

SN74AHC4066 クワッド双方向アナログスイッチ

1 特長

- 1V~5.5V の V_{CC} で動作
- すべてのポートで混合モード電圧動作をサポート
- 高いオン / オフ出力電圧比
- スイッチ間の低いクロストーク
- スイッチの個別制御
- 非常に低い入力電流
- JESD 22 を上回る ESD 保護:
 - 2000V、人体モデル (A114-A)
 - 200V、マシン モデル (A115-A)
 - 1000V、デバイス帯電モデル (C101)

2 アプリケーション

- アナログ信号スイッチング / 多重化:
 - 信号ゲーティング、変調器、スケルチ制御、復調器、チョッパ、整流スイッチ
- デジタル信号スイッチング / 多重化:
 - オーディオおよびビデオ信号のルーティング
- 伝送ゲート ロジックの実装
- A/D 変換および D/A 変換
- 周波数、インピーダンス、位相、アナログ信号ゲインのデジタル制御
- モーターの速度制御
- バッテリ チャージャ
- DC/DC コンバータ

3 概要

このクワッド シリコンゲート CMOS アナログ スイッチは、1V~5.5V の V_{CC} で動作するように設計されています。

このスイッチは、アナログとデジタルの両方の信号を扱うことができます。各スイッチは、最大 5.5V (ピーク) までの振幅の信号を、どちらの方向にも転送できます。

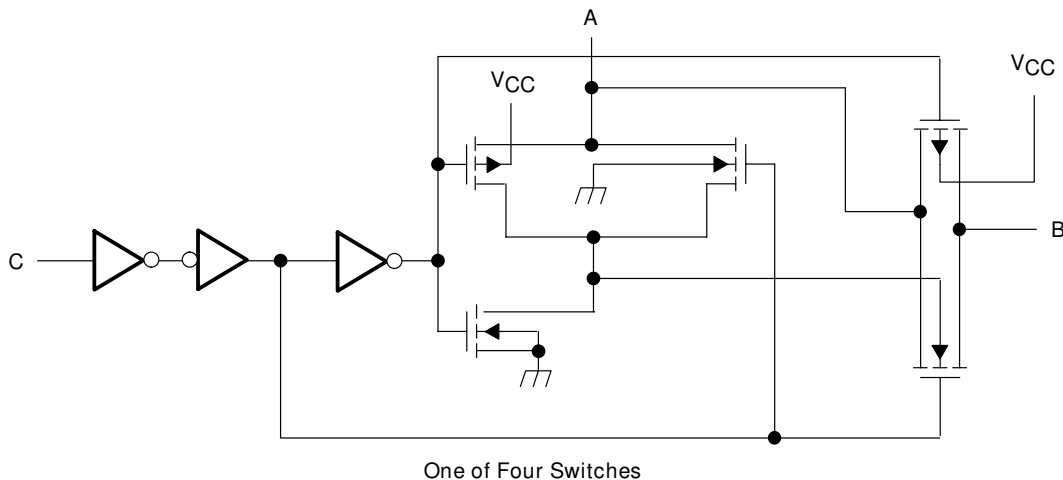
スイッチの各セクションには、専用のイネーブル入力制御 (C) が存在します。C に HIGH レベルの電圧が印加されると、対応するスイッチ セクションがオンになります。

信号ゲーティング、チョッピング、変調または復調 (モデム)、およびアナログ / デジタルやデジタル / アナログ変換システム用の信号多重化などのアプリケーションに使用できます。

パッケージ情報

部品番号	パッケージ (1)	パッケージ サイズ (2)
SN74AHC4066	D (SOIC, 14)	8.65mm × 6mm
	PW (TSSOP, 14)	5mm × 6.4mm
	RGY (VQFN, 14)	3.5mm × 3.5mm

- (1) 詳細については、[セクション 10](#) を参照してください。
 (2) パッケージ サイズ (長さ×幅) は公称値であり、該当する場合はピンも含まれます。



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各スイッチの論理図 (正論理)



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4 Pin Configuration and Functions

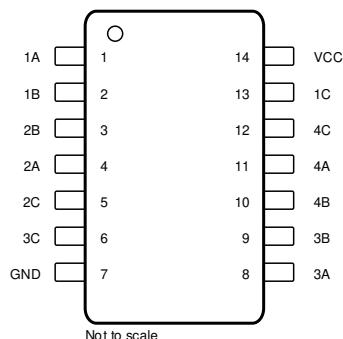


図 4-1. D or PW Package, 14-Pin SOIC or TSSOP (Top View)

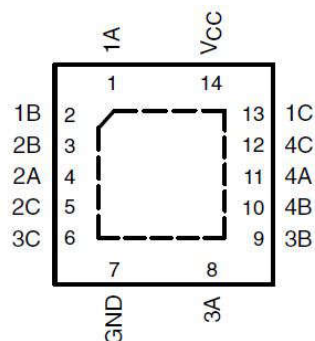


図 4-2. RGY Package, 14-Pin QFN (Top View)

表 4-1. Pin Functions

PIN		TYPE ⁽¹⁾	DESCRIPTION
NAME	NO.		
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

表 4-1. Pin Functions (続き)

PIN		TYPE ⁽¹⁾	DESCRIPTION
NAME	NO.		
V _{CC}	14	—	Power

(1) I = input, O = output

5 Specifications

5.1 Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted)⁽¹⁾

		MIN	MAX	UNIT
V _{CC}	Supply voltage ⁽²⁾	−0.5	7	V
V _I	Input voltage range	−0.5	7	V
V _{IO}	Switch I/O voltage range	−0.5 to V _{CC}	+0.5	V
I _{IK}	Control-input clamp current	V _I < 0	−20	mA
I _I	I/O port diode current	V _I < 0 or V _{IO} > V _{CC}	±50	mA
	On-state switch current	V _{IO} = 0 to V _{CC}	±25	mA
	Continuous current through V _{CC} or GND		±50	mA
T _{stg}	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 _(ESD)	Electrostatic discharge	Human-body model (HBM), per ANSI/ESDA/JEDEC JS-001 ⁽¹⁾	±2000
		Charged-device model (CDM), per JEDEC specification JESD22-C101 ⁽²⁾	±1000

- (1) JEDEC document JEP155 states that 500V HBM allows safe manufacturing with a standard ESD control process.
- (2) JEDEC document JEP157 states that 250V CDM allows safe manufacturing with a standard ESD control process. CDM value for N package only.

5.3 Thermal Information

THERMAL METRIC ⁽¹⁾		SN74AHC4066			UNIT
		D	PW	RGY	
		14 PINS	14 PINS	14 PINS	
R _{θJA}	Junction-to-ambient thermal resistance	127.7	150.6	91.9	°C/W
R _{θJC(top)}	Junction-to-case (top) thermal resistance	81.8	78.2	91.8	°C/W
R _{θJC(bottom)}	Junction-to-case (bottom) thermal resistance	N/A	N/A	50.0	°C/W
R _{θJB}	Junction-to-board thermal resistance	84.2	93.7	66.5	°C/W
ψ _{JT}	Junction-to-top characterization parameter	39.5	24.6	20.0	°C/W
ψ _{JB}	Junction-to-board characterization parameter	83.7	93.1	66.3	°C/W

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

5.4 Recommended Operating Conditions

over operating free-air temperature range (unless otherwise noted)⁽²⁾

		MIN	MAX	UNIT
V _{CC}	Supply voltage	1 (1)	5.5	V
V _{IH}	High-level input voltage, control inputs	V _{CC} = 2V	1.5	V
		V _{CC} = 2.3V to 2.7V	V _{CC} × 0.7	
		V _{CC} = 3V to 3.6V	V _{CC} × 0.7	
		V _{CC} = 4.5V to 5.5V	V _{CC} × 0.7	
V _{IL}	Low-level input voltage, control inputs	V _{CC} = 2V	0.5	V
		V _{CC} = 2.3V to 2.7V	V _{CC} × 0.3	
		V _{CC} = 3V to 3.6V	V _{CC} × 0.3	
		V _{CC} = 4.5V to 5.5V	V _{CC} × 0.3	
V _I	Control input voltage	0	5.5	V
V _{I/O}	Input/output voltage	0	V _{CC}	V
Δt/Δv	Input transition rise and fall time	V _{CC} = 2.3V to 2.7V	200	ns/V
		V _{CC} = 3V to 3.6V	100	
		V _{CC} = 4.5V to 5.5V	20	
T _A	Operating free-air temperature	–40	85	°C

(1) With supply voltages at or below 2V, the analog switch on-state resistance becomes very nonlinear. Only digital signals should be transmitted at these low supply voltages.

(2) All unused inputs of the device must be held at V_{CC} or GND for proper device operation. Refer to the TI application report, [Implications of Slow or Floating CMOS Inputs](#).

5.5 Electrical Characteristics

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

PARAMETER	TEST CONDITIONS	V _{CC}	T _A = 25°C			MIN	MAX	UNIT
			MIN	TYP	MAX			
r _{on}	On-state switch resistance	2.3V		38	180		225	Ω
		3V		29	150		190	
		4.5V		21	75		100	
r _{on(p)}	Peak on-state resistance	2.3V		143	500		600	Ω
		3V		57	180		225	
		4.5V		31	100		125	
Δr _{on}	Difference in on-state resistance between switches	2.3V		6	30		40	Ω
		3V		3	20		30	
		4.5V		2	15		20	
I _{IH} I _{IL}	Control input current	V _C = 0 or V _{CC}	5.5		±0.1		±1	μA
I _{s(off)}	Off-state switch leakage current	V _I = V _{CC} and V _O = GND, or V _I = GND and V _O = V _{CC} , V _C = V _{IL} (see Figure 6-2)	5.5V		±0.1		±1	μA

5.5 Electrical Characteristics (続き)

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

PARAMETER	TEST CONDITIONS	V_{CC}	$T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
			MIN	TYP	MAX			
$I_{s(on)}$	On-state switch leakage current	$V_I = V_{CC}$ or GND, $V_C = V_{IH}$ (see Figure 6-3)	5.5V		± 0.1		± 1	μA
I_{CC}	Supply current	$V_I = V_{CC}$ or GND	5.5V				20	μA
C_{iC}	Control input capacitance			1.5				pF
C_{iO}	Switch input/output capacitance			5.5				pF
C_F	Feed-through capacitance			0.5				pF

5.6 Switching Characteristics

over recommended operating free-air temperature range, $V_{CC} = 2.5\text{V} \pm 0.2\text{V}$ (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	$T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
				MIN	TYP	MAX			
t_{PLH} , t_{PHL}	Propagation delay time	A or B	B or A $C_L = 50\text{pF}$ (see Figure 6-4)		1.2	10		16	ns
t_{PZH} , t_{PZL}	Switch turn-on time	C	A or B $C_L = 50\text{pF}$ $R_L = 1\text{k}\Omega$, (see Figure 6-5)		3.3	15		20	ns
t_{PLZ} , t_{PHZ}	Switch turn-off time	C	A or B $C_L = 50\text{pF}$ $R_L = 1\text{k}\Omega$, (see Figure 6-5)		6	15		23	ns
t_{PLZ} , t_{PHZ}	Propagation delay time	A or B	B or A $C_L = 50\text{pF}$ (see Figure 6-6)		2.6	12		18	ns
t_{PLZ} , t_{PHZ}	Switch turn-on time	C	A or B $C_L = 50\text{pF}$ $R_L = 1\text{k}\Omega$, (see Figure 6-8)		4.2	25		32	ns
t_{PLZ} , t_{PHZ}	Switch turn-off time	C	A or B $C_L = 50\text{pF}$ $R_L = 1\text{k}\Omega$, (see Figure 6-8)		9.6	25		32	ns

