

## SN74HC4066 Quadruple Bilateral Analog Switch

### 1 Features

- Wide operating voltage range of 1V to 6V
- Typical switch enable time of 18ns
- Low power consumption, 20 $\mu$ A maximum I<sub>CC</sub>
- Low input current of 1 $\mu$ A maximum
- High degree of linearity
- High on-off output-voltage ratio
- Low crosstalk between switches
- Low on-state impedance: 50 $\Omega$  typical at V<sub>CC</sub> = 6V
- Individual switch controls

### 2 Applications

- Analog signal switching or multiplexing:
  - Signal gating, modulator, squelch control, demodulator, chopper, commutating switch
- Digital signal switching and multiplexing:
  - [Audio and video signal routing](#)
- Transmission-gate logic implementation
- Analog-to-digital and digital-to-analog conversion
- Digital control of frequency, impedance, phase, and analog-signal gain
- Motor speed control
- [Battery chargers](#)
- [DC-DC converter](#)

### 3 Description

The SN74HC4066 device is a silicon-gate CMOS quadruple analog switch designed to handle both analog and digital signals. Each switch permits signals with amplitudes of up to 6V (peak) to be transmitted in either direction.

Each switch section has its own enable input control (C). A high-level voltage applied to C turns on the associated switch section.

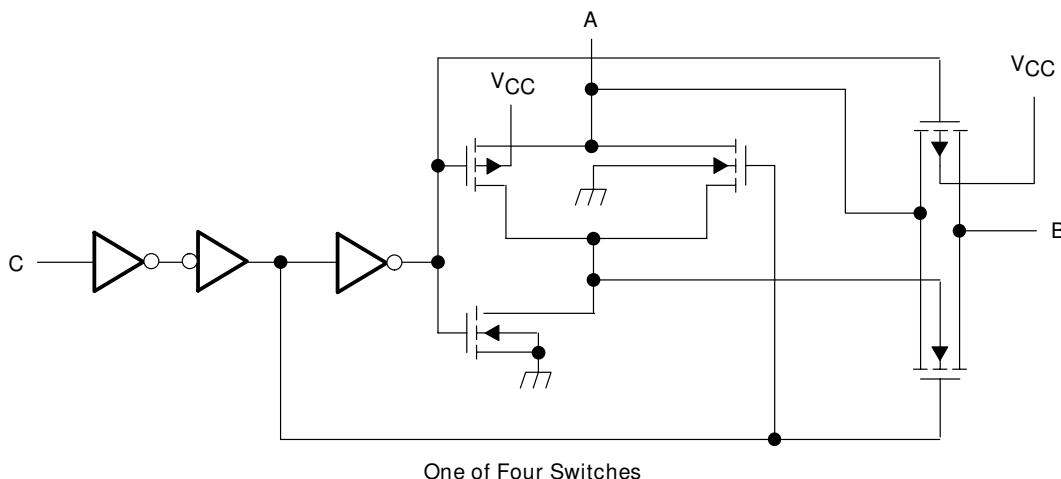
Applications include signal gating, chopping, modulation or demodulation (modem), and signal multiplexing for analog-to-digital and digital-to-analog conversion systems.

#### Package Information

PART NUMBER	PACKAGE <sup>(1)</sup>	PACKAGE SIZE <sup>(2)</sup>
SN74HC4066	D (SOIC, 14)	8.65mm × 6mm
	PW (TSSOP, 14)	5mm × 6.4mm

(1) For more information, see [Section 11](#).

(2) The package size (length × width) is a nominal value and includes pins, where applicable.



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Logic Diagram, Each Switch (Positive Logic)

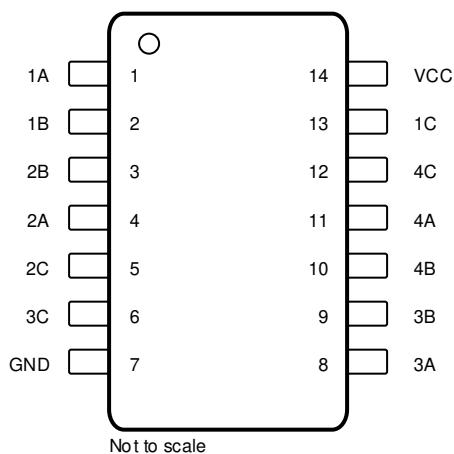


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## 4 Pin Configuration and Functions



**Figure 4-1. D or PW Package, 14-Pin SOIC or TSSOP (Top View)**

**Table 4-1. Pin Functions**

<b>PIN</b>		<b>TYPE<sup>(1)</sup></b>	<b>DESCRIPTION</b>
<b>NAME</b>	<b>NO.</b>		
1A	1	I/O	Switch 1 input/output
1B	2	I/O	Switch 1 output/input
2B	3	I/O	Switch 2 output/input
2A	4	I/O	Switch 2 input/output
2C	5	I	Switch 2 control
3C	6	I	Switch 3 control
GND	7	—	Ground
3A	8	I/O	Switch 3 input/output
3B	9	I/O	Switch 3 output/input
4B	10	I/O	Switch 4 output/input
4A	11	I/O	Switch 4 input/output
4C	12	I	Switch 4 control
1C	13	I	Switch 1 control
V <sub>CC</sub>	14	—	Power

(1) I = input, O = output

## 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 <sup>(2)</sup>	-0.5	7	V
I <sub>I</sub>	Control-input diode current	V <sub>I</sub> < 0 or V <sub>I</sub> > V <sub>CC</sub>	±20	mA
I <sub>I</sub>	I/O port diode current	V <sub>I</sub> < 0 or V <sub>I/O</sub> > V <sub>CC</sub>	±20	mA
	On-state switch current	V <sub>I/O</sub> = 0 to V <sub>CC</sub>	±25	mA
	Continuous current through V <sub>CC</sub> or GND		±50	mA
T <sub>J</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature	-60	150	°C

(1) Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions*. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

(2) All voltages are with respect to ground unless otherwise specified.

### 5.2 ESD Ratings

		VALUE	UNIT
V <sub>(ESD)</sub>	Human-body model (HBM), per ANSI/ESDA/JEDEC JS-001 <sup>(1)</sup>	±1000	V
	Charged-device model (CDM), per JEDEC specification JESD22-C101 <sup>(2)</sup>	±1000	

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

(2) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process. CDM value for N package only.

### 5.3 Recommended Operating Conditions

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

		MIN	NOM	MAX	UNIT
V <sub>CC</sub>	Supply voltage	1 <sup>(2)</sup>	5	6	V
V <sub>I/O</sub>	I/O port voltage	0		V <sub>CC</sub>	V
V <sub>IH</sub>	High-level input voltage, control inputs	V <sub>CC</sub> = 2V	1.5		V <sub>CC</sub>
		V <sub>CC</sub> = 4.5V	3.15		V <sub>CC</sub>
		V <sub>CC</sub> = 6V	4.2		V <sub>CC</sub>
V <sub>IL</sub>	Low-level input voltage, control inputs	V <sub>CC</sub> = 2V	0	0.3	V
		V <sub>CC</sub> = 4.5V	0	0.9	
		V <sub>CC</sub> = 6V	0	1.2	
V <sub>I</sub>	Logic control input voltage		0	V <sub>CC</sub>	V
Δt/Δv	Input transition rise and fall time	V <sub>CC</sub> = 2V		1000	ns
		V <sub>CC</sub> = 4.5V		500	
		V <sub>CC</sub> = 6V		400	
T <sub>A</sub>	Operating free-air temperature	-40		85	°C

(1) All unused inputs of the device must be held at V<sub>CC</sub> or GND for proper device operation. See the TI application report, *Implications of Slow or Floating CMOS Inputs* (SCBA004).

(2) With supply voltages at or below 2V, the analog switch on-state resistance becomes very nonlinear. It is recommended that only digital signals be transmitted at these low supply voltages.

## 5.4 Thermal Information

<b>THERMAL METRIC<sup>(1)</sup></b>		<b>SN74HC4066</b>		<b>UNIT</b>
		<b>D (SOIC)</b>	<b>PW (TSSOP)</b>	
		<b>14 PINS</b>	<b>14 PINS</b>	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	127.8	150.6	°C/W
$R_{\theta JC(\text{top})}$	Junction-to-case (top) thermal resistance	81.8	78.2	°C/W
$R_{\theta JB}$	Junction-to-board thermal resistance	84.2	93.7	°C/W
$\Psi_{JT}$	Junction-to-top characterization parameter	39.5	24.6	°C/W
$\Psi_{JB}$	Junction-to-board characterization parameter	83.7	93.1	°C/W

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

## 5.5 Electrical Characteristics

$T_A = -40$  to  $+85$  °C unless otherwise specified.

<b>PARAMETER</b>		<b>TEST CONDITIONS</b>		<b>V<sub>CC</sub></b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
$r_{on}$	On-state switch resistance	$I_T = -1\text{mA}$ , $V_I = 0$ to $V_{CC}$ , $V_C = V_{IH}$ (see <a href="#">Figure 6-1</a> )	$T_A = 25^\circ\text{C}$	2V	150			$\Omega$
			$T_A = 25^\circ\text{C}$	4.5V	50	85		
			$T_A = -40$ to $+85$				106	
			$T_A = 25^\circ\text{C}$	6V	30			
$r_{on(p)}$	Peak on-state resistance	$V_I = V_{CC}$ or GND, $V_C = V_{IH}$ , $I_T = -1\text{mA}$	$T_A = 25^\circ\text{C}$	2V	320			$\Omega$
			$T_A = 25^\circ\text{C}$	4.5V	70	170		
			$T_A = -40$ to $+85$				215	
			$T_A = 25^\circ\text{C}$	6V	50			
$I_{IH}$ $I_{IL}$	Control input current	$V_C = 0$ or $V_{CC}$	$T_A = 25^\circ\text{C}$	6V		$\pm 0.1$	$\pm 100$	$\text{nA}$
			$T_A = -40$ to $+85$				$\pm 1000$	
$I_{soff}$	Off-state switch leakage current	$V_I = V_{CC}$ or 0, $V_O = V_{CC}$ or 0, $V_C = V_{IL}$ (see <a href="#">Figure 6-2</a> )	$T_A = -40$ to $+85$	6V			$\pm 5$	$\mu\text{A}$
			$T_A = 25^\circ\text{C}$				$\pm 0.1$	
$I_{son}$	On-state switch leakage current	$V_I = V_{CC}$ or 0, $V_C = V_{IH}$ (see <a href="#">Figure 6-3</a> )	$T_A = -40$ to $+85$	6V			$\pm 5$	$\mu\text{A}$
			$T_A = 25^\circ\text{C}$				$\pm 0.1$	
$I_{CC}$	Supply current	$V_I = 0$ or $V_{CC}$ , $I_O = 0$	$T_A = -40$ to $+85$	6V			20	$\mu\text{A}$
			$T_A = 25^\circ\text{C}$				2	
$C_i$	Input capacitance	A or B	$T_A = 25^\circ\text{C}$	5V			8	$\text{pF}$
		C	$T_A = -40$ to $+85$				10	
			$T_A = 25^\circ\text{C}$				3 10	
$C_f$	Feed-through capacitance	A to B	$V_I = 0$				0.5	pF
$C_o$	Output capacitance	A or B		5V			9	pF

## 5.6 Switching Characteristics

$T_A = -40$  to  $+85^\circ\text{C}$  unless otherwise specified.

