

# SN74LV4066A 四路双边模拟开关

## 1 特性

- 1.65V 至 5.5V  $V_{CC}$  运行
- 所有端口上均支持混合模式电压运行
- 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
- 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)
  - 750V 充电器件模型 (C101)

## 2 应用

- 电信
- 紧急呼叫
- 信息娱乐系统

## 3 说明

这款四路硅栅 CMOS 模拟开关可在 1.65V 至 5.5V  $V_{CC}$  下运行。

这些开关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。

每个开关部分有其自己的输入使能控制 (C)。应用到 C 上的一个高电平电压开启相关开关部分。

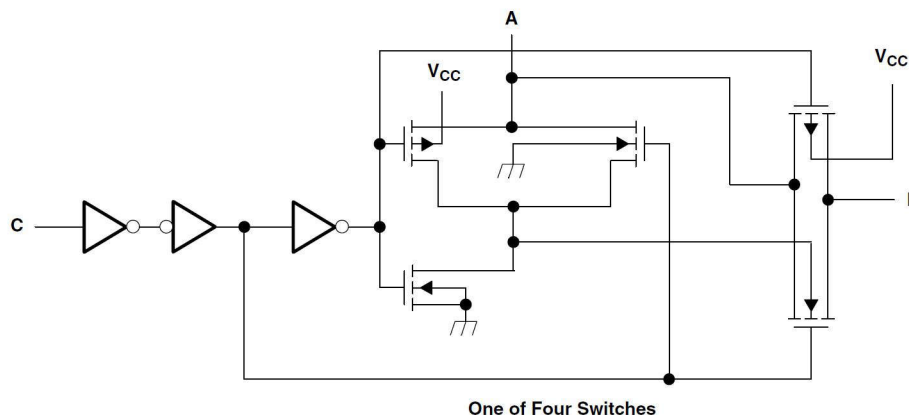
应用包括用于模数和数模转换系统的信号选通、斩波、调制或者解调 (modem)，以及信号多路复用。

### 封装信息

器件型号	封装 <sup>(1)</sup>	封装尺寸 <sup>(2)</sup>
SN74LV4066A	D (SOIC, 14)	8.65mm x 6mm
	PW (TSSOP, 14)	5mm x 6.4mm
	RGY (QFN, 14)	3.5mm x 3.5mm

(1) 有关更多信息，请参阅节 10。

(2) 封装尺寸 (长 x 宽) 为标称值，并包括引脚 (如适用)。



逻辑图 (正逻辑)



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## 4 Pin Configuration and Functions

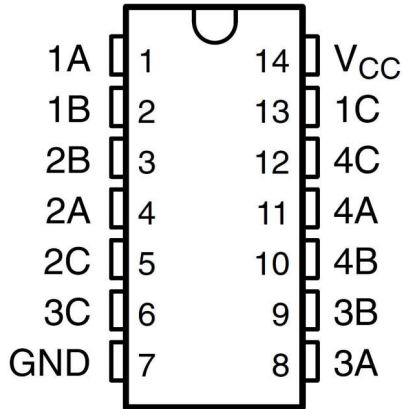


图 4-1. D or PW Package, 14-Pin SOIC or TSSOP (Top View)

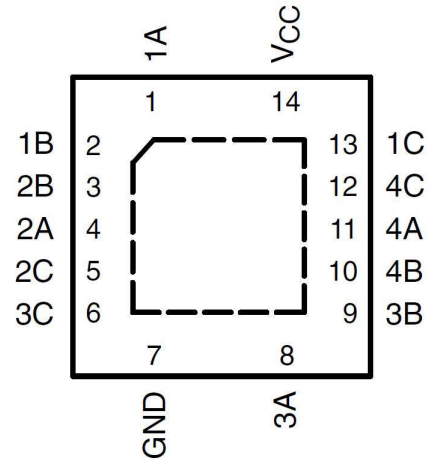


图 4-2. RGY Package, 14-Pin QFN (Top View)

表 4-1. Pin Functions

PIN		TYPE <sup>(1)</sup>	DESCRIPTION
NAME	NO.		
1A	1	I/O	Input/Output to switch channel 1
1B	2	I/O	Input/Output to switch channel 1
2B	3	I/O	Input/Output to switch channel 2
2A	4	I/O	Input/Output to switch channel 2
2C	5	I	Control line for channel 2. Switch is ON when control pin is high.
3C	6	I	Control line for channel 3. Switch is ON when control pin is high.
GND	7	—	Ground (0V) reference
3A	8	I/O	Input/Output to switch channel 3
3B	9	I/O	Input/Output to switch channel 3
4B	10	I/O	Input/Output to switch channel 4
4A	11	I/O	Input/Output to switch channel 4
4C	12	I	Control line for channel 4. Switch is ON when control pin is high.
1C	13	I	Control line for channel 1. Switch is ON when control pin is high.
V <sub>CC</sub>	14	—	Positive power supply. This pin is the most positive power-supply potential. For reliable operation, connect a decoupling capacitor ranging from 0.1μF to 10μF between VDD and GND.
Thermal pad		—	It is recommended to tie the pad to GND for the best performance.

(1) Signal types: I = input, O = output, I/O = input or output.

## 5 Specifications

### 5.1 Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted)<sup>(1) (3)</sup>

		MIN	MAX	UNIT	
V <sub>CC</sub>	Supply voltage	- 0.5	7.0	V	
V <sub>I</sub>	Logic input voltage range	- 0.5	7.0	V	
V <sub>IO</sub>	Switch I/O voltage range <sup>(2) (3)</sup>	- 0.5	V <sub>CC</sub> + 0.5	V	
I <sub>IK</sub>	Logic input clamp current	V <sub>I</sub> < 0	- 20	mA	
I <sub>IOK</sub>	Switch path diode clamp current	V <sub>IO</sub> < 0 or V <sub>IO</sub> > V <sub>CC</sub>	- 50	50	mA
I <sub>T</sub>	Switch continuous current	V <sub>IO</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	- 65	150	°C	

- (1) Operation outside the *Absolute Maximum Ratings* may cause permanent device damage. Absolute maximum ratings do not imply functional operation of the device at these or any other conditions beyond those listed under *Recommended Operating Conditions*. If briefly operating outside the *Recommended Operating Conditions* but within the *Absolute Maximum Ratings*, the device may not sustain damage, but it may not be fully functional. Operating the device in this manner may affect device reliability, functionality, performance, and shorten the device lifetime.
- (2) Pins are diode-clamped to the power-supply rails. Over voltage signals must be voltage and current limited to maximum ratings.
- (3) This value is limited to 5.5V maximum

### 5.2 ESD Ratings

			VALUE	UNIT
V <sub>(ESD)</sub>	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/ JEDEC JS-001, all pins <sup>(1)</sup>	±2000	V
		Charged device model (CDM), per JEDEC specification JESD22-C101, all pins <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.

### 5.3 Thermal Information: SN74LV4066A

THERMAL METRIC <sup>(1)</sup>		SN74LV4066A			UNIT
		D (SOIC)	PW (TSSOP)	RGY (VQFN)	
		14 PINS	14 PINS	14 PINS	
R <sub>θJA</sub>	Junction-to-ambient thermal resistance	128.8	150.6	91.9	°C/W
R <sub>θJC(top)</sub>	Junction-to-case (top) thermal resistance	81.8	78.2	91.8	°C/W
R <sub>θJB</sub>	Junction-to-board thermal resistance	84.2	93.7	66.5	°C/W
Ψ <sub>JT</sub>	Junction-to-top characterization parameter	39.5	24.6	20.0	°C/W
Ψ <sub>JB</sub>	Junction-to-board characterization parameter	83.7	93.1	66.3	°C/W
R <sub>θJC(bot)</sub>	Junction-to-case (bottom) thermal resistance	N/A	N/A	50.0	°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)<sup>(1)</sup>

		MIN	NOM	MAX	UNIT
V <sub>CC</sub>	Supply voltage	1.65		5.5	V
V <sub>IH</sub>	High-level input voltage, logic control inputs	V <sub>CC</sub> = 2V	1.5	5.5	V
		V <sub>CC</sub> = 2.3V to 2.7V	V <sub>CC</sub> x 0.7	5.5	
		V <sub>CC</sub> = 3V to 3.6V	V <sub>CC</sub> x 0.7	5.5	
		V <sub>CC</sub> = 4.5V to 5.5V	V <sub>CC</sub> x 0.7	5.5	
V <sub>IL</sub>	Low-level input voltage, logic control inputs	V <sub>CC</sub> = 2V	0	0.5	V
		V <sub>CC</sub> = 2.3V to 2.7V	0	V <sub>CC</sub> x 0.3	
		V <sub>CC</sub> = 3V to 3.6V	0	V <sub>CC</sub> x 0.3	
		V <sub>CC</sub> = 4.5V to 5.5V	0	V <sub>CC</sub> x 0.3	
V <sub>I</sub>	Logic control input voltage	0		5.5	V
V <sub>IO</sub>	Switch input or output voltage	0		V <sub>CC</sub>	V
Δt/ΔV	Logic input transition rise or fall rate	V <sub>CC</sub> = 2.3V to 2.7V		200	ns/V
		V <sub>CC</sub> = 3V to 3.6V		100	
		V <sub>CC</sub> = 4.5V to 5.5V		20	
T <sub>A</sub>	Ambient temperature	- 40		125	°C

