

SN74LV157A 四通道 2 线路至 1 线路数据选择器/多路复用器

1 特性

- 在 2V 至 5.5V V_{CC} 下运行
- 输入电压高达 5.5V
- 电压为 5V 时, t_{pd} 最大值为 7.5ns
- V_{CC} 、 $T_A = 25^\circ\text{C}$ 时, V_{OLP} (输出接地反弹) 典型值小于 0.8V
- V_{CC} 、 $T_A = 25^\circ\text{C}$ 时, V_{OHV} (输出 V_{OH} 下冲) 典型值大于 2V
- 闩锁性能超过 100mA, 符合 JESD 78 II 类规范

2 应用

- 服务器
- 发光二极管 (LED) 显示屏
- 网络交换机
- 电信基础设施
- 电机驱动器
- I/O 扩展器

3 说明

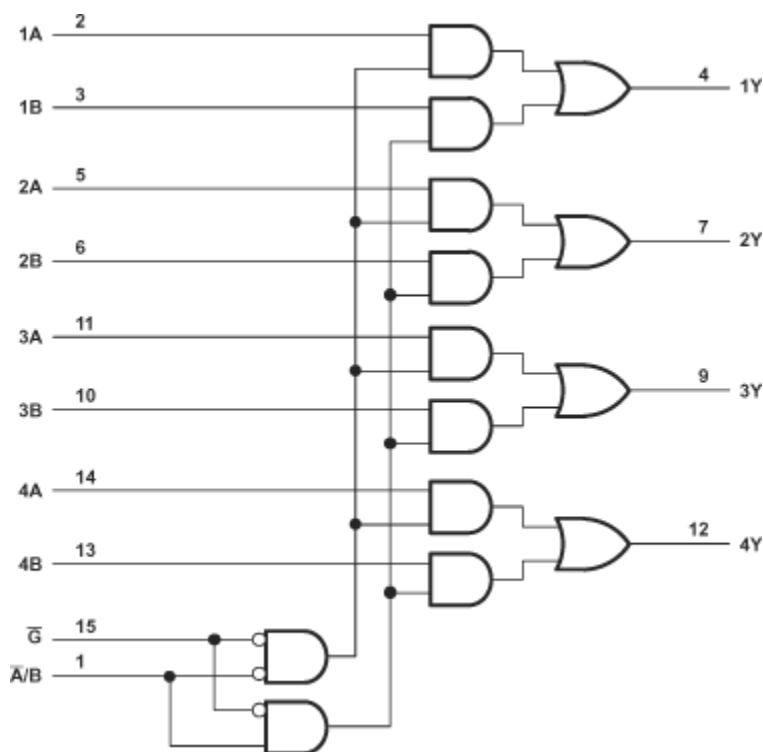
LV157A 器件是四通道 2 线路至 1 线路数据选择器/多路复用器, 旨在

2V 至 5.5V V_{CC} 下运行。

封装信息⁽¹⁾

器件型号	封装	封装尺寸 (标称值)
SN74LV157A	DB (SSOP, 16)	6.2mm × 5.3mm
	DGV (TVSOP, 16)	3.6mm × 4.4mm
	DW (SOIC, 16)	10.3mm × 7.5mm
	NS (SOP, 16)	10.3mm × 5.3mm
	PW (TSSOP, 16)	5mm × 4.4mm

(1) 如需了解所有可用封装, 请参阅数据表末尾的可订购产品附录。



逻辑图 (正逻辑)



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4 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 F (April 1998) to Revision G (March 2023)	Page
• 添加了应用、封装信息表、引脚功能表、ESD 等级表、热性能信息表、器件功能模式、应用和实施部分、电源相关建议部分、布局部分、器件和文档支持部分以及机械、封装和可订购信息部分.....	1

5 Pin Configuration and Functions

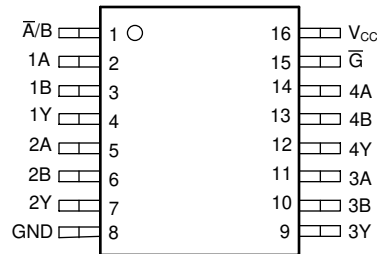


图 5-1. D, DB, DGV, NS, or PW Package (Top View)

