IL</sub>, unless otherwise noted.

## 5.5 Switching Characteristics

over recommended operating free-air temperature range,  $C_L = 50$  pF (unless otherwise noted) (See [Figure 6](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC}$ (V)	$T_A = 25^\circ\text{C}$			SN54HC257		SN74HC257		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
$t_{pd}$	A or B	Any Y	2		50	100		150		125	ns
			4.5		10	20		30		25	
			6		9	17		25		21	
	$\bar{A}/B$	Any Y	2		50	100		150		125	
			4.5		10	20		30		25	
			6		9	17		25		21	
$t_{en}$	$\bar{G}$	Any Y	2		75	150		225		190	ns
			4.5		15	30		45		38	
			6		13	26		38		32	
$t_{dis}$	$\bar{G}$	Any Y	2		75	150		225		190	ns
			4.5		15	30		45		38	
			6		13	26		38		32	
$t_t$		Any Y	2		28	60		90		75	ns
			4.5		8	12		18		15	
			6		6	10		15		13	

## 5.5 Switching Characteristics

over recommended operating free-air temperature range,  $C_L = 150$  pF (unless otherwise noted) (See [Figure 6](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC}$ (V)	$T_A = 25^\circ\text{C}$			SN54HCT257		SN74HC257		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
$t_{pd}$	A or B	Any Y	2		75	150		245		190	ns
			4.5		15	30		45		38	
			6		13	26		38		32	
	$\bar{A}/B$	Any Y	2		75	150		245		190	
			4.5		15	30		45		38	
			6		13	26		38		32	
$t_{en}$	$\bar{G}$	Any Y	2		100	200		300		250	ns
			4.5		24	40		60		50	
			6		18	34		51		43	
$t_t$		Any Y	2		45	210		315		265	ns
			4.5		17	42		63		53	
			6		13	36		53		45	

## 5.5 Switching Characteristics

over recommended operating free-air temperature range,  $C_L = 50$  pF (unless otherwise noted) (See [Figure 6](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC}$ (V)	$T_A = 25^\circ\text{C}$			SN54HC258		SN74HC258		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
$t_{pd}$	Propagation delay	A or B	Any Y	2	60	100	150	125	ns		
				4.5	13	20	30	25			
				6	12	17	25	21			
		$\bar{A}/B$	Any Y	2	60	115	175	145			
				4.5	13	23	35	29			
				6	12	20	30	25			
$t_{en}$	Enable time	$\bar{G}$	Any Y	2	70	150	225	190	ns		
				4.5	15	30	45	38			
				6	13	26	38	32			
$t_{dis}$	Diabile time	$\bar{G}$	Any Y	2	75	150	225	190	ns		
				4.5	15	30	45	38			
				6	13	26	38	32			
$t_t$	Transition time		Any Y	2	28	60	90	75	ns		
				4.5	8	12	18	15			
				6	6	10	15	13			

## 5.5 Switching Characteristics

over recommended operating free-air temperature range,  $C_L = 150$  pF (unless otherwise noted) (See [Figure 6](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC}$ (V)	$T_A = 25^\circ\text{C}$			SN54HC258		SN74HC258		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
$t_{pd}$	Propagation delay	A or B	Any Y	2	95	150	245	190	ns		
				4.5	23	30	45	38			
				6	21	26	38	32			
		$\bar{A}/B$	Any Y	2	95	165	240	210			
				4.5	23	33	48	42			
				6	21	28	41	36			
$t_{en}$	Enable time	$\bar{G}$	Any Y	2	100	200	300	250	ns		
				4.5	24	40	60	50			
				6	18	34	51	43			
$t_t$	Transition time		Any Y	2	45	210	315	265	ns		
				4.5	17	42	63	53			
				6	13	36	53	45			

## 5.6 Operating Characteristics

$T_A = 25^\circ\text{C}$

		Test Conditions	TYP	UNIT
$C_{pd}$	Power dissipation capacitance per multiplexer	No load	40	pF