5.7 Switching Characteristics

over recommended operating free-air temperature range, $V_{CC} = 3.3\text{V} \pm 0.3\text{V}$ (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	$T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
				MIN	TYP	MAX			
t_{PLH} , t_{PHL}	Propagation delay time	A or B	B or A $C_L = 50\text{pF}$ (see Figure 6-4)		0.8	6		10	ns
t_{PZH} , t_{PZL}	Switch turn-on time	C	A or B $C_L = 50\text{pF}$ $R_L = 1\text{k}\Omega$, (see Figure 6-5)		2.3	11		15	ns
t_{PLZ} , t_{PHZ}	Switch turn-off time	C	A or B $C_L = 50\text{pF}$ $R_L = 1\text{k}\Omega$, (see Figure 6-5)		4.5	11		15	ns
t_{PLZ} , t_{PHZ}	Propagation delay time	A or B	B or A $C_L = 50\text{pF}$ (see Figure 6-6)		1.5	9		12	ns

5.7 Switching Characteristics (続き)

over recommended operating free-air temperature range, $V_{CC} = 3.3V \pm 0.3V$ (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	$T_A = 25^\circ C$			MIN	MAX	UNIT
				MIN	TYP	MAX			
t_{PLZ} , t_{PHZ} Switch turn-on time	C	A or B	$C_L = 50pF$ $R_L = 1k\Omega$, (see 6-8)		3	18		22	ns
t_{PLZ} , t_{PHZ} Switch turn-off time	C	A or B	$C_L = 50pF$ $R_L = 1k\Omega$, (see 6-8)		7.2	18		22	ns

5.8 Switching Characteristics

over recommended operating free-air temperature range, $V_{CC} = 5V \pm 0.5V$ (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	$T_A = 25^\circ C$			MIN	MAX	UNIT
				MIN	TYP	MAX			
t_{PLH} , t_{PHL} Propagation delay time	A or B	B or A	$C_L = 50pF$ (see 6-4)		0.3	4		7	ns
t_{PZH} , t_{PZL} Switch turn-on time	C	A or B	$C_L = 50pF$ $R_L = 1k\Omega$, (see 6-5)		1.6	7		10	ns
t_{PLZ} , t_{PHZ} Switch turn-off time	C	A or B	$C_L = 50pF$ $R_L = 1k\Omega$, (see 6-5)		3.2	7		10	ns
t_{PLZ} , t_{PHZ} Propagation delay time	A or B	B or A	$C_L = 50pF$ (see 6-6)		0.6	6		8	ns
t_{PLZ} , t_{PHZ} Switch turn-on time	C	A or B	$C_L = 50pF$ $R_L = 1k\Omega$, (see 6-8)		2.1	12		16	ns
t_{PLZ} , t_{PHZ} Switch turn-off time	C	A or B	$C_L = 50pF$ $R_L = 1k\Omega$, (see 6-8)		5.1	12		16	ns

5.9 Analog Switching Characteristics

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	V_{CC}	$T_A = 25^\circ C$			UNIT
					MIN	TYP	MAX	
Frequency response (switch on)	A or B	B or A	$C_L = 50pF$, $R_L = 600\Omega$ $f_{in} = 1MHz$ (sine wave) $20\log_{10}(V_O/V_I) = -3$ dB (see 6-4)	2.3V		60		MHz
				3V		75		
				4.5V		100		
Crosstalk (between any switches)	A or B	B or A	$C_L = 50pF$, $R_L = 600\Omega$ $f_{in} = 1MHz$ (sine wave) (see 6-4)	2.3V		-45		dB
				3V		-45		
				4.5V		-45		
Crosstalk (control input to signal output)	C	A or B	$C_L = 50pF$, $R_L = 600\Omega$, $f_{in} =$ 1MHz (sine wave) (see 6-4)	2.3V		15		mV
				3V		20		
				4.5V		50		
Feed-through attenuation (switch off)	A or B	B or A	$C_L = 50pF$, $R_L = 600\Omega$, $f_{in} =$ 1MHz (sine wave) (see 6-4)	2.3V		-40		dB
				3V		-40		
				4.5V		-40		

5.9 Analog Switching Characteristics (続き)

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	V _{CC}	T _A = 25°C			UNIT
					MIN	TYP	MAX	
Sine-wave distortion	A or B	B or A	C _L = 50pF, R _L = 10kΩ, f _{in} = 1kHz (sine wave) (see Figure 6-4)	V _I = 2V _{p-p} 2.3V		0.1		%
				V _I = 2.5V _{p-p} 3V		0.1		
				V _I = 4V _{p-p} 4.5V		0.1		

5.10 Operating Characteristics

T_A = 25°C

PARAMETER	TEST CONDITIONS	TYP	UNIT
C _{pd} Power dissipation capacitance	C _L = 50pF, f = 10MHz	4.5	pF

6 Parameter Measurement Information

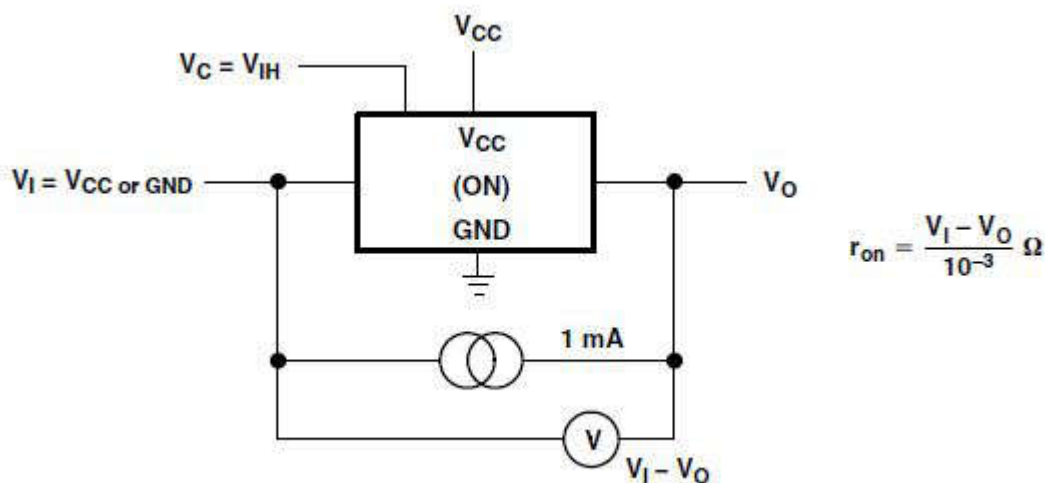


図 6-1. ON-State Resistance Test Circuit

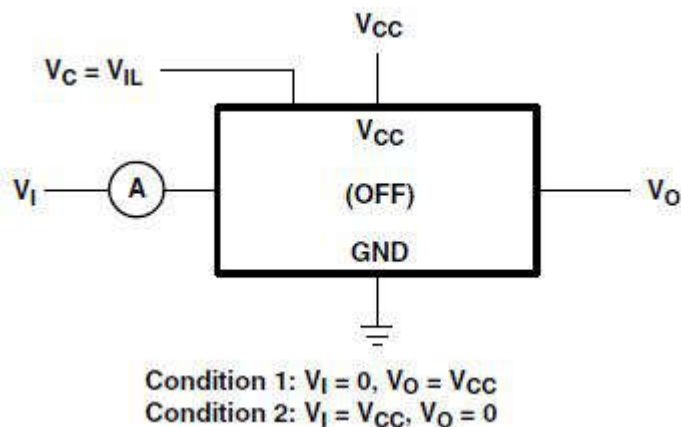


図 6-2. OFF-State Switch Leakage-Current Test Circuit

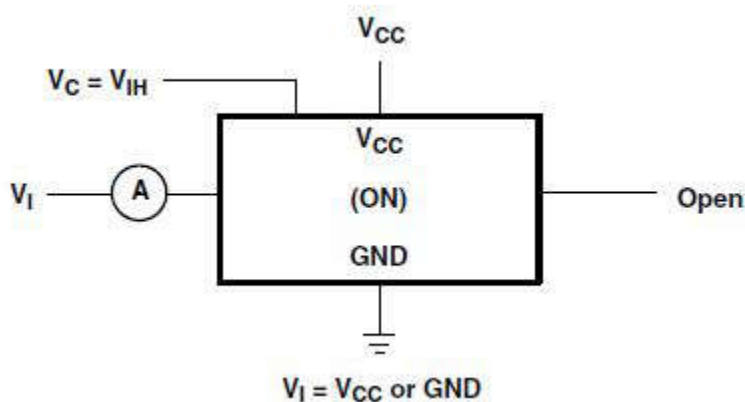


図 6-3. ON-State Leakage-Current Test Circuit

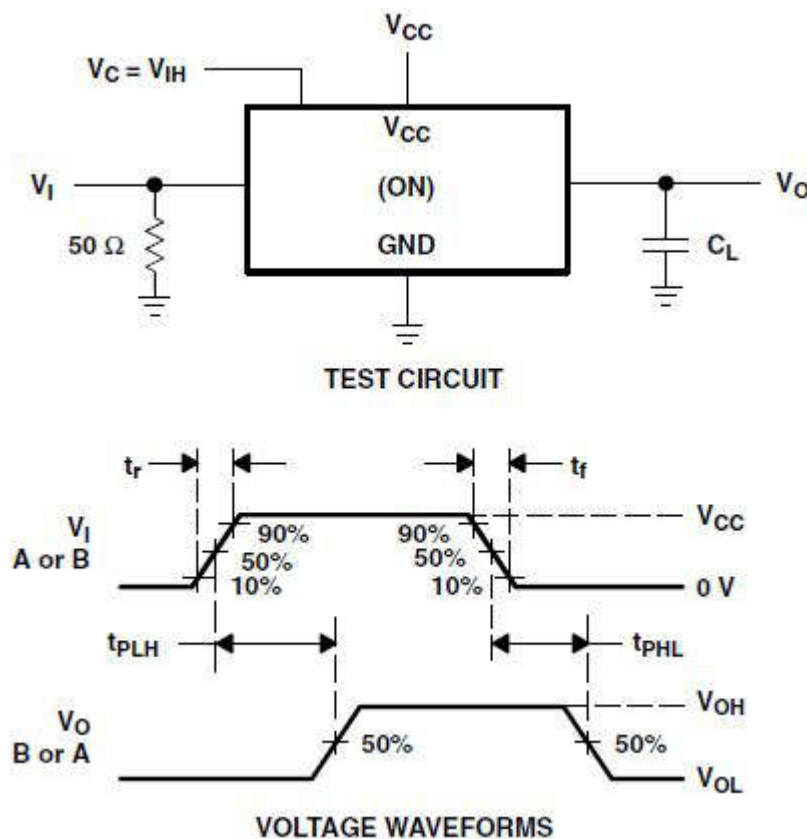
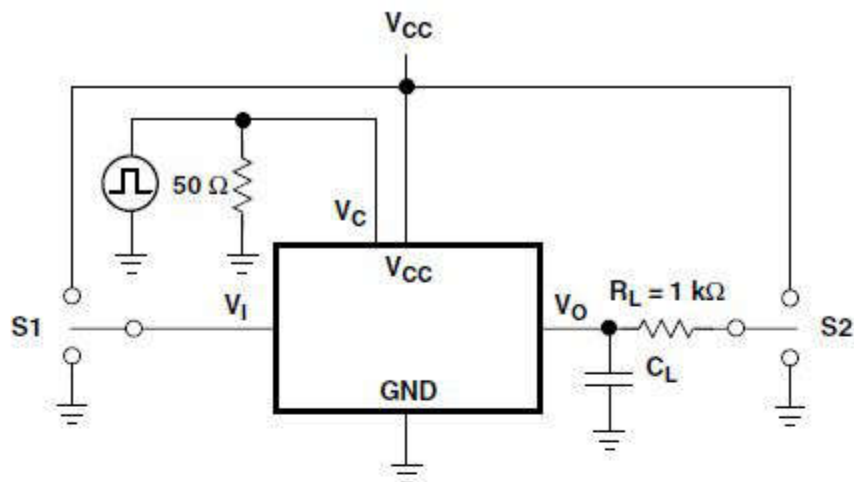
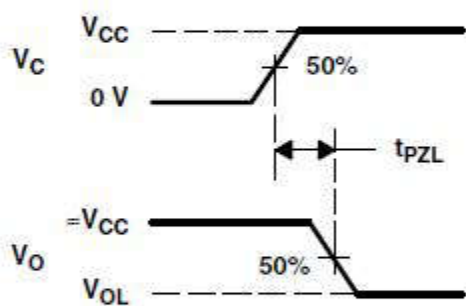