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

## 5.5 Electrical Characteristics (LV)

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

PARAMETER	CONDITIONS	T <sub>A</sub>	V <sub>CC</sub>	MIN	TYP	MAX	UNIT	
r <sub>ON</sub>	ON-state switch resistance	I <sub>T</sub> = 2mA, V <sub>I</sub> = V <sub>CC</sub> or GND, V <sub>INH</sub> = V <sub>IL</sub> (see 图 6-1)	1.65V	25°C		60	150	Ω
				- 40°C to 85°C			225	
				- 40°C to 125°C			225	
			2.3V	25°C		38	180	
			- 40°C to 85°C			225		
			- 40°C to 125°C			225		
			3V	25°C		29	150	Ω
			- 40°C to 85°C			190		
			- 40°C to 125°C			190		
			4.5V	25°C		21	75	Ω
			- 40°C to 85°C			100		
			- 40°C to 125°C			100		

## 5.5 Electrical Characteristics (LV) (续)

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

PARAMETER		CONDITIONS	T <sub>A</sub>	V <sub>CC</sub>	MIN	TYP	MAX	UNIT
r <sub>ON(p)</sub>	Peak ON-state resistance	I <sub>T</sub> = 2mA, V <sub>I</sub> = GND to V <sub>CC</sub> , V <sub>INH</sub> = V <sub>IL</sub>	25°C	1.65V		130	600	Ω
			- 40°C to 85°C				700	
			- 40°C to 125°C				700	
			25°C	2.3V		143	500	
			- 40°C to 85°C				600	
			- 40°C to 125°C				600	
			25°C	3V		57	180	Ω
			- 40°C to 85°C				225	
			- 40°C to 125°C				225	
			25°C	4.5V		31	100	Ω
			- 40°C to 85°C				125	
			- 40°C to 125°C				125	
Δr <sub>ON</sub>	Difference in ON-state resistance between switches	I <sub>T</sub> = 2mA, V <sub>I</sub> = GND to V <sub>CC</sub> , V <sub>INH</sub> = V <sub>IL</sub>	25°C	1.65V		2.5		Ω
			- 40°C to 85°C				3	
			- 40°C to 125°C				3	
			25°C	2.3V		3	30	
			- 40°C to 85°C				40	
			- 40°C to 125°C				40	
			25°C	3V		3	20	Ω
			- 40°C to 85°C				30	
			- 40°C to 125°C				30	
			25°C	4.5V		2	15	Ω
			- 40°C to 85°C				20	
			- 40°C to 125°C				20	
I <sub>IH</sub> I <sub>IL</sub>	Control input current	V <sub>I</sub> = 5.5V or GND	25°C	0 to 5.5V			0.1	μA
			- 40°C to 85°C				1	
			- 40°C to 125°C				1	
I <sub>S(off)</sub>	OFF-state switch leakage current	V <sub>I</sub> = V <sub>CC</sub> and V <sub>O</sub> = GND, or V <sub>I</sub> = GND and V <sub>O</sub> = V <sub>CC</sub> , V <sub>INH</sub> = V <sub>IH</sub> (see 图 6-2)	25°C	5.5V			±0.1	μA
			- 40°C to 85°C				±1	
			- 40°C to 125°C				±1	
I <sub>S(on)</sub>	ON-state switch leakage current	V <sub>I</sub> = V <sub>CC</sub> or GND, V <sub>INH</sub> = V <sub>IL</sub> (see 图 6-3)	25°C	5.5V			±0.1	μA
			- 40°C to 85°C				±1	
			- 40°C to 125°C				±1	
I <sub>CC</sub>	Supply current	V <sub>I</sub> = V <sub>CC</sub> or GND V <sub>INH</sub> = 0V	25°C	5.5V		0.01		μA
			- 40°C to 85°C				20	
			- 40°C to 125°C				20	
C <sub>IC</sub>	Control input capacitance	f = 10MHz	25°C	3.3V		4		pF
C <sub>IS</sub>	Switch terminal capacitance	f = 10MHz	25°C	3.3V		5.5		pF
C <sub>OS(on)</sub>	Common terminal ON-capacitance	f = 10MHz	25°C	3.3V		5.5		pF

### 5.5 Electrical Characteristics (LV) (续)

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

PARAMETER		CONDITIONS	T <sub>A</sub>	V <sub>CC</sub>	MIN	TYP	MAX	UNIT
C <sub>F</sub>	Feedthrough capacitance	f = 10MHz	25°C	3.3V		0.5		pF
C <sub>PD</sub>	Power dissipation capacitance	C <sub>L</sub> = 50pF, f = 10MHz	25°C	3.3V		4.5		pF

### 5.6 Timing Characteristics V<sub>CC</sub> = 2.5V ± 0.2V

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

V<sub>CC</sub> = 2V ± 0.2V (unless otherwise noted)

PARAMETER		FROM (INPUT)	TO (OUTPUT)	CONDITIONS	T <sub>A</sub>	MIN	TYP	MAX	UNIT
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay time	COM or Yn	Yn or COM	C <sub>L</sub> = 15pF (see 图 6-4)	25°C		1.2	10	ns
					-40°C to 85°C			16	
					-40°C to 125°C			18	
t <sub>PZH</sub> t <sub>PZL</sub>	Enable delay time	INH	COM or Yn	C <sub>L</sub> = 15pF (see 图 6-5)	25°C		3.3	15	ns
					-40°C to 85°C			20	
					-40°C to 125°C			20	
t <sub>PHZ</sub> t <sub>PLZ</sub>	Disable delay time	INH	COM or Yn	C <sub>L</sub> = 15pF (see 图 6-5)	25°C		6	15	ns
					-40°C to 85°C			23	
					-40°C to 125°C			23	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay time	COM or Yn	Yn or COM	C <sub>L</sub> = 50pF (see 图 6-4)	25°C		2.6	12	ns
					-40°C to 85°C			18	
					-40°C to 125°C			18	
t <sub>PZH</sub> t <sub>PZL</sub>	Enable delay time	INH	COM or Yn	C <sub>L</sub> = 50pF (see 图 6-5)	25°C		4.2	25	ns
					-40°C to 85°C			32	
					-40°C to 125°C			32	
t <sub>PHZ</sub> t <sub>PLZ</sub>	Disable delay time	INH	COM or Yn	C <sub>L</sub> = 50pF (see 图 6-5)	25°C		9.6	25	ns
					-40°C to 85°C			32	
					-40°C to 125°C			32	

### 5.7 Timing Characteristics V<sub>CC</sub> = 3.3V ± 0.3V

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

V<sub>CC</sub> = 3.3V ± 0.3V (unless otherwise noted)

PARAMETER		FROM (INPUT)	TO (OUTPUT)	CONDITIONS	T <sub>A</sub>	MIN	TYP	MAX	UNIT
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay time	COM or Yn	Yn or COM	C <sub>L</sub> = 15pF (see 图 6-4)	25°C		0.8	6	ns
					-40°C to 85°C			10	
					-40°C to 125°C			10	
t <sub>PZH</sub> t <sub>PZL</sub>	Enable delay time	INH	COM or Yn	C <sub>L</sub> = 15pF (see 图 6-5)	25°C		2.3	11	ns
					-40°C to 85°C			15	
					-40°C to 125°C			15	
t <sub>PHZ</sub> t <sub>PLZ</sub>	Disable delay time	INH	COM or Yn	C <sub>L</sub> = 15pF (see 图 6-5)	25°C		4.5	11	ns
					-40°C to 85°C			15	
					-40°C to 125°C			15	

### 5.7 Timing Characteristics $V_{CC} = 3.3V \pm 0.3V$ (续)

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

$V_{CC} = 3.3V \pm 0.3V$  (unless otherwise noted)