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	$V_{CC}$	MIN	TYP	MAX	UNIT
$t_{PLH}, t_{PHL}$ Propagation delay time	A or B	B or A	$C_L = 50\text{pF}$ (see Figure 6-4)	$T_A = 25^\circ\text{C}$	2V	10	60	ns
				$T_A = -40$ to $+85^\circ\text{C}$		75		
				$T_A = 25^\circ\text{C}$	4.5V	4	12	
				$T_A = -40$ to $+85^\circ\text{C}$		15		
				$T_A = 25^\circ\text{C}$	6V	3	10	
				$T_A = -40$ to $+85^\circ\text{C}$		13		
$t_{PZH}, t_{PZL}$ Switch turn-on time	C	A or B	$R_L = 1\text{k}\Omega, C_L = 50\text{pF}$ (see Figure 6-5)	$T_A = 25^\circ\text{C}$	2V	70	180	ns
				$T_A = -40$ to $+85^\circ\text{C}$		225		
				$T_A = 25^\circ\text{C}$	4.5V	21	36	
				$T_A = -40$ to $+85^\circ\text{C}$		45		
				$T_A = 25^\circ\text{C}$	6V	18	31	
				$T_A = -40$ to $+85^\circ\text{C}$		38		
$t_{PLZ}, t_{PHZ}$ Switch turn-off time	C	A or B	$R_L = 1\text{k}\Omega, C_L = 50\text{pF}$ (see Figure 6-5)	$T_A = 25^\circ\text{C}$	2V	50	200	ns
				$T_A = -40$ to $+85^\circ\text{C}$		250		
				$T_A = 25^\circ\text{C}$	4.5V	25	40	
				$T_A = -40$ to $+85^\circ\text{C}$		50		
				$T_A = 25^\circ\text{C}$	6V	22	34	
				$T_A = -40$ to $+85^\circ\text{C}$		43		
$f_I$ Control input frequency	C	A or B	$C_L = 15\text{pF}, R_L = 1\text{k}\Omega, V_C = V_{CC} \text{ or GND}, V_O = V_{CC} / 2$ (see Figure 6-6)	$T_A = 25^\circ\text{C}$	2V	15		MHz
				$T_A = 25^\circ\text{C}$	4.5V	30		
				$T_A = 25^\circ\text{C}$	6V	30		
Control feed-through noise	C	A or B	$C_L = 50\text{pF}, R_{in} = R_L = 600 \Omega, V_C = V_{CC} \text{ or GND}, f_{in} = 1\text{MHz}$ (see Figure 6-7)	$T_A = 25^\circ\text{C}$	4.5V	15		mV (rms)
				$T_A = 25^\circ\text{C}$	6V	20		

## 5.7 Operating Characteristics

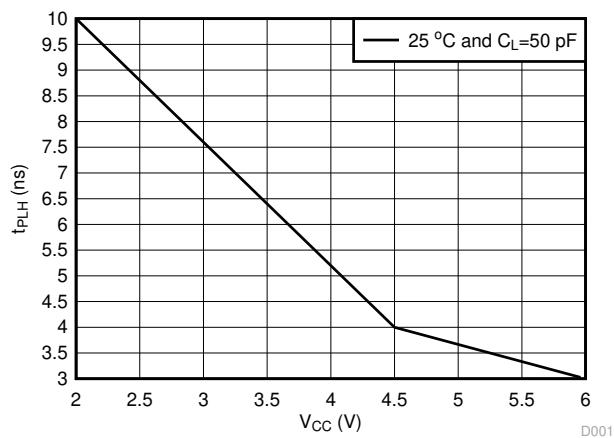
$V_{CC} = 4.5\text{V}$ ,  $T_A = 25^\circ\text{C}$

PARAMETER			TEST CONDITIONS	TYP	UNIT
$C_{pd}$	Power dissipation capacitance per gate		$C_L = 50\text{pF}, f = 1\text{MHz}$	45	pF
	Minimum through bandwidth, A to B or B to A <sup>(1)</sup> [20 log $(V_O / V_i)$ ] = $-3\text{ dB}$		$C_L = 50\text{pF}, R_L = 600 \Omega, V_C = V_{CC}$ (see Figure 6-8)	100	MHz
	Crosstalk between any switches <sup>(2)</sup>		$C_L = 10\text{pF}, f_{in} = 1\text{MHz}$	-45	dB
	Feed through, switch off, A to B or B to A <sup>(2)</sup>		$C_L = 50\text{pF}, R_L = 600 \Omega, f_{in} = 1\text{MHz}$ (see Figure 6-10)	-42	dB
	Amplitude distortion rate, A to B or B to A		$C_L = 50\text{pF}, R_L = 10\text{k}\Omega, f_{in} = 1\text{kHz}$ (see Figure 6-11)	0.05%	

(1) Adjust the input amplitude for output = 0 dBm at  $f = 1\text{MHz}$ . Input signal must be a sine wave.

(2) Adjust the input amplitude for input = 0 dBm at  $f = 1\text{MHz}$ . Input signal must be a sine wave.

## 5.8 Typical Characteristics



**Figure 5-1.  $t_{PLH}$  vs  $V_{CC}$**

## 6 Parameter Measurement Information

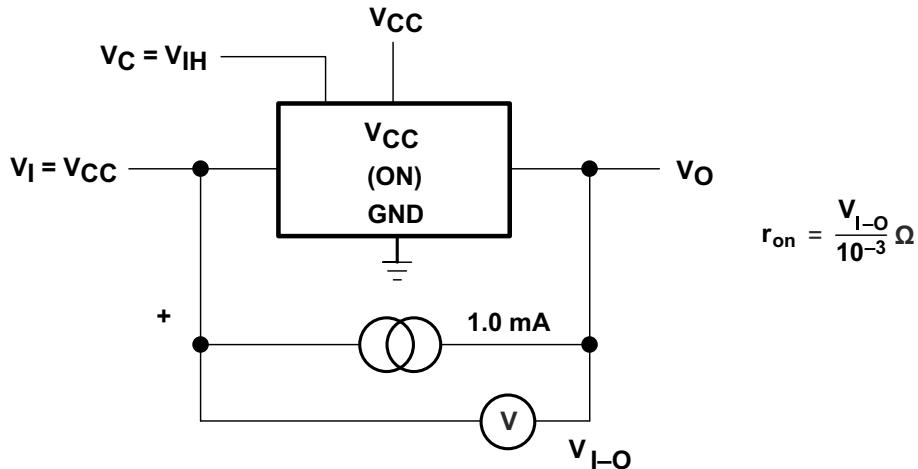
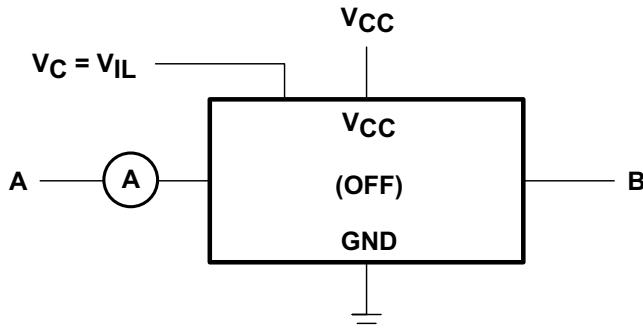


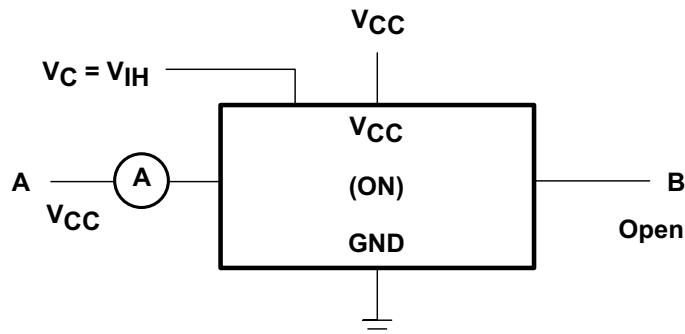
Figure 6-1. ON-State Resistance Test Circuit



$$V_S = V_A - V_B$$

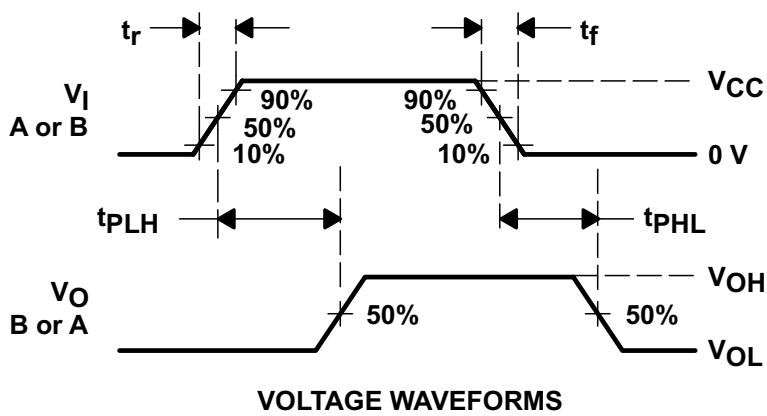
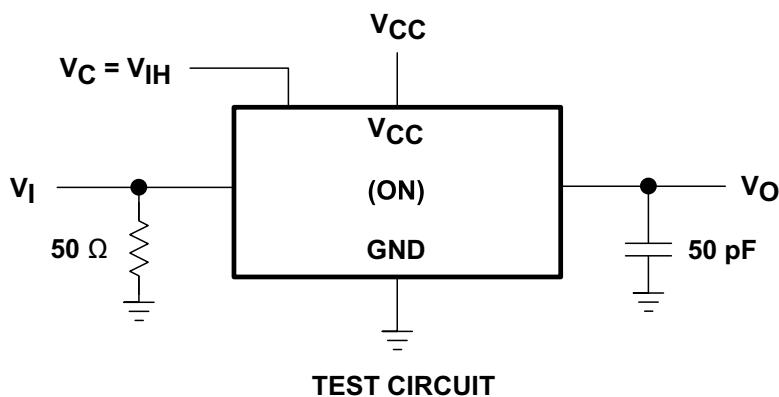
CONDITION 1:  $V_A = 0, V_B = V_{CC}$   
 CONDITION 2:  $V_A = V_{CC}, V_B = 0$