## 6 Parameter Measurement Information

$t_{pd}$  is the maximum between  $t_{PLH}$  and  $t_{PHL}$

$t_t$  is the maximum between  $t_{TLH}$  and  $t_{THL}$

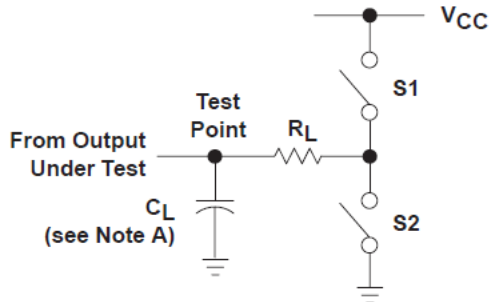


Figure 6-1. Load Circuit

PARAMETER		$R_L$	$C_L$	S1	S2
$t_{en}$	$t_{PZH}$	1 k $\Omega$	50 pF or 150 pF	Open	Closed
	$t_{PZL}$			Closed	Open
$t_{dis}$	$t_{PHZ}$	1 k $\Omega$	50 pF	Open	Closed
	$t_{PLZ}$			Closed	Open
$t_{pd}$ or $t_t$		--	50 pF or 150 pF	Open	Open

Figure 6-2.

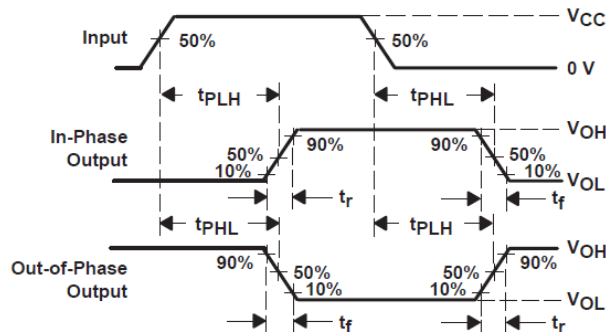


Figure 6-3. Voltage Waveforms  
 Propagation Delay and Output Transition Times

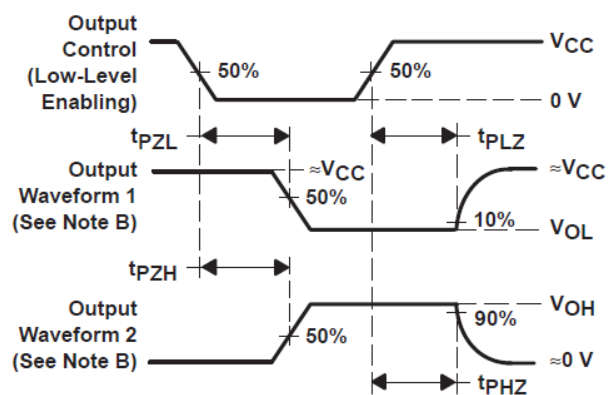


Figure 6-4. Voltage Waveforms  
 Enable and Disable Times For 3-State Outputs

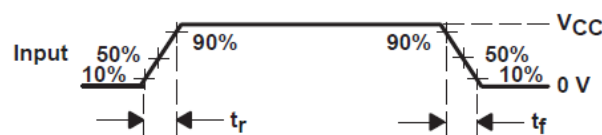


Figure 6-5. Voltage Waveform  
 Input Rise and Fall Times

A.  $C_L$  includes probe and test-fixture capacitance.

B. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control.

Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.

C. Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics:  $PRR \leq 1$  MHz,  $Z_O = 50 \Omega$ ,  $t_r = 6$  ns,  $t_f = 6$  ns.

D. The outputs are measured one at a time with one input transition per measurement.

E.  $t_{PLZ}$  and  $t_{PHZ}$  are the same as  $t_{dis}$ .

F.  $t_{PZL}$  and  $t_{PZH}$  are the same as  $t_{en}$ .

## 7 Detailed Description

### 7.1 Overview

These devices are designed to multiplex signals from 4-bit data sources to 4-output data lines in bus-organized systems. The 3-state outputs do not load the data lines when the output-enable ( $\overline{G}$ ) input is at a high logic level.