表 5-1. Pin Functions

PIN		I/O ⁽¹⁾	DESCRIPTION
NO.	NAME		
1	$\overline{A/B}$	I	Address select
2	1A	I	Channel 1, data input A
3	1B	I	Channel 1, data input B
4	1Y	I	Channel 1, data output
5	2A	O	Channel 2, data input A
6	2B	O	Channel 2, data input B
7	2Y	I	Channel 2, data output
8	GND	—	Ground
9	3Y	I	Channel 3, data output
10	3B	I	Channel 3, data input B
11	3A	I	Channel 3, data input A
12	4Y	I	Channel 4, data output
13	4B	I	Channel 4, data input B
14	4A	I	Channel 4, data input A
15	\overline{G}	I	Output strobe, active low
16	V _{CC}	—	Positive supply

6 Specifications

6.1 Absolute Maximum Ratings

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

		MIN	MAX	UNIT
V_{CC}	Supply voltage	-0.5	7	V
V_I	Input voltage ¹	-0.5	7	V
V_O	Output voltage range applied in high or low state ^{1 (2)}	-0.5	$V_{CC} + 0.5$	V
V_O	Output voltage range applied in power-off state ¹	-0.5	7	V
I_{IK}	Input clamp current	$V_I < 0$	-20	mA
I_{OK}	Output clamp current	$V_O < 0$	-50	mA
I_O	Continuous output current	$V_O = 0$ to V_{CC}	±25	mA
	Continuous current through V_{CC} or GND		±50	mA
T_{stg}	Storage temperature	-65	150	°C

(1) This value is limited to 5.5 V maximum.

Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

6.2 ESD Ratings

		VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge		
	Human-Body Model (A114-A) ⁽¹⁾	±2000	V
	Machine Model (A115-A)	±200	
Charged-Device Model (C101) ⁽²⁾	±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.

6.3 Recommended Operating Conditions

			MIN	MAX	UNIT
V _{CC}	Supply voltage		2	5.5	V
V _{IH}	High-level input voltage	V _{CC} = 2 V	1.5		V
		V _{CC} = 2.3 V to 2.7 V	V _{CC} × 0.7		
		V _{CC} = 3 V to 3.6 V	V _{CC} × 0.7		
		V _{CC} = 4.5 V to 5.5 V	V _{CC} × 0.7		
V _{IL}	Low-level input voltage	V _{CC} = 2 V		0.5	V
		V _{CC} = 2.3 V to 2.7 V		V _{CC} × 0.3	
		V _{CC} = 3 V to 3.6 V		V _{CC} × 0.3	
		V _{CC} = 4.5 V to 5.5 V		V _{CC} × 0.3	
V _I	Input voltage		0	5.5	V
V _O	Output voltage		0	V _{CC}	V
I _{OH}	High-level output current	V _{CC} = 2 V		-50	μA
		V _{CC} = 2.3 V to 2.7 V		-2	mA
		V _{CC} = 3 V to 3.6 V		6	
		V _{CC} = 4.5 V to 5.5 V		-12	
I _{OL}	Low-level output current	V _{CC} = 2 V		50	μA
		V _{CC} = 2.3 V to 2.7 V		2	mA
		V _{CC} = 3 V to 3.6 V		6	
		V _{CC} = 4.5 V to 5.5 V		12	
Δt/Δv	Input transition rise or fall rate	V _{CC} = 2.3 V to 2.7 V	0	200	ns/V
		V _{CC} = 3 V to 3.6 V	0	100	
		V _{CC} = 4.5 V to 5.5 V	0	20	
T _A	Operating free-air temperature		-40	85	°C

6.4 Thermal Information

THERMAL METRIC ⁽¹⁾		SN74LV157A					UNIT
		D	DB	DGV	NS	PW	
		16 PINS	16 PINS	16 PINS	16 PINS	16 PINS	
R _{θJA}	Junction-to-ambient thermal resistance	73	82	120	64	108	°C/W

(1) For more information about traditional and new thermal metrics, see the *IC Package Thermal Metrics* application report (SPRA953).