PARAMETER		FROM (INPUT)	TO (OUTPUT)	CONDITIONS	$T_A$	MIN	TYP	MAX	UNIT
$t_{PLH}$ $t_{PHL}$	Propagation delay time	COM or Yn	Yn or COM	$C_L = 50\text{pF}$ (see 图 6-4)	25°C		1.5	9	ns
					-40°C to 85°C			12	
					-40°C to 125°C			12	
$t_{PZH}$ $t_{PZL}$	Enable delay time	INH	COM or Yn	$C_L = 50\text{pF}$ (see 图 6-5)	25°C		8	18	ns
					-40°C to 85°C			22	
					-40°C to 125°C			22	
$t_{PHZ}$ $t_{PLZ}$	Disable delay time	INH	COM or Yn	$C_L = 50\text{pF}$ (see 图 6-5)	25°C		7.2	18	ns
					-40°C to 85°C			22	
					-40°C to 125°C			22	

### 5.8 Timing Characteristics $V_{CC} = 5V \pm 0.5V$

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

$V_{CC} = 5V \pm 0.5V$  (unless otherwise noted)

PARAMETER		FROM (INPUT)	TO (OUTPUT)	CONDITIONS	$T_A$	MIN	TYP	MAX	UNIT
$t_{PLH}$ $t_{PHL}$	Propagation delay time	COM or Yn	Yn or COM	$C_L = 15\text{pF}$ (see 图 6-4)	25°C		0.6	4	ns
					-40°C to 85°C			7	
					-40°C to 125°C			7	
$t_{PZH}$ $t_{PZL}$	Enable delay time	INH	COM or Yn	$C_L = 15\text{pF}$ (see 图 6-5)	25°C		3.5	8	ns
					-40°C to 85°C			10	
					-40°C to 125°C			11	
$t_{PHZ}$ $t_{PLZ}$	Disable delay time	INH	COM or Yn	$C_L = 15\text{pF}$ (see 图 6-5)	25°C		4.4	8	ns
					-40°C to 85°C			10	
					-40°C to 125°C			10	
$t_{PLH}$ $t_{PHL}$	Propagation delay time	COM or Yn	Yn or COM	$C_L = 50\text{pF}$ (see 图 6-4)	25°C		0.8	6	ns
					-40°C to 85°C			8	
					-40°C to 125°C			8	
$t_{PZH}$ $t_{PZL}$	Enable delay time	INH	COM or Yn	$C_L = 50\text{pF}$ (see 图 6-5)	25°C		7	13	ns
					-40°C to 85°C			16	
					-40°C to 125°C			16	
$t_{PHZ}$ $t_{PLZ}$	Disable delay time	INH	COM or Yn	$C_L = 50\text{pF}$ (see 图 6-5)	25°C		6.2	13	ns
					-40°C to 85°C			16	
					-40°C to 125°C			16	

### 5.9 AC Characteristics

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	Device	CONDITIONS		MIN	TYP	MAX	UNIT
Frequency response (switch on)	COM or Yn	Yn or COM	4066	$C_L = 50\text{pF}$ , $R_L = 50\ \Omega$ , $F_{in} = 1\text{MHz}$ (sine wave) (see 图 6-6)(1)	$V_{CC} = 2.3V$		60	MHz	
					$V_{CC} = 3V$		75		
					$V_{CC} = 4.5V$		100		



## 5.9 AC Characteristics (续)

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	Device	CONDITIONS		MIN	TYP	MAX	UNIT
Charge Injection (control input to signal output)	INH	COM or Yn	ALL	C <sub>L</sub> = 50pF F <sub>in</sub> = 1MHz (sine wave) (see 图 6-7)	V <sub>CC</sub> = 2.3V		15		mV
					V <sub>CC</sub> = 3V		20		
					V <sub>CC</sub> = 4.5V		50		
Feedthrough attenuation (switch off)	COM or Yn	Yn or COM	ALL	C <sub>L</sub> = 50pF, R <sub>L</sub> = 50 Ω, F <sub>in</sub> = 1MHz (sine wave) (see 图 6-8(2))	V <sub>CC</sub> = 2.3V		- 40		dB
					V <sub>CC</sub> = 3V		- 40		
					V <sub>CC</sub> = 4.5V		- 40		
Crosstalk (between any switches)	COM or Yn	Yn or COM	ALL	C <sub>L</sub> = 50pF, R <sub>L</sub> = 50 Ω, F <sub>in</sub> = 1MHz (sine wave) (see 图 6-9(2))	V <sub>CC</sub> = 2.3V		- 45		dB
					V <sub>CC</sub> = 3V		- 45		
					V <sub>CC</sub> = 4.5V		- 45		
Sine-wave distortion	COM or Yn	Yn or COM	ALL	C <sub>L</sub> = 50pF, R <sub>L</sub> = 10k Ω, F <sub>in</sub> = 1kHz (sine wave) (see 图 6-10)	V <sub>I</sub> = 2V <sub>p-p</sub> V <sub>CC</sub> = 2.3V		0.1		%
					V <sub>I</sub> = 2.5V <sub>p-p</sub> V <sub>CC</sub> = 3V		0.1		
					V <sub>I</sub> = 4V <sub>p-p</sub> V <sub>CC</sub> = 4.5V		0.1		

