SN74AHC4066 四路双边模拟开关

1 特性

- 1V 至 5.5V V_{CC} 运行
- 所有端口上均支持以混合模式电压运行
- 高开关输出电压比
- 低开关间串扰
- 单独的开关控制
- 极低输入电流
- 静电放电 (ESD) 保护性能超过 JESD 22 规范要求：
  - 2000V 人体放电模型 (A114-A)
  - 200V 机器放电模型 (A115-A)
  - 1000V 组件充电模式 (C101)

2 应用

- 模拟信号开关或多路复用：
  - 信号门控、调制器、静噪控制、解调器、斩波器、换向开关
- 数字信号开关和多路复用
  - 音频和视频信号路由
- 传输门逻辑实施
- 模数和数模转换
- 频率、阻抗、相位和模拟信号增益的数字控制
- 电机转速控制
- 电池充电器
- 直流/直流转换器

3 说明

这款四路硅栅 CMOS 模拟开关专为在 1V 至 5.5V VCC 下运行而设计，

能够处理模拟和数字信号。每个开关允许在任意方向传输振幅高达 5.5V（峰值）的信号。

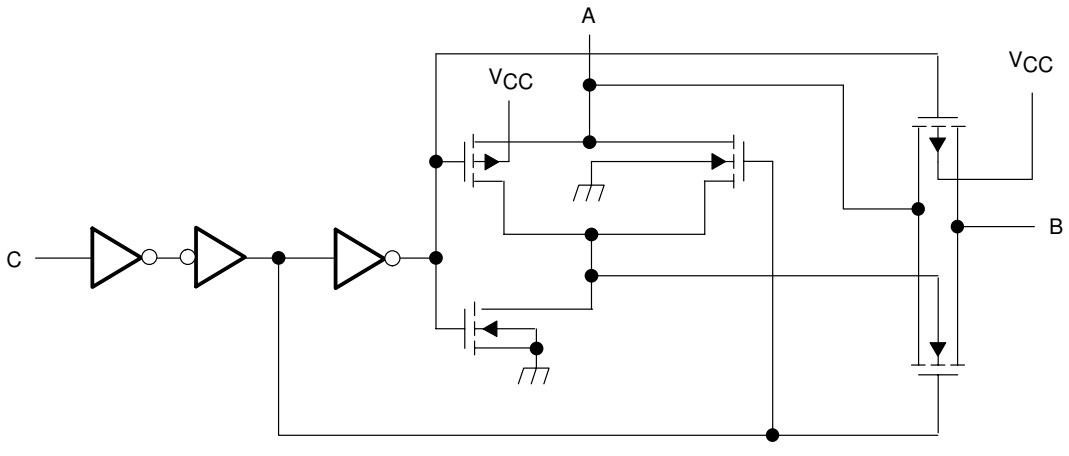
每个开关部分都有自己的启用输入控制 (C)。应用到 C 上的一个高电平电压开启相关开关部分。

应用包括用于模数和数模转换系统的信号选通、斩波、调制或者解调 (modem)，以及信号复用。

封装信息

器件型号	封装(1)	封装尺寸(2)
SN74AHC4066	D（SOIC，14）	8.65mm x 6mm
	PW（TSSOP，14）	5mm x 6.4mm
	RGY（VQFN，14）	3.5mm x 3.5mm

(1) 有关更多信息，请参阅节 10。
(2) 封装尺寸（长 × 宽）为标称值，并包括引脚（如适用）。



逻辑图、每次转换（正逻辑）

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4 Pin Configuration and Functions

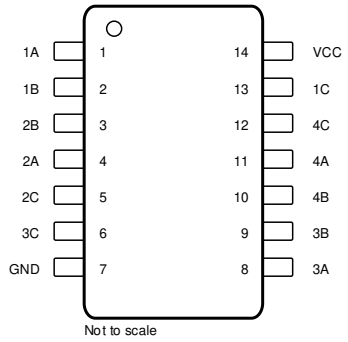


图 4-1. D or PW Package, 14-Pin SOIC or TSSOP (Top View)

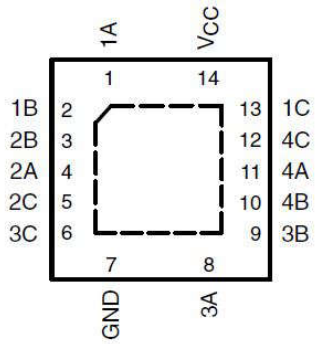


图 4-2. RGY Package, 14-Pin QFN (Top View)

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（续）

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 $V_{I/O}$ > V_{CC}		±50	mA
	On-state switch current	$V_{I/O}$ = 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	V
		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	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	127.7	150.6	91.9	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	81.8	78.2	91.8	°C/W
$R_{\theta JC(bottom)}$	Junction-to-case (bottom) thermal resistance	N/A	N/A	50.0	°C/W
$R_{\theta JB}$	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
$\Delta t/\Delta v$	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	I_T = –1mA, V_I = 0 to V_{CC}, V_C = V_{IH} (see 图 6-1)	2.3V		38	180		225	Ω
			3V		29	150		190	
			4.5V		21	75		100	
$r_{on(p)}$	Peak on-state resistance	I_T = –1mA, V_I = V_{CC} to GND, V_C = V_{IH}	2.3V		143	500		600	Ω
			3V		57	180		225	
			4.5V		31	100		125	
Δr_{on}	Difference in on-state resistance between switches	I_T = –1mA, V_I = V_{CC} to GND, V_C = V_{IH}	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 图 6-2)	5.5V			±0.1		±1	μA

5.5 Electrical Characteristics（续）

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

PARAMETER		TEST CONDITIONS	V_{CC}	T_A = 25°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 图 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} = 2.5V ± 0.2V (unless otherwise noted)

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

5.7 Switching Characteristics

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

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

5.7 Switching Characteristics（续）

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

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

5.8 Switching Characteristics

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	T_A = 25°C			MIN	MAX	UNIT
				MIN	TYP	MAX			
t_{PLH}, t_{PHL} Propagation delay time	A or B	B or A	C_L = 50pF (see 图 6-4)		0.3	4		7	ns
t_{PZH}, t_{PZL} Switch turn-on time	C	A or B	C_L = 50pF R_L = 1kΩ, (see 图 6-5)		1.6	7		10	ns
t_{PLZ}, t_{PHZ} Switch turn-off time	C	A or B	C_L = 50pF R_L = 1kΩ, (see 图 6-5)		3.2	7		10	ns
t_{PLZ}, t_{PHZ} Propagation delay time	A or B	B or A	C_L = 50pF (see 图 6-6)		0.6	6		8	ns
t_{PLZ}, t_{PHZ} Switch turn-on time	C	A or B	C_L = 50pF R_L = 1kΩ, (see 图 6-8)		2.1	12		16	ns
t_{PLZ}, t_{PHZ} Switch turn-off time	C	A or B	C_L = 50pF R_L = 1kΩ, (see 图 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°C			UNIT
					MIN	TYP	MAX	
Frequency response (switch on)	A or B	B or A	C_L = 50pF, R_L = 600Ω f_{in} = 1MHz (sine wave) $20\log_{10}(V_O/V_I)$ = -3 dB (see 图 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 = 600Ω f_{in} = 1MHz (sine wave) (see 图 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 = 600Ω, f_{in} = 1MHz (sine wave) (see 图 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 = 600Ω, f_{in} = 1MHz (sine wave) (see 图 6-4)	2.3V		-40		dB
				3V		-40		
				4.5V		-40		

5.9 Analog Switching Characteristics（续）

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 图 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