Figure 6-2. OFF-State Switch Leakage-Current Test Circuit



$$V_A = V_{CC} \text{ TO GND}$$

Figure 6-3. ON-State Leakage-Current Test Circuit



**Figure 6-4. Propagation Delay Time, Signal Input to Signal Output**

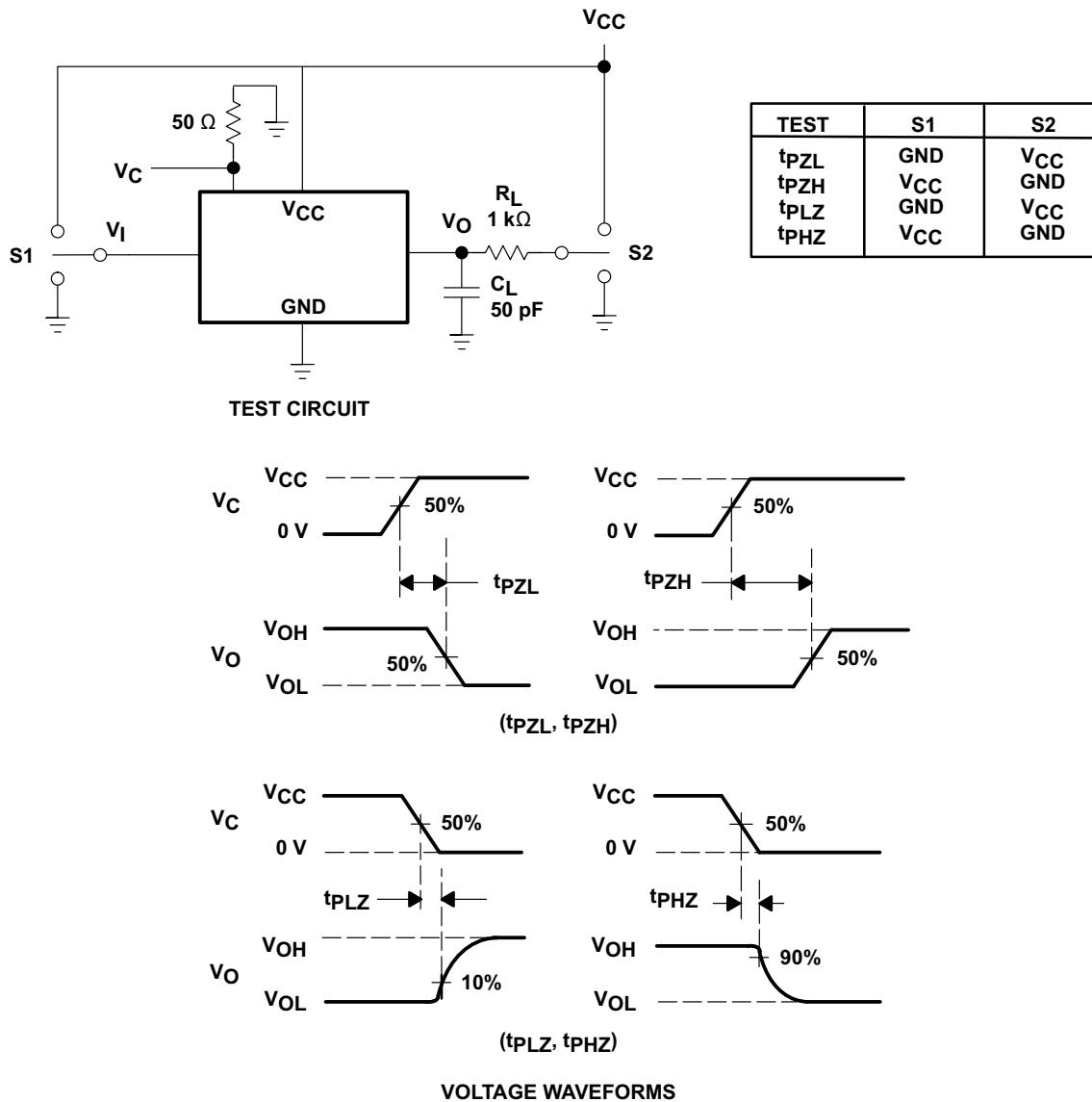


Figure 6-5. Switching Time ( $t_{PZL}$ ,  $t_{PLZ}$ ,  $t_{PZH}$ ,  $t_{PHZ}$ ), Control to Signal Output

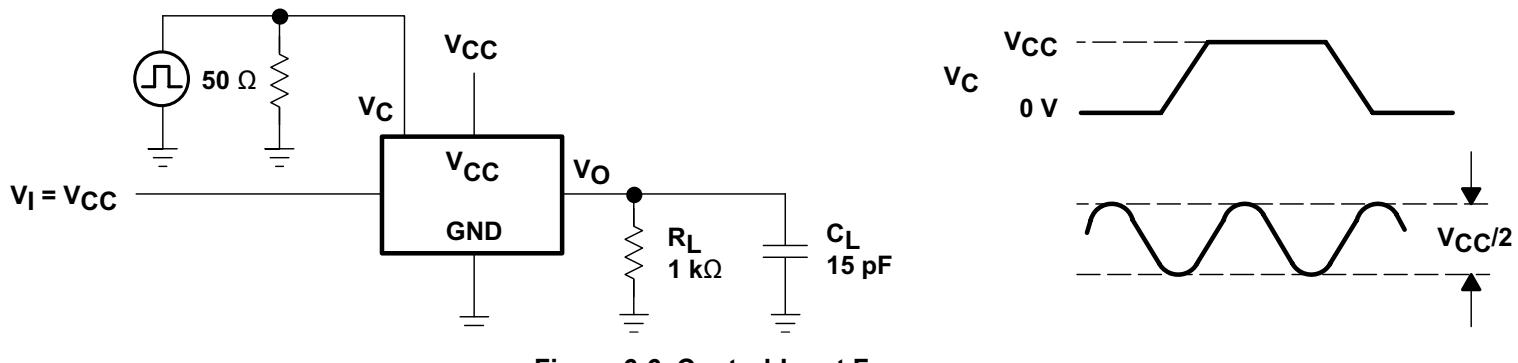


Figure 6-6. Control-Input Frequency

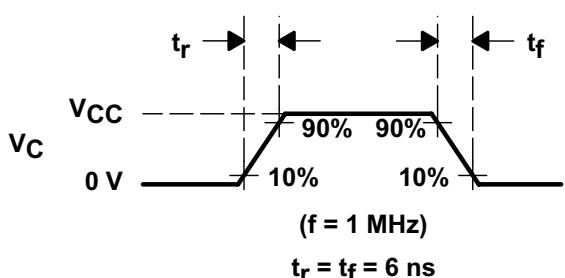
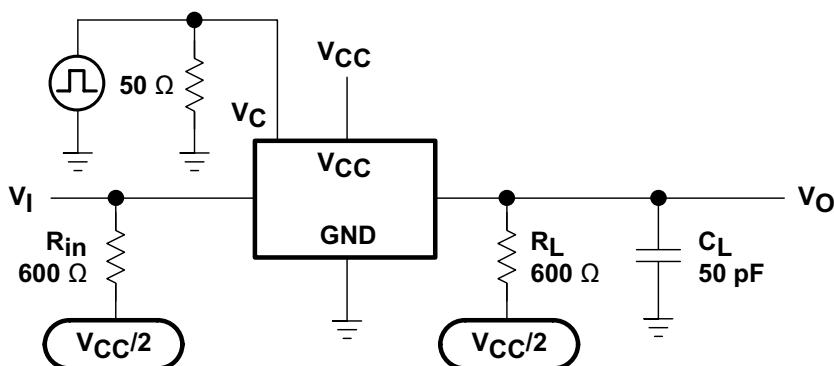


Figure 6-7. Control Feed-Through Noise

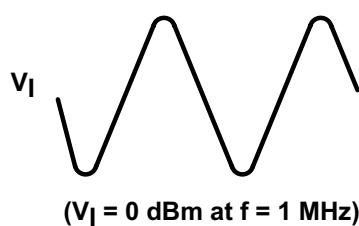
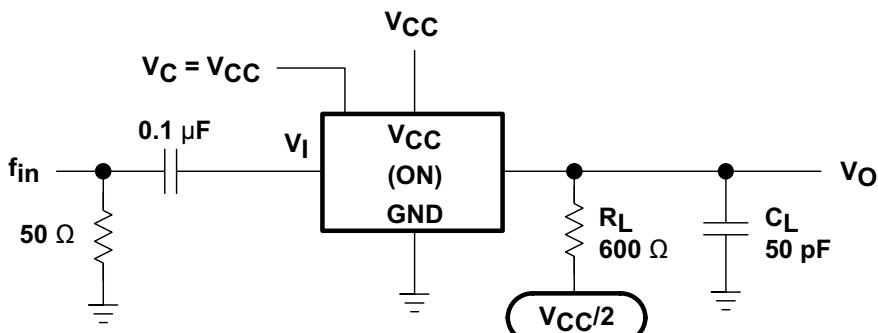


Figure 6-8. Minimum Through Bandwidth

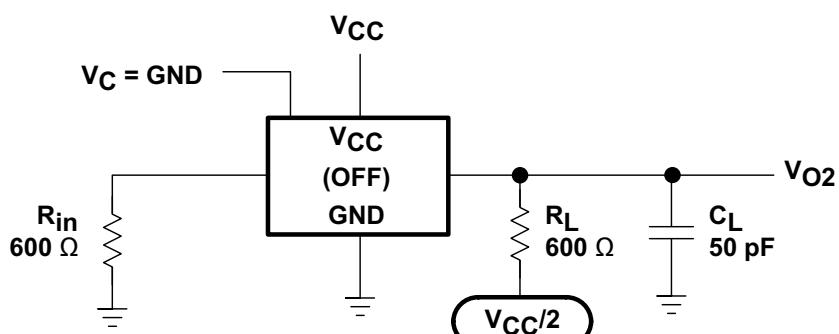
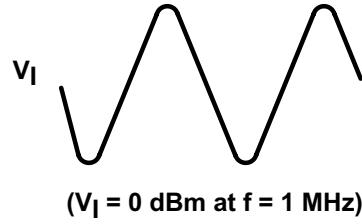
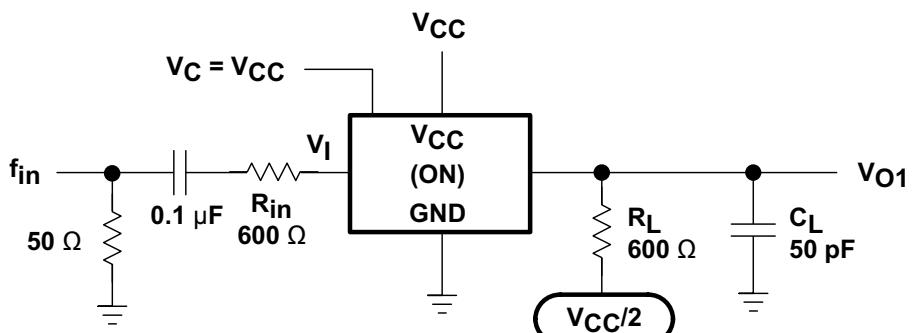