## 6 Parameter Measurement Information

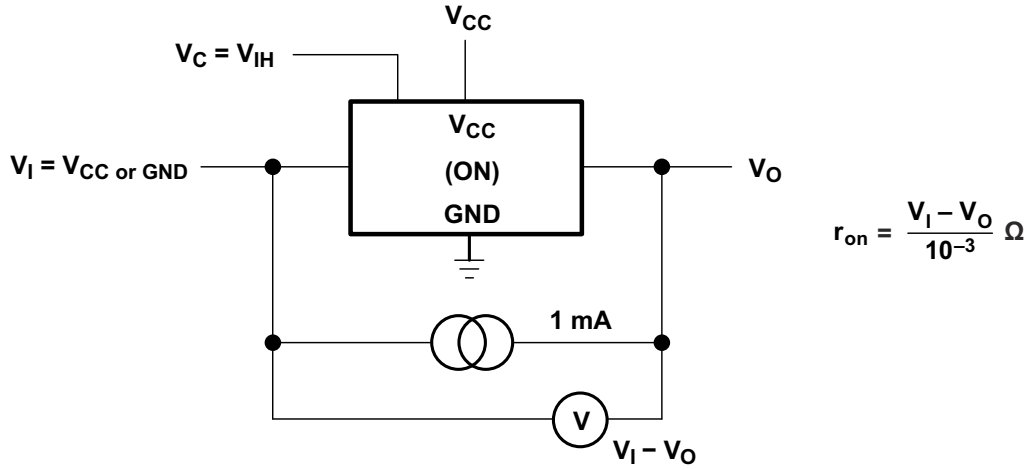


图 6-1. ON-State Resistance Test Circuit

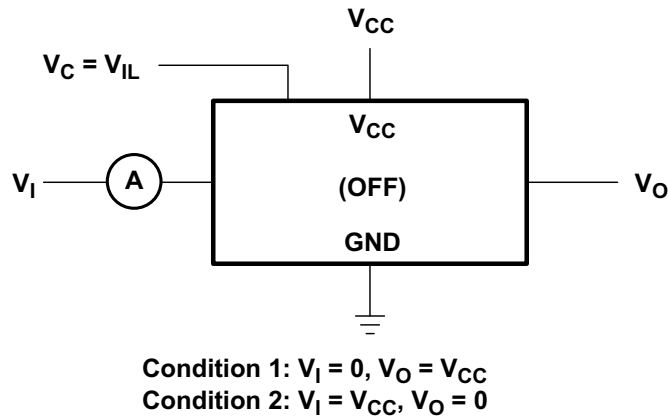


图 6-2. OFF-State Switch Leakage-Current Test Circuit

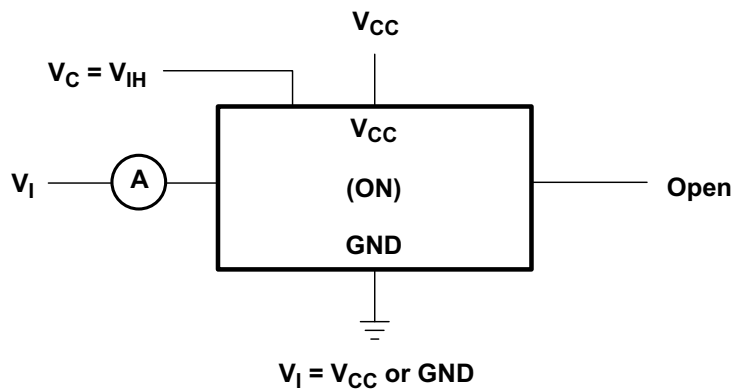


图 6-3. ON-State Leakage-Current Test Circuit

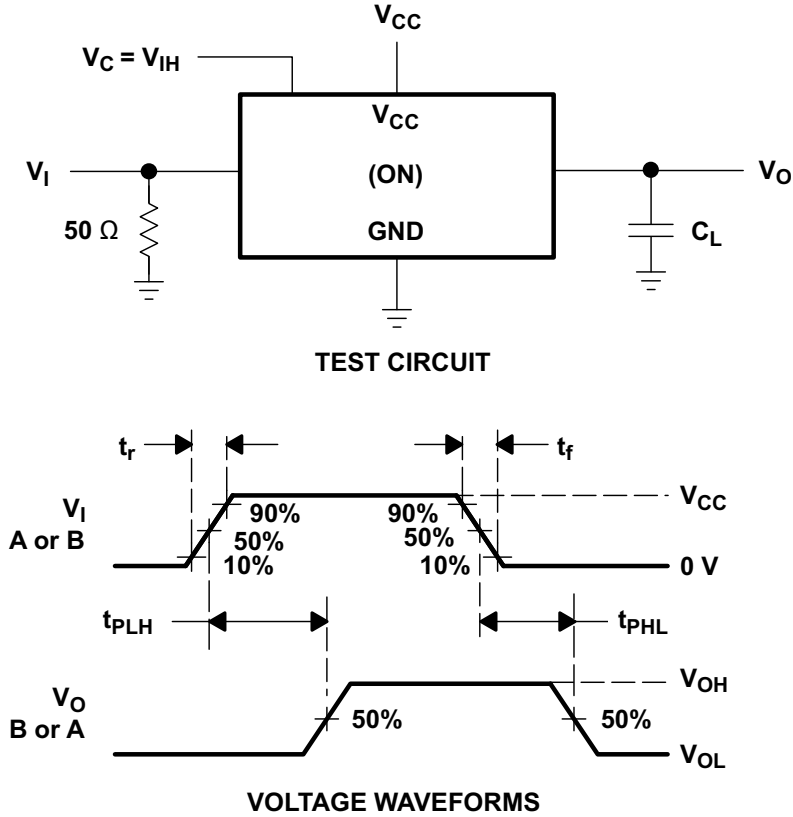
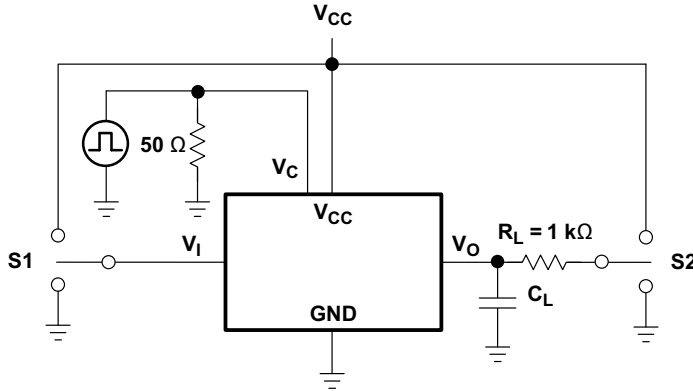
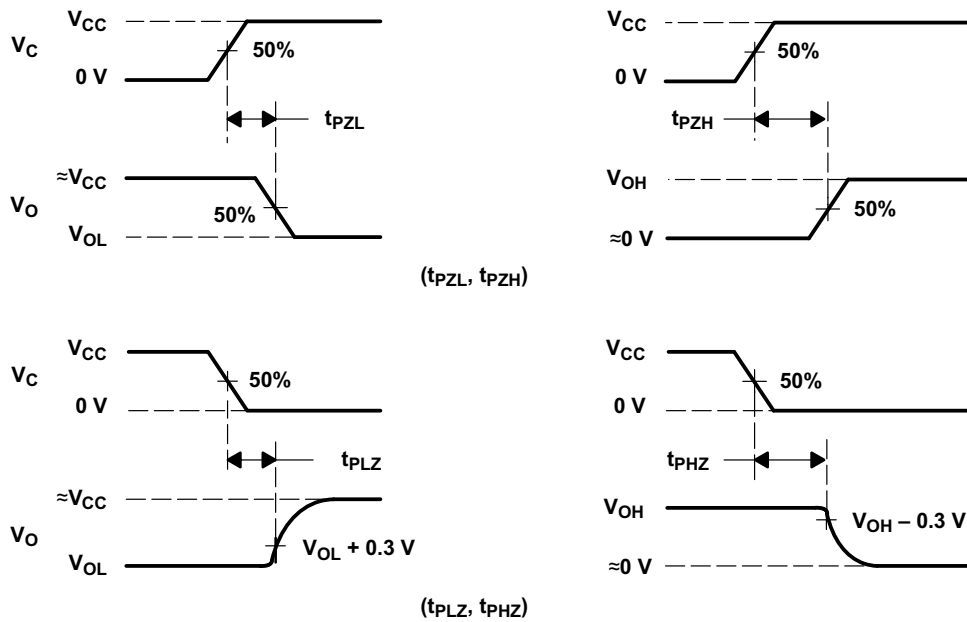


图 6-4. Propagation Delay Time, Signal Input to Signal Output



TEST CIRCUIT

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



VOLTAGE WAVEFORMS

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

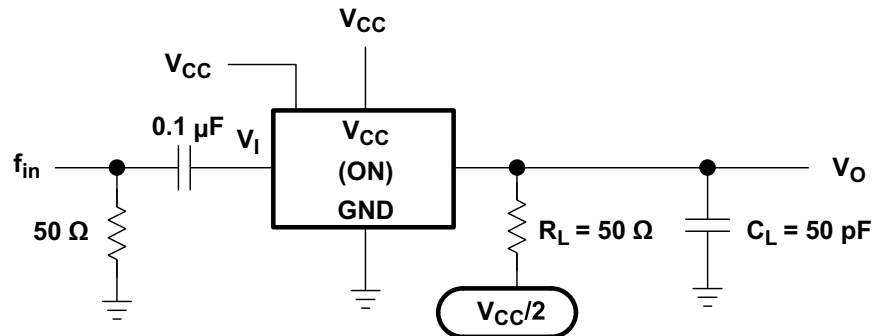


图 6-6. Frequency Response (Switch ON)