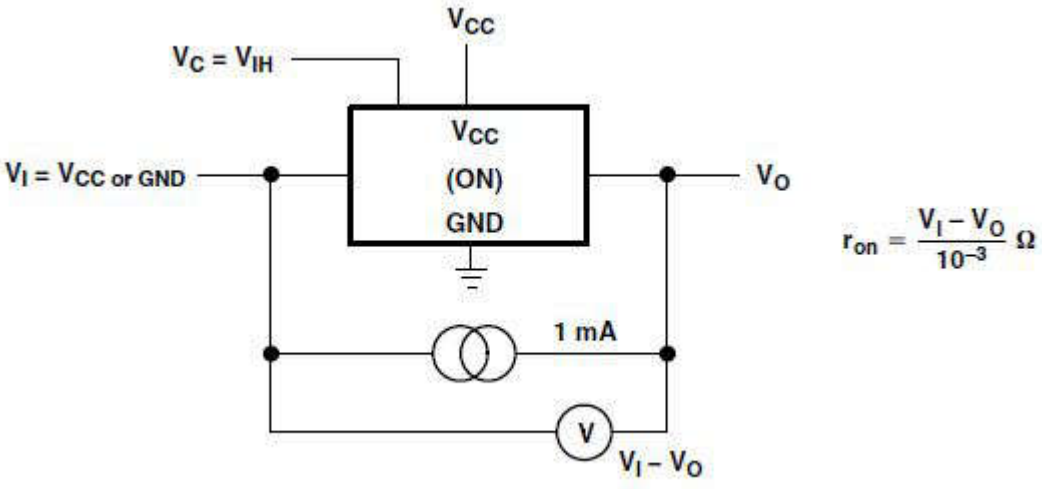


图 6-1. ON-State Resistance Test Circuit

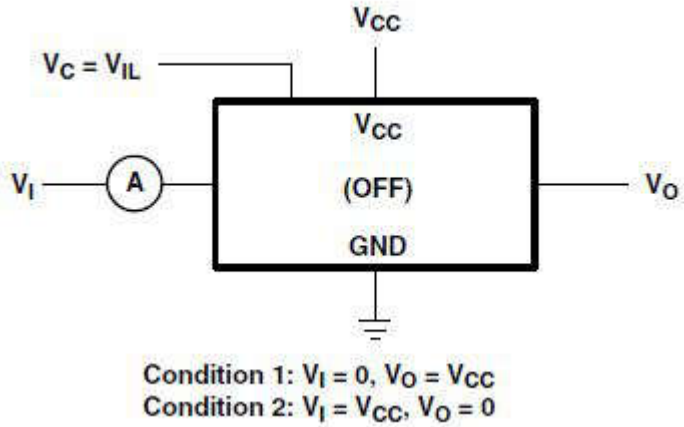


图 6-2. OFF-State Switch Leakage-Current Test Circuit

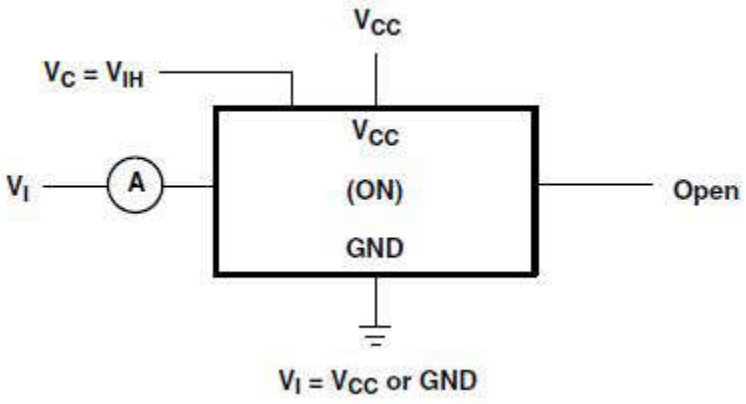


图 6-3. ON-State Leakage-Current Test Circuit

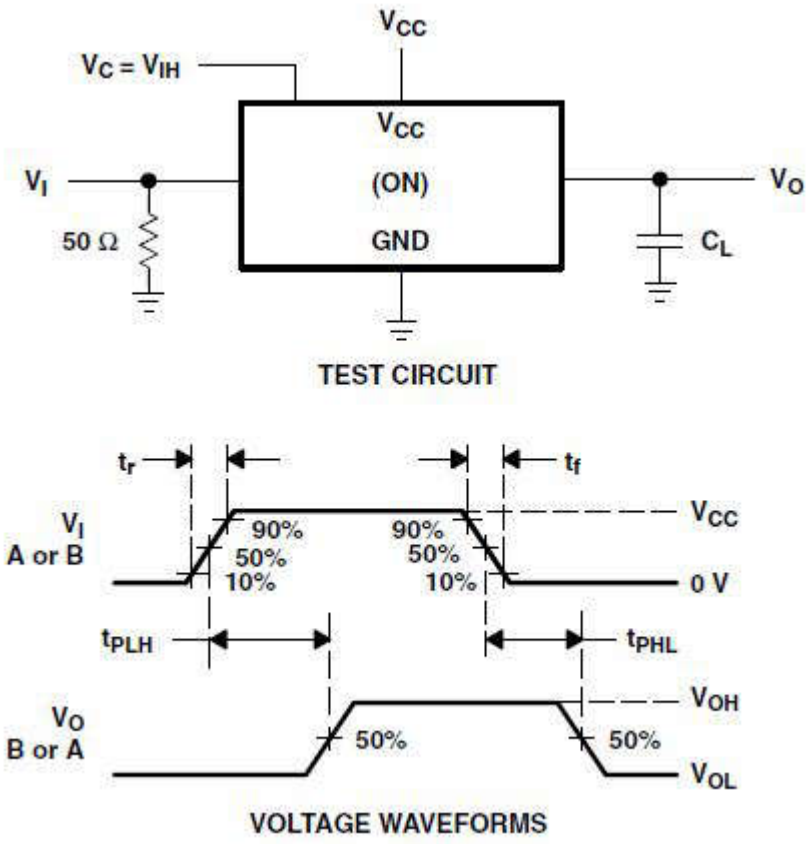
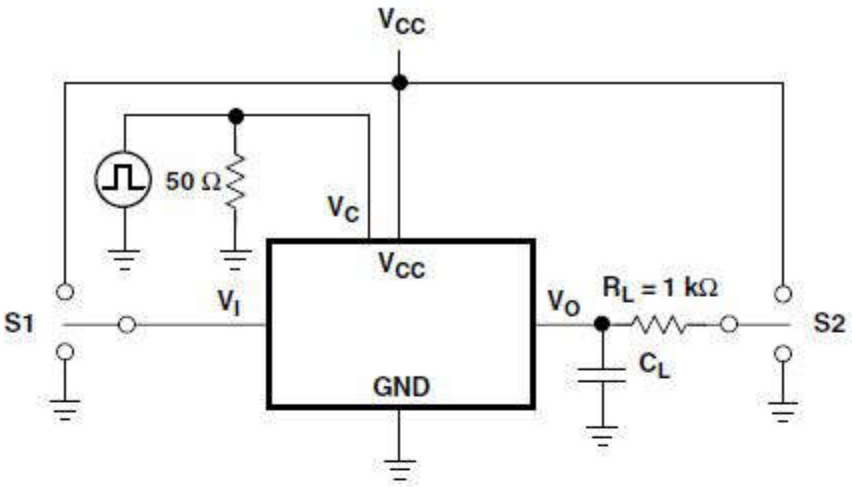
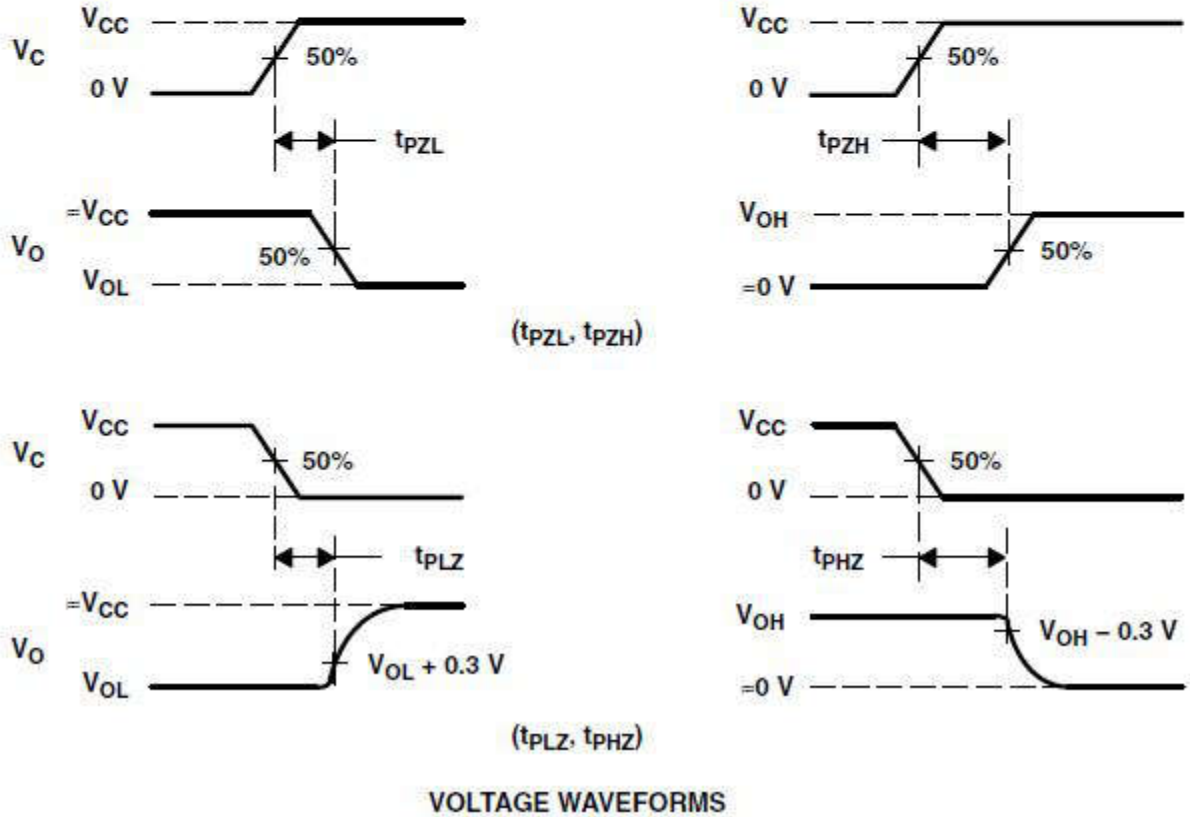


图 6-4. Propagation Delay Time, Signal Input to Signal Output



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

TEST CIRCUIT



VOLTAGE WAVEFORMS

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

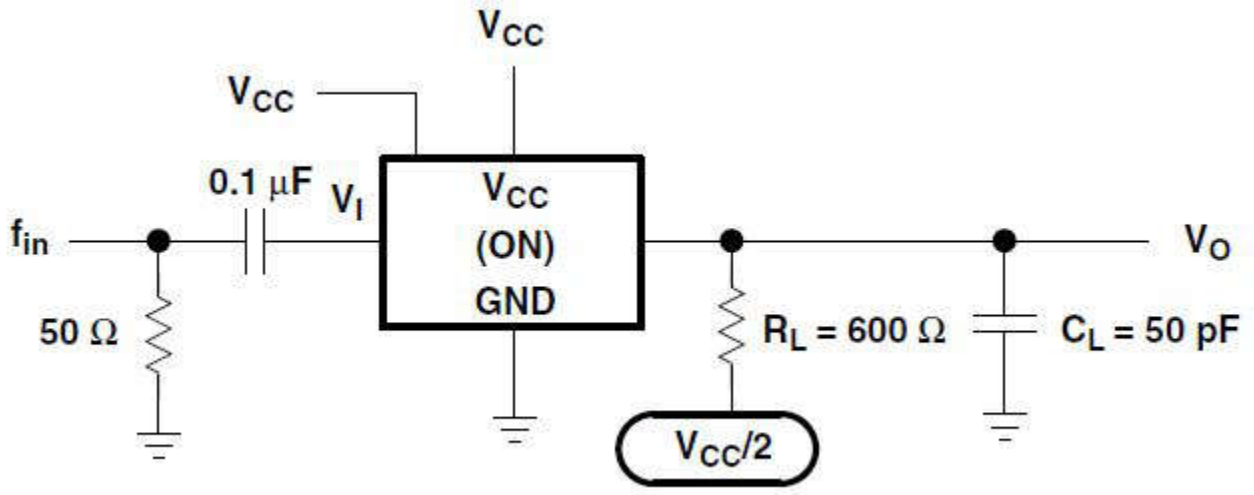


图 6-6. Frequency Response (Switch On)