Figure 6-9. Crosstalk Between Any Two Switches

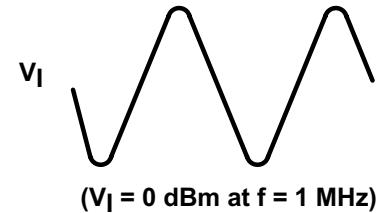
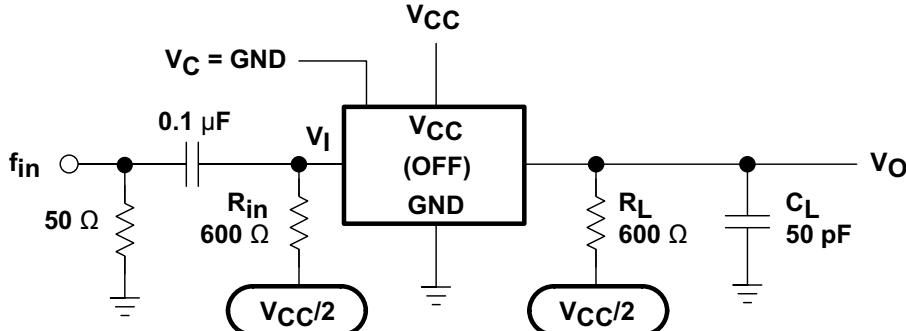


Figure 6-10. Feed Through, Switch OFF

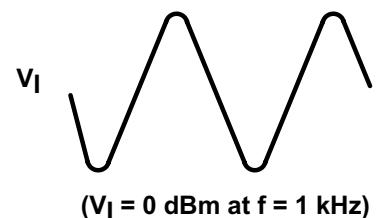
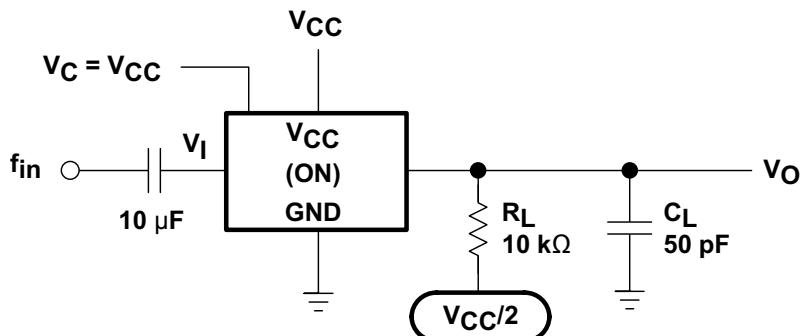


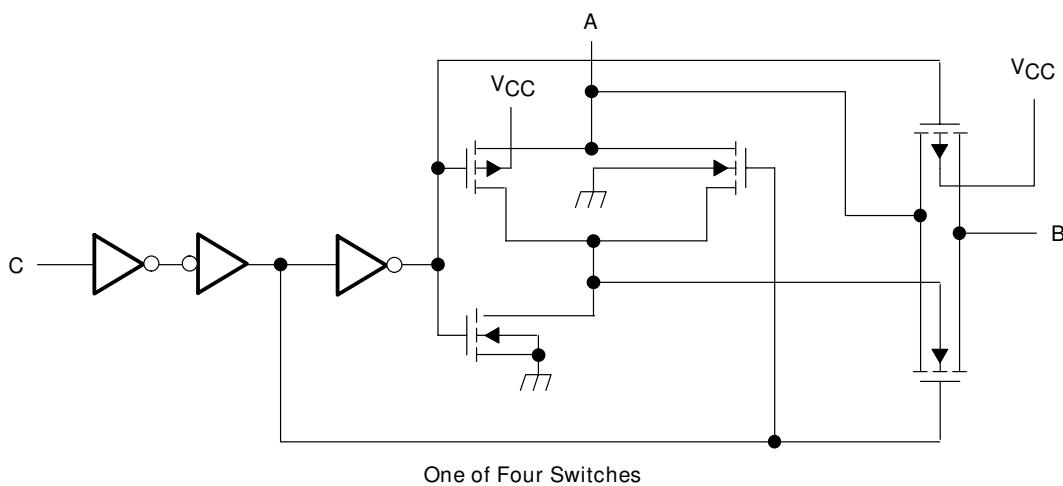
Figure 6-11. Amplitude-Distortion Rate

## 7 Detailed Description

### 7.1 Overview

The SN74HC4066 device is a silicon-gate CMOS quadruple analog switch designed for 2-V to 6-V V<sub>CC</sub> operation. It is designed to handle both analog and digital signals. Each switch permits signals with amplitudes of up to 6V (peak) to be transmitted in either direction. A high-level voltage applied to the control pin C enables the respective switch to begin propagating signals across the device.

### 7.2 Functional Block Diagram



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**Figure 7-1. Logic Diagram, Each Switch (Positive Logic)**

### 7.3 Feature Description

Each switch section has its own enable-input control (C). A high-level voltage applied to C turns on the associated switch section, with typically 18ns of switch enable time. The SN74HC4066 has a wide operating voltage range of 2V to 6V. It has low power consumption, with 20 $\mu$ A maximum I<sub>CC</sub> and a low on-state impedance of 50  $\Omega$ . It also has low crosstalk between switches to minimize noise.

### 7.4 Device Functional Modes

Table 7-1 lists the functions for the SN74HC4066 device.

**Table 7-1. Function Table  
(Each Switch)**

INPUT CONTROL (C)	SWITCH
L	OFF
H	ON

## 8 Application and Implementation

### Note

Information in the following applications sections is not part of the TI component specification, and TI does not warrant its accuracy or completeness. TI's customers are responsible for determining suitability of components for their purposes, as well as validating and testing their design implementation to confirm system functionality.

### 8.1 Application Information

The SN74HC4066 can be used in any situation where a dual SPST switch is used and a solid-state voltage controlled version is preferred.

### 8.2 Typical Application

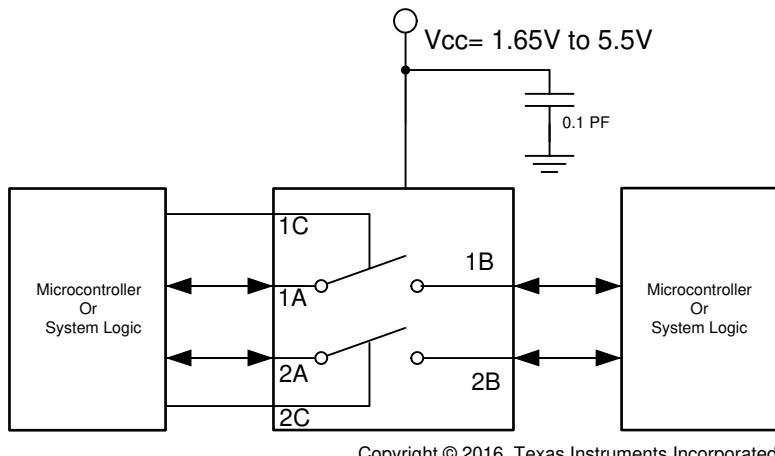


Figure 8-1.  $t_{PZH}$  vs V<sub>CC</sub>

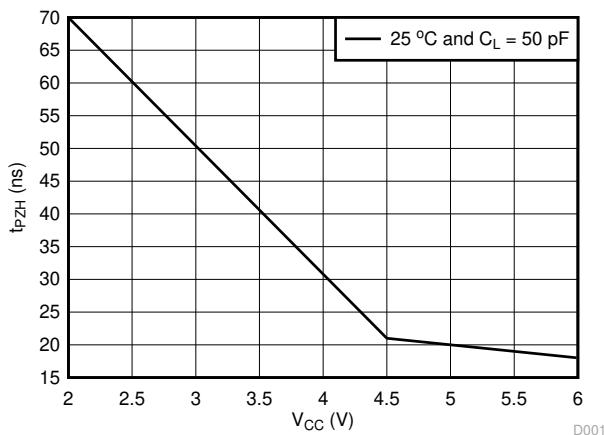
#### 8.2.1 Design Requirements

The SN74HC4066 allows ON/OFF control of analog and digital signals with a digital control signal. All input signals should remain between 0V and V<sub>CC</sub> for optimal operation.

#### 8.2.2 Detailed Design Procedure

1. Recommended Input Conditions:
  - For rise time and fall time specifications, see  $\Delta t/\Delta v$  in [Section 5.3](#).
  - For specified high and low levels, see V<sub>IH</sub> and V<sub>IL</sub> in [Section 5.3](#).
2. Recommended Output Conditions:
  - On-state switch current should not exceed  $\pm 25\text{mA}$ .

### 8.2.3 Application Curve



**Figure 8-2. t<sub>PZH</sub> vs V<sub>CC</sub>**

## 8.3 Power Supply Recommendations

The power supply can be any voltage between the minimum and maximum supply voltage rating located in the [Section 5.3](#).

Each V<sub>CC</sub> terminal should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, TI recommends a 0.1μF bypass capacitor. If there are multiple pins labeled V<sub>CC</sub>, then a 0.01μF or 0.022μF capacitor is recommended for each V<sub>CC</sub> because the VCC pins will be tied together internally. For devices with dual-supply pins operating at different voltages, for example V<sub>CC</sub> and V<sub>DD</sub>, TI recommends a 0.1μF bypass capacitor for each supply pin. It is acceptable to parallel multiple bypass capacitors to reject different frequencies of noise. 0.1μF and 1μF capacitors are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for best results.

## 8.4 Layout

### 8.4.1 Layout Guidelines

Reflections and matching are closely related to loop antenna theory, but different enough to warrant their own discussion. When a PCB trace turns a corner at a 90° angle, a reflection can occur. This is primarily due to the change of width of the trace. At the apex of the turn, the trace width is increased to 1.414 times its width. This upsets the transmission line characteristics, especially the distributed capacitance and self-inductance of the trace — resulting in the reflection.

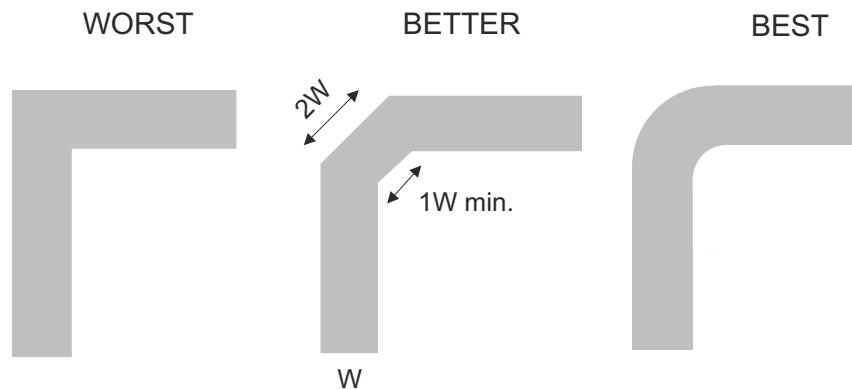
---

#### Note

Not all PCB traces can be straight, and so they will have to turn corners. [Figure 8-3](#) shows progressively better techniques of rounding corners. Only the last example maintains constant trace width and minimizes reflections.