To ensure the high-impedance state during power up or power down,  $\overline{G}$  should be tied to  $V_{CC}$  through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

### 7.2 Functional Block Diagram

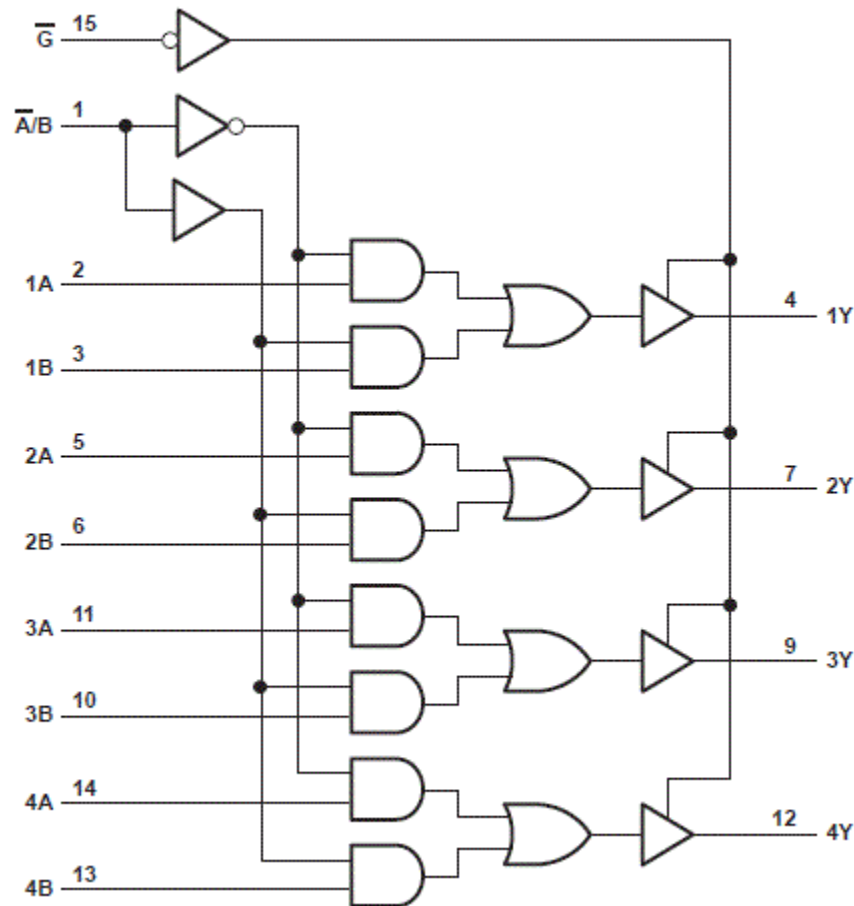


Figure 7-1. SN74HC257 Functional Block Diagram

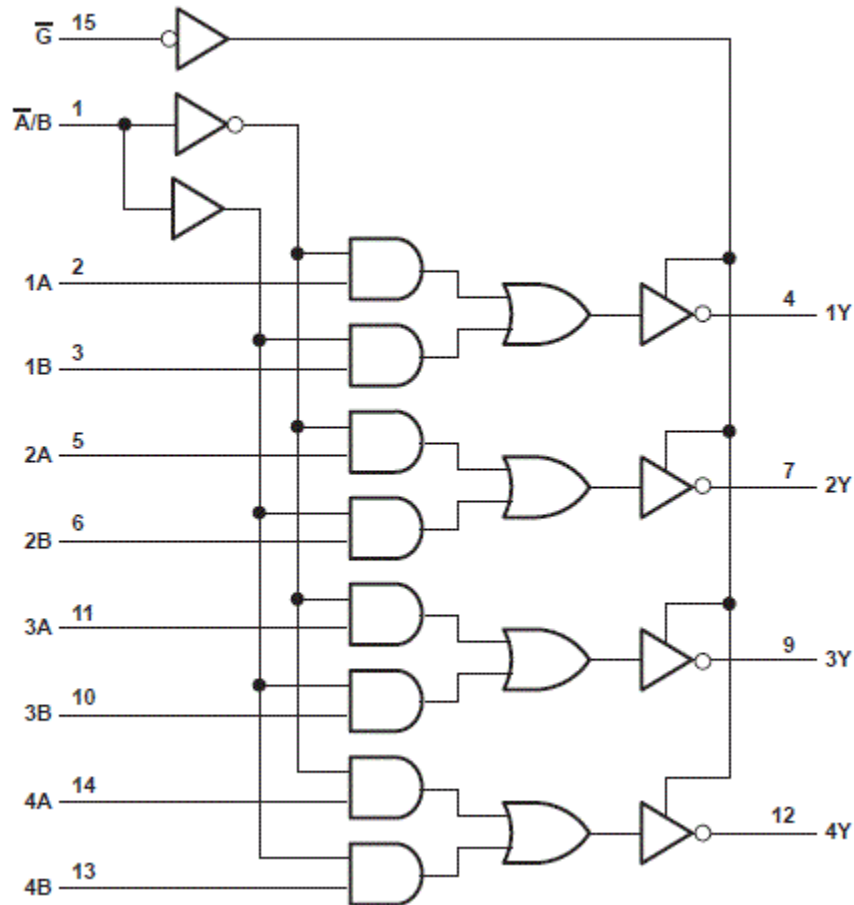


Figure 7-2. SN74HC258 Functional Block Diagram

### 7.3 Device Functional Modes

Table 7-1. Function Table

INPUTS				OUTPUT Y	
$\bar{G}$	$\bar{A}/B$	A	B	'HC257	'HC258
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

## 8 Power Supply Recommendations

The power supply can be any voltage between the minimum and maximum supply voltage rating located in the *Recommended Operating Conditions*. Each  $V_{CC}$  terminal should have a good bypass capacitor to prevent power disturbance. A 0.1- $\mu\text{F}$  capacitor is recommended for this device. It is acceptable to parallel multiple bypass caps to reject different frequencies of noise. The 0.1- $\mu\text{F}$  and 1- $\mu\text{F}$  capacitors are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for best results.

## 9 Layout

### 9.1 Layout Guidelines

When using multiple-input and multiple-channel logic devices inputs must not ever be left floating. In many cases, functions or parts of functions of digital logic devices are unused; for example, when only two inputs of a triple-input AND gate are used or only 3 of the 4 buffer gates are used. Such unused input pins must not be left unconnected because the undefined voltages at the outside connections result in undefined operational states. All unused inputs of digital logic devices must be connected to a logic high or logic low voltage, as defined by the input voltage specifications, to prevent them from floating. The logic level that must be applied to any particular unused input depends on the function of the device. Generally, the inputs are tied to GND or  $V_{CC}$ , whichever makes more sense for the logic function or is more convenient.

## 10 Device and Documentation Support

TI offers an extensive line of development tools. Tools and software to evaluate the performance of the device, generate code, and develop solutions are listed below.

### 10.1 Documentation Support

#### 10.1.1 Related Documentation

### 10.2 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on [ti.com](http://ti.com). Click on *Subscribe to updates* to register and receive a weekly digest of any product information that has changed. For change details, review the revision history included in any revised document.

### 10.3 Support Resources

TI E2E™ [support forums](#) are an engineer's go-to source for fast, verified answers and design help — straight from the experts. Search existing answers or ask your own question to get the quick design help you need.

Linked content is provided "AS IS" by the respective contributors. They do not constitute TI specifications and do not necessarily reflect TI's views; see TI's [Terms of Use](#).

### 10.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.  
All trademarks are the property of their respective owners.

### 10.5 Electrostatic Discharge Caution



This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

### 10.6 Glossary

[TI Glossary](#) This glossary lists and explains terms, acronyms, and definitions.