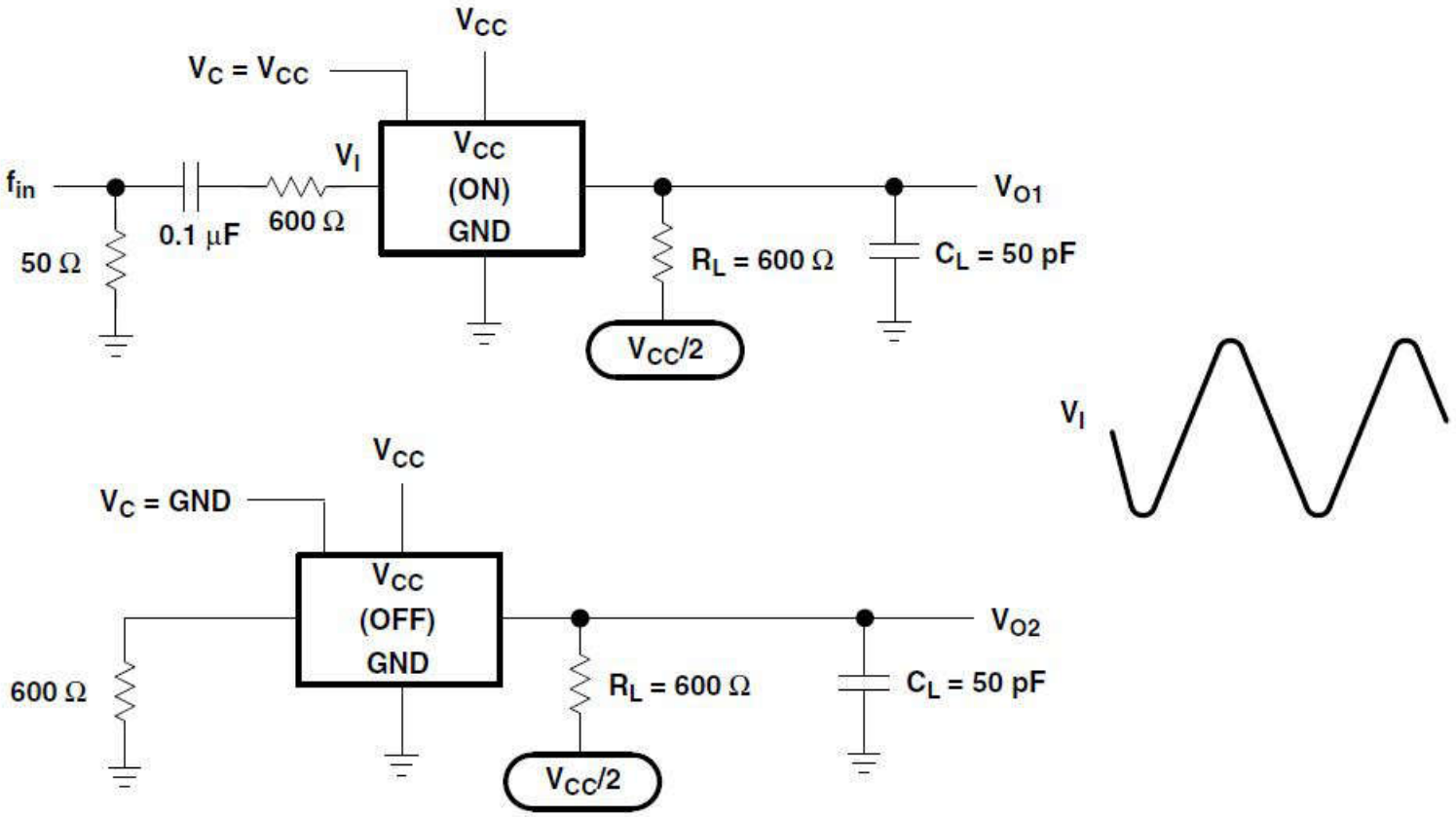


图 6-7. Crosstalk Between Any Two Switches

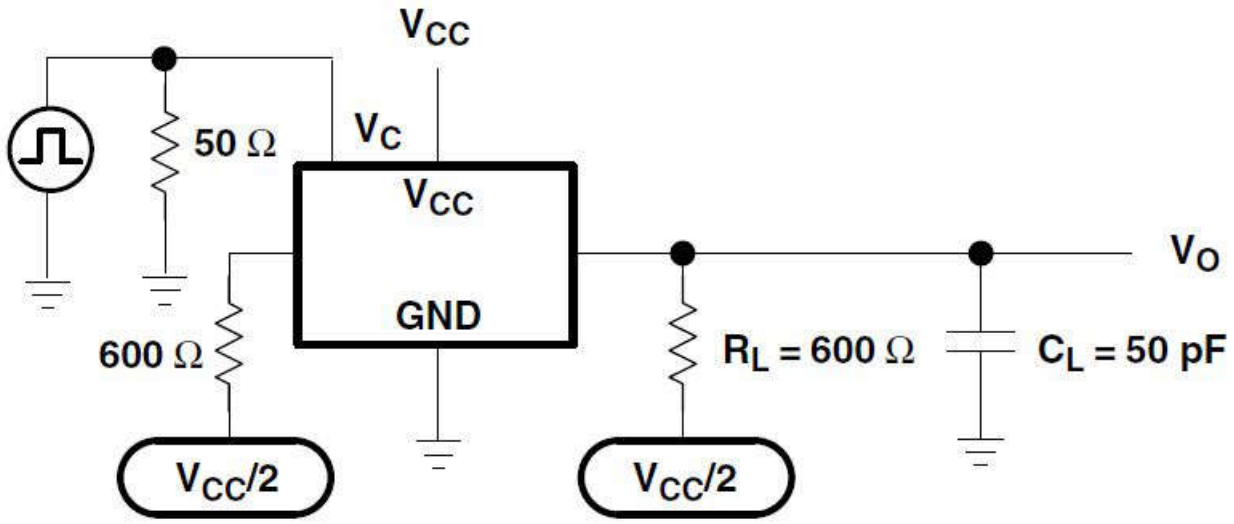


图 6-8. Crosstalk (Control Input - Switch Output)

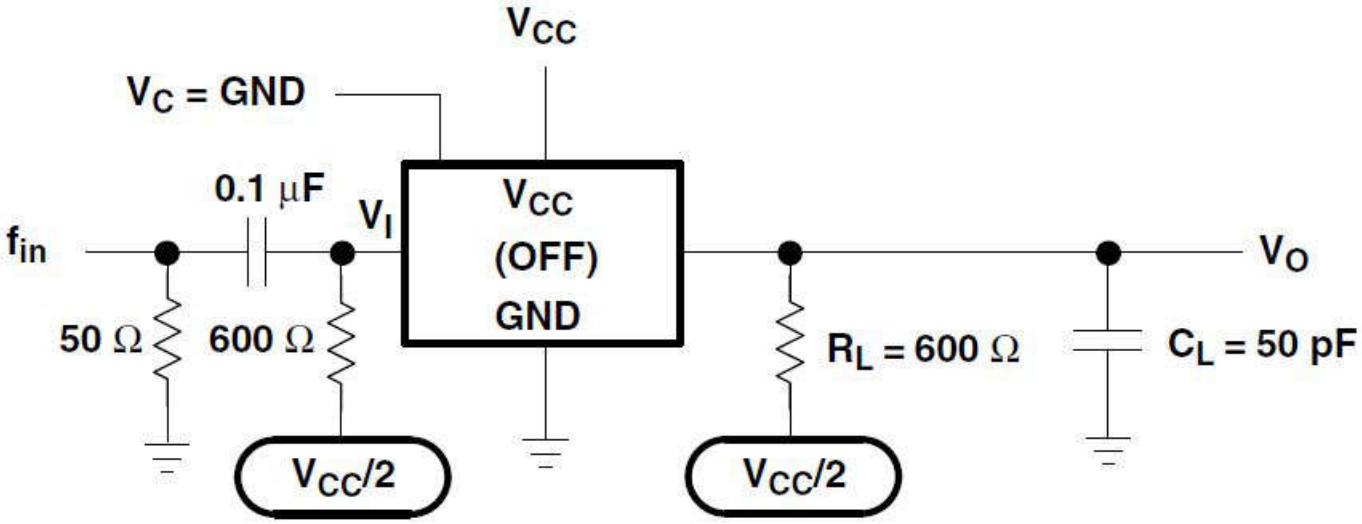


图 6-9. Feed-Through Attenuation (Switch Off)