---

### 8.4.2 Layout Example



**Figure 8-3. Trace Example**

## 9 Device and Documentation Support

### 9.1 Documentation Support

#### 9.1.1 Related Documentation

For related documentation, see the following:

- Texas Instruments, *Implications of Slow or Floating CMOS Inputs* application notes

### 9.2 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on [ti.com](#). Click on *Notifications* 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.

### 9.3 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](#).

### 9.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.

All trademarks are the property of their respective owners.

### 9.5 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.

### 9.6 Glossary

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

## 10 Revision History

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

<b>Changes from Revision J (November 2021) to Revision K (February 2024)</b>	<b>Page</b>
• Updated the <i>Package Information</i> table to include package lead size.....	1
• Updated data sheet to only include D (SOIC, 14) or PW (TSSOP, 14) packages.....	1
• Updated <i>Thermal Information</i> section.....	5
• Updated V <sub>CC</sub> operation from: 2V - 6V to: 1V - 6V.....	5

<b>Changes from Revision I (January 2019) to Revision J (November 2021)</b>	<b>Page</b>
• Changed the MAX values for I <sub>soff</sub> , I <sub>son</sub> , and I <sub>CC</sub> in the <i>Electrical Characteristics</i> table.....	5

<b>Changes from Revision H (August 2016) to Revision I (January 2019)</b>	<b>Page</b>
• Updated the numbering format for tables, figures, and cross-references throughout the document.....	1
• Changed the Description of pins 8 through 12 in the <i>Pin Functions</i> table.....	3

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Changes from Revision G (July 2003) to Revision H (August 2016)	Page
• Added <i>ESD Ratings</i> table, <i>Feature Description</i> section, <i>Device Functional Modes</i> , <i>Application and Implementation</i> section, <i>Power Supply Recommendations</i> section, <i>Layout</i> section, <i>Device and Documentation Support</i> section, and <i>Mechanical, Packaging, and Orderable Information</i> section .....	1
• Removed the <i>Ordering Information</i> table, see POA at the end of the data sheet.....	1

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## 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="#">SN74HC4066D</a>	Obsolete	Production	SOIC (D)   14	-	-	Call TI	Call TI	-40 to 85	HC4066
<a href="#">SN74HC4066DBR</a>	NRND	Production	SSOP (DB)   14	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
SN74HC4066DBR.A	NRND	Production	SSOP (DB)   14	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
<a href="#">SN74HC4066DR</a>	Active	Production	SOIC (D)   14	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
SN74HC4066DR.A	Active	Production	SOIC (D)   14	2500   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
<a href="#">SN74HC4066DT</a>	Obsolete	Production	SOIC (D)   14	-	-	Call TI	Call TI	-40 to 85	HC4066
<a href="#">SN74HC4066N</a>	NRND	Production	PDIP (N)   14	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74HC4066N
SN74HC4066N.A	NRND	Production	PDIP (N)   14	25   TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74HC4066N
<a href="#">SN74HC4066NSR</a>	NRND	Production	SOP (NS)   14	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
SN74HC4066NSR.A	NRND	Production	SOP (NS)   14	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
<a href="#">SN74HC4066PW</a>	Obsolete	Production	TSSOP (PW)   14	-	-	Call TI	Call TI	-40 to 85	HC4066
<a href="#">SN74HC4066PWR</a>	Active	Production	TSSOP (PW)   14	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
SN74HC4066PWR.A	Active	Production	TSSOP (PW)   14	2000   LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HC4066
<a href="#">SN74HC4066PWT</a>	Obsolete	Production	TSSOP (PW)   14	-	-	Call TI	Call TI	-40 to 85	HC4066

<sup>(1)</sup> **Status:** For more details on status, see our [product life cycle](#).

<sup>(2)</sup> **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.

<sup>(3)</sup> **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

<sup>(4)</sup> **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.

<sup>(5)</sup> **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.

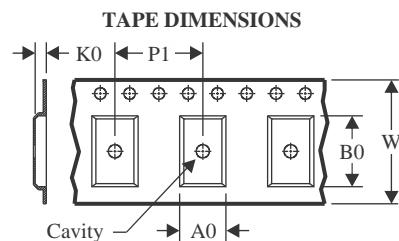
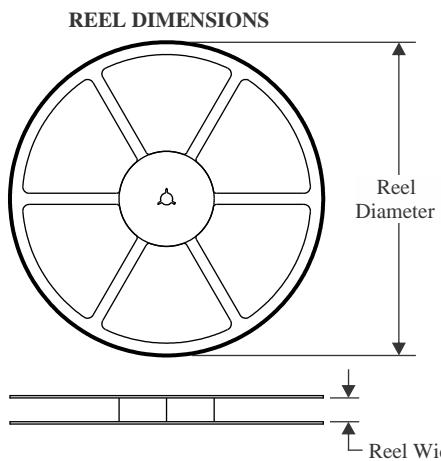
<sup>(6)</sup> **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

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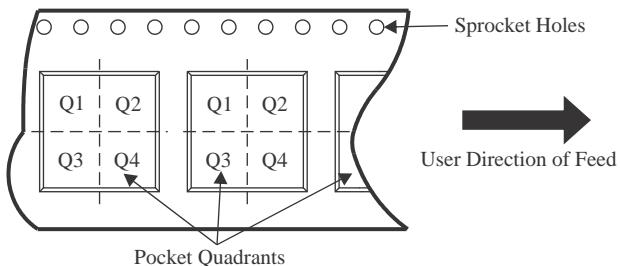
In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

## TAPE AND REEL INFORMATION



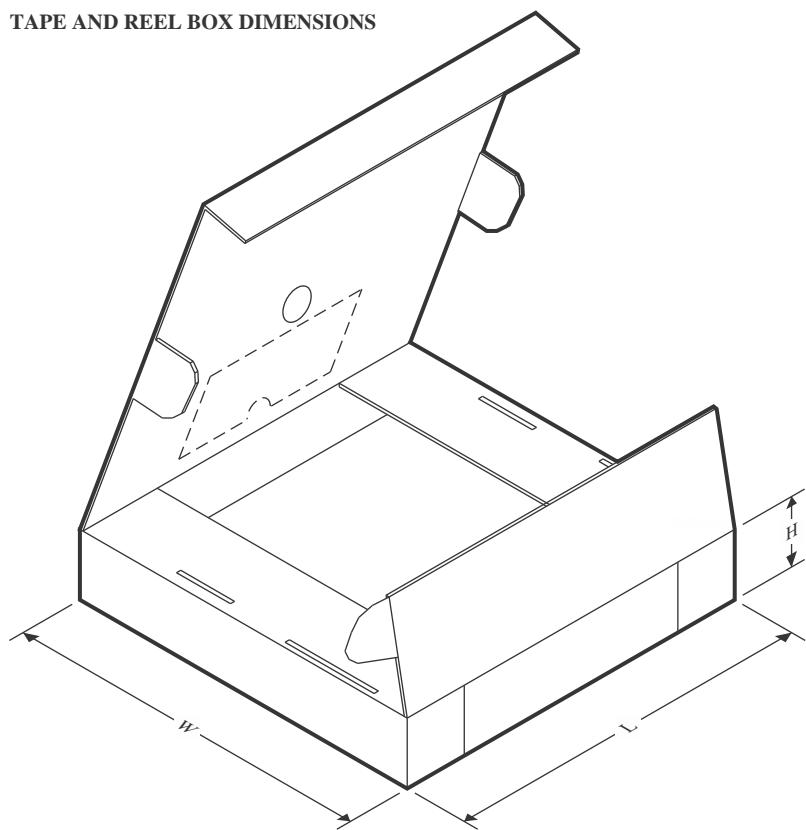
A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

### QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



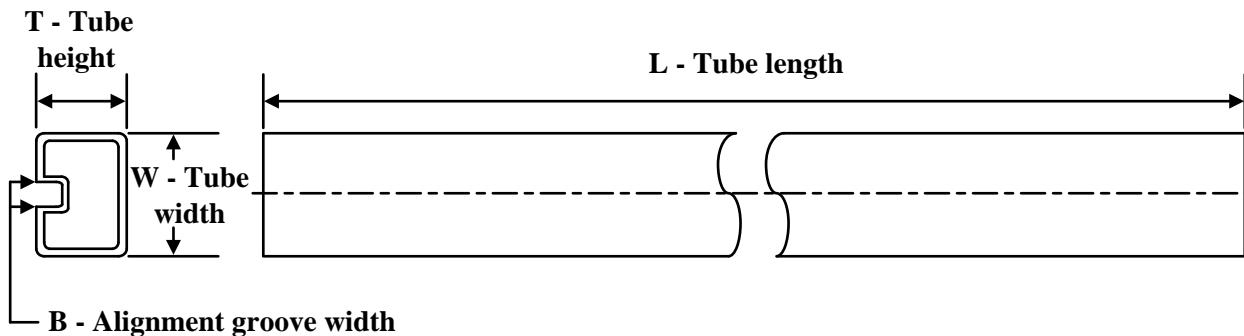
\*All dimensions are nominal

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
SN74HC4066DBR	SSOP	DB	14	2000	330.0	16.4	8.35	6.6	2.4	12.0	16.0	Q1
SN74HC4066DR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
SN74HC4066NSR	SOP	NS	14	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1
SN74HC4066PWR	TSSOP	PW	14	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)
SN74HC4066DBR	SSOP	DB	14	2000	353.0	353.0	32.0
SN74HC4066DR	SOIC	D	14	2500	353.0	353.0	32.0
SN74HC4066NSR	SOP	NS	14	2000	353.0	353.0	32.0
SN74HC4066PWR	TSSOP	PW	14	2000	353.0	353.0	32.0