6.5 Electrical Characteristics

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

PARAMETER	TEST CONDITIONS	V _{CC}	MIN	TYP	MAX	UNIT
V _{OH}	I _{OH} = -50 μA	2 V to 5.5 V	V _{CC} -0.1			V
	I _{OH} = -2 mA	2.3 V	2			
	I _{OH} = -6 mA	3 V	2.48			
	I _{OH} = -12 mA	4.5 V	3.8			

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

PARAMETER	TEST CONDITIONS	V_{CC}	MIN	TYP	MAX	UNIT
V_{OL}	$I_{OL} = 50 \mu A$	2 V to 5.5 V			0.1	V
	$I_{OL} = 2 \text{ mA}$	2.3 V			0.4	
	$I_{OL} = 6 \text{ mA}$	3 V			0.44	
	$I_{OL} = 12 \text{ mA}$	4.5 V			0.55	
I_I	$V_I = 5.5 \text{ V}$ or GND	0 to 5.5 V			± 1	μA
I_{CC}	$V_I = V_{CC}$ or GND, $I_O = 0$	5.5 V			20	μA
I_{off}	V_I or $V_O = 0$ to 5.5 V	0			5	μA
C_i	$V_I = V_{CC}$ or GND	3.3 V		1.7		pF

6.6 Switching Characteristics, $V_{CC} = 2.5 \text{ V} \pm 0.2 \text{ V}$

over recommended operating free-air temperature range, $V_{CC} = 2.5 \text{ V} \pm 0.2 \text{ V}$ (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	TA = 25°C			SN74LV157A		UNIT
				MIN	TYP	MAX	MIN	MAX	
t_{pd}	A or B	Y	$C^L = 15 \text{ pF}$		7.4 ¹	15.9 ¹	1	19.5	ns
	\bar{A}/B	Y			7.9 ¹	19.4 ¹	1	23.5	
	\bar{G}	Y			7.8 ¹	19.8 ¹	1	24	
t_{pd}	A or B	Y	$C_L = 50 \text{ pF}$		9.4	18.8	1	22	ns
	\bar{A}	Y			10.8	22.3	1	26	
	\bar{G}	Y			9.6	22.7	1	26.5	

1. On products compliant to MIL-PRF-38535, this parameter is not production tested.

6.7 Switching Characteristics, $V_{CC} = 3.3 \text{ V} \pm 0.3 \text{ V}$

over recommended operating free-air temperature range, $V_{CC} = 3.3 \text{ V} \pm 0.3 \text{ V}$ (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	TA = 25°C			SN74LV157A		UNIT
				MIN	TYP	MAX	MIN	MAX	
t_{pd}	A or B	Y	$C^L = 15 \text{ pF}$		5.2 ¹	9.7 ¹	1	11.5	ns
	\bar{A}/B	Y			5.8 ¹	13.2 ¹	1	15.5	
	\bar{G}	Y			5.5 ¹	13.6 ¹	1	16	
t_{pd}	A or B	Y	$C_L = 50 \text{ pF}$		6.7	13.2	1	15	ns
	\bar{A}	Y			7.6	16.7	1	19	
	\bar{G}	Y			7	17.1	1	19.5	

1. On products compliant to MIL-PRF-38535, this parameter is not production tested.

6.8 Switching Characteristics, $V_{CC} = 5 \text{ V} \pm 0.5 \text{ V}$

over recommended operating free-air temperature range, $V_{CC} = 5 \text{ V} \pm 0.5 \text{ V}$ (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	TA = 25°C			SN74LV157A		UNIT
				MIN	TYP	MAX	MIN	MAX	
t_{pd}	A or B	Y	$C^L = 15 \text{ pF}$		3.6 ¹	6.4 ¹	1	7.5	ns
	\bar{A}/B	Y			4.1 ¹	8.1 ¹	1	9.5	
	\bar{G}	Y			3.8 ¹	8.6 ¹	1	10	

over recommended operating free-air temperature range, $V_{CC} = 5\text{ V} \pm 0.5\text{ V}$ (unless otherwise noted) (see [Load Circuit and Voltage Waveforms](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	TA = 25°C			SN74LV157A		UNIT
				MIN	TYP	MAX	MIN	MAX	
t _{pd}	A or B	Y	C _L = 50 pF		4.8	8.4	1	9.5	ns
	\bar{A}	Y			5.4	10.1	1	11.5	
	\bar{B}	Y			5	10.6	1	12	

1. On products compliant to MIL-PRF-38535, this parameter is not production tested.

6.9 Noise Characteristics

$V_{CC} = 3.3\text{ V}$, $C_L = 50\text{ pF}$, $T_A = 25^\circ\text{C}$ ⁽¹⁾

PARAMETER		MIN	TYP	MAX	UNIT
V _{OL(P)}	Quiet output, maximum dynamic V _{OL}		0.3	0.8	V
V _{OL(V)}	Quiet output, minimum dynamic V _{OL}		-0.1	-0.8	V
V _{OH(V)}	Quiet output, minimum dynamic V _{OH}		3.2		V
V _{IH(D)}	High-level dynamic input voltage	2.31			V
V _{IL(D)}	Low-level dynamic input voltage			0.99	V

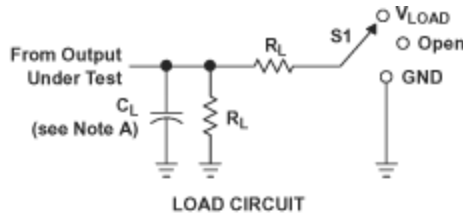
(1) Characteristics are for surface-mount packages only.