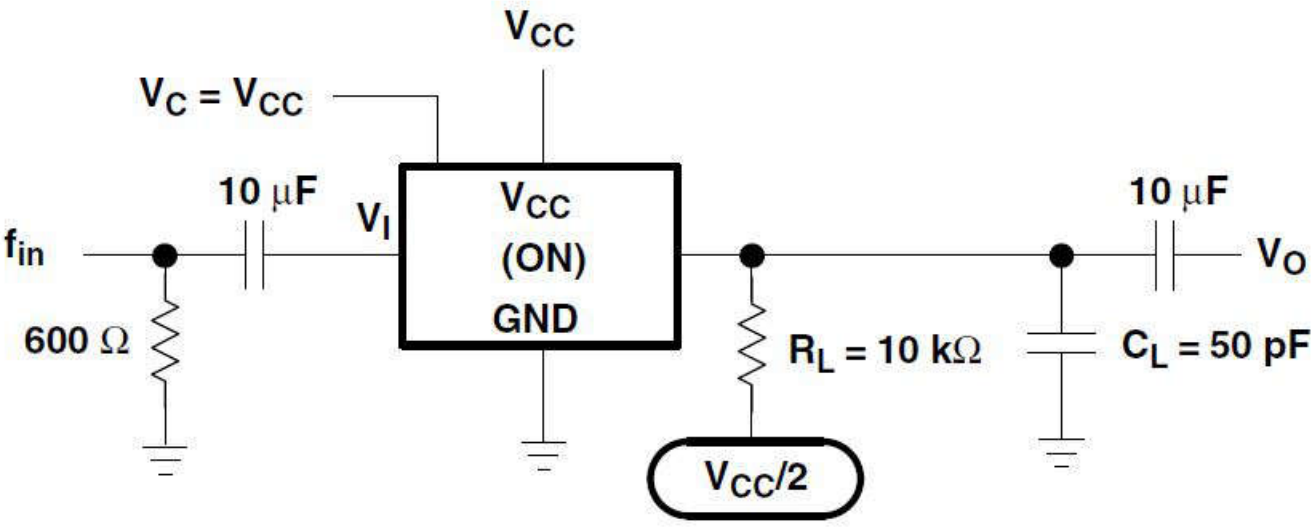


图 6-10. Sine-Wave Distortion

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

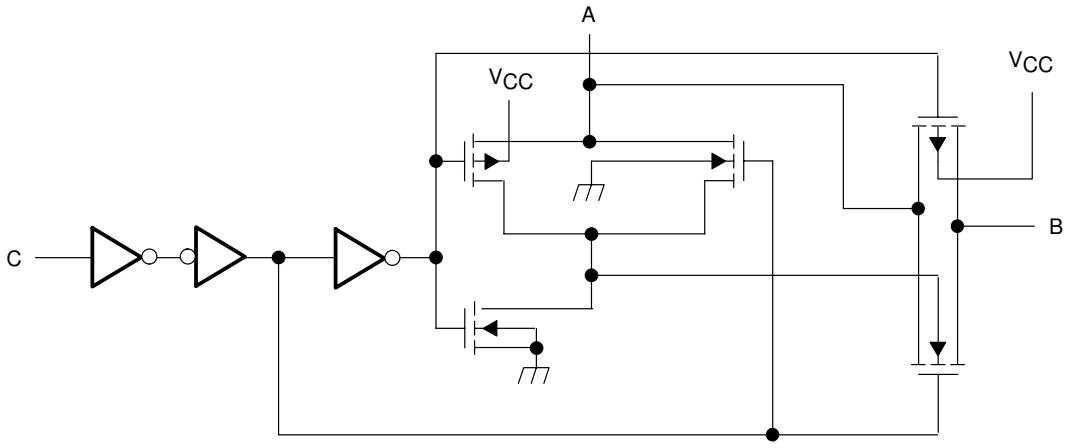


图 7-1. Logic Diagram, Each Switch (Positive Logic)

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 接收文档更新通知

要接收文档更新通知，请导航至 ti.com 上的器件产品文件夹。点击*通知* 进行注册，即可每周接收产品信息更改摘要。有关更改的详细信息，请查看任何已修订文档中包含的修订历史记录。

8.3 支持资源

TI E2E™ 中文支持论坛是工程师的重要参考资料，可直接从专家处获得快速、经过验证的解答和设计帮助。搜索现有解答或提出自己的问题，获得所需的快速设计帮助。

链接的内容由各个贡献者“按原样”提供。这些内容并不构成 TI 技术规范，并且不一定反映 TI 的观点；请参阅 TI 的使用条款。

8.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.
所有商标均为其各自所有者的财产。

8.5 静电放电警告

静电放电 (ESD) 会损坏这个集成电路。德州仪器 (TI) 建议通过适当的预防措施处理所有集成电路。如果不遵守正确的处理和安装程序，可能会损坏集成电路。

ESD 的损坏小至导致微小的性能降级，大至整个器件故障。精密的集成电路可能更容易受到损坏，这是因为非常细微的参数更改都可能会导致器件与其发布的规格不相符。

8.6 术语表

TI 术语表　　本术语表列出并解释了术语、首字母缩略词和定义。

9 Revision History

注：以前版本的页码可能与当前版本的页码不同

Changes from Revision * (June 2003) to Revision A (February 2024)	Page
• 将数据表更新为仅包含 *D*、*PW* 或 *RGY* 封装	1
• 更新了整个文档中的表格、图和交叉参考的编号格式	1
• Updated the *Thermal Information*	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.

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
SN74AHC4066D	LIFEBUY	SOIC	D	14	50	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHC4066	
SN74AHC4066DBR	NRND	SSOP	DB	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066	
SN74AHC4066DGVR	NRND	TVSOP	DGV	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066	
SN74AHC4066DR	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHC4066	Samples
SN74AHC4066N	NRND	PDIP	N	14	25	RoHS & Non-Green	NIPDAU	N / A for Pkg Type	-40 to 85	SN74AHC4066N	
SN74AHC4066NSR	NRND	SO	NS	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	AHC4066	
SN74AHC4066PW	LIFEBUY	TSSOP	PW	14	90	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066	
SN74AHC4066PWR	ACTIVE	TSSOP	PW	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	HA4066	Samples
SN74AHC4066RGYR	ACTIVE	VQFN	RGY	14	3000	RoHS & Green	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	HA4066	Samples

(1) The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".
RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.
Green: TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

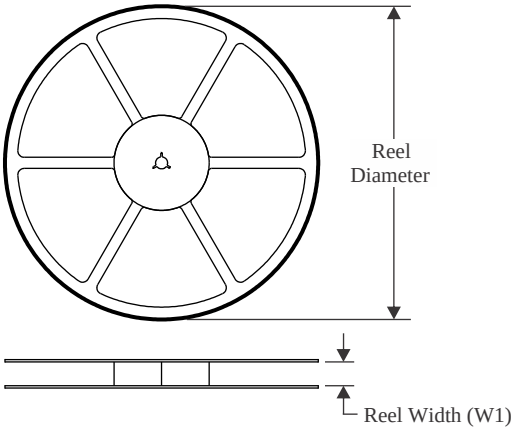
(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

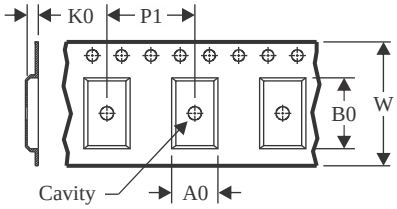
(6) Lead finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

TAPE AND REEL INFORMATION

REEL DIMENSIONS

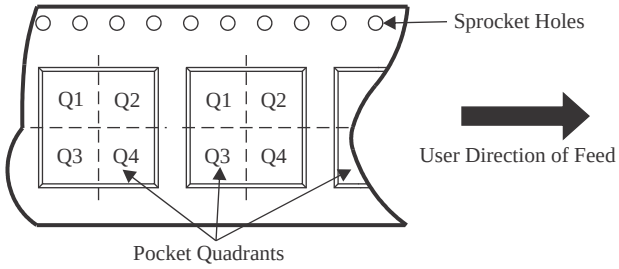


TAPE DIMENSIONS



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

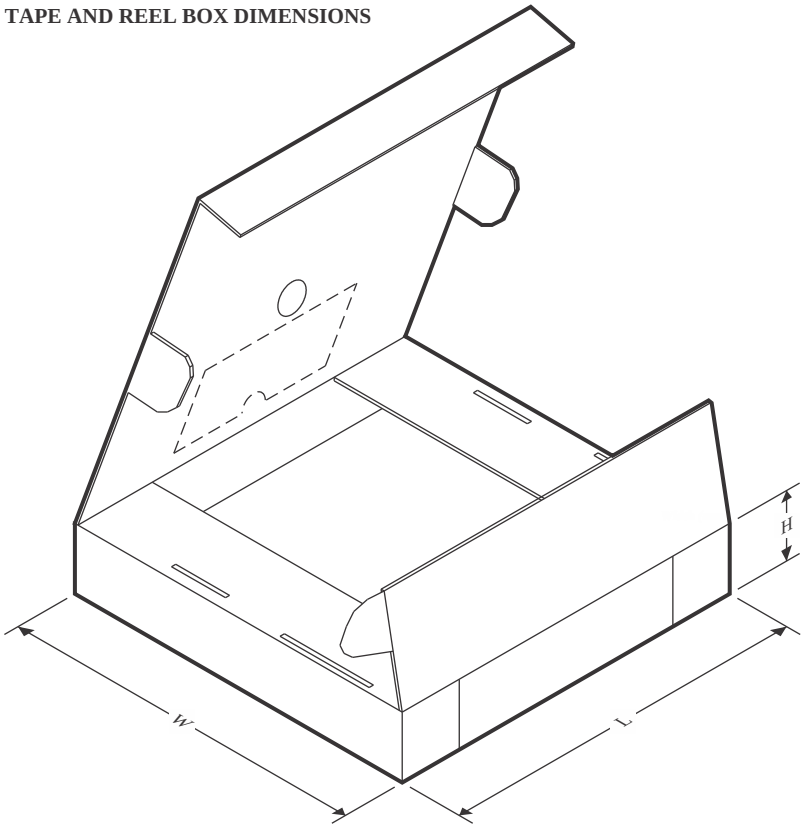
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
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	SO	NS	14	2000	330.0	16.4	8.2	10.5	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

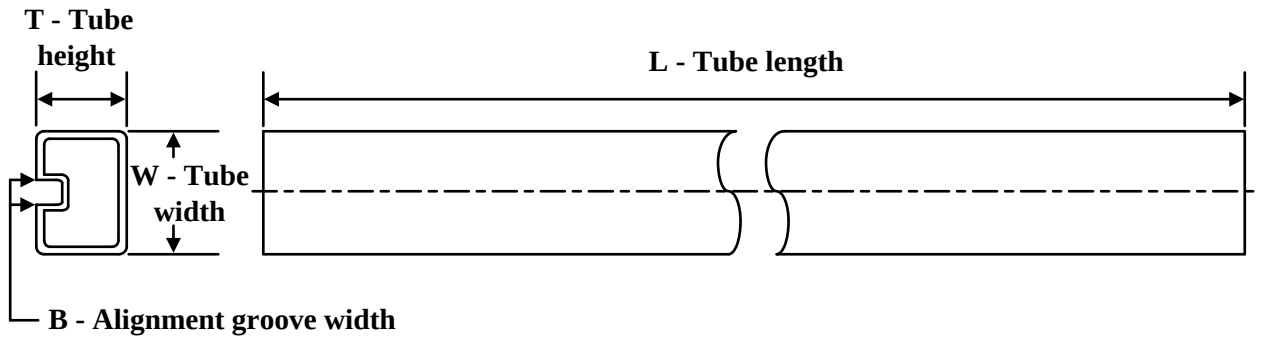
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74AHC4066DBR	SSOP	DB	14	2000	356.0	356.0	35.0
SN74AHC4066DGVR	TVSOP	DGV	14	2000	356.0	356.0	35.0
SN74AHC4066DR	SOIC	D	14	2500	356.0	356.0	35.0
SN74AHC4066NSR	SO	NS	14	2000	356.0	356.0	35.0
SN74AHC4066PWR	TSSOP	PW	14	2000	356.0	356.0	35.0
SN74AHC4066RGYR	VQFN	RGY	14	3000	367.0	367.0	35.0