## 11 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

**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)
<a href="#">85124012A</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	85124012A SNJ54HC 257FK
<a href="#">8512401EA</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	8512401EA SNJ54HC257J
<a href="#">SN54HC257J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54HC257J
<a href="#">SN54HC257J.A</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	SN54HC257J
<a href="#">SN74HC257D</a>	Obsolete	Production	SOIC (D)   16	-	-	Call TI	Call TI	-40 to 85	HC257
<a href="#">SN74HC257DR</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU   SN	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257DR.A</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257DRG4</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257DRG4.A</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257DT</a>	Obsolete	Production	SOIC (D)   16	-	-	Call TI	Call TI	-40 to 85	HC257
<a href="#">SN74HC257N</a>	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74HC257N
<a href="#">SN74HC257N.A</a>	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74HC257N
<a href="#">SN74HC257NSR</a>	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257NSR.A</a>	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257PW</a>	Obsolete	Production	TSSOP (PW)   16	-	-	Call TI	Call TI	-40 to 85	HC257
<a href="#">SN74HC257PWR</a>	Active	Production	TSSOP (PW)   16	2000   LARGE T&R	Yes	NIPDAU   SN	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257PWR.A</a>	Active	Production	TSSOP (PW)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC257PWR1G4</a>	Active	Production	TSSOP (PW)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC257
<a href="#">SN74HC258D</a>	Obsolete	Production	SOIC (D)   16	-	-	Call TI	Call TI	-40 to 85	HC258
<a href="#">SN74HC258DR</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC258
<a href="#">SN74HC258DR.A</a>	Active	Production	SOIC (D)   16	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC258
<a href="#">SN74HC258N</a>	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74HC258N
<a href="#">SN74HC258N.A</a>	Active	Production	PDIP (N)   16	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74HC258N
<a href="#">SN74HC258NSR</a>	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC258
<a href="#">SN74HC258NSR.A</a>	Active	Production	SOP (NS)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC258
<a href="#">SN74HC258PW</a>	Obsolete	Production	TSSOP (PW)   16	-	-	Call TI	Call TI	-40 to 85	HC258
<a href="#">SN74HC258PWR</a>	Active	Production	TSSOP (PW)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC258

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)
SN74HC258PWR.A	Active	Production	TSSOP (PW)   16	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC258
<a href="#">SNJ54HC257FK</a>	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	85124012A SNJ54HC 257FK
SNJ54HC257FK.A	Active	Production	LCCC (FK)   20	55   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	85124012A SNJ54HC 257FK
<a href="#">SNJ54HC257J</a>	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	8512401EA SNJ54HC257J
SNJ54HC257J.A	Active	Production	CDIP (J)   16	25   TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	8512401EA SNJ54HC257J

(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.

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**OTHER QUALIFIED VERSIONS OF SN54HC257, SN74HC257 :**

- Catalog : [SN74HC257](#)
- Military : [SN54HC257](#)

NOTE: Qualified Version Definitions:

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

**TAPE AND REEL INFORMATION**

**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
SN74HC257DR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74HC257DRG4	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74HC257NSR	SOP	NS	16	2000	330.0	16.4	8.45	10.55	2.5	12.0	16.2	Q1
SN74HC257PWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74HC257PWR1G4	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74HC258DR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74HC258NSR	SOP	NS	16	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1
SN74HC258PWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1

**TAPE AND REEL BOX DIMENSIONS**


\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74HC257DR	SOIC	D	16	2500	353.0	353.0	32.0
SN74HC257DRG4	SOIC	D	16	2500	353.0	353.0	32.0
SN74HC257NSR	SOP	NS	16	2000	353.0	353.0	32.0
SN74HC257PWR	TSSOP	PW	16	2000	356.0	356.0	35.0
SN74HC257PWR1G4	TSSOP	PW	16	2000	356.0	356.0	35.0
SN74HC258DR	SOIC	D	16	2500	353.0	353.0	32.0
SN74HC258NSR	SOP	NS	16	2000	353.0	353.0	32.0
SN74HC258PWR	TSSOP	PW	16	2000	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)
85124012A	FK	LCCC	20	55	506.98	12.06	2030	NA
SN74HC257N	N	PDIP	16	25	506	13.97	11230	4.32
SN74HC257N	N	PDIP	16	25	506	13.97	11230	4.32
SN74HC257N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74HC257N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74HC258N	N	PDIP	16	25	506	13.97	11230	4.32
SN74HC258N	N	PDIP	16	25	506	13.97	11230	4.32
SN74HC258N.A	N	PDIP	16	25	506	13.97	11230	4.32
SN74HC258N.A	N	PDIP	16	25	506	13.97	11230	4.32
SNJ54HC257FK	FK	LCCC	20	55	506.98	12.06	2030	NA
SNJ54HC257FK.A	FK	LCCC	20	55	506.98	12.06	2030	NA