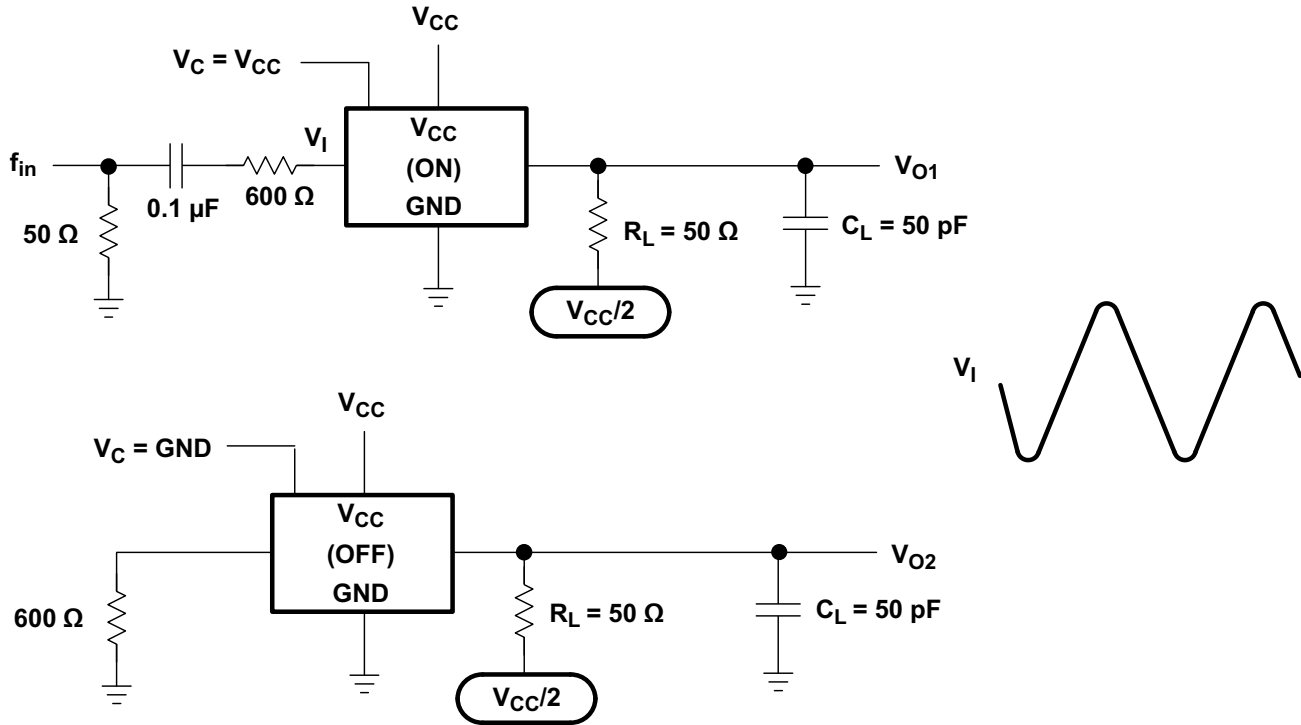


图 6-7. Crosstalk Between Any Two Switches

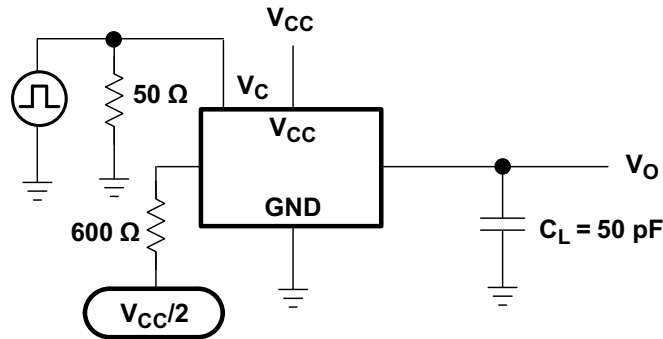


图 6-8. Crosstalk (Control Input - Switch Output)

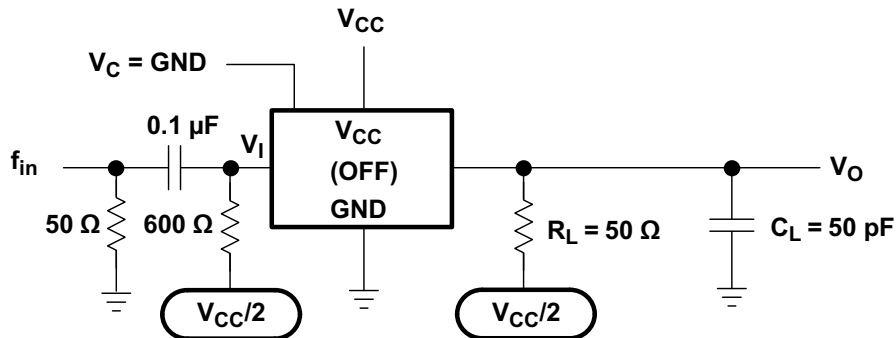


图 6-9. Feed-Through Attenuation (Switch OFF)

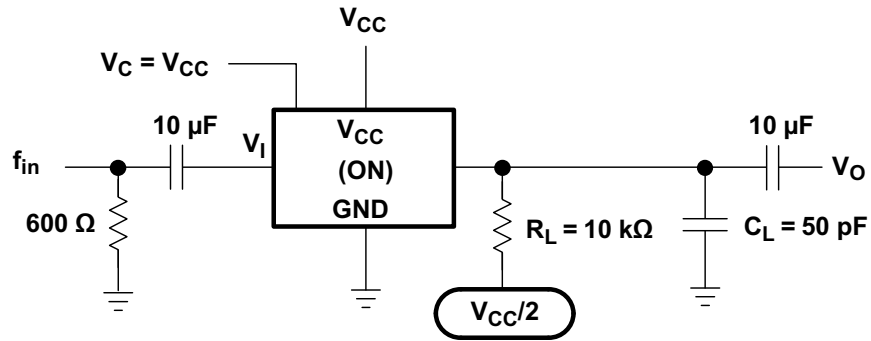


图 6-10. Sine-Wave Distortion

## 7 Detailed Description

### 7.1 Functional Block Diagram

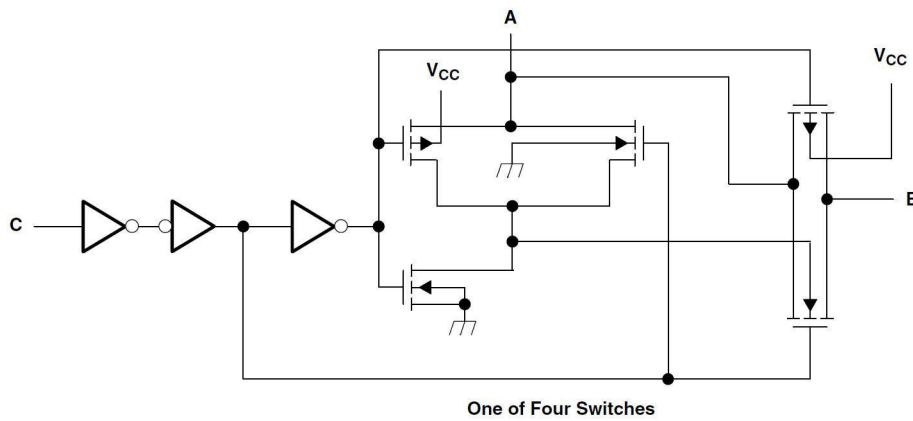


图 7-1. Logic Diagram (Positive Logic)

### 7.2 Device Functional Modes

表 7-1. Function Table

Input Control (C)	Switch
L	OFF
H	ON

## 8 Device and Documentation Support

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

### 8.1 接收文档更新通知

要接收文档更新通知，请导航至 [ti.com](http://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。

### 8.2 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](#)。

### 8.3 Trademarks

TI E2E™ is a trademark of Texas Instruments.

所有商标均为其各自所有者的财产。

### 8.4 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。

### 8.5 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 I (April 2006) to Revision J (February 2024)	Page
• 更新了整个文档中的表格、图和交叉参考的编号格式.....	1
• 删除了数据表中的 SN54LV4066A 信息.....	1
• 将 V <sub>CC</sub> 工作电压从 2V 至 5.5V 扩展为 1.65V 至 5.5V，并相应地更新了 r <sub>ON</sub> 、r <sub>ON(p)</sub> 、Δr <sub>ON</sub> 等规格.....	1
• Changed RL value from: 600 Ω to: 50 Ω for frequency response, crosstalk, and feed-through attenuation, and their associated figures.....	10

## 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
SN74LV4066AD	OBSOLETE	SOIC	D	14		TBD	Call TI	Call TI	-40 to 85	LV4066A	
SN74LV4066ADBR	NRND	SSOP	DB	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LW066A	
SN74LV4066ADGVR	NRND	TVSOP	DGV	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LW066A	
SN74LV4066ADR	ACTIVE	SOIC	D	14	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	LV4066A	Samples
SN74LV4066AN	NRND	PDIP	N	14	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-40 to 85	SN74LV4066AN	
SN74LV4066ANSR	NRND	SO	NS	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	74LV4066A	
SN74LV4066APW	OBSOLETE	TSSOP	PW	14		TBD	Call TI	Call TI	-40 to 85	LW066A	
SN74LV4066APWR	ACTIVE	TSSOP	PW	14	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	LW066A	Samples
SN74LV4066APWT	OBSOLETE	TSSOP	PW	14		TBD	Call TI	Call TI	-40 to 85	LW066A	
SN74LV4066ARGYR	ACTIVE	VQFN	RGY	14	3000	RoHS & Green	NIPDAU	Level-2-260C-1 YEAR	-40 to 125	LW066A	Samples
SN74LV4066ARGYRG4	ACTIVE	VQFN	RGY	14	3000	RoHS & Green	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	LW066A	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.



<sup>(5)</sup> 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.

<sup>(6)</sup> 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.