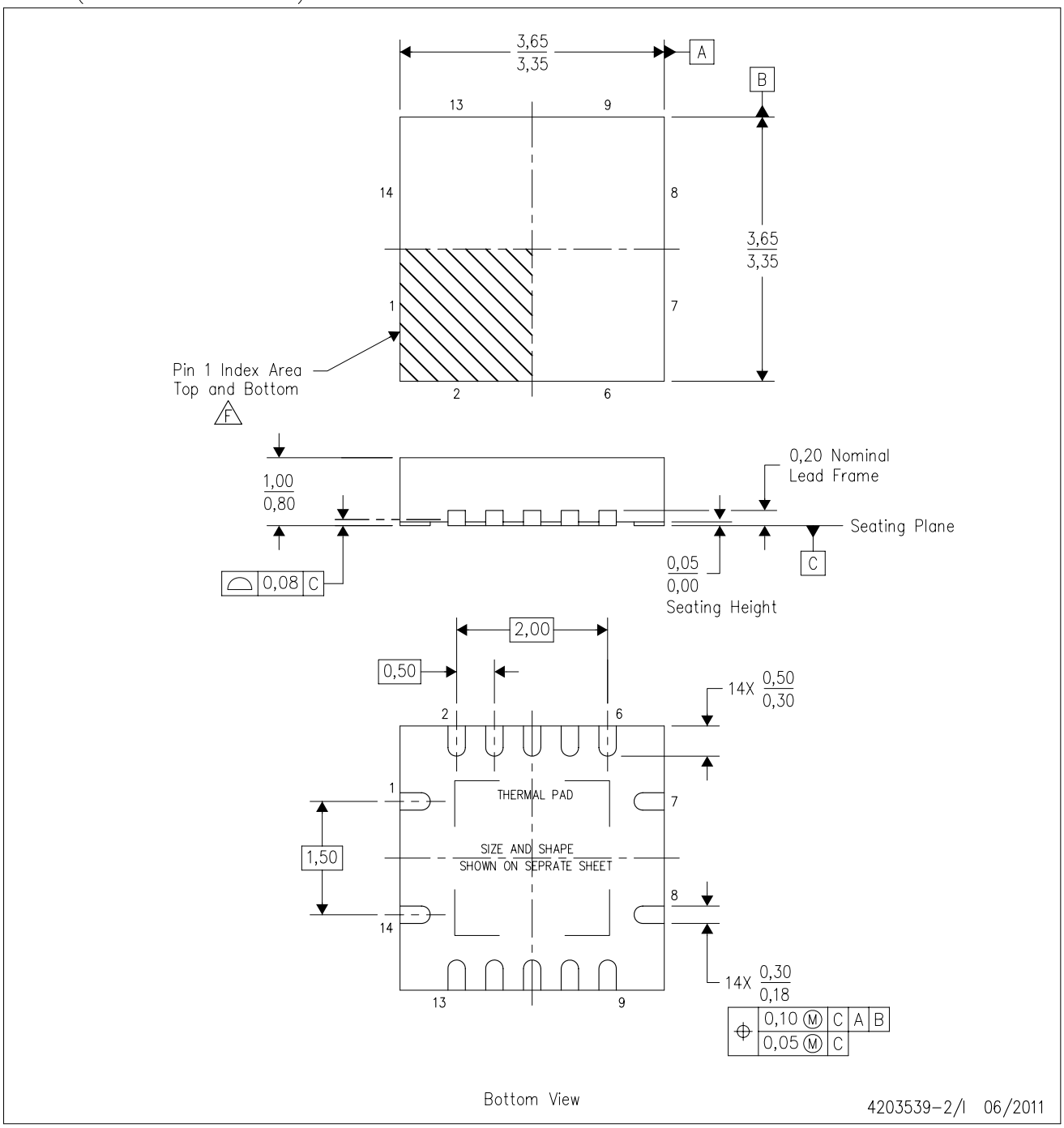
TUBE



*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (µm)	B (mm)
SN74AHC4066D	D	SOIC	14	50	506.6	8	3940	4.32
SN74AHC4066N	N	PDIP	14	25	506	13.97	11230	4.32
SN74AHC4066PW	PW	TSSOP	14	90	530	10.2	3600	3.5

RGY (S–PVQFN–N14) PLASTIC QUAD FLATPACK NO–LEAD



NOTES:
A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M–1994.
B. This drawing is subject to change without notice.
C. QFN (Quad Flatpack No–Lead) package configuration.
D. The package thermal pad must be soldered to the board for thermal and mechanical performance.
E. See the additional figure in the Product Data Sheet for details regarding the exposed thermal pad features and dimensions.
F. Pin 1 identifiers are located on both top and bottom of the package and within the zone indicated. The Pin 1 identifiers are either a molded, marked, or metal feature.
G. Package complies to JEDEC MO–241 variation BA.

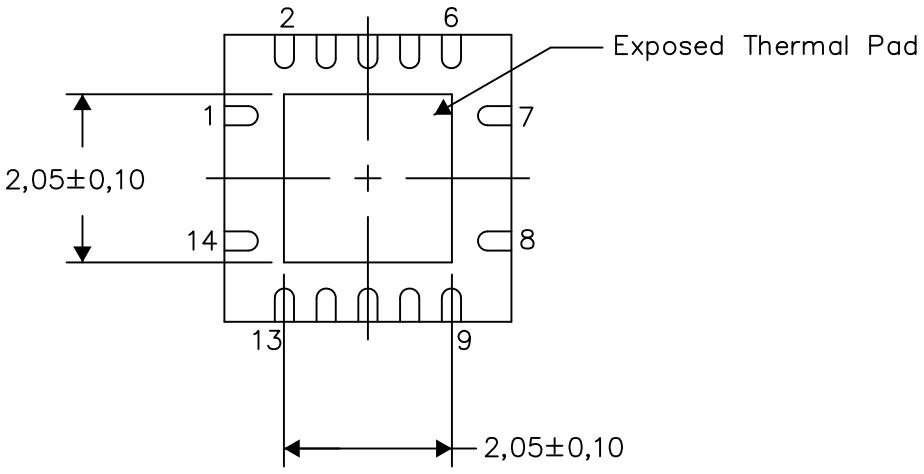
RGY (S–PVQFN–N14) PLASTIC QUAD FLATPACK NO–LEAD

THERMAL INFORMATION

This package incorporates an exposed thermal pad that is designed to be attached directly to an external heatsink. The thermal pad must be soldered directly to the printed circuit board (PCB). After soldering, the PCB can be used as a heatsink. In addition, through the use of thermal vias, the thermal pad can be attached directly to the appropriate copper plane shown in the electrical schematic for the device, or alternatively, can be attached to a special heatsink structure designed into the PCB. This design optimizes the heat transfer from the integrated circuit (IC).

For information on the Quad Flatpack No–Lead (QFN) package and its advantages, refer to Application Report, QFN/SON PCB Attachment, Texas Instruments Literature No. SLUA271. This document is available at www.ti.com.

The exposed thermal pad dimensions for this package are shown in the following illustration.