図 6-4. Propagation Delay Time, Signal Input to Signal Output

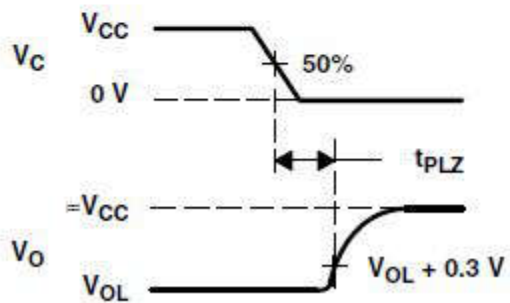
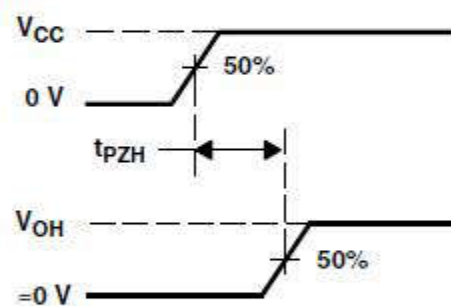


TEST CIRCUIT

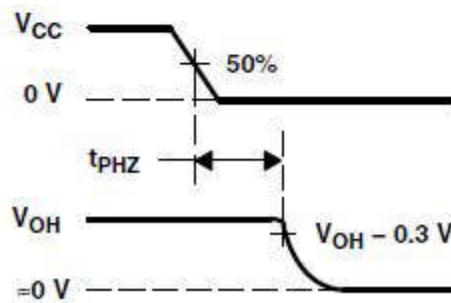
TEST	S1	S2
t_{PZL}	GND	V_{CC}
t_{PZH}	V_{CC}	GND
t_{PLZ}	GND	V_{CC}
t_{PHZ}	V_{CC}	GND



(t_{PZL} , t_{PZH})



(t_{PLZ} , t_{PHZ})



VOLTAGE WAVEFORMS

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

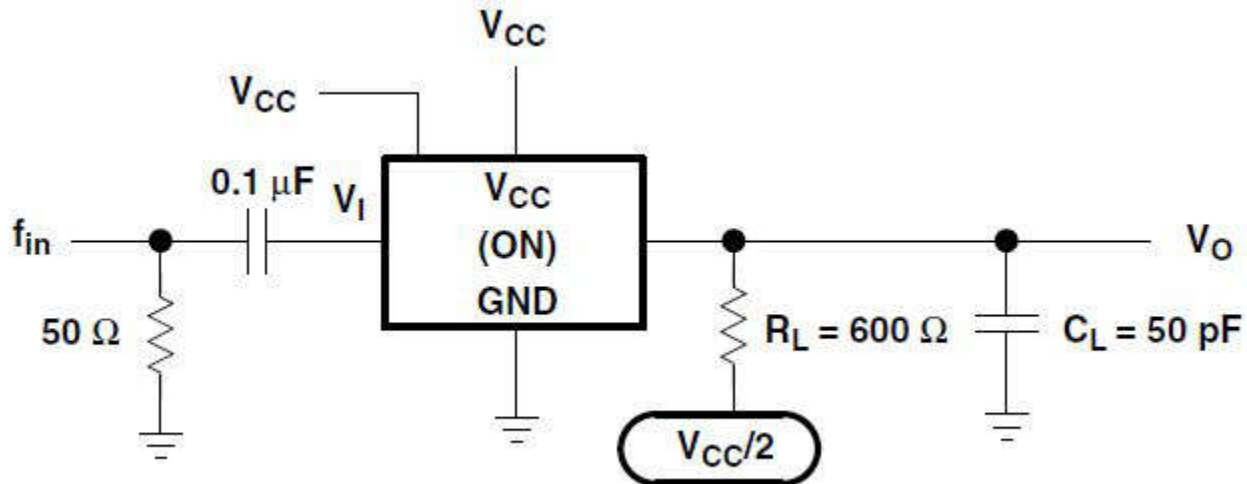


図 6-6. Frequency Response (Switch On)

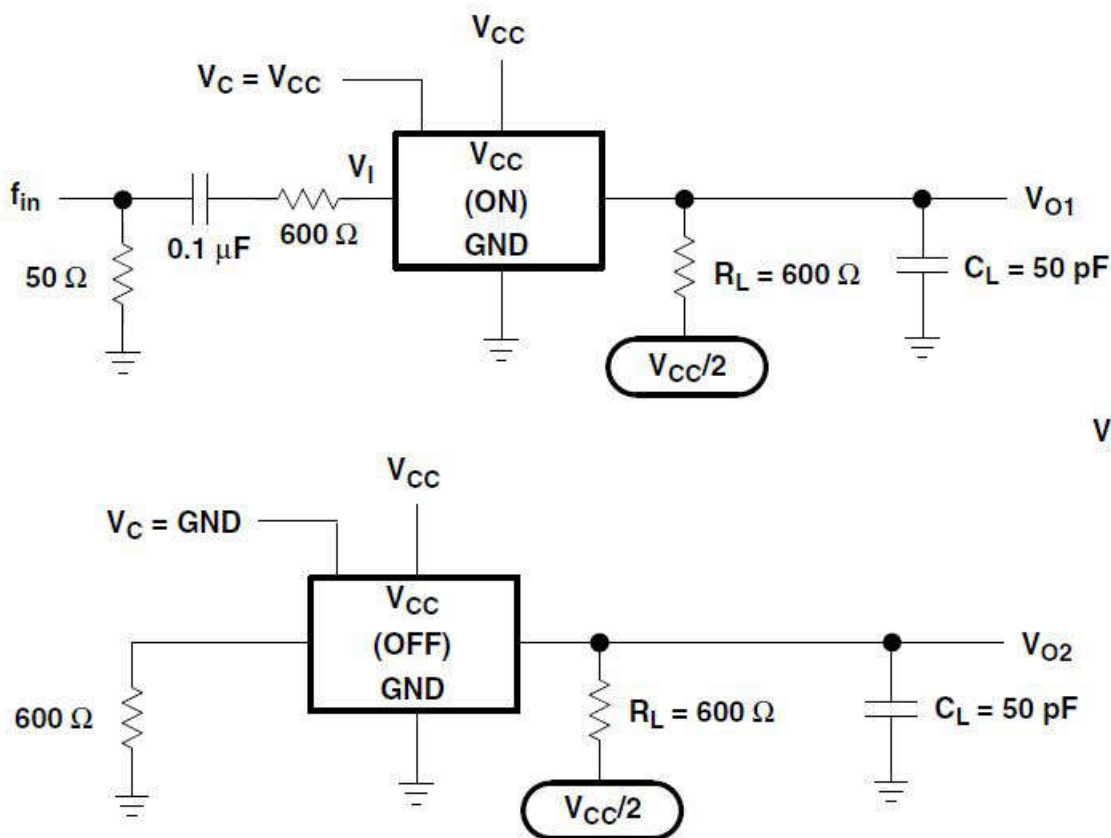


図 6-7. Crosstalk Between Any Two Switches

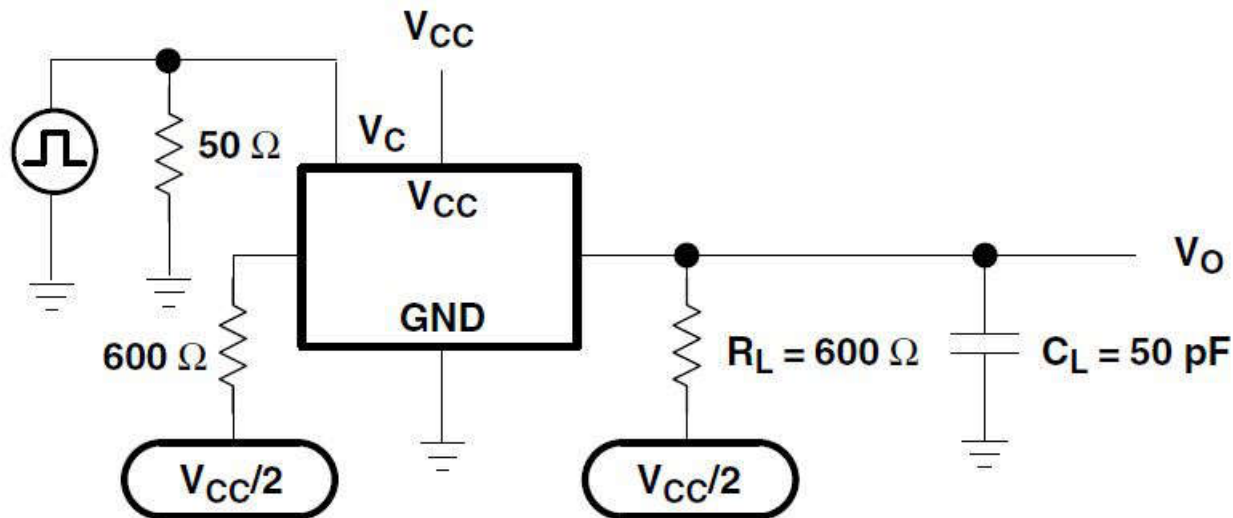


図 6-8. Crosstalk (Control Input - Switch Output)