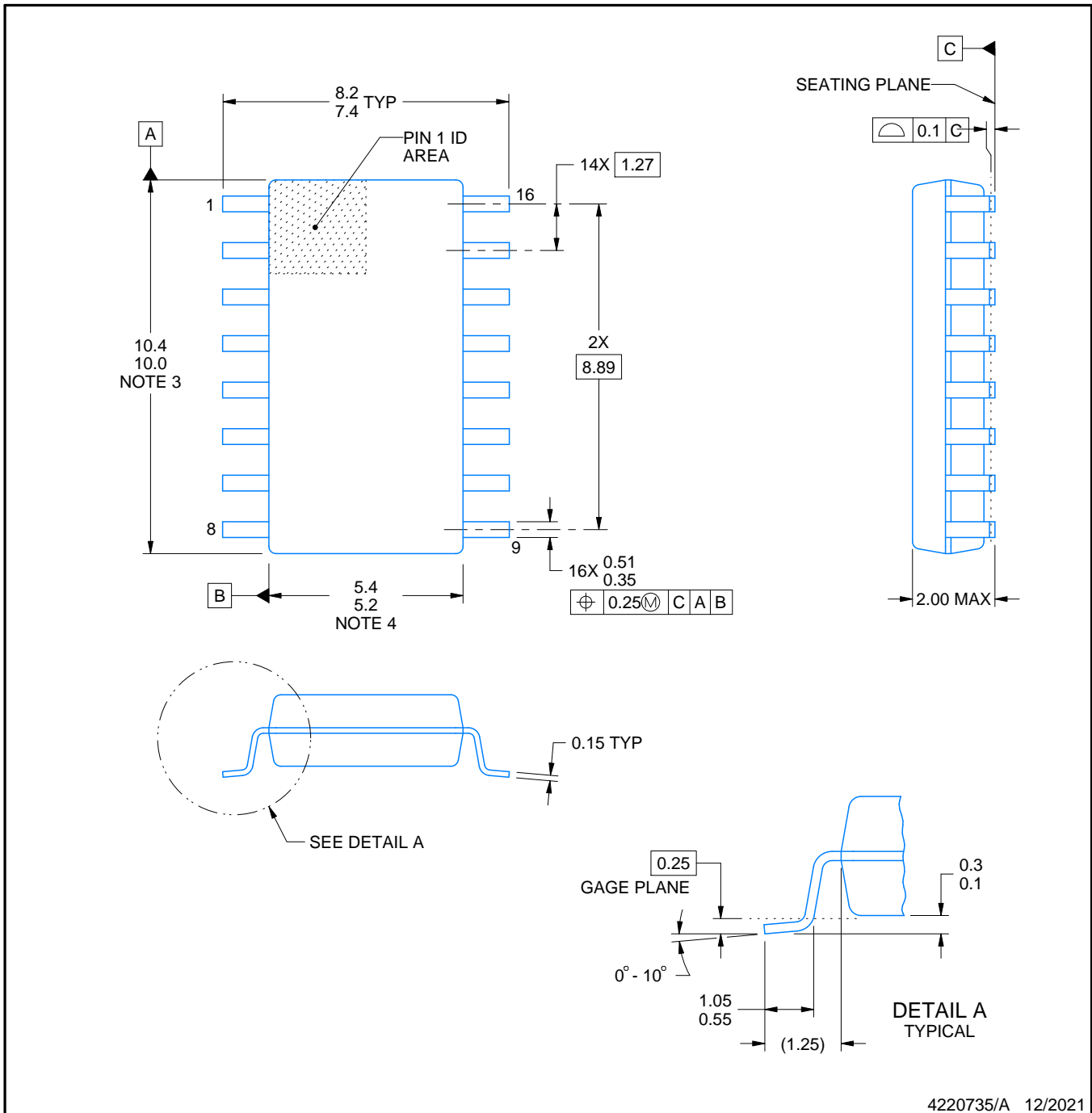


# PACKAGE OUTLINE

## NS0016A

### SOP - 2.00 mm max height

SOP



4220735/A 12/2021

#### 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.

# EXAMPLE BOARD LAYOUT

NS0016A

SOP - 2.00 mm max height

SOP



SOLDER MASK DETAILS

4220735/A 12/2021

NOTES: (continued)