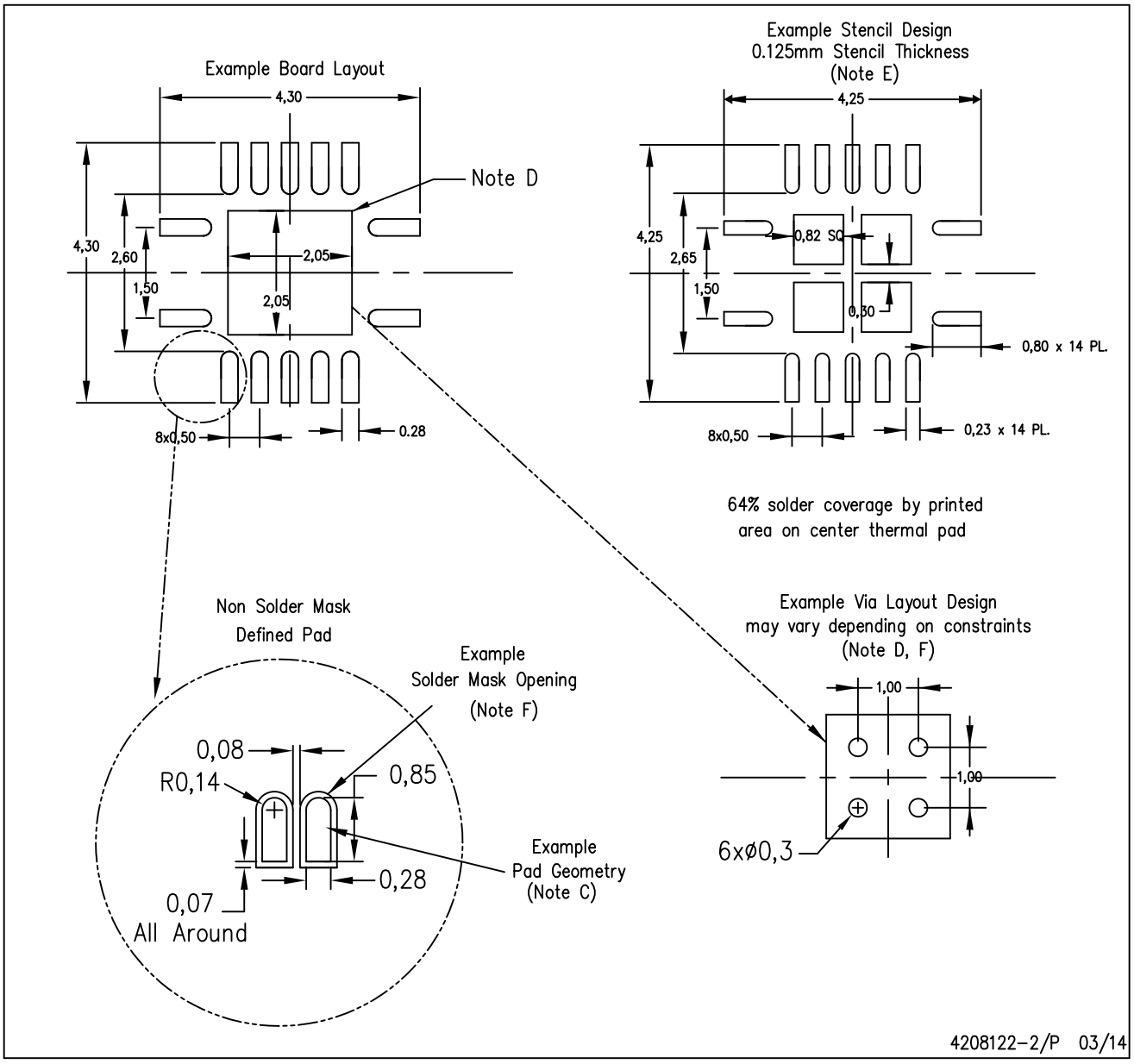
Bottom View

Exposed Thermal Pad Dimensions

4206353–2/P 03/14

NOTE: All linear dimensions are in millimeters

RGY (S–PVQFN–N14) PLASTIC QUAD FLATPACK NO–LEAD

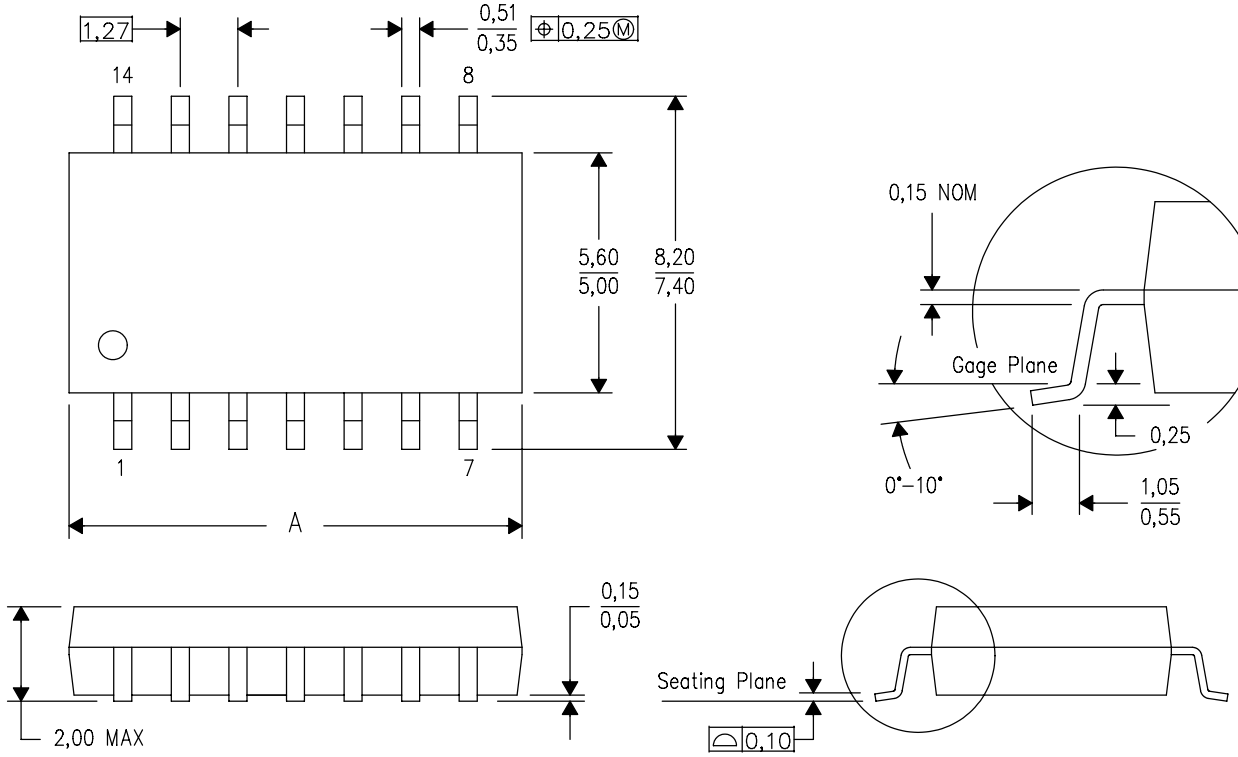


NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Publication IPC–7351 is recommended for alternate designs.
D. This package is designed to be soldered to a thermal pad on the board. Refer to Application Note, Quad Flat–Pack QFN/SON PCB Attachment, Texas Instruments Literature No. SLUA271, and also the Product Data Sheets for specific thermal information, via requirements, and recommended board layout. These documents are available at www.ti.com <http: //www.ti.com>.
E. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC 7525 for stencil design considerations.
F. Customers should contact their board fabrication site for minimum solder mask web tolerances between signal pads.

MECHANICAL DATA

NS (R-PDSO-G)** **PLASTIC SMALL-OUTLINE PACKAGE**

14-PINS SHOWN



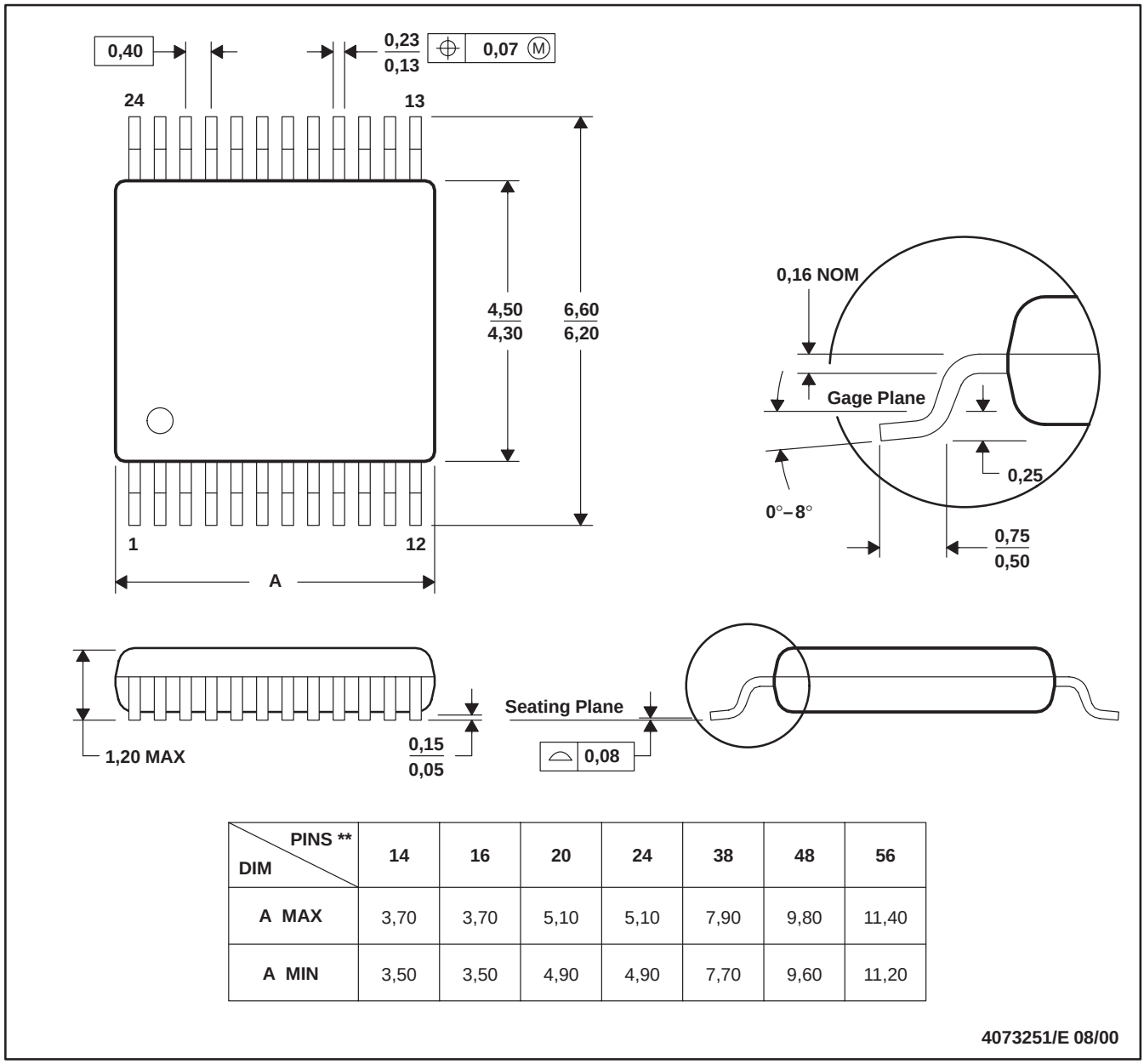
DIM \ PINS **	14	16	20	24
A MAX	10,50	10,50	12,90	15,30
A MIN	9,90	9,90	12,30	14,70