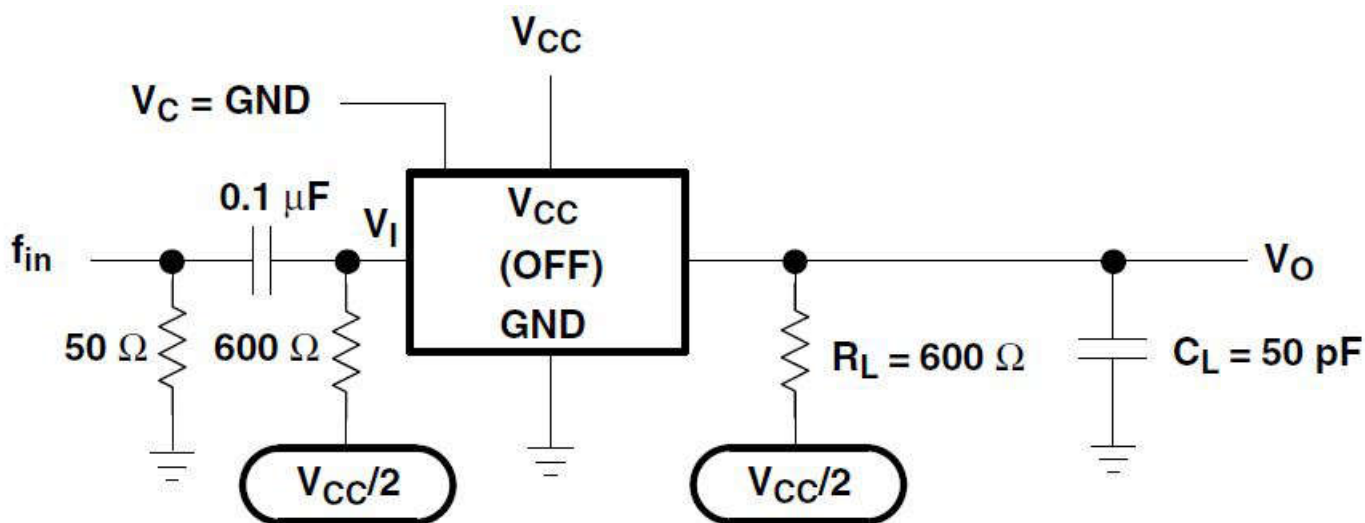


図 6-9. Feed-Through Attenuation (Switch Off)

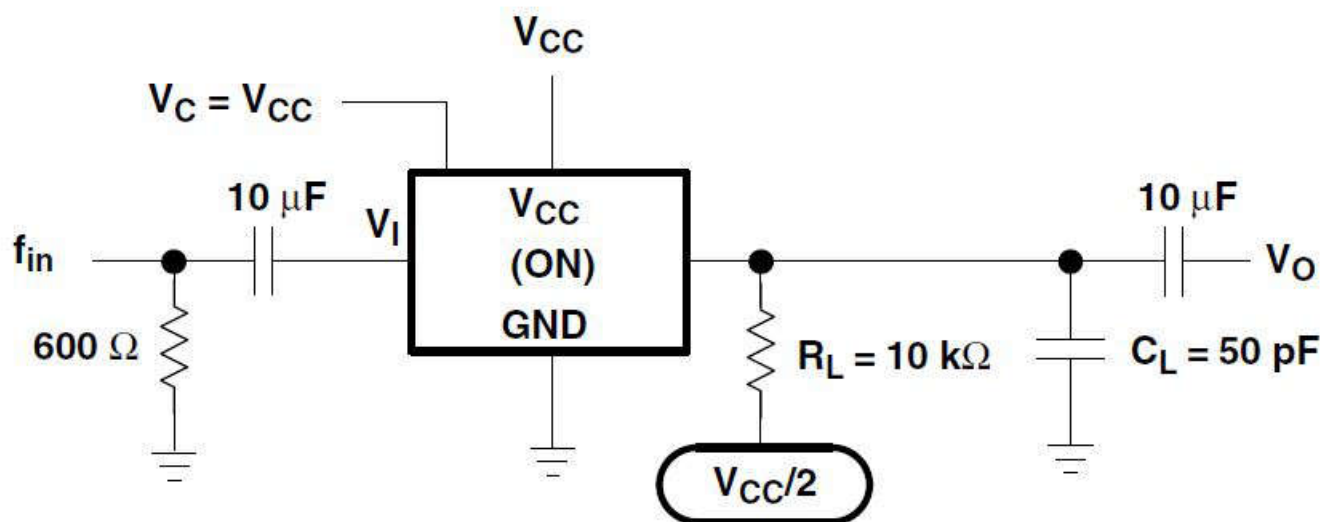


Figure 6-10. Sine-Wave Distortion

7 Detailed Description

7.1 Overview

The SN74AHC4066 device is a silicon-gate CMOS quadruple analog switch designed for 1V to 6V VCC 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

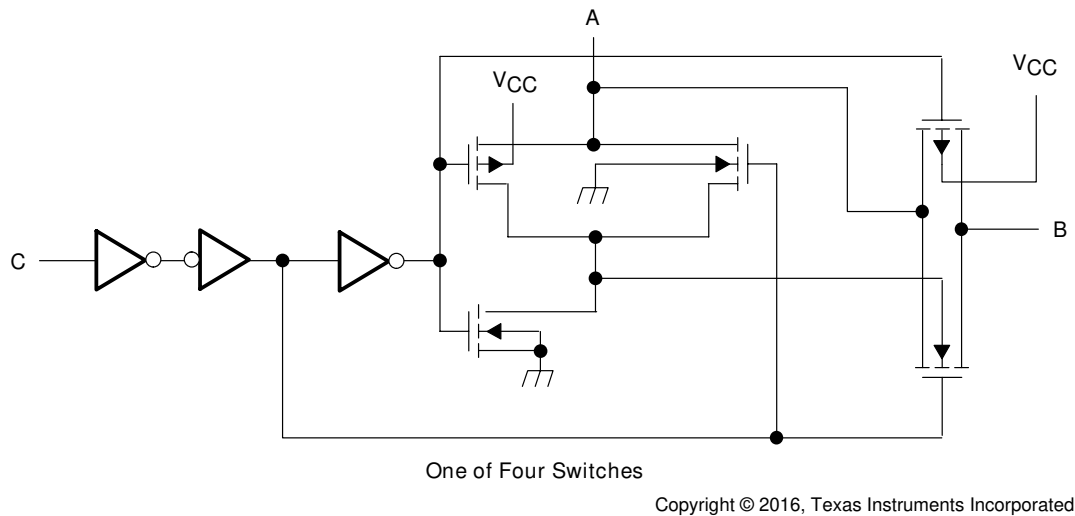


図 7-1. Logic Diagram, Each Switch (Positive Logic)

7.3 Device Functional Modes

表 7-1 lists the functions for the SN74AHC4066 device.

表 7-1. Function Table
(Each Switch)

INPUT CONTROL (C)	SWITCH
L	OFF
H	ON

8 Device and Documentation Support

8.1 Documentation Support

8.1.1 Related Documentation

For related documentation, see the following:

- Texas Instruments, [Implications of Slow or Floating CMOS Inputs application notes](#)

8.2 ドキュメントの更新通知を受け取る方法

ドキュメントの更新についての通知を受け取るには、www.tij.co.jp のデバイス製品フォルダを開いてください。[通知] をクリックして登録すると、変更されたすべての製品情報に関するダイジェストを毎週受け取ることができます。変更の詳細については、改訂されたドキュメントに含まれている改訂履歴をご覧ください。

8.3 サポート・リソース

テキサス・インスツルメンツ E2E™ サポート・フォーラムは、エンジニアが検証済みの回答と設計に関するヒントをエキスパートから迅速かつ直接得ることができる場所です。既存の回答を検索したり、独自の質問をしたりすることで、設計に必要な支援を迅速に得ることができます。

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8.4 Trademarks

テキサス・インスツルメンツ E2E™ is a trademark of Texas Instruments.

すべての商標は、それぞれの所有者に帰属します。

8.5 静電気放電に関する注意事項



この IC は、ESD によって破損する可能性があります。テキサス・インスツルメンツは、IC を取り扱う際には常に適切な注意を払うことを推奨します。正しい取り扱いおよび設置手順に従わない場合、デバイスを破損するおそれがあります。

ESD による破損は、わずかな性能低下からデバイスの完全な故障まで多岐にわたります。精密な IC の場合、パラメータがわずかに変化するだけで公表されている仕様から外れる可能性があるため、破損が発生しやすくなっています。

8.6 用語集

[テキサス・インスツルメンツ用語集](#) この用語集には、用語や略語の一覧および定義が記載されています。

9 Revision History

資料番号末尾の英字は改訂を表しています。その改訂履歴は英語版に準じています。

Changes from Revision * (June 2003) to Revision A (February 2024)	Page
• D、PW、RGY パッケージのみを記載するようにデータシートを更新	1
• ドキュメント全体にわたって表、図、相互参照の採番方法を更新.....	1
• Updated the <i>Thermal Information</i>	4
• Updated V_{CC} operation from: 2V - 5.5V to: 1V - 5.5V.....	5

10 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.

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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)
SN74AHC4066D	Obsolete	Production	SOIC (D) 14	-	-	Call TI	Call TI	-40 to 85	AHC4066
SN74AHC4066DBR	NRND	Production	SSOP (DB) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066
SN74AHC4066DBR.A	NRND	Production	SSOP (DB) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066
SN74AHC4066DGVR	NRND	Production	TVSOP (DGV) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066
SN74AHC4066DGVR.A	NRND	Production	TVSOP (DGV) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066
SN74AHC4066DR	Active	Production	SOIC (D) 14	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHC4066
SN74AHC4066DR.A	Active	Production	SOIC (D) 14	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHC4066
SN74AHC4066N	NRND	Production	PDIP (N) 14	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74AHC4066N
SN74AHC4066N.A	NRND	Production	PDIP (N) 14	25 TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74AHC4066N
SN74AHC4066NSR	NRND	Production	SOP (NS) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHC4066
SN74AHC4066NSR.A	NRND	Production	SOP (NS) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHC4066
SN74AHC4066PW	Obsolete	Production	TSSOP (PW) 14	-	-	Call TI	Call TI	-40 to 85	HA4066
SN74AHC4066PWR	Active	Production	TSSOP (PW) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066
SN74AHC4066PWR.A	Active	Production	TSSOP (PW) 14	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066
SN74AHC4066RGYR	Active	Production	VQFN (RGY) 14	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	HA4066
SN74AHC4066RGYR.A	Active	Production	VQFN (RGY) 14	3000 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	HA4066

⁽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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TAPE AND REEL INFORMATION



*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
SN74AHC4066DBR	SSOP	DB	14	2000	330.0	16.4	8.35	6.6	2.4	12.0	16.0	Q1
SN74AHC4066DGVR	TVSOP	DGV	14	2000	330.0	12.4	6.8	4.0	1.6	8.0	12.0	Q1
SN74AHC4066DR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
SN74AHC4066NSR	SOP	NS	14	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1
SN74AHC4066PWR	TSSOP	PW	14	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74AHC4066RGYR	VQFN	RGY	14	3000	330.0	12.4	3.75	3.75	1.15	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)
SN74AHC4066DBR	SSOP	DB	14	2000	353.0	353.0	32.0
SN74AHC4066DGVR	TVSOP	DGV	14	2000	353.0	353.0	32.0
SN74AHC4066DR	SOIC	D	14	2500	353.0	353.0	32.0
SN74AHC4066NSR	SOP	NS	14	2000	353.0	353.0	32.0
SN74AHC4066PWR	TSSOP	PW	14	2000	353.0	353.0	32.0
SN74AHC4066RGYR	VQFN	RGY	14	3000	367.0	367.0	35.0