6.10 Operating Characteristics

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

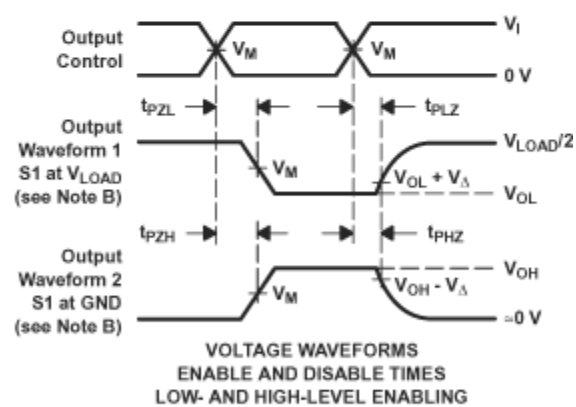
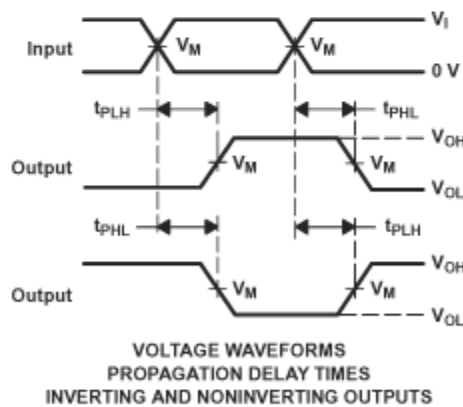
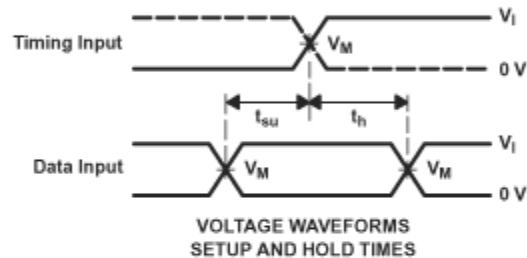
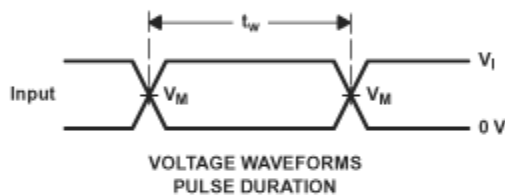
PARAMETER		TEST CONDITIONS		V _{CC}	TYP	UNIT
C _{pd}	Power dissipation capacitance	C _L = 50 pF	f = 10 MHz	3.3 V 5 V	12.1 13.1	pF

7 Parameter Measurement Information



TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	V_{LOAD}
t_{PHZ}/t_{PZH}	GND

V_{CC}	INPUTS		V_M	V_{LOAD}	C_L	R_L	V_{Δ}
	V_I	t_r/t_f					
2.7 V	2.7 V	≤ 2.5 ns	1.5 V	6 V	50 pF	500 Ω	0.3 V
3.3 V \pm 0.3 V	2.7 V	≤ 2.5 ns	1.5 V	6 V	50 pF	500 Ω	0.3 V



- NOTES: A. C_L includes probe and jig capacitance.
 B. Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.
 C. All input pulses are supplied by generators having the following characteristics: PRR \leq 10 MHz, $Z_O = 50 \Omega$.
 D. The outputs are measured one at a time, with one transition per measurement.
 E. t_{PLZ} and t_{PHZ} are the same as t_{dS} .
 F. t_{PZL} and t_{PZH} are the same as t_{dS} .
 G. t_{PLH} and t_{PHL} are the same as t_{pd} .
 H. All parameters and waveforms are not applicable to all devices.

8 Detailed Description

8.1 Overview

The 'LV157A devices contain inverters and drivers to supply full data selection to the four output gates. A separate strobe (\bar{G}) input is provided. A 4-bit word is selected from one of two sources and is routed to the four outputs. The ' LV157A devices present true data.