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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**

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**

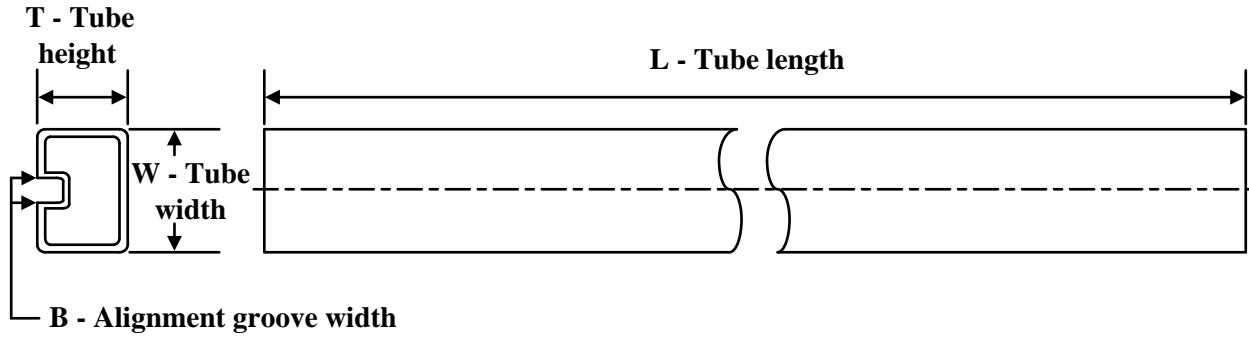

\*All dimensions are nominal

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
SN74LV4066ADBR	SSOP	DB	14	2000	330.0	16.4	8.35	6.6	2.4	12.0	16.0	Q1
SN74LV4066ADGVR	TVSOP	DGV	14	2000	330.0	12.4	6.8	4.0	1.6	8.0	12.0	Q1
SN74LV4066ADR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
SN74LV4066ADR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
SN74LV4066ANSR	SO	NS	14	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
SN74LV4066APWR	TSSOP	PW	14	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74LV4066APWR	TSSOP	PW	14	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74LV4066ARGYR	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)
SN74LV4066ADBR	SSOP	DB	14	2000	356.0	356.0	35.0
SN74LV4066ADGVR	TVSOP	DGV	14	2000	356.0	356.0	35.0
SN74LV4066ADR	SOIC	D	14	2500	356.0	356.0	35.0
SN74LV4066ADR	SOIC	D	14	2500	353.0	353.0	32.0
SN74LV4066ANSR	SO	NS	14	2000	356.0	356.0	35.0
SN74LV4066APWR	TSSOP	PW	14	2000	353.0	353.0	32.0
SN74LV4066APWR	TSSOP	PW	14	2000	356.0	356.0	35.0
SN74LV4066ARGYR	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)
SN74LV4066AN	N	PDIP	14	25	506	13.97	11230	4.32
SN74LV4066AN	N	PDIP	14	25	506	13.97	11230	4.32

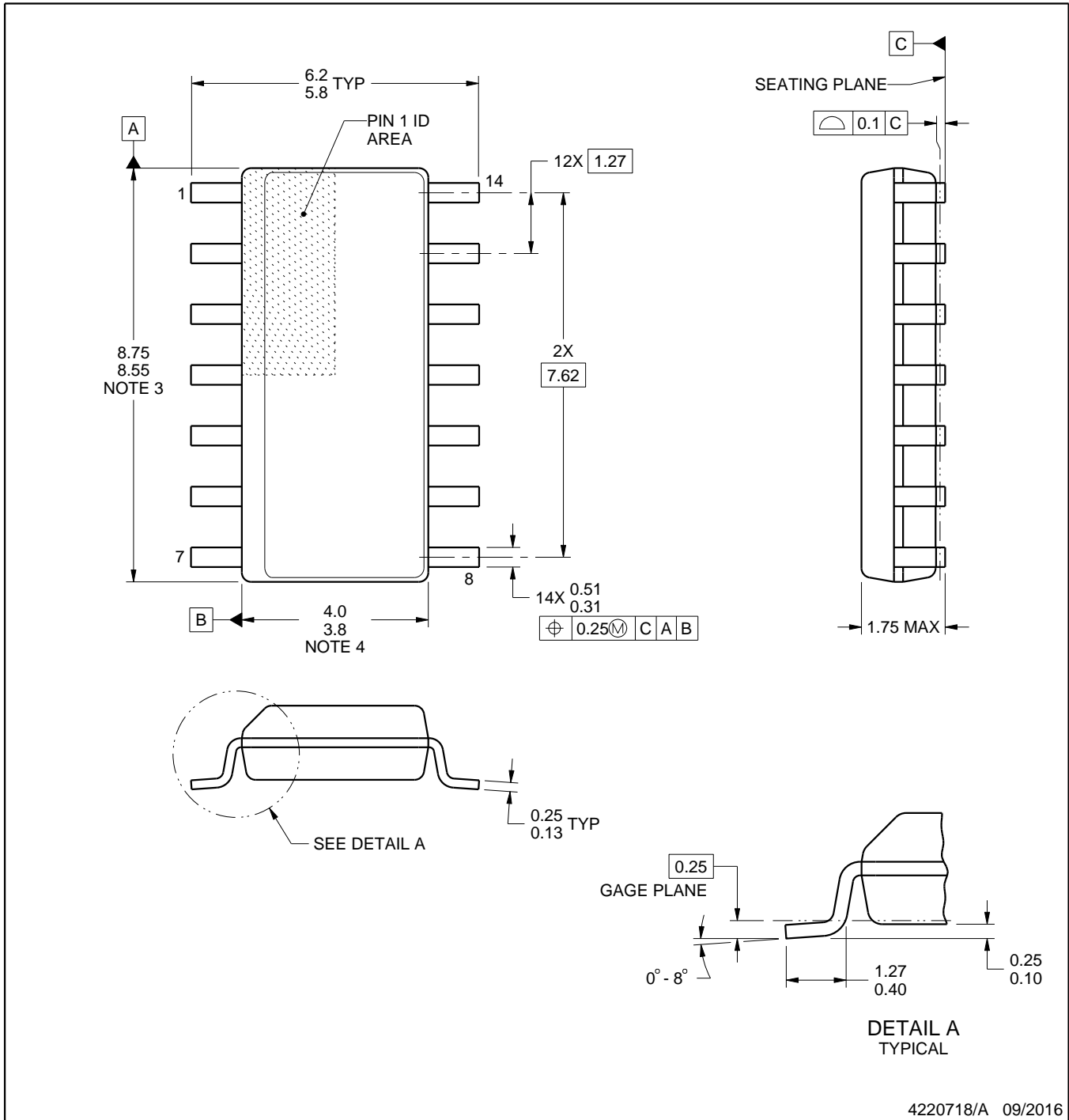
D0014A



# 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

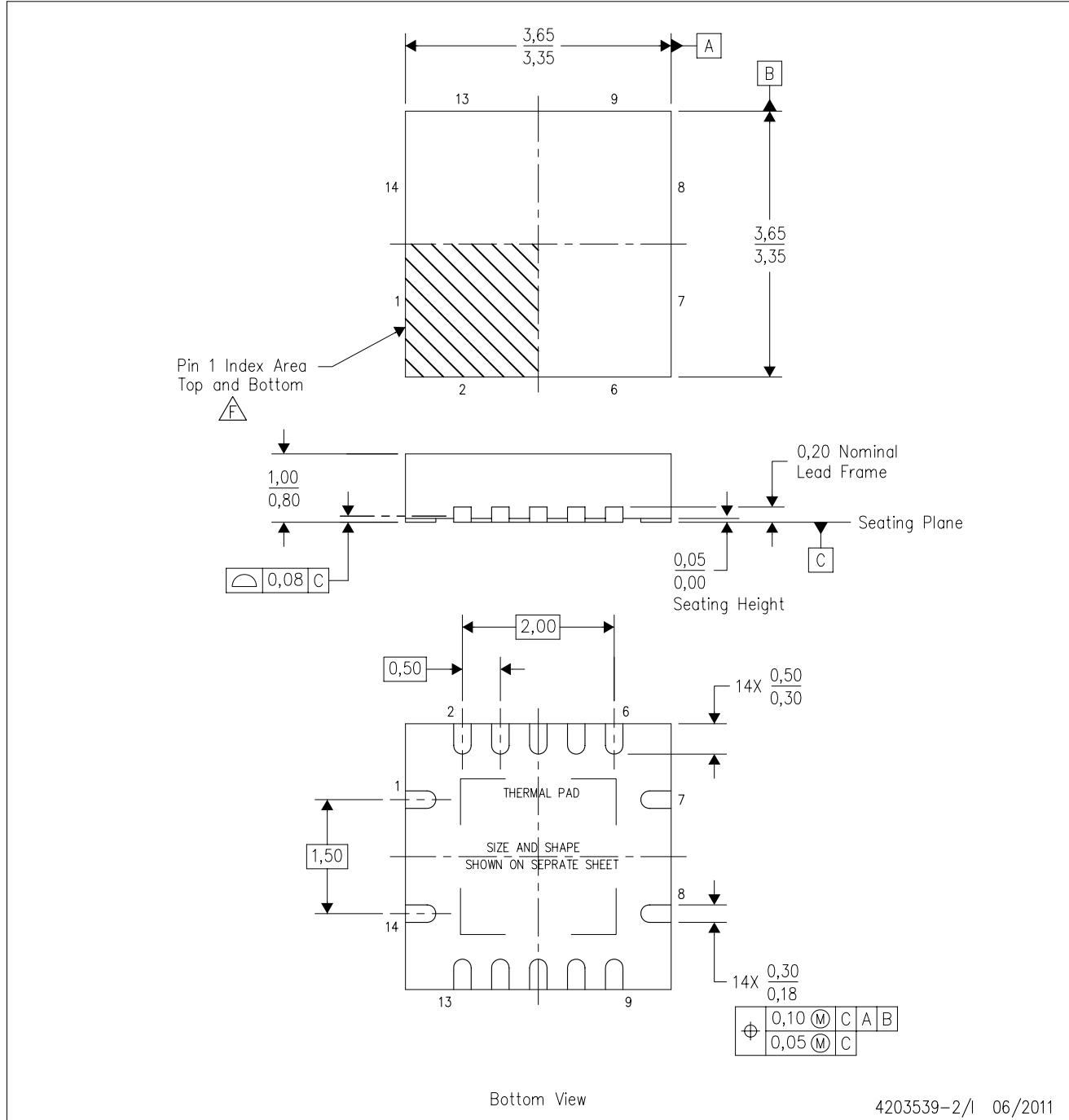
4220718/A 09/2016

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.