GENERIC PACKAGE VIEW

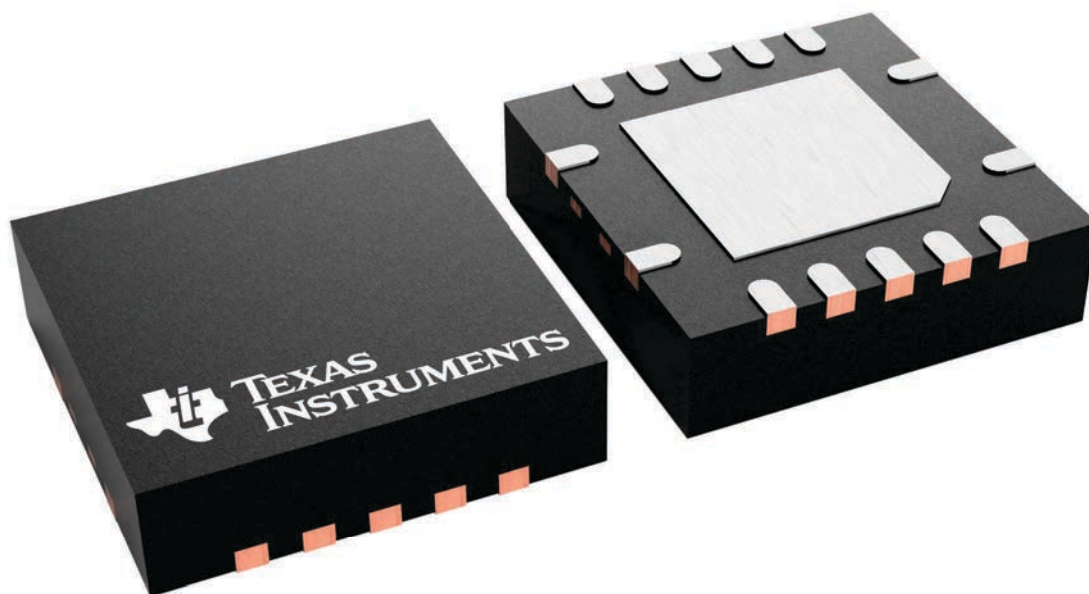
RGY 14

VQFN - 1 mm max height

3.5 x 3.5, 0.5 mm pitch

PLASTIC QUAD FLATPACK - NO LEAD

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

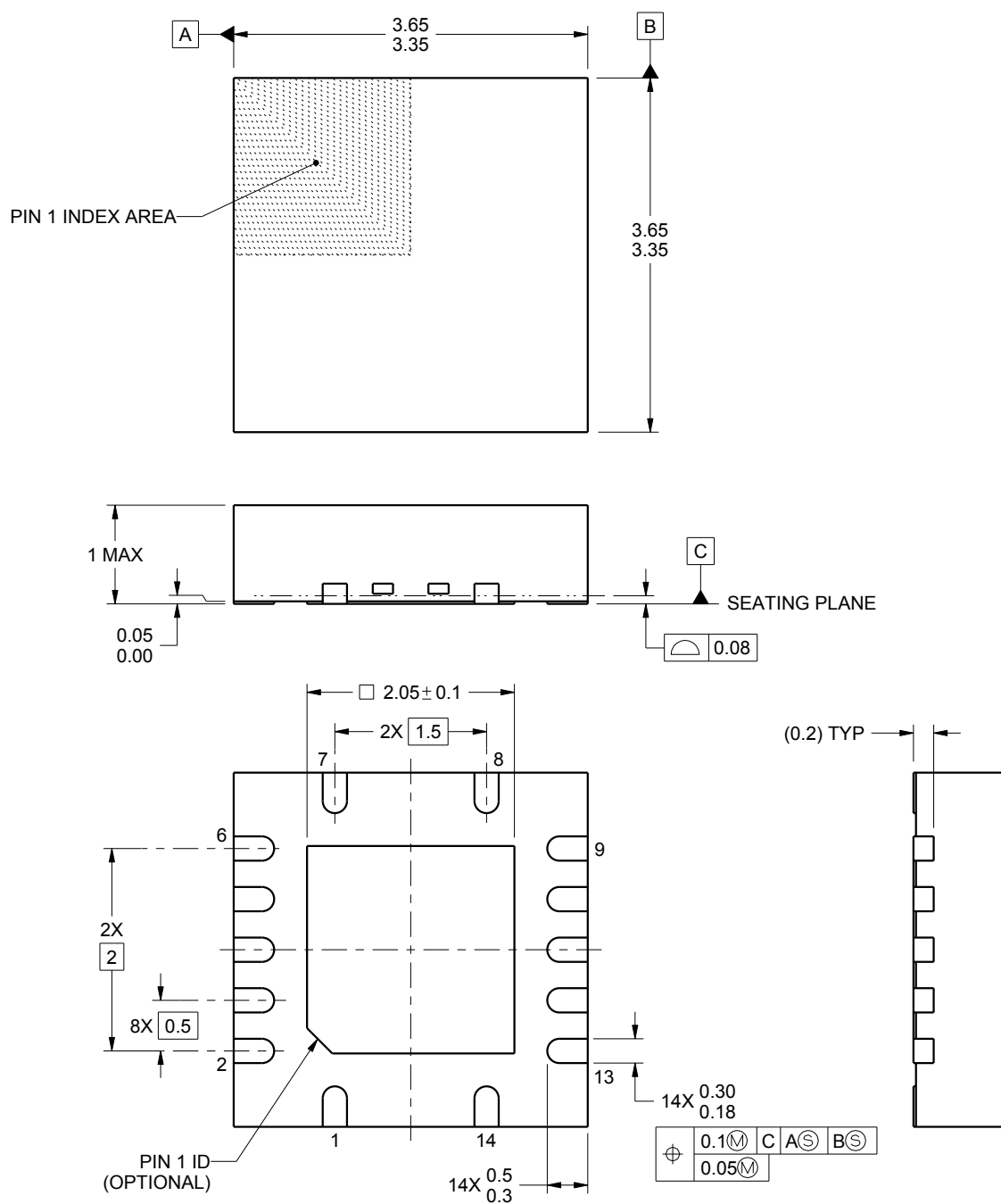


4231541/A



VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



4219040/A 09/2015

NOTES:

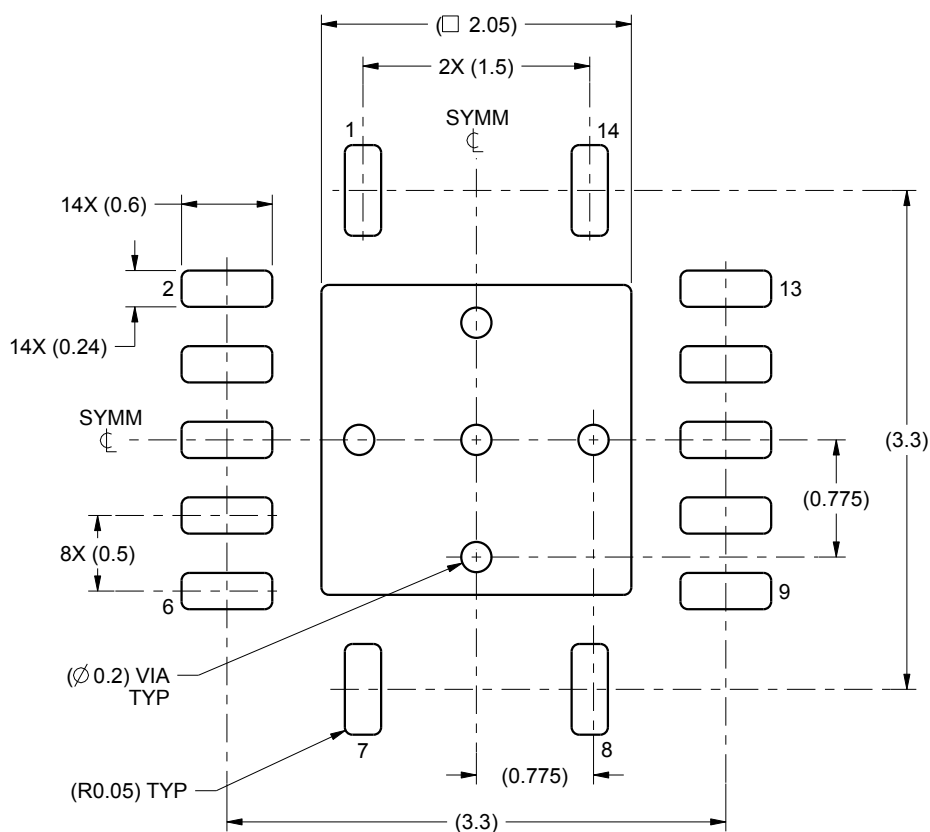
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. The package thermal pad must be soldered to the printed circuit board for thermal and mechanical performance.

EXAMPLE BOARD LAYOUT

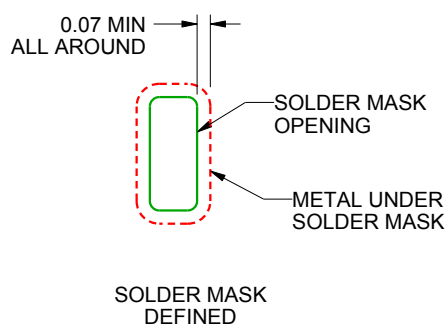
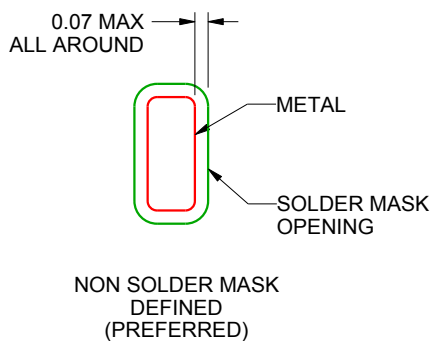
RGY0014A

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



LAND PATTERN EXAMPLE
SCALE:20X



SOLDER MASK DETAILS

4219040/A 09/2015

NOTES: (continued)

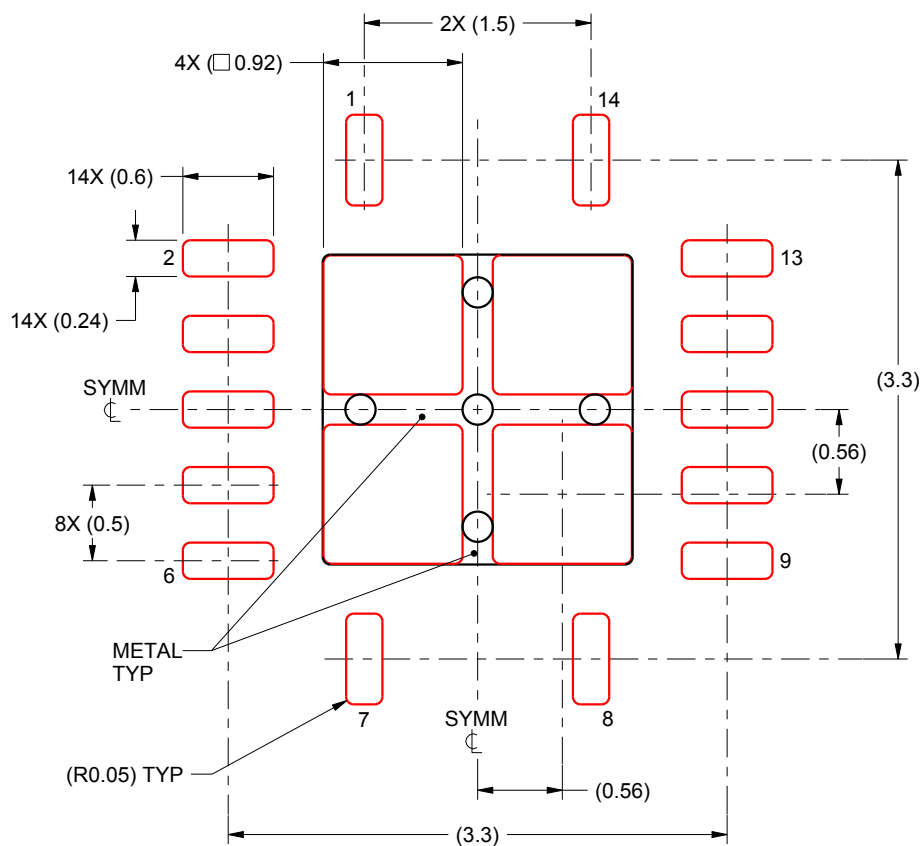
- This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/sluea271).