8.2 Functional Block Diagram

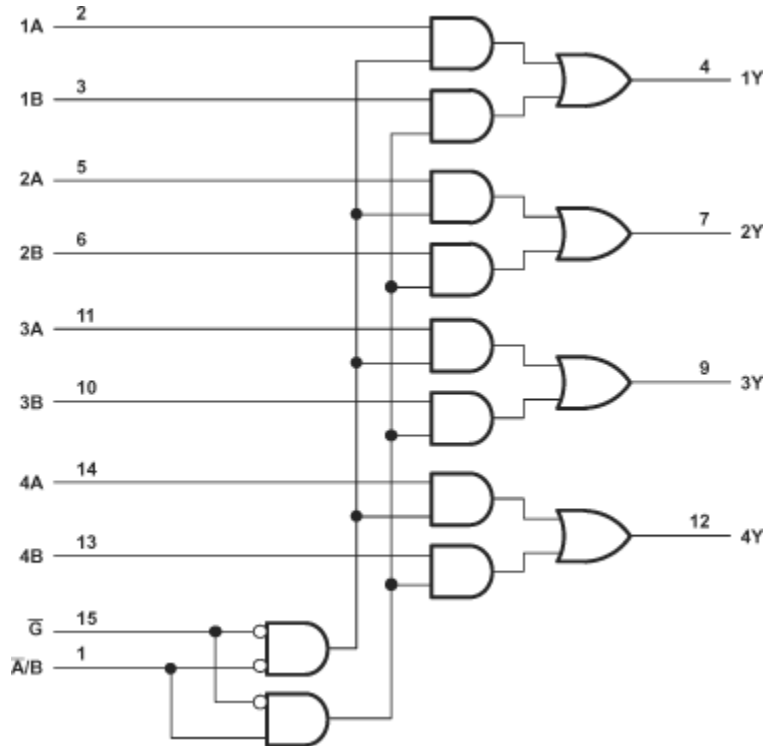


图 8-1. Logic Diagram (Positive Logic)

8.3 Device Functional Modes

表 8-1. Function Table

INPUTS ⁽¹⁾		DATA		OUTPUT Y
\bar{G}	SELECT A/B	A	B	
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

(1) H = High Voltage Level, L = Low Voltage Level, X = Do not Care, Z = High Impedance

9 Application and Implementation

备注

以下应用部分中的信息不属于 TI 器件规格的范围，TI 不担保其准确性和完整性。TI 的客户应负责确定器件是否适用于其应用。客户应验证并测试其设计，以确保系统功能。

9.1 Power Supply Recommendations

The power supply can be any voltage between the min and max supply voltage rating located in 节 6.3.

Each V_{CC} terminal should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, a $0.1 \mu\text{F}$ capacitor is recommended. If there are multiple V_{CC} terminals then $0.01 \mu\text{F}$ or $0.022 \mu\text{F}$ capacitors are recommended for each power terminal. It is ok to parallel multiple bypass capacitors to reject different frequencies of noise. $0.1 \mu\text{F}$ and $1.0 \mu\text{F}$ capacitors are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for the best results.

9.2 Layout

9.2.1 Layout Guidelines

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

9.2.1.1 Layout Example

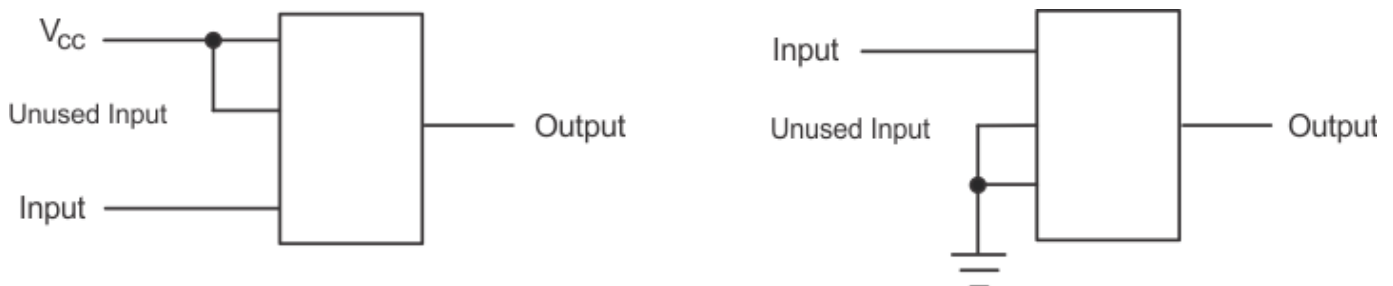


图 9-1. Layout Diagram

10 Device and Documentation Support

10.1 Documentation Support

10.1.1 Related Documentation

The table below lists quick access links. Categories include technical documents, support and community resources, tools and software, and quick access to sample or buy.