5. Publication IPC-7351 may have alternate designs.

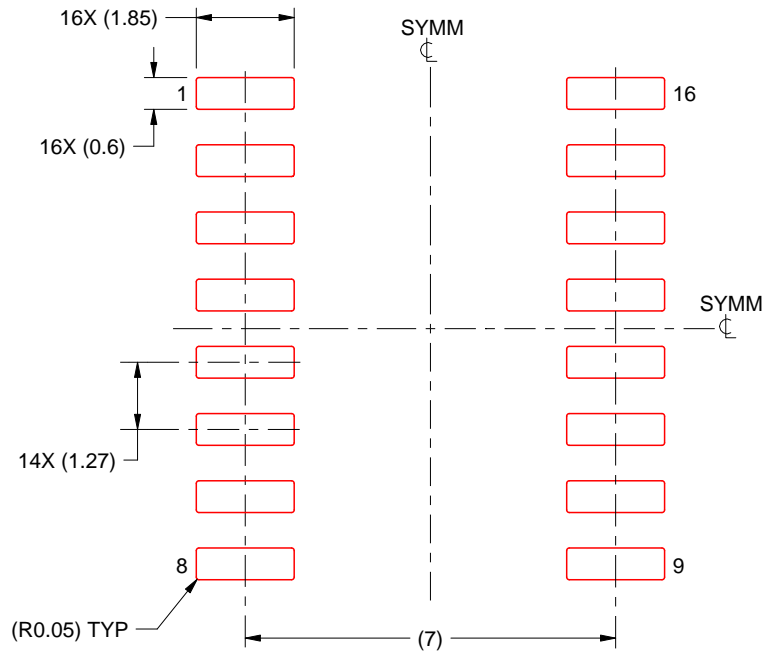
6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

