SN74AHC132 具有施密特触发输入的四路正与非门

1 特性

- 工作范围为 2V 至 5.5V V_{CC}
- 采用极低输入转换工作
- 温度补偿阈值电平
- 高抗噪性
- 与 SNx4AHC00 的引脚排列相同
- 闩锁性能超过 250mA，符合 JESD 17 规范
- ESD 保护性能超过 JESD 22 规范要求
  - 2000V 人体放电模型
  - 1000V 充电器件模型

2 应用

- 电子销售终端
- 电信基础设施
- 网络交换机
- 测试和测量

3 说明

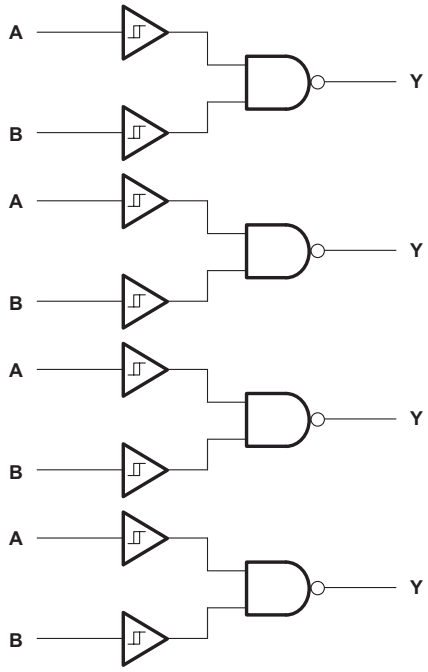
SN7AHC132 器件是一款四路正与非门，可在 2V 至 5.5V V_{CC} 下运行。该器件以正逻辑执行布尔函数 $Y = \overline{A \times B}$ 或 $Y = \overline{A} + \overline{B}$ 。

施密特触发输入可提供更高的抗噪性，并支持慢速输入信号转换。

封装信息

器件型号	封装(1)	封装尺寸(2)	封装尺寸(3)
SN7AHC132	BQA（WQFN，14）	3mm × 2.5mm	3mm × 2.5mm
	D（SOIC，14）	8.65mm × 6mm	8.65mm × 3.9mm
	DB（SSOP，14）	6.2mm × 7.8mm	6.2mm × 5.3mm
	DGV（TVSOP，14）	3.6mm × 6.4mm	3.6mm × 4.4mm
	PW（TSSOP，14）	5mm × 6.4mm	5mm × 4.4mm
	RGY（VQFN，14）	3.5mm × 3.5mm	3.5mm × 3.5mm
	N（PDIP，14）	19.3mm × 9.4mm	19.3mm × 6.35mm
	NS（SOP，14）	10.2mm × 7.8mm	5.3mm × 10.3mm

(1) 更多相关信息，请参阅第 11 节。
(2) 封装尺寸（长 x 宽）为标称值，并包括引脚（如适用）
(3) 封装尺寸（长 × 宽）为标称值，不包括引脚。



简化版原理图

本资源的原文使用英文撰写。 为方便起见，TI 提供了译文；由于翻译过程中可能使用了自动化工具，TI 不保证译文的准确性。 为确认准确性，请务必访问 ti.com 参考最新的英文版本（控制文档）。

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4 Pin Configuration and Functions

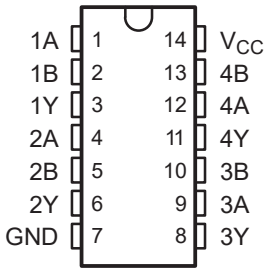


图 4-1. SN74AHC132 D, DB, DGV, N, NS, or PW Package, 14-Pin (Top View)

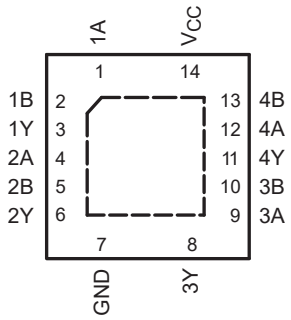


图 4-2. SN74AHC132 RGY Package, 14-Pin VQFN (Top View)

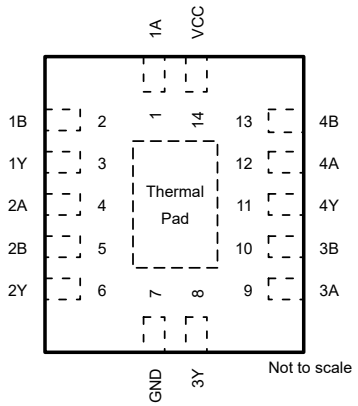


图 4-3. SN74AHC132 BQA Package, 14-Pin WQFN (Top View)

表 4-1. Pin Functions

PIN		TYPE[1]	DESCRIPTION
NAME	NO.		
1A	1	I	1A Input
1B	2	I	1B Input
1Y	3	O	1Y Output
2A	4	I	2A Input
2B	5	I	2B Input
2Y	6	O	2Y Output
3Y	8	O	3Y Output
3A	9	I	3A Input
3B	10	I	3B Input
4Y	11	O	4Y Output
4A	12	I	4A Input
4B	13	I	4B Input
GND	7	—	Ground Pin
V_{CC}	14	—	Power Pin
Thermal Pad[2]		—	The thermal pad can be connected to GND or left floating. Do not connect to any other signal or supply.

(1) I = input, O = output
(2) For BQA only.