EXAMPLE STENCIL DESIGN

RGY0014A

VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD



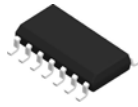
SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL

EXPOSED PAD
80% PRINTED SOLDER COVERAGE BY AREA
SCALE:20X

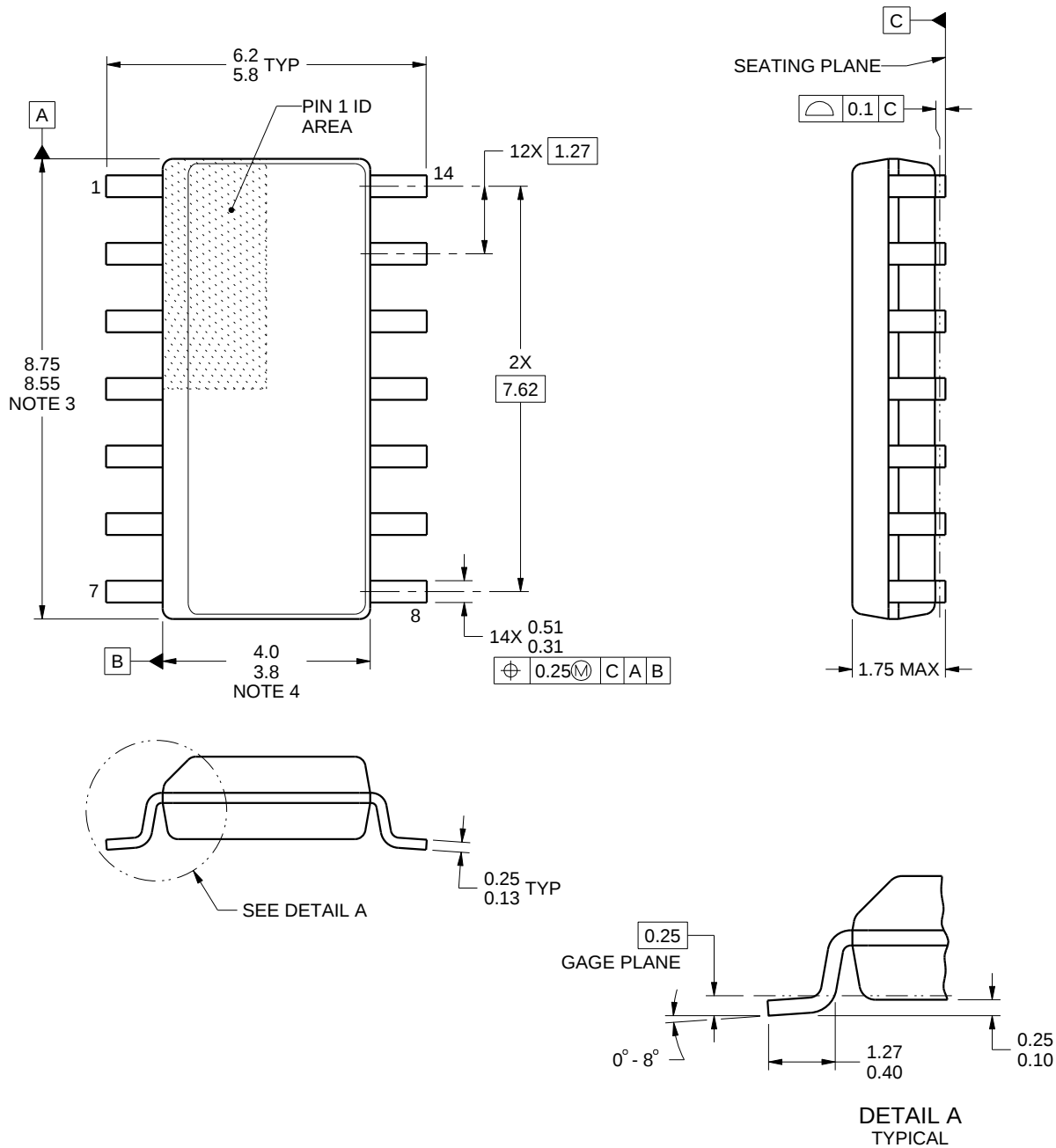
4219040/A 09/2015

NOTES: (continued)

5. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.

D0014A**PACKAGE OUTLINE****SOIC - 1.75 mm max height**

SMALL OUTLINE INTEGRATED CIRCUIT



4220718/A 09/2016

NOTES:

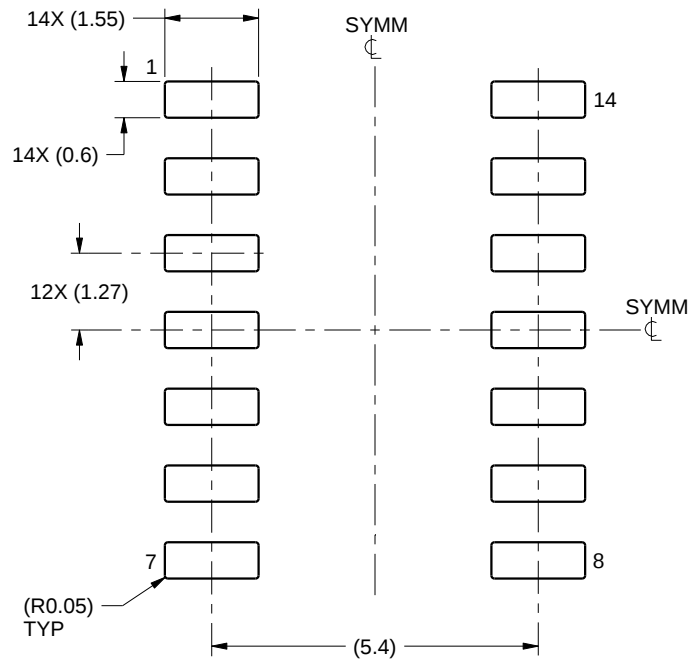
1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate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

EXAMPLE BOARD LAYOUT

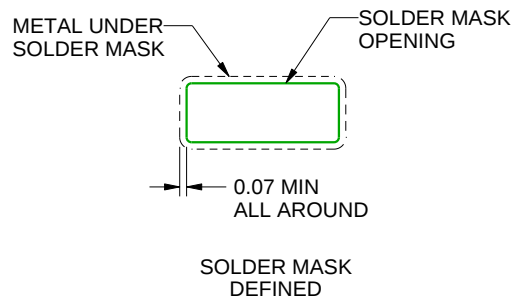
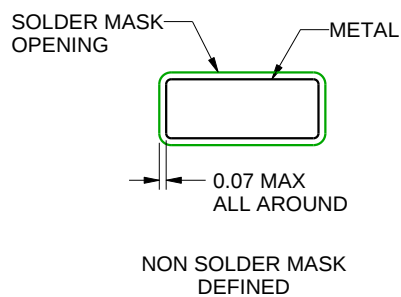
D0014A

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.

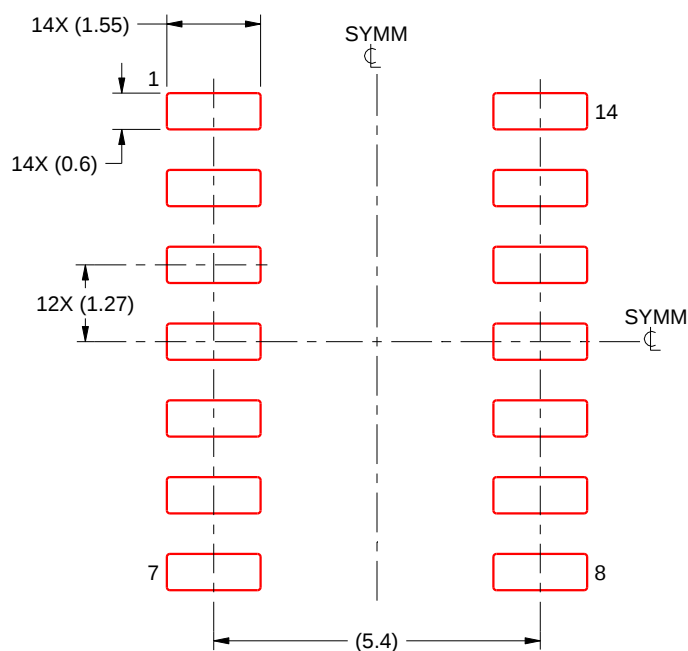
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

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)