**TUBE**


\*All dimensions are nominal

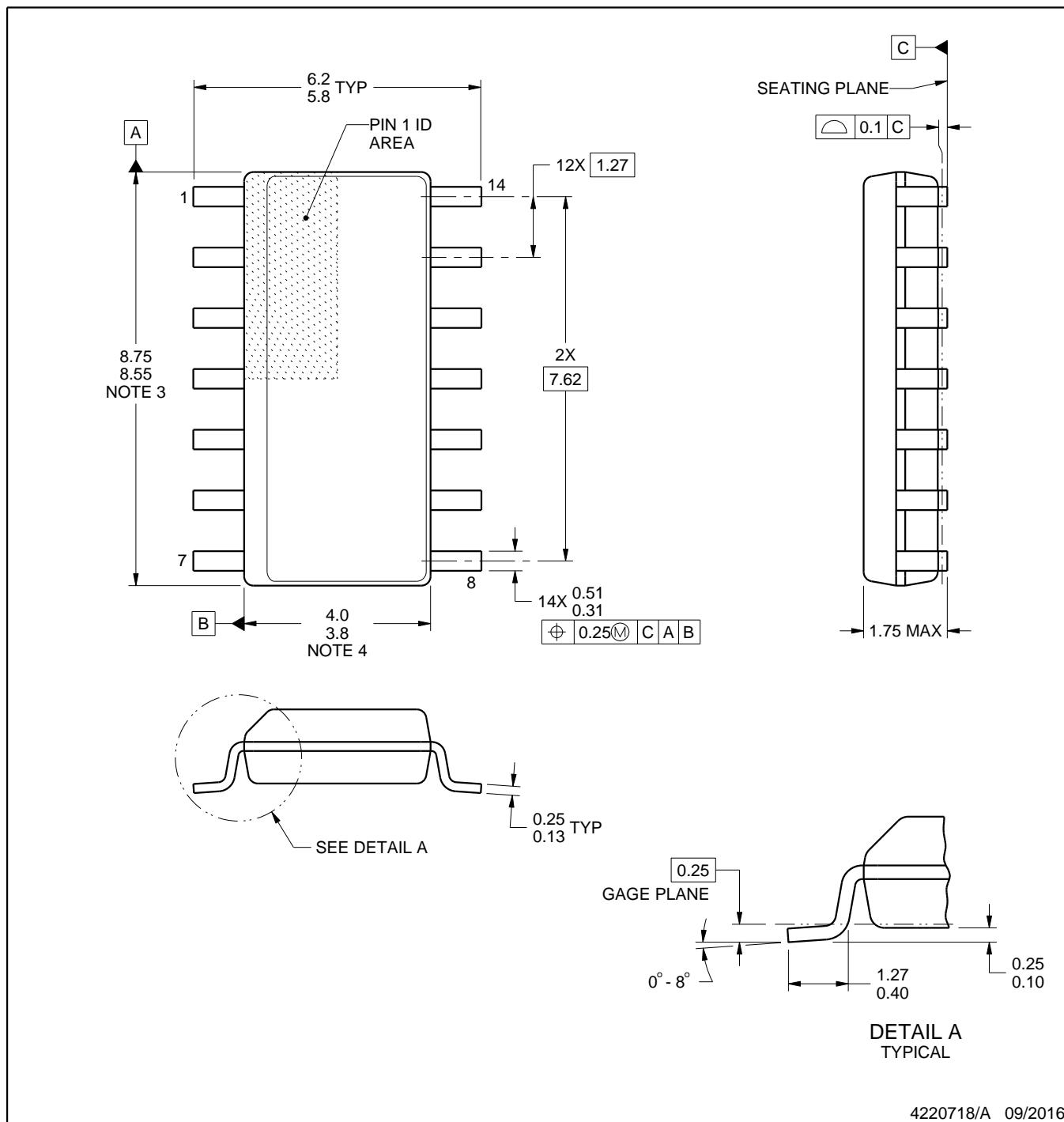
Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T ( $\mu$ m)	B (mm)
SN74HC4066N	N	PDIP	14	25	506	13.97	11230	4.32
SN74HC4066N	N	PDIP	14	25	506	13.97	11230	4.32
SN74HC4066N.A	N	PDIP	14	25	506	13.97	11230	4.32
SN74HC4066N.A	N	PDIP	14	25	506	13.97	11230	4.32

# PACKAGE OUTLINE

D0014A

SOIC - 1.75 mm max height

SMALL OUTLINE INTEGRATED CIRCUIT



NOTES:

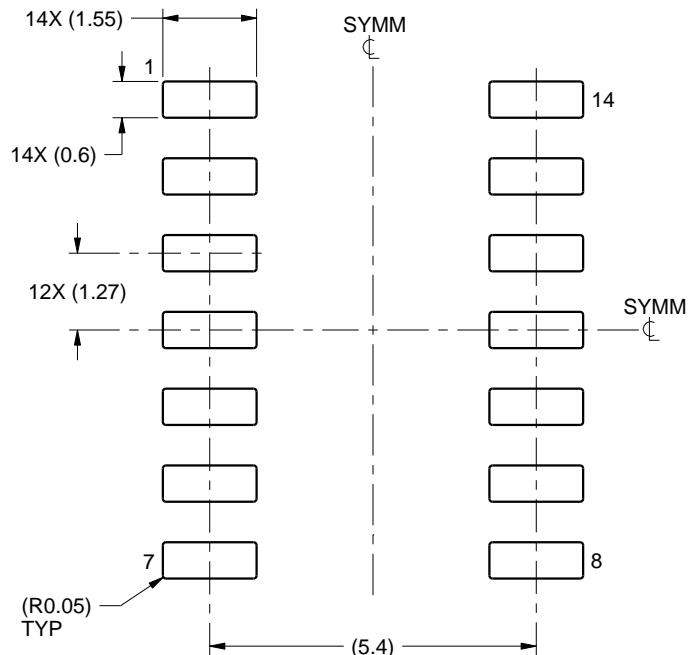
- All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
- This drawing is subject to change without notice.
- This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm, per side.
- This dimension does not include interlead flash. Interlead flash shall not exceed 0.43 mm, per side.
- Reference JEDEC registration MS-012, variation AB.

# EXAMPLE BOARD LAYOUT

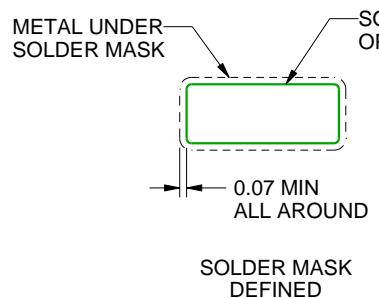
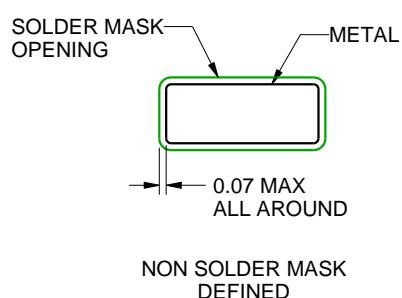
D0014A

SOIC - 1.75 mm max height

SMALL OUTLINE INTEGRATED CIRCUIT



LAND PATTERN EXAMPLE  
SCALE:8X



SOLDER MASK DETAILS

4220718/A 09/2016

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

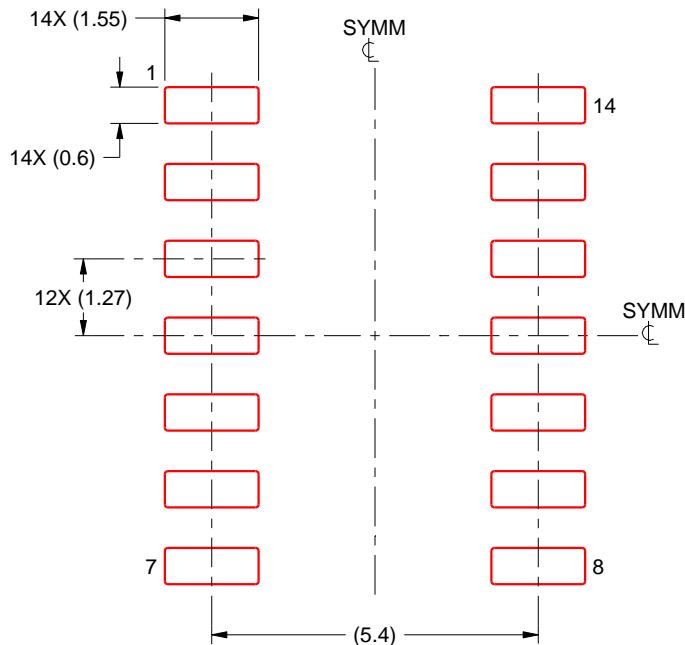
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

D0014A

SOIC - 1.75 mm max height

SMALL OUTLINE INTEGRATED CIRCUIT



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE:8X

4220718/A 09/2016

NOTES: (continued)

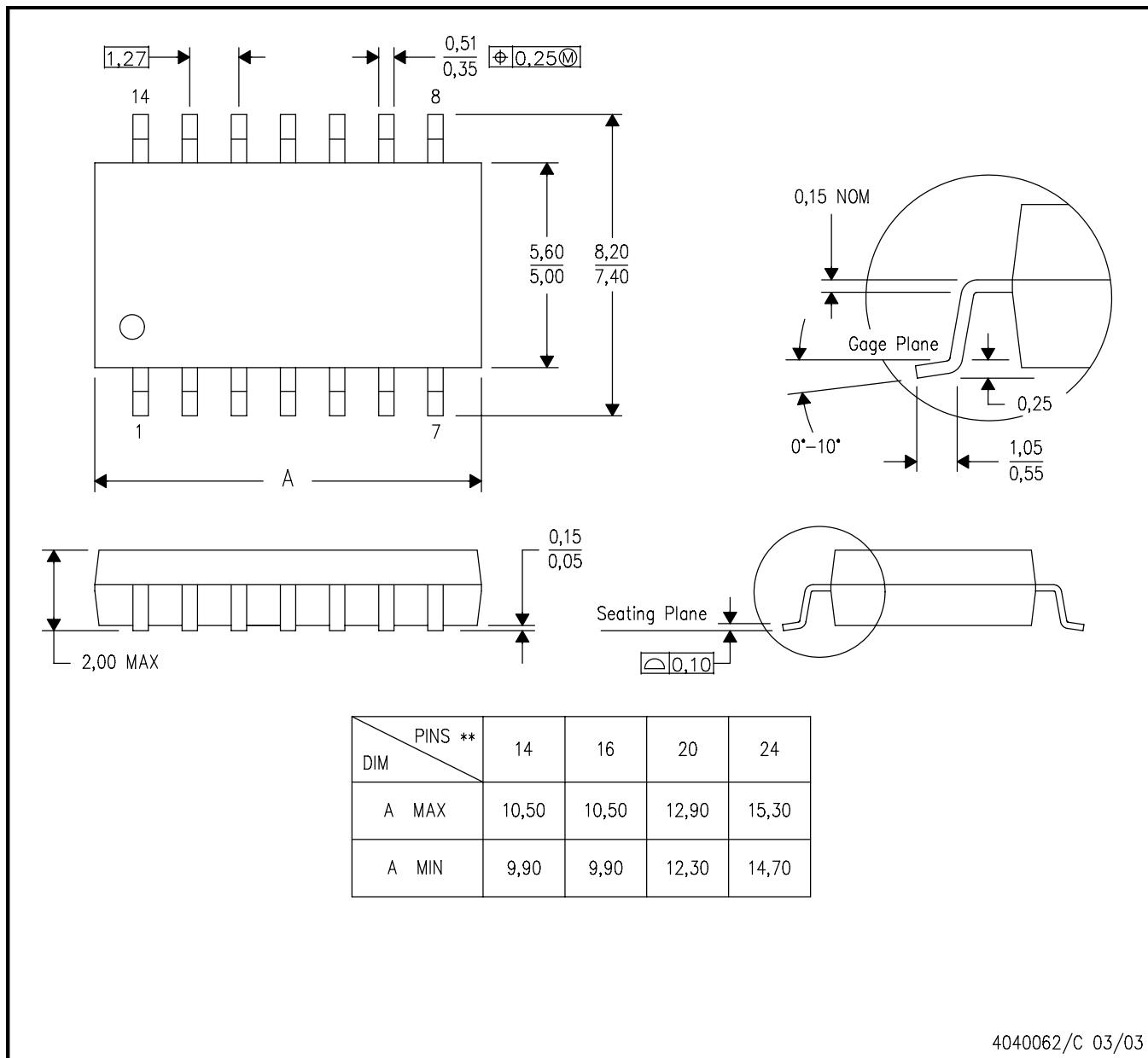
8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