RGY (S-PVQFN-N14)

PLASTIC QUAD FLATPACK NO-LEAD



4203539-2/1 06/2011

- NOTES:
- All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
  - This drawing is subject to change without notice.
  - QFN (Quad Flatpack No-Lead) package configuration.
  - The package thermal pad must be soldered to the board for thermal and mechanical performance.
  - See the additional figure in the Product Data Sheet for details regarding the exposed thermal pad features and dimensions.
  - 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.
  - Package complies to JEDEC MO-241 variation BA.



## 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

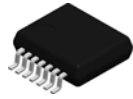
24 PINS SHOWN



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

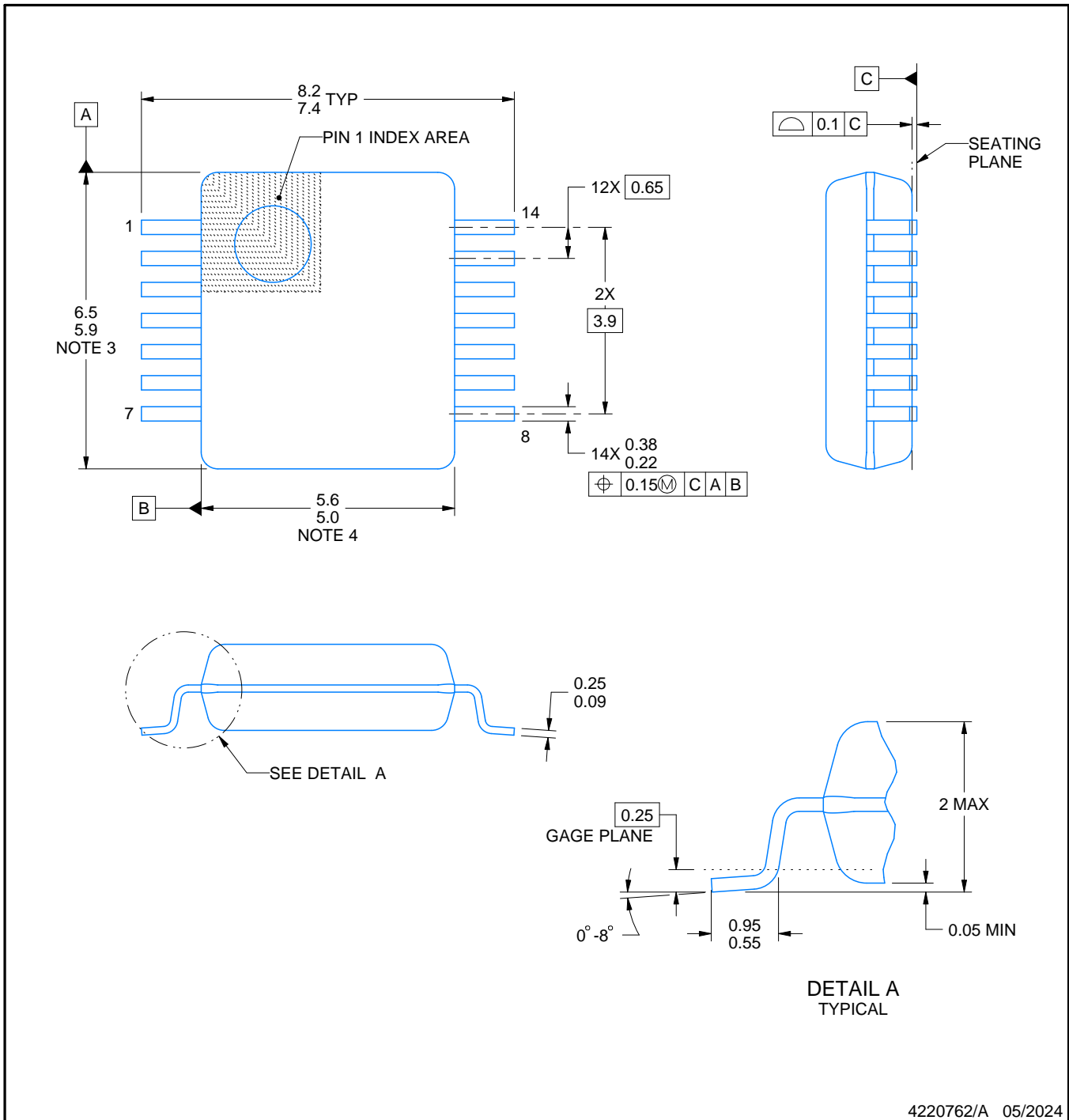
# DB0014A



# PACKAGE OUTLINE

## SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



### NOTES:

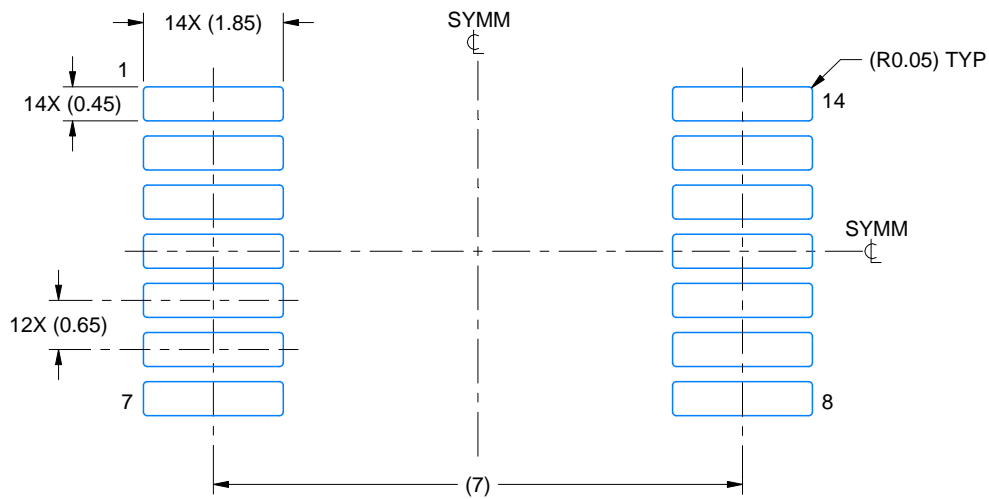
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or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

# EXAMPLE BOARD LAYOUT

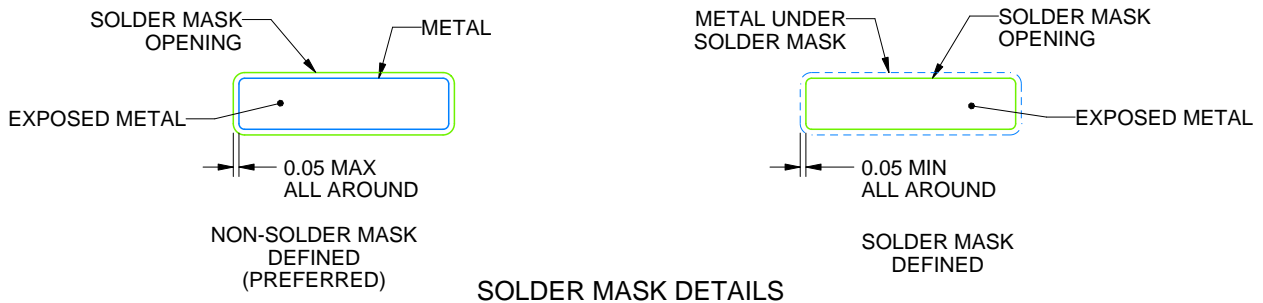
DB0014A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE: 10X



4220762/A 05/2024

NOTES: (continued)