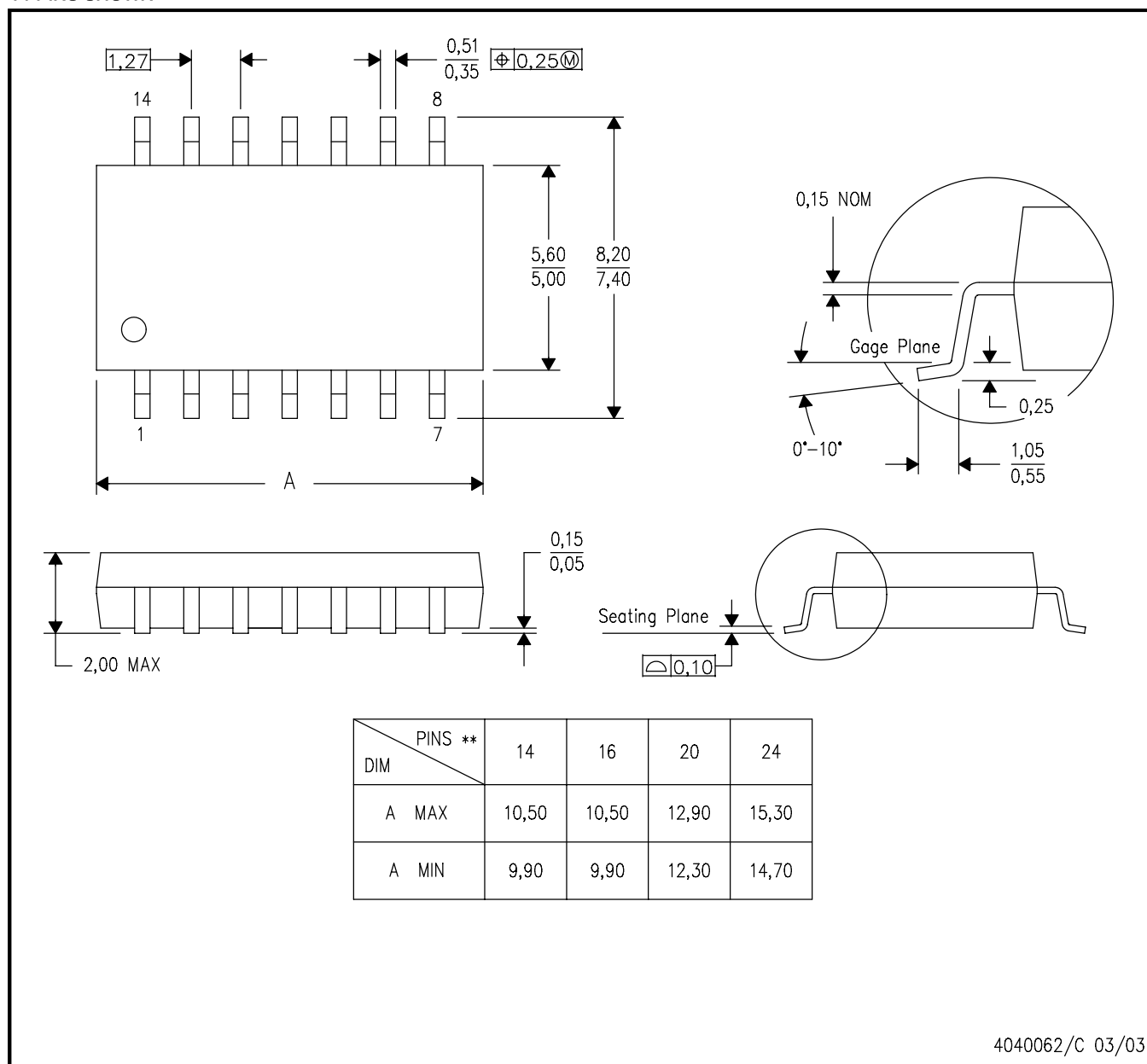
8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

MECHANICAL DATA

NS (R-PDSO-G**)

PLASTIC SMALL-OUTLINE PACKAGE

14-PINS SHOWN

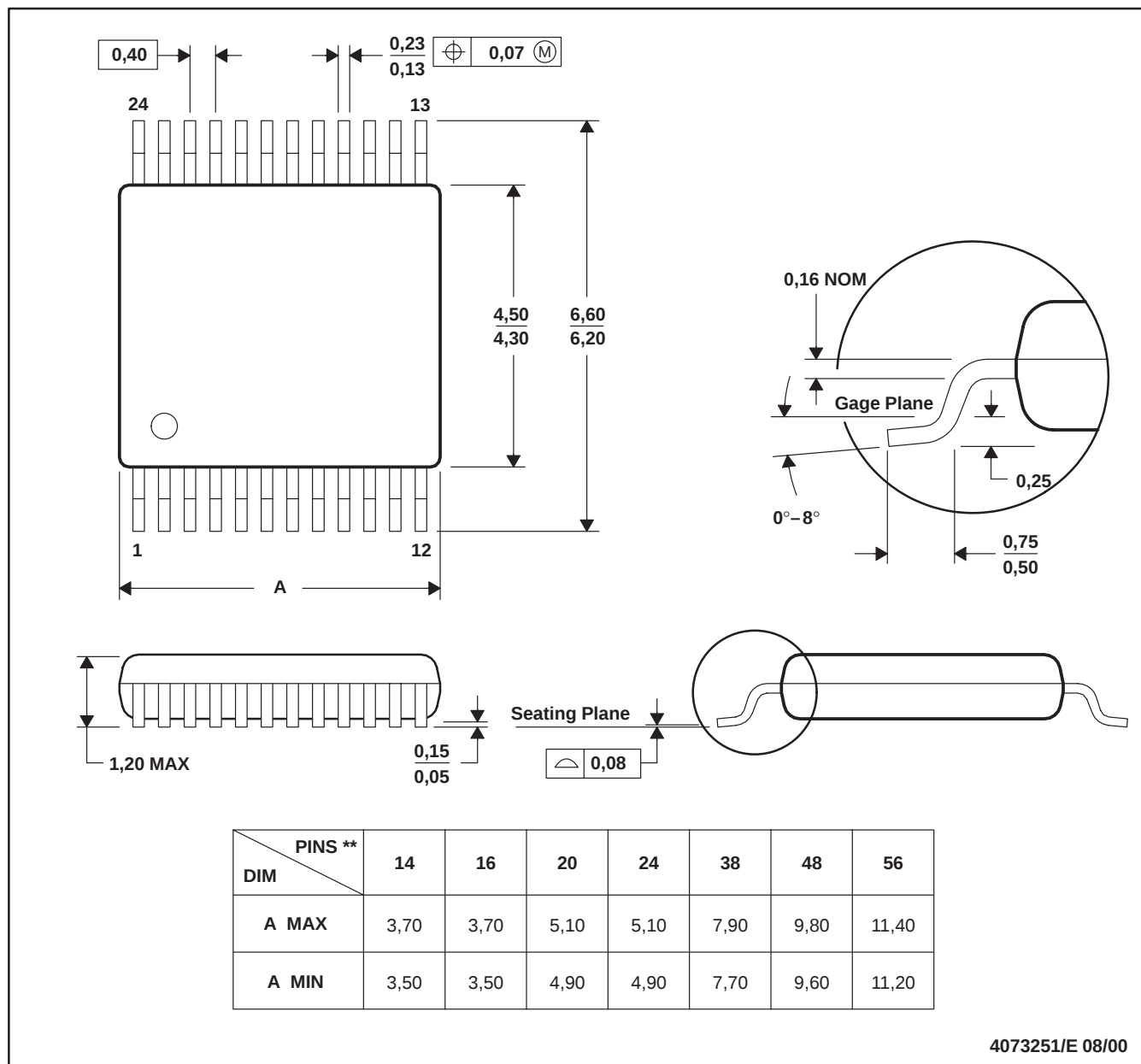


- NOTES:
- A. All linear dimensions are in millimeters.
 - B. This drawing is subject to change without notice.
 - C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.

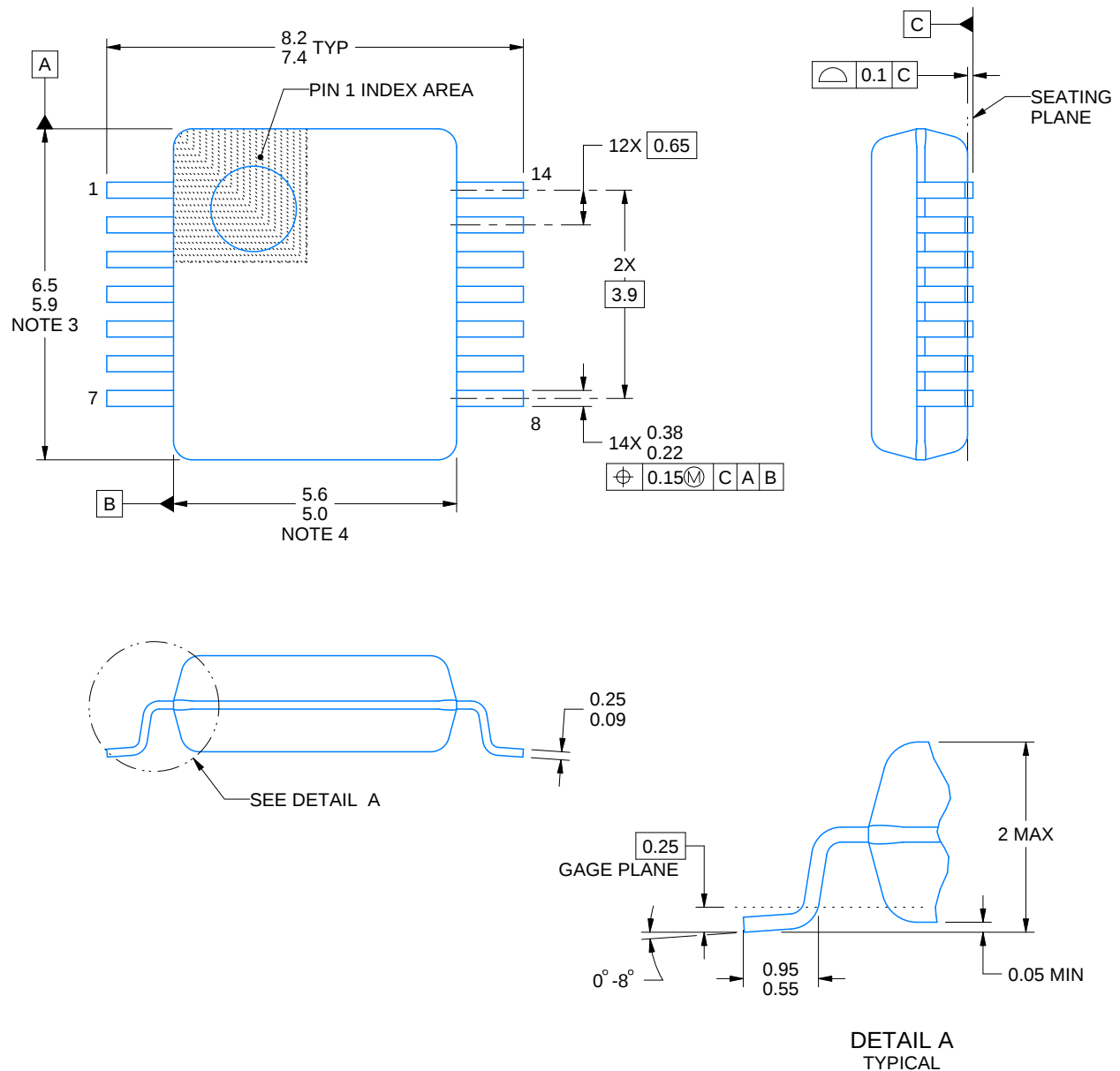
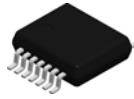
DGV (R-PDSO-G**)

PLASTIC SMALL-OUTLINE

24 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 per side.
 D. Falls within JEDEC: 24/48 Pins – MO-153
 14/16/20/56 Pins – MO-194



4220762/A 05/2024

NOTES:

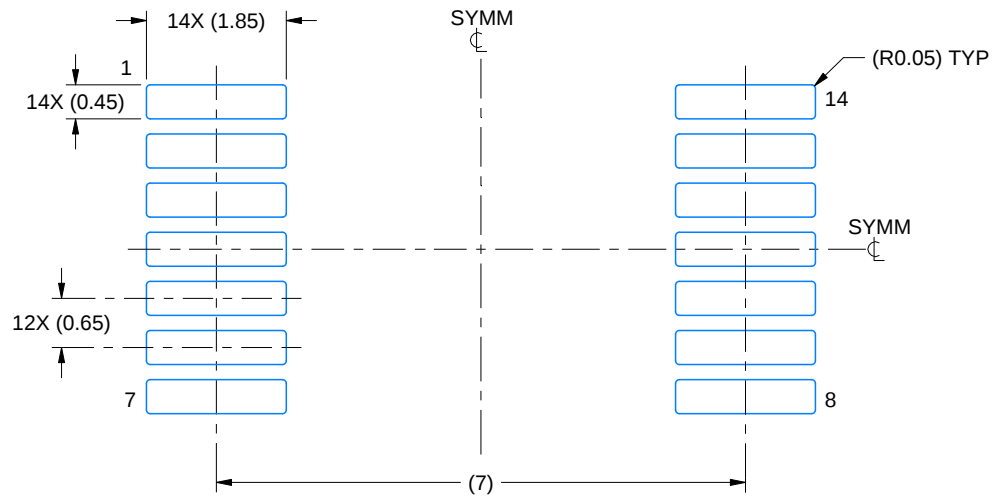
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or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

EXAMPLE BOARD LAYOUT

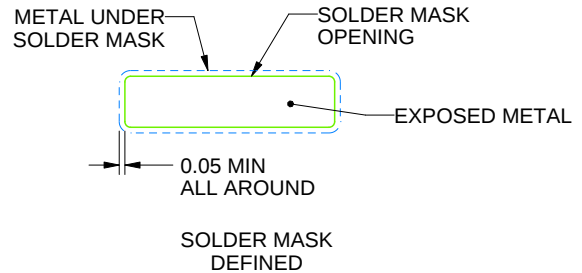
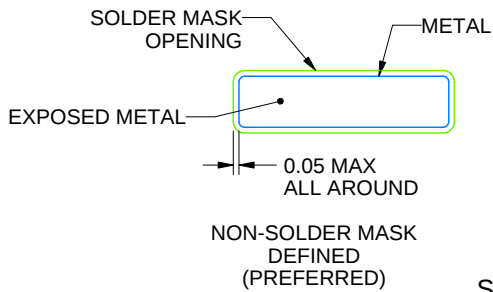
DB0014A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



SOLDER MASK DETAILS

4220762/A 05/2024

NOTES: (continued)

5. Publication IPC-7351 may have alternate designs.

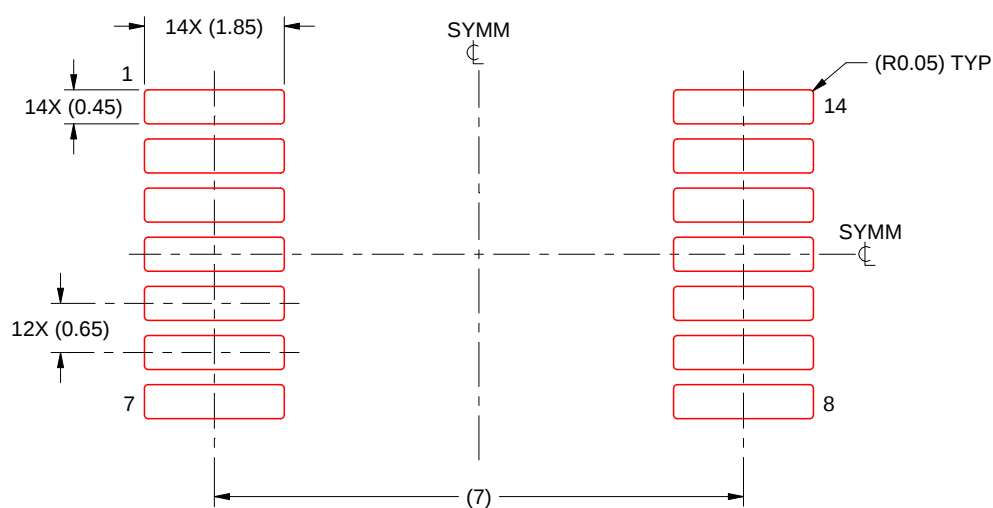
6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

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

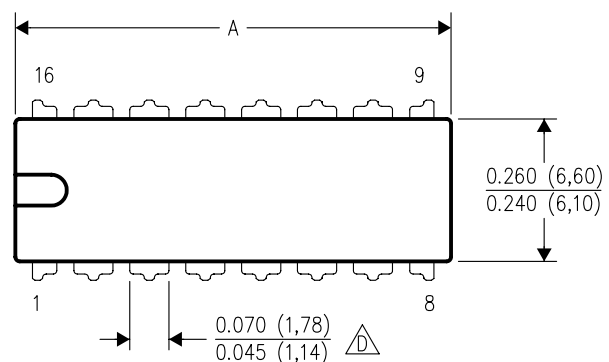
NOTES: (continued)

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.

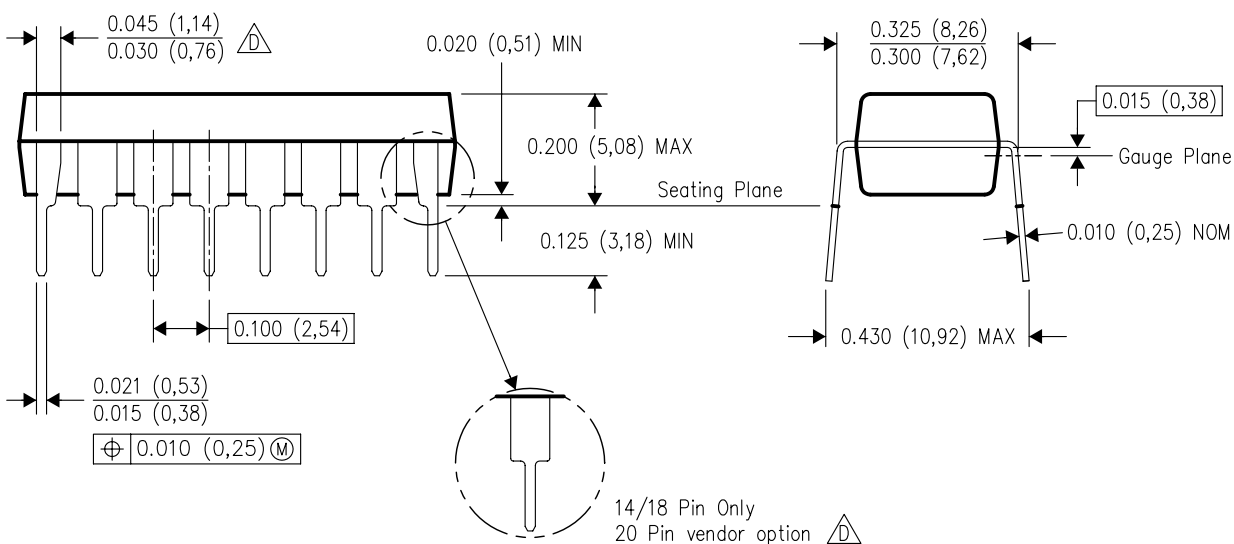
N (R-PDIP-T**)

16 PINS SHOWN

PLASTIC DUAL-IN-LINE PACKAGE



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



4040049/E 12/2002

NOTES:

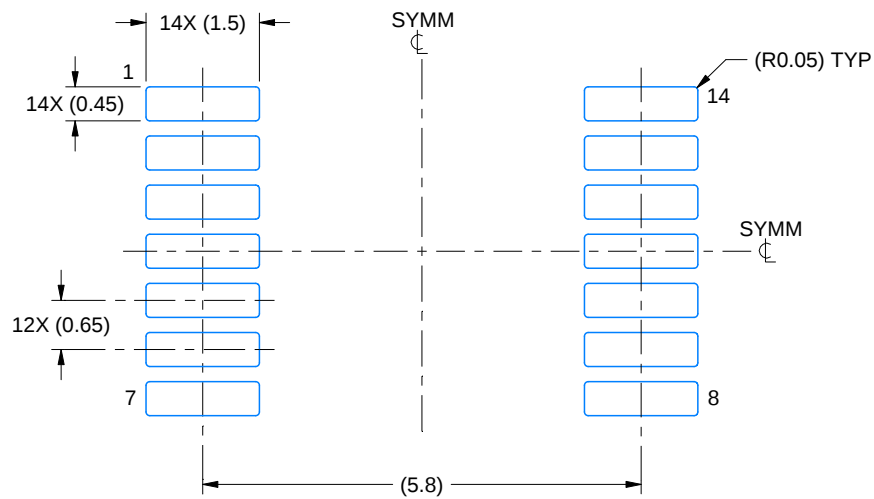
- A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
-  Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
 The 20 pin end lead shoulder width is a vendor option, either half or full width.

EXAMPLE BOARD LAYOUT

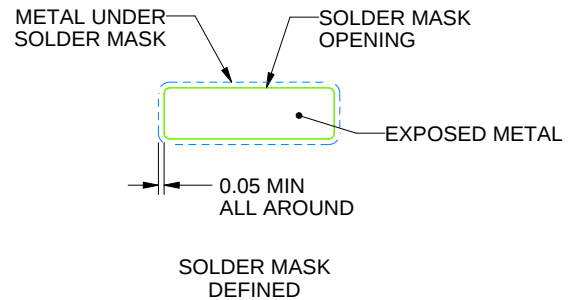
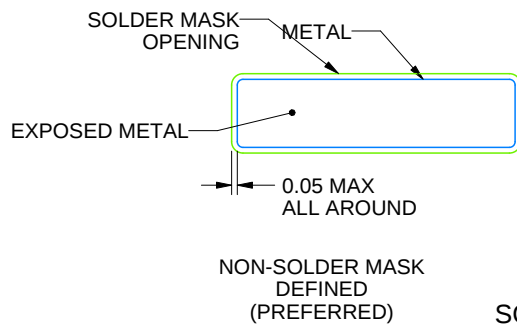
PW0014A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



SOLDER MASK DETAILS

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NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

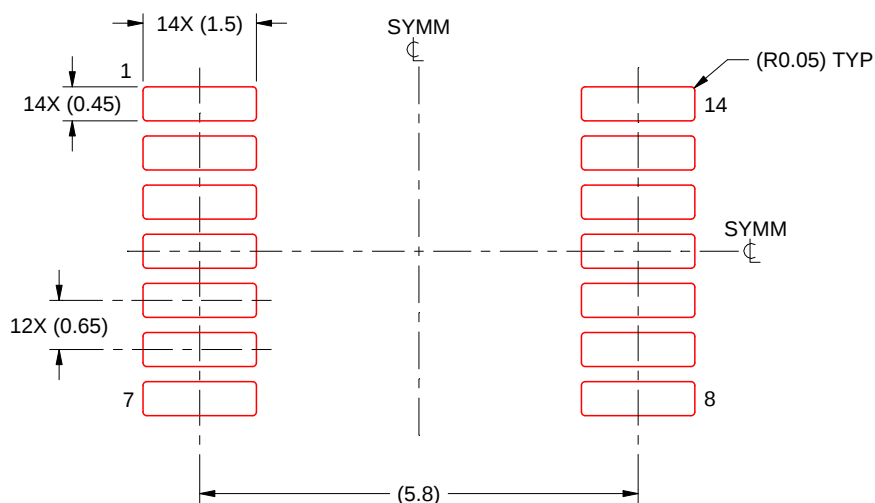
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

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

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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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