## MECHANICAL DATA

**NS (R-PDSO-G\*\*)**

**14-PINS SHOWN**

**PLASTIC SMALL-OUTLINE PACKAGE**

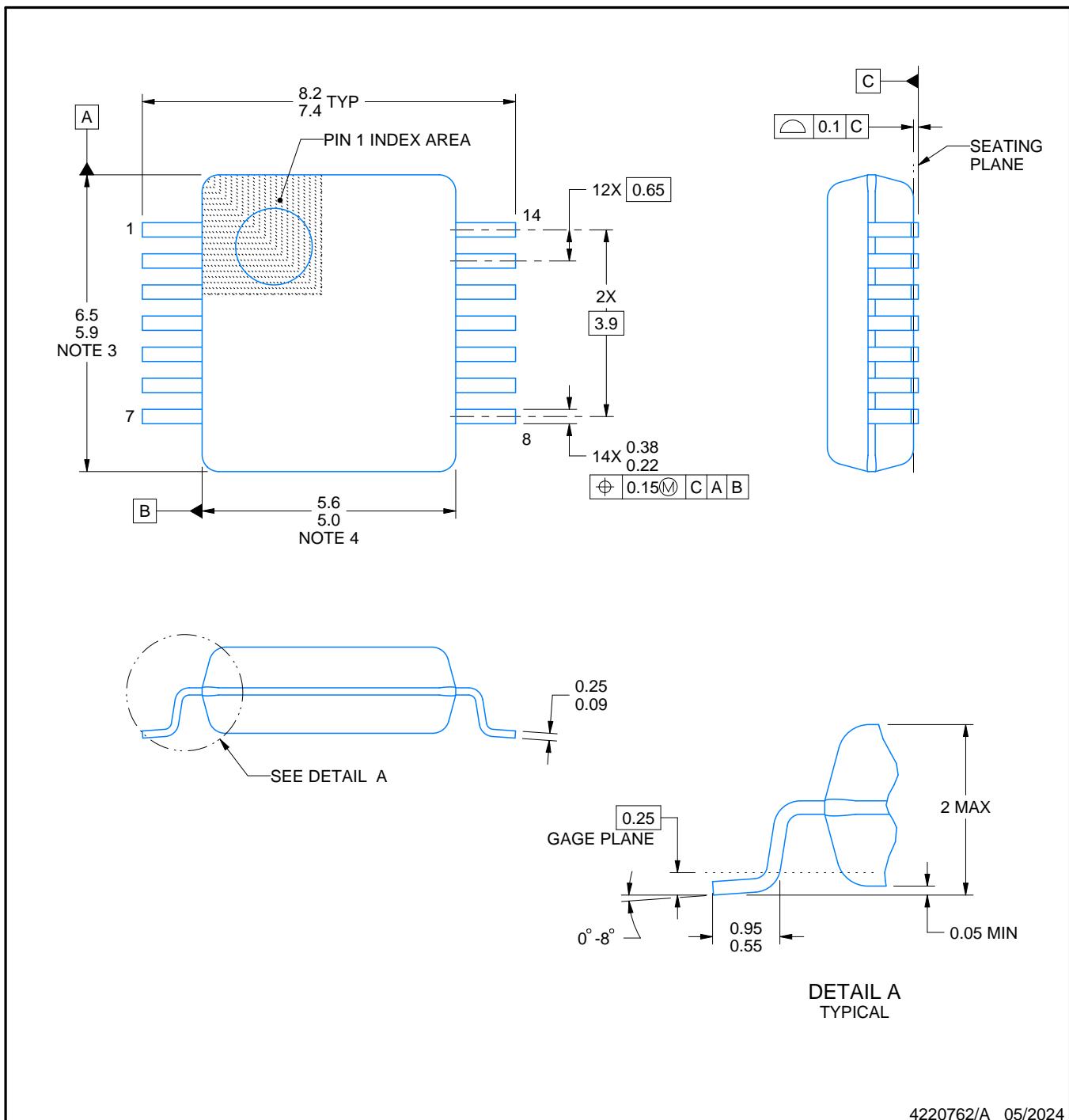


- NOTES: A. All linear dimensions are in millimeters.  
 B. This drawing is subject to change without notice.  
 C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.

# PACKAGE OUTLINE

## SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



### NOTES:

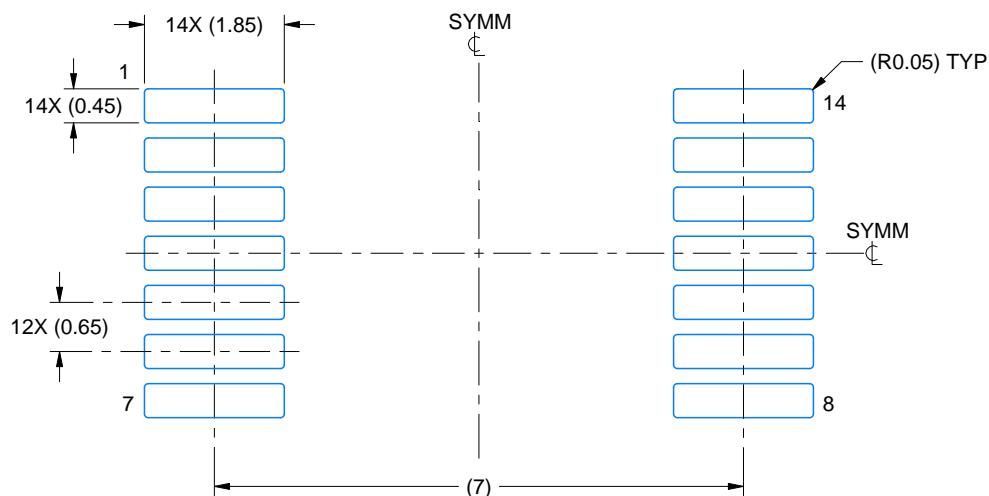
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. Reference JEDEC registration MO-150.

# EXAMPLE BOARD LAYOUT

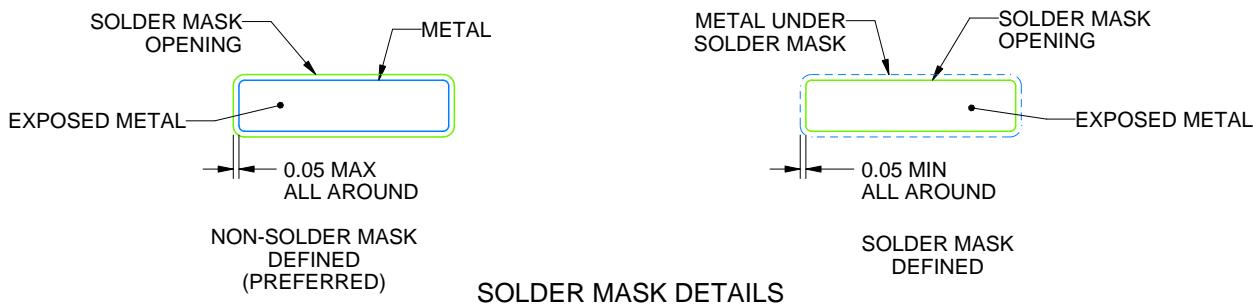
DB0014A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



4220762/A 05/2024

NOTES: (continued)

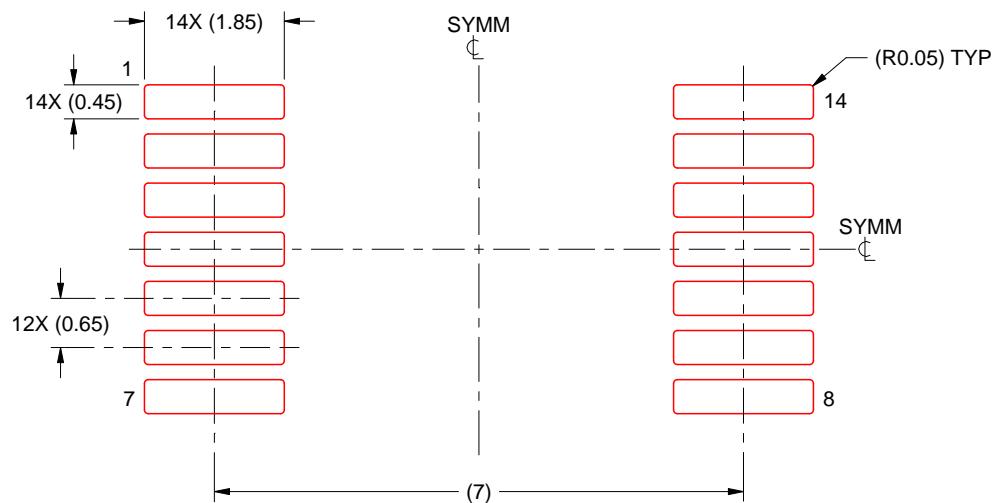
5. Publication IPC-7351 may have alternate designs.
6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