NS0016A

SOP - 2.00 mm max height

SOP



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

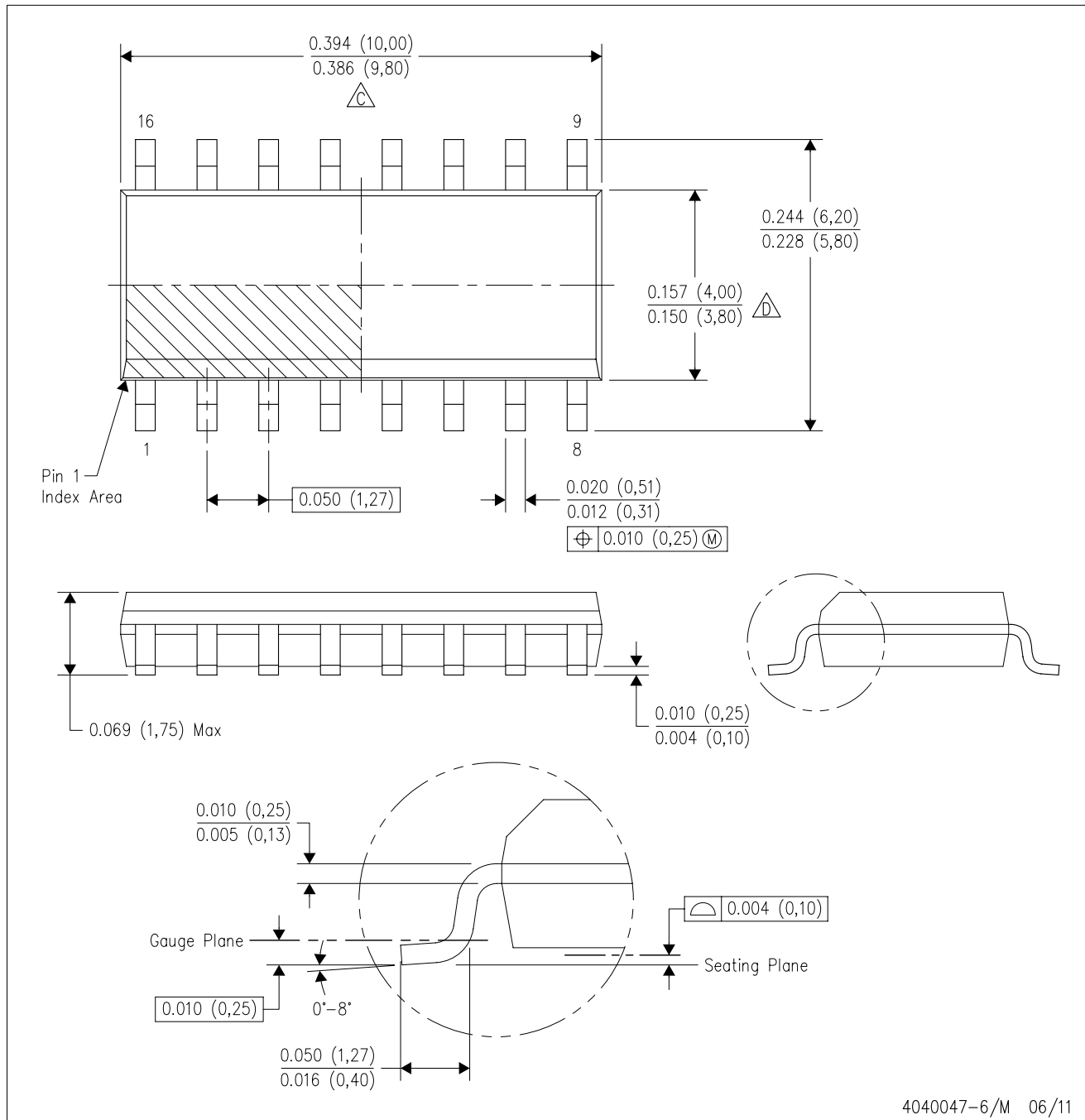
4220735/A 12/2021

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.

## 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.



4229370VA\

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



4220204/B 12/2023

NOTES:

1. All linear dimensions are in millimeters. Any 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.
5. Reference JEDEC registration MO-153.

# EXAMPLE BOARD LAYOUT

PW0016A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



SOLDER MASK DETAILS

4220204/B 12/2023

NOTES: (continued)

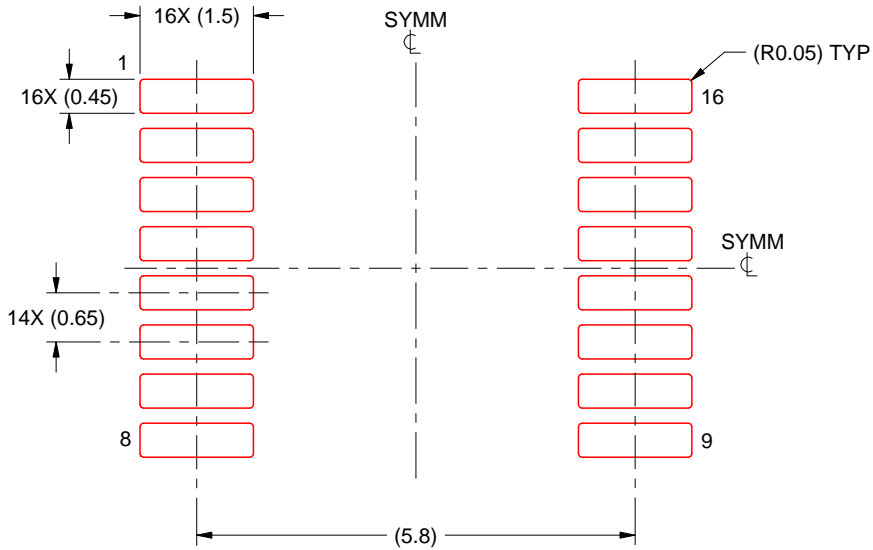
- 6. Publication IPC-7351 may have alternate designs.
- 7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

PW0016A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE: 10X

4220204/B 12/2023

NOTES: (continued)

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

N (R-PDIP-T\*\*)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



- NOTES:
- 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.

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