表 10-1. Related Links

PARTS	PRODUCT FOLDER	SAMPLE & BUY	TECHNICAL DOCUMENTS	TOOLS & SOFTWARE	SUPPORT & COMMUNITY
SN74LV157A	Click here	Click here	Click here	Click here	Click here

10.2 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 [订阅更新](#) 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。

10.3 支持资源

TI E2E™ 支持论坛是工程师的重要参考资料，可直接从专家获得快速、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可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](#)》。

Trademarks

TI E2E™ is a trademark of Texas Instruments.

所有商标均为其各自所有者的财产。

10.4 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。

10.5 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。

11 Mechanical, Packaging, and Orderable Information

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

PACKAGING INFORMATION

Orderable 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
SN74LV157ADBR	ACTIVE	SSOP	DB	16	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LV157A	Samples
SN74LV157ADGVR	ACTIVE	TVSOP	DGV	16	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LV157A	Samples
SN74LV157ADR	ACTIVE	SOIC	D	16	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LV157A	Samples
SN74LV157ANSR	ACTIVE	SO	NS	16	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 85	74LV157A	Samples
SN74LV157APWR	ACTIVE	TSSOP	PW	16	2000	RoHS & Green	NIPDAU SN	Level-1-260C-UNLIM	-40 to 85	LV157A	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.

OBSELETE: 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.

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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
SN74LV157ADBR	SSOP	DB	16	2000	330.0	16.4	8.35	6.6	2.4	12.0	16.0	Q1
SN74LV157ADGVR	TVSOP	DGV	16	2000	330.0	12.4	6.8	4.0	1.6	8.0	12.0	Q1
SN74LV157ADR	SOIC	D	16	2500	330.0	12.4	3.75	3.75	1.15	8.0	12.0	Q1
SN74LV157ADR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74LV157ADR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74LV157ANSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
SN74LV157APWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74LV157APWR	TSSOP	PW	16	2000	330.0	12.4	6.85	5.45	1.6	8.0	12.0	Q1
SN74LV157APWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1

TAPE AND REEL BOX DIMENSIONS


*All dimensions are nominal



Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74LV157ADBR	SSOP	DB	16	2000	356.0	356.0	35.0
SN74LV157ADGVR	TVSOP	DGV	16	2000	356.0	356.0	35.0
SN74LV157ADR	SOIC	D	16	2500	340.5	336.1	32.0
SN74LV157ADR	SOIC	D	16	2500	356.0	356.0	35.0
SN74LV157ADR	SOIC	D	16	2500	340.5	336.1	32.0
SN74LV157ANSR	SO	NS	16	2000	356.0	356.0	35.0
SN74LV157APWR	TSSOP	PW	16	2000	356.0	356.0	35.0
SN74LV157APWR	TSSOP	PW	16	2000	366.0	364.0	50.0
SN74LV157APWR	TSSOP	PW	16	2000	356.0	356.0	35.0

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE



4040047-6/M 06/11

- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 -  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.
 -  Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
 - E. Reference JEDEC MS-012 variation AC.



NOTES:

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

EXAMPLE BOARD LAYOUT

PW0016A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



SOLDER MASK DETAILS

4220204/A 02/2017

NOTES: (continued)

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

EXAMPLE STENCIL DESIGN

PW0016A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



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

4220204/A 02/2017

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.

DB0016A



PACKAGE OUTLINE

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



4220763/A 05/2022

NOTES:

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

EXAMPLE BOARD LAYOUT

DB0016A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



4220763/A 05/2022

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

DB0016A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



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

4220763/A 05/2022

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.

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



PACKAGE OUTLINE

NS0016A

SOP - 2.00 mm max height

SOP



4220735/A 12/2021

NOTES:

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

EXAMPLE BOARD LAYOUT

NS0016A

SOP - 2.00 mm max height

SOP



SOLDER MASK DETAILS

4220735/A 12/2021

NOTES: (continued)

5. Publication IPC-7351 may have alternate designs.

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

EXAMPLE STENCIL DESIGN

NS0016A

SOP - 2.00 mm max height

SOP



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

4220735/A 12/2021

NOTES: (continued)

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

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