4040062/C 03/03

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

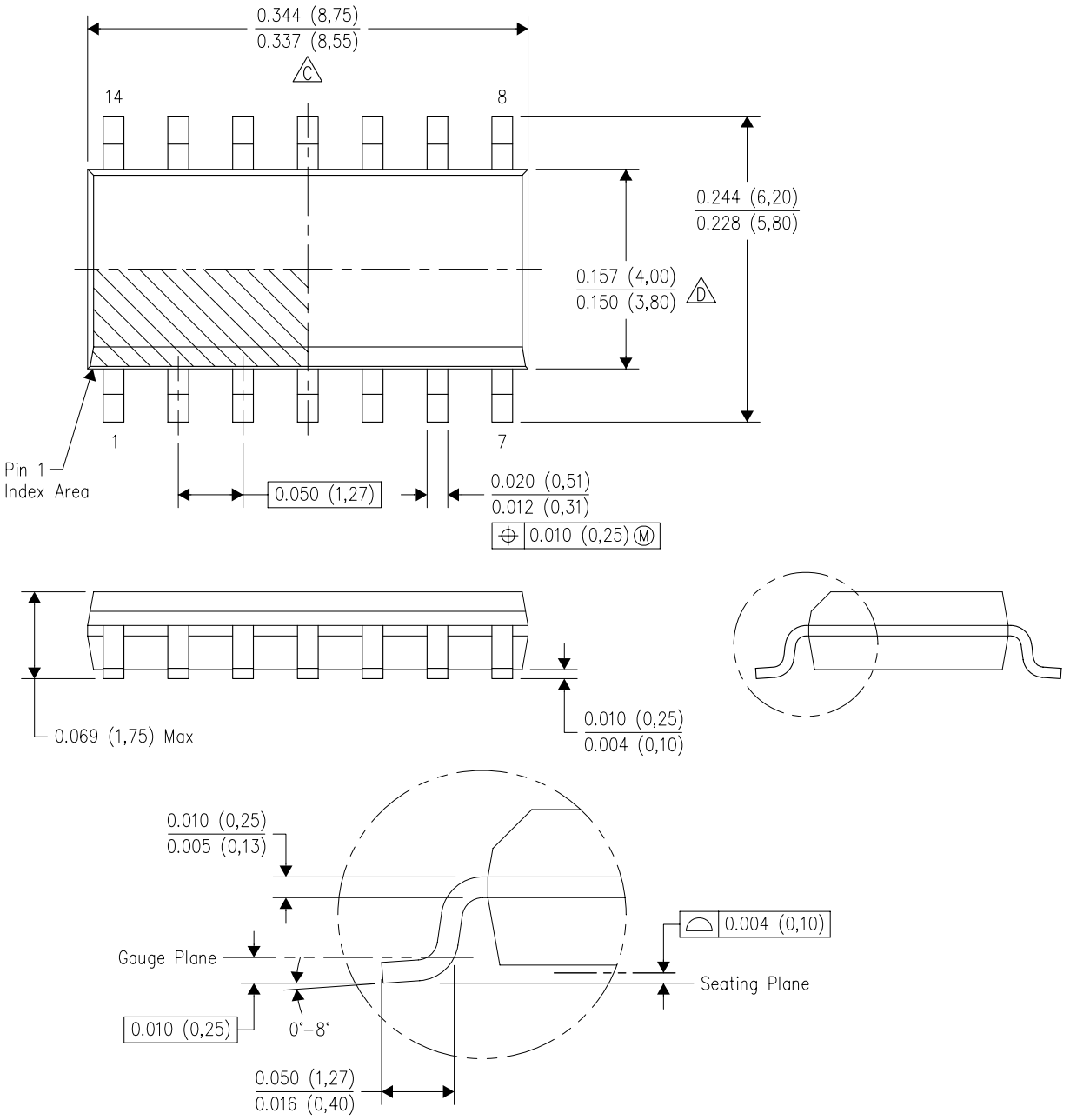


DIM \ PINS **	14	16	20	24	38	48	56
A MAX	3,70	3,70	5,10	5,10	7,90	9,80	11,40
A MIN	3,50	3,50	4,90	4,90	7,70	9,60	11,20

4073251/E 08/00

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

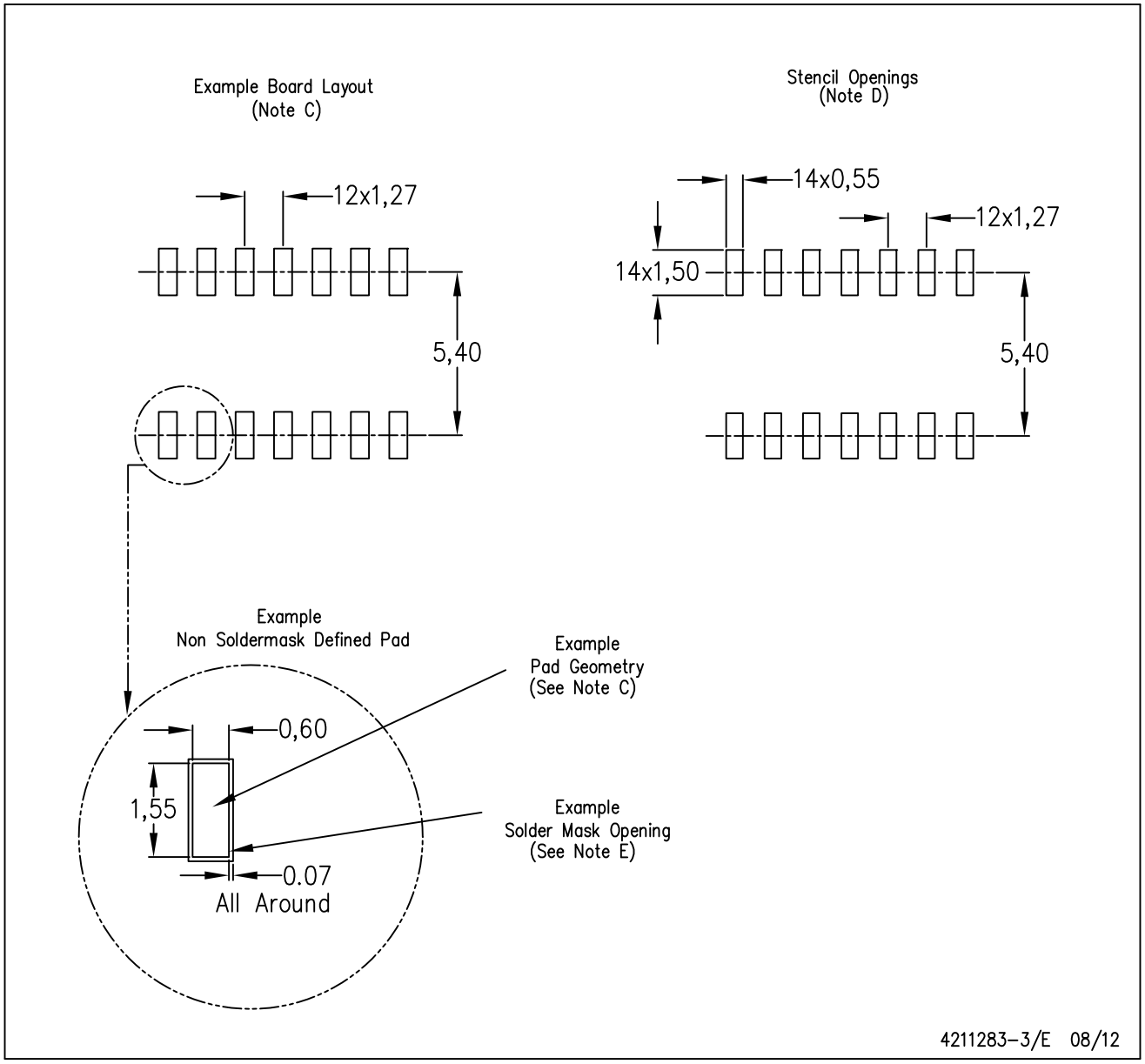
D (R–PDSO–G14) PLASTIC SMALL OUTLINE



4040047–5/M 06/11

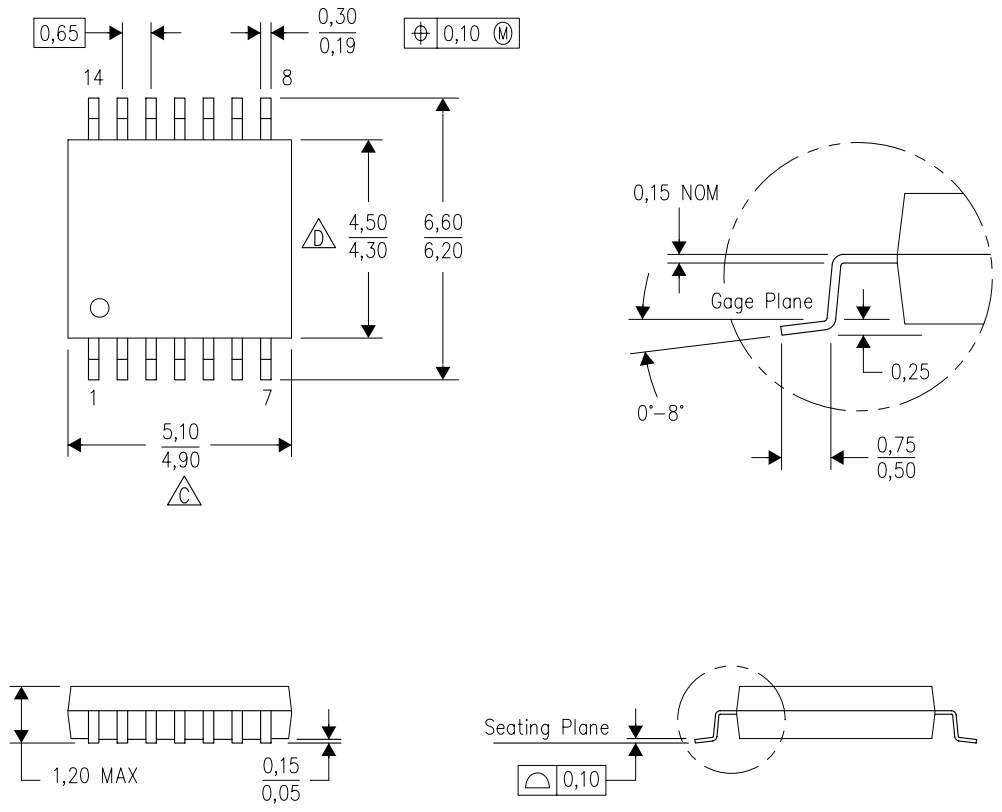
NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.
D. Body width does not include interlead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