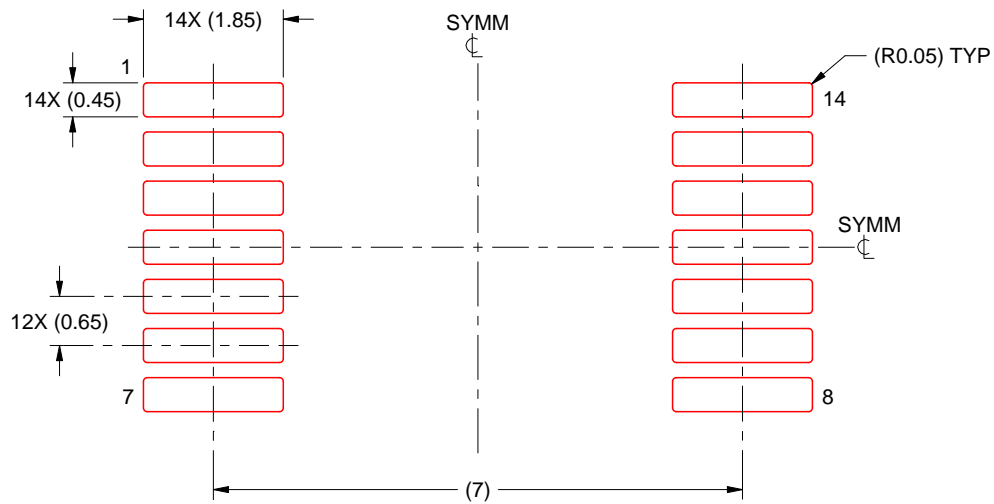
- 5. Publication IPC-7351 may have alternate designs.
- 6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

# 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\*\*)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



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

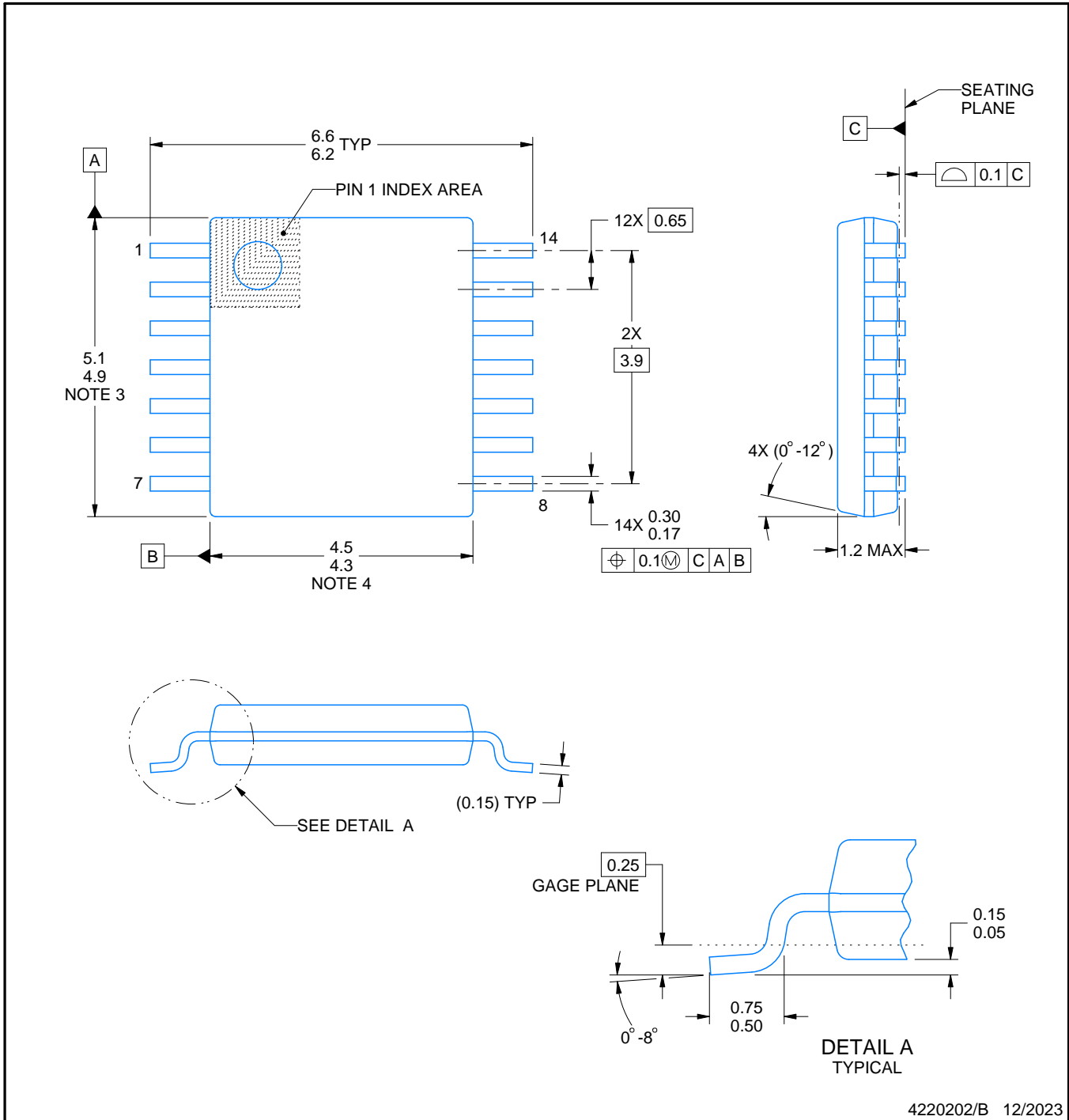
PW0014A



PACKAGE OUTLINE

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



4220202/B 12/2023

NOTES:

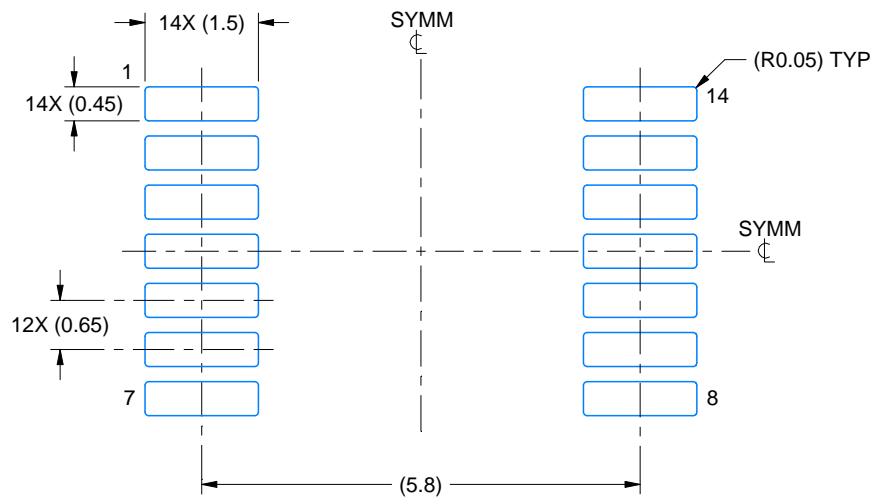
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or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

# EXAMPLE BOARD LAYOUT

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.

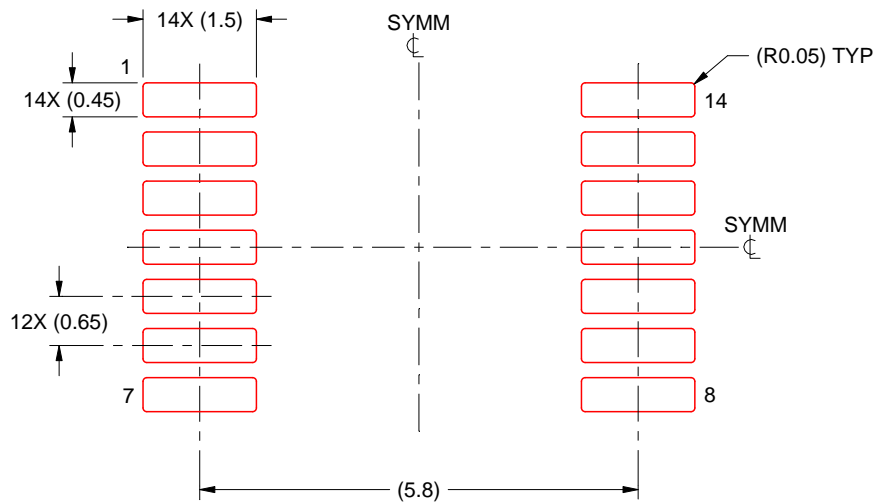


# EXAMPLE STENCIL DESIGN

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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