DB0014A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



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

4220762/A 05/2024

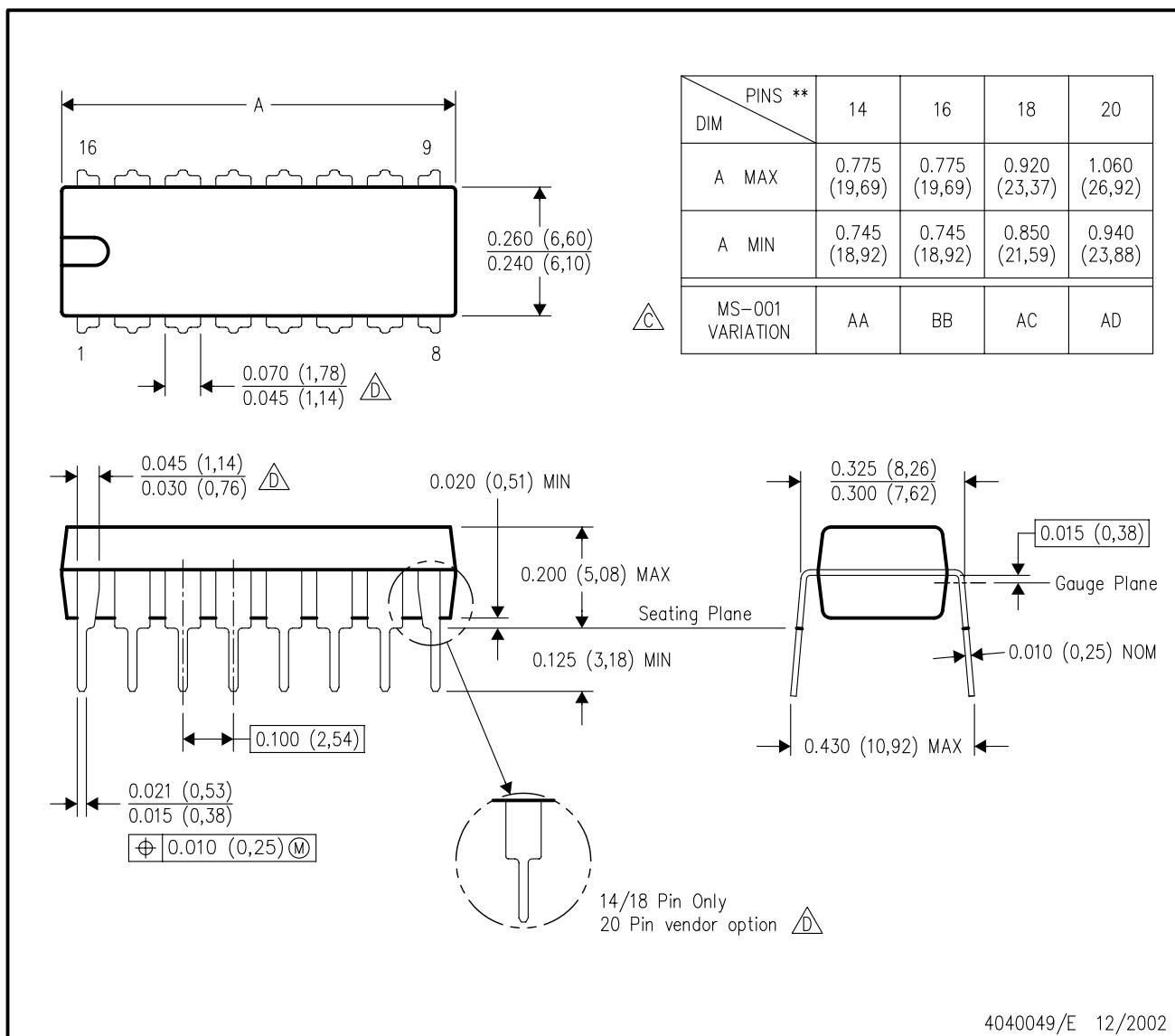
NOTES: (continued)

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.

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

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



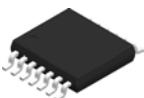
NOTES: A. All linear dimensions are in inches (millimeters).  
B. This drawing is subject to change without notice.

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.

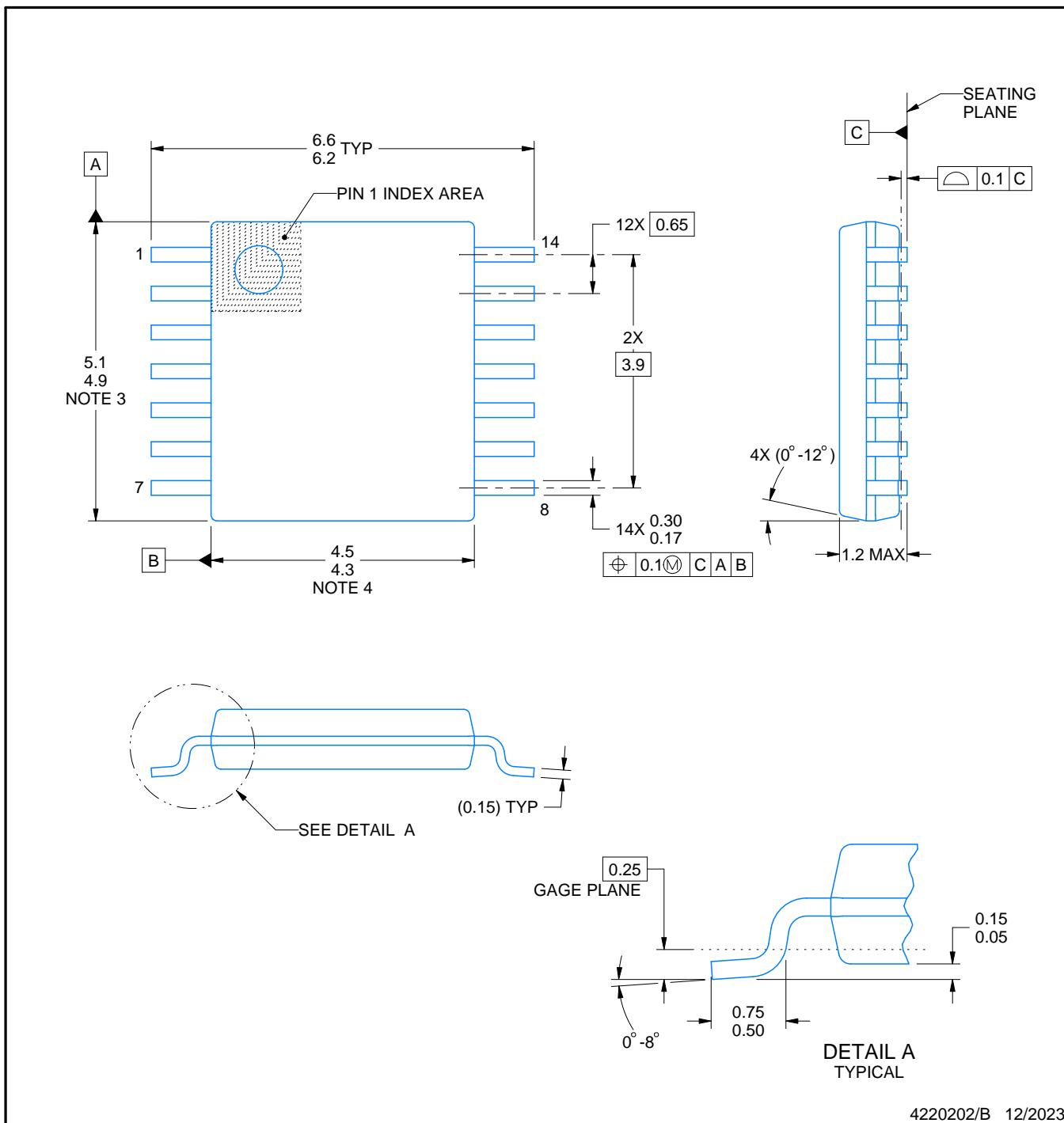
# PACKAGE OUTLINE

PW0014A



TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



NOTES:

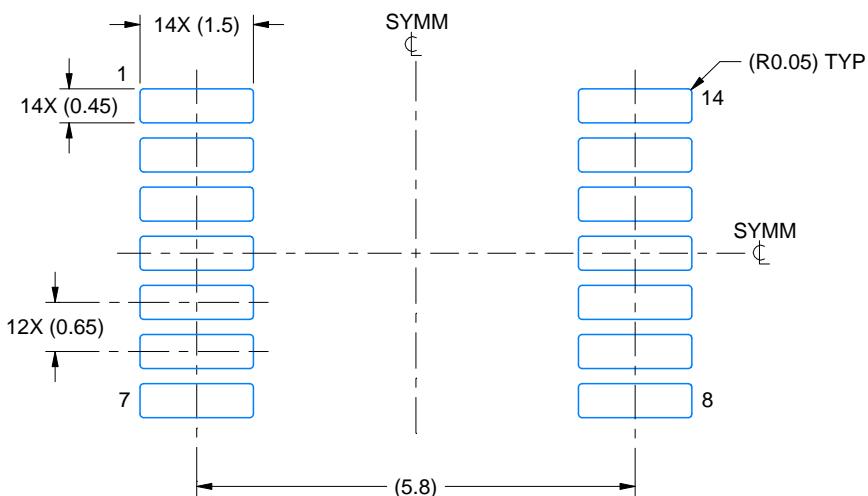
- All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
- This drawing is subject to change without notice.
- This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
- This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.
- Reference JEDEC registration MO-153.

# EXAMPLE BOARD LAYOUT

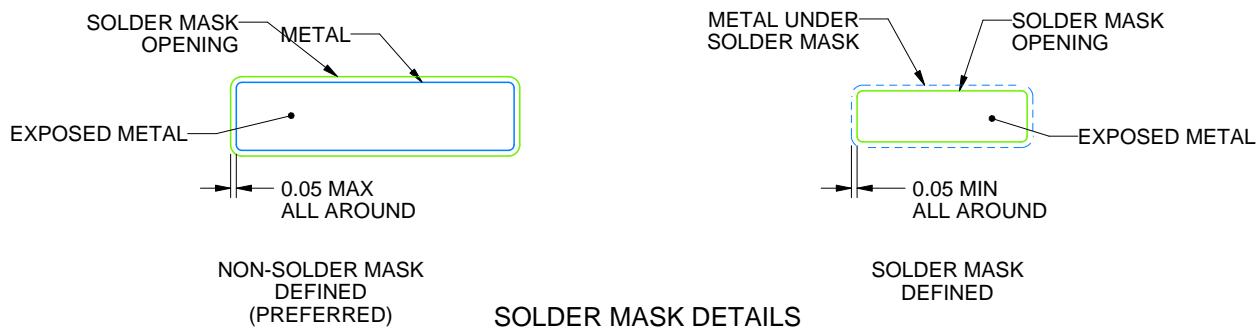
PW0014A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



4220202/B 12/2023

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

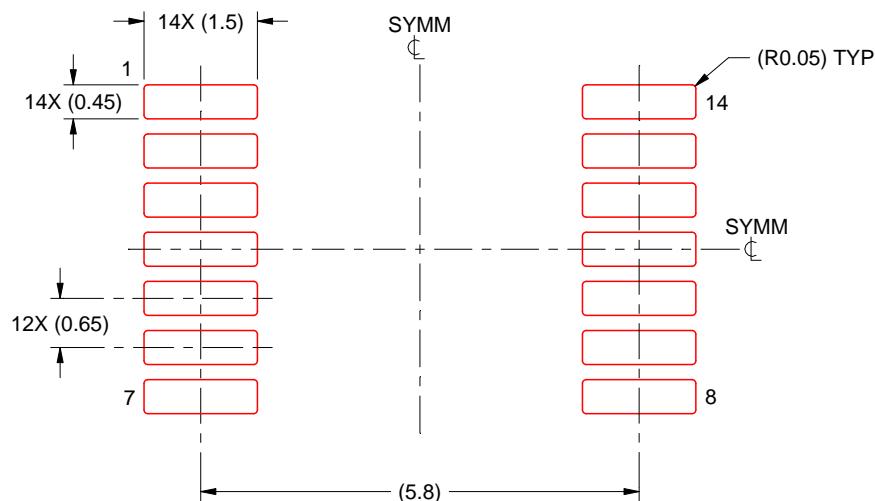
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# EXAMPLE STENCIL DESIGN

PW0014A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



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

4220202/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.

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