D (R–PDSO–G14) PLASTIC SMALL OUTLINE



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

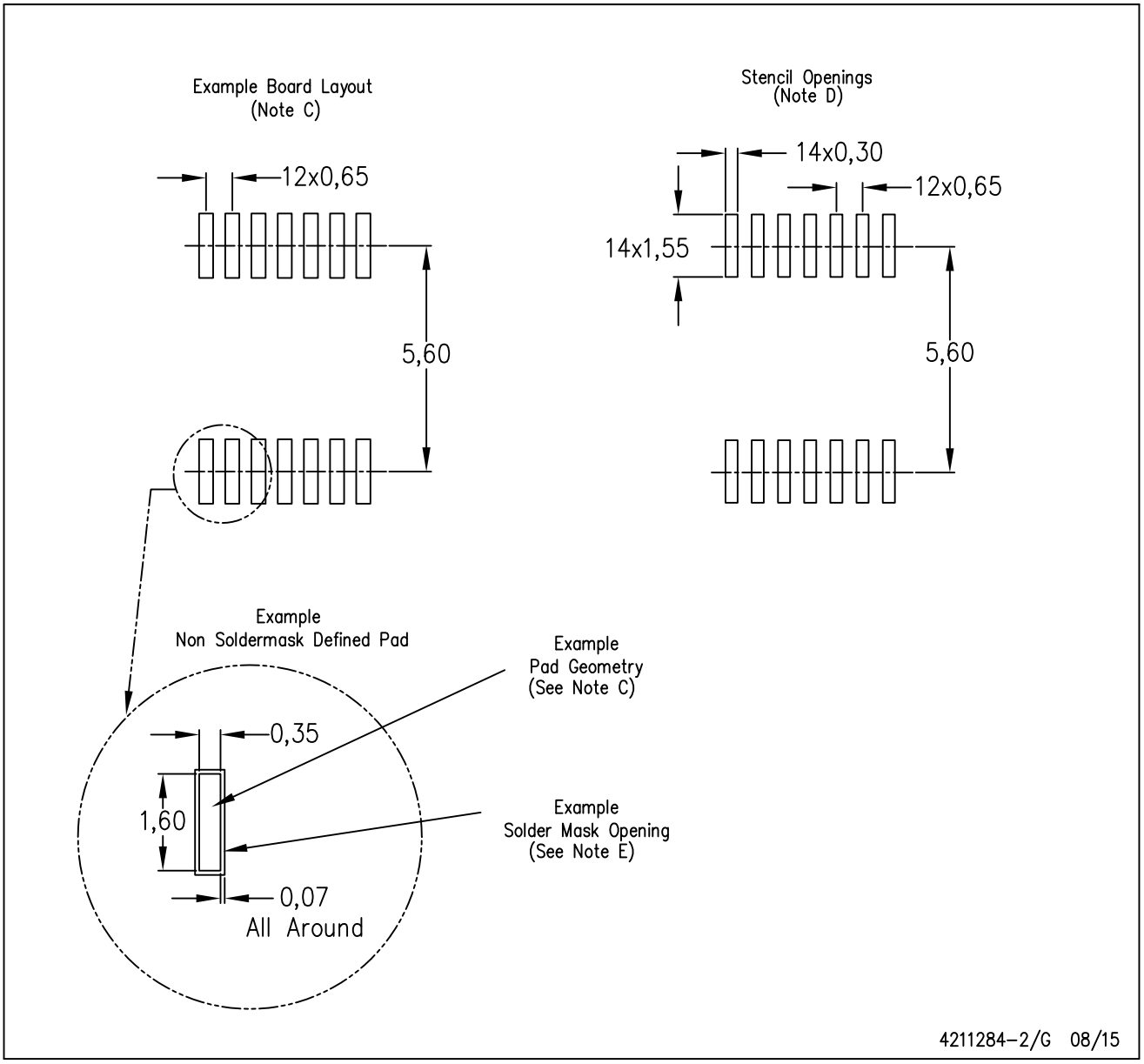
PW (R–PDSO–G14) PLASTIC SMALL OUTLINE



4040064–3/G 02/11

NOTES:
A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M–1994.
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 0,15 each side.
D. Body width does not include interlead flash. Interlead flash shall not exceed 0,25 each side.
E. Falls within JEDEC MO–153

PW (R–PDSO–G14) PLASTIC SMALL OUTLINE

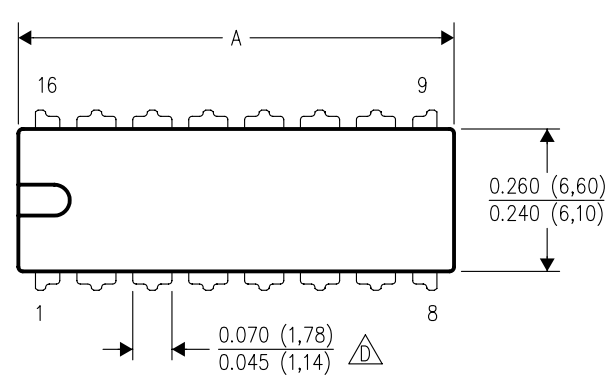


NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Publication IPC–7351 is recommended for alternate designs.
D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact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

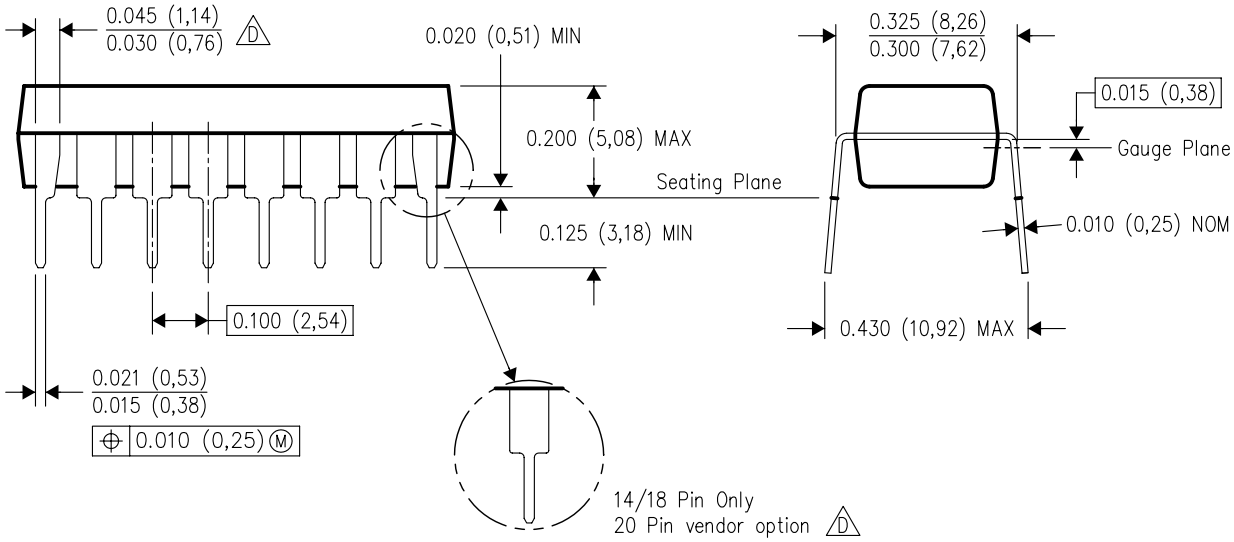
N (R–PDIP–T**)

PLASTIC DUAL–IN–LINE PACKAGE

16 PINS SHOWN



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



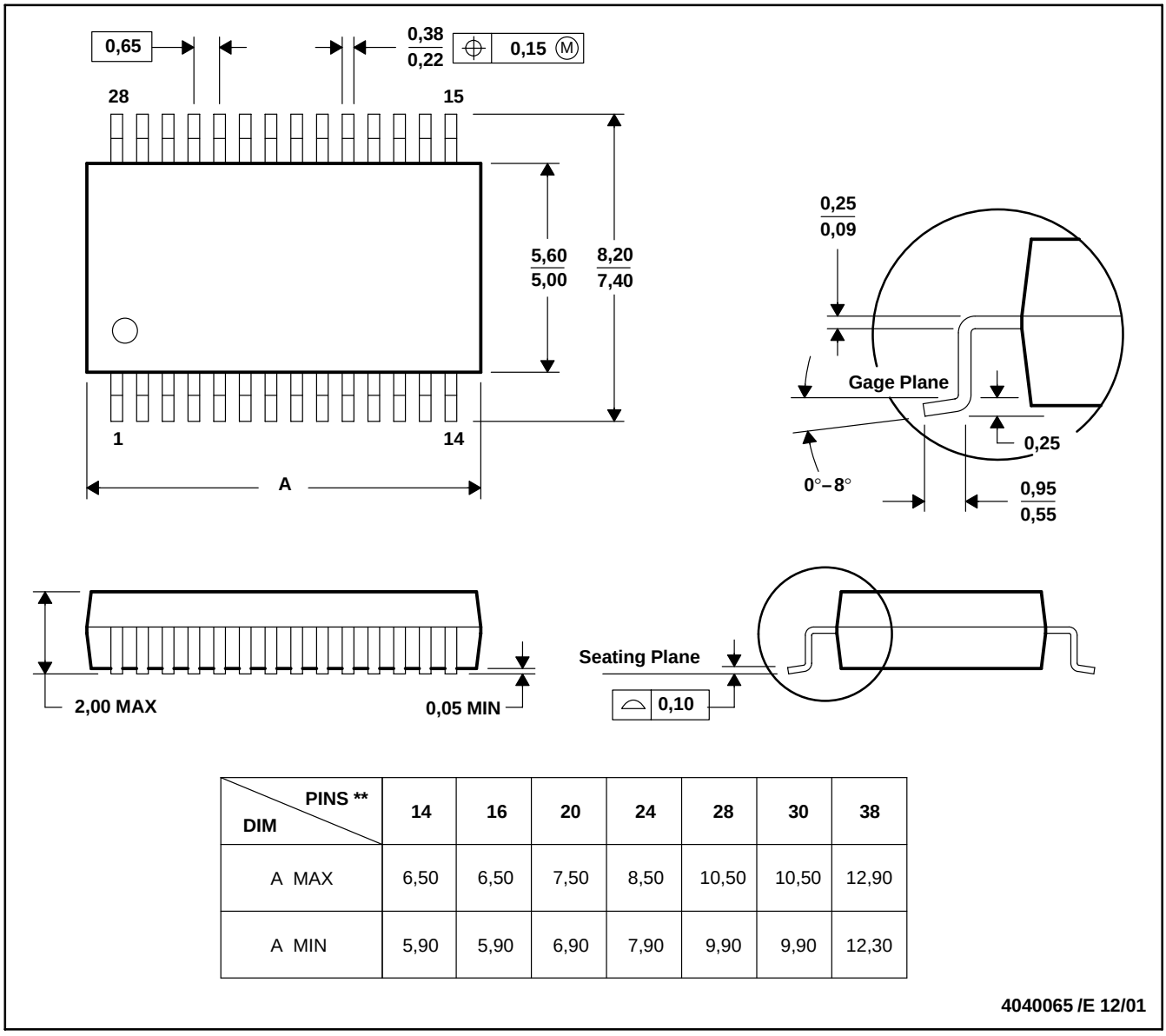
4040049/E 12/2002

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

MSSO002E – JANUARY 1995 – REVISED DECEMBER 2001

DB (R-PDSO-G)** **PLASTIC SMALL-OUTLINE**

28 PINS SHOWN



DIM \ PINS **	14	16	20	24	28	30	38
A MAX	6,50	6,50	7,50	8,50	10,50	10,50	12,90
A MIN	5,90	5,90	6,90	7,90	9,90	9,90	12,30

4040065 /E 12/01

NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
D. Falls within JEDEC MO-150

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