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5 Specifications

5.1 Absolute Maximum Ratings

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

			MIN	MAX	UNIT
V_{CC}	Supply voltage range		–0.5	7	V
V_I	Input voltage range(2)		–0.5	7	V
V_O	Output voltage range(2)		–0.5	V_{CC} + 0.5	V
I_{IK}	Input clamp current	V_I < 0		–20	mA
I_{OK}	Output clamp current	V_O < 0 or V_O > V_{CC}		±20	mA
I_O	Continuous output current	V_O = 0 to V_{CC}		±25	mA
	Continuous current through V_{CC} or GND			±50	mA

(1) 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.
(2) The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

5.2 Handling Ratings

			MIN	MAX	UNIT
T_{stg}	Storage temperature range		–65	150	°C
$V_{(ESD)}$	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/JEDEC JS-001, all pins(1)	0	2000	V
		Charged device model (CDM), per JEDEC specification JESD22-C101, all pins(2)	0	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 Recommended Operating Conditions

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

			SN74AHC132		UNIT
			MIN	MAX	
V_{CC}	Supply voltage		2	5.5	V
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} = 3.3 V ± 0.3 V		–4	mA
		V_{CC} = 5 V ± 0.5 V		–8	
I_{OL}	Low-level output current	V_{CC} = 2 V		50	μA
		V_{CC} = 3.3 V ± 0.3 V		4	mA
		V_{CC} = 5 V ± 0.5 V		8	
T_A	Operating free-air temperature		–40	125	°C

(1) 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* (SCBA004).

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5.4 Thermal Information

THERMAL METRIC(1)		SN74AHC132								UNIT
		BQA	D	DB	DR	N	NS	PW	RGY	
		14 PINS								
$R_{\theta JA}$	Junction-to-ambient thermal resistance	88.3	124.6	107.1	90.6	57.4	90.7	147.7	57.5	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	90.9	79.7	59.6	50.9	44.9	48.3	77.4	57.5	
$R_{\theta JB}$	Junction-to-board thermal resistance	56.8	81.2	54.4	44.8	37.2	49.4	90.9	33.6	
ψ_{JT}	Junction-to-top characterization parameter	9.9	39.3	20.5	14.7	30.1	14.6	27.2	3.4	
ψ_{JB}	Junction-to-board characterization parameter	56.7	80.8	53.8	44.5	37.1	49.1	90.2	33.7	
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	33.4	N/A	N/A	N/A	N/A	N/A	N/A	13.9	

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

5.5 Electrical Characteristics

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

PARAMETER	TEST CONDITIONS	V_{CC}	T_A = 25°C			SN74AHC132		–40°C to 125°C SN74AHC132		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
V_{T+} Positive-going input threshold voltage		3 V	1.2		2.2	1.2	2.2	1.2	2.2	V
		4.5 V	1.75		3.15	1.75	3.15	1.75	3.15	
		5.5 V	2.15		3.85	2.15	3.85	2.15	3.85	
V_{T-} Negative-going input threshold voltage		3 V	0.9		1.9	0.9	1.9	0.9	1.9	V
		4.5 V	1.35		2.75	1.35	2.75	1.35	2.75	
		5.5 V	1.65		3.35	1.65	3.35	1.65	3.35	
ΔV_T Hysteresis ($V_{T+} - V_{T-}$)		3 V	0.3		1.2	0.3	1.2	0.3	1.2	V
		4.5 V	0.4		1.4	0.4	1.4	0.4	1.4	
		5.5 V	0.5		1.6	0.5	1.6	0.5	1.6	
V_{OH}	I_{OH} = –50 µA	2 V	1.9	2		1.9		1.9		V
		3 V	2.9	3		2.9		2.9		
		4.5 V	4.4	4.5		4.4		4.4		
	I_{OH} = –4 mA	3 V	2.58			2.48		2.48		
	I_{OH} = –8 mA	4.5 V	3.94			3.8		3.8		
V_{OL}	I_{OL} = 50 µA	2 V			0.1		0.1		0.1	V
		3 V			0.1		0.1		0.1	
		4.5 V			0.1		0.1		0.1	
	I_{OL} = 4 mA	3 V			0.36		0.44		0.44	
	I_{OL} = 8 mA	4.5 V			0.36		0.44		0.44	
I_I	V_I = 5.5 V or GND	0 V to 5.5 V			±0.1		±1		±1	µA
I_{CC}	$V_I = V_{CC}$ or GND, I_O = 0	5.5 V			2		20		20	µA
C_i	$V_I = V_{CC}$ or GND	5 V		1.9	10		10		10	pF

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5.6 Switching Characteristics, V_{CC} = 3.3 V ± 0.3 V

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	T_A = 25°C			SN74AHC132		T_A = –40°C to 125°C SN74AHC132		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A or B	Y	C_L = 15 pF		5.6(1)	11.9(1)	1	14	1	15	ns
t_{PHL}					5.6(1)	11.9(1)	1	14	1	15	
t_{PLH}	A or B	Y	C_L = 50 pF		7.6	15.4	1	17.5	1	19	ns
t_{PHL}					7.6	15.4	1	17.5	1	19	

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

5.7 Switching Characteristics, V_{CC} = 5 V ± 0.5 V

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	T_A = 25°C			SN74AHC132		T_A = –40°C to 125°C SN74AHC132		UNIT
				MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A or B	Y	C_L = 15 pF		3.9(1)	7.7(1)	1	9	1	10	ns
t_{PHL}					3.9(1)	7.7(1)	1	9	1	10	
t_{PLH}	A or B	Y	C_L = 50 pF		5.3	9.7	1	11	1	12	ns
t_{PHL}					5.3	9.7	1	11	1	12	

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

5.8 Noise Characteristics

V_{CC} = 5 V, C_L = 50 pF, T_A = 25°C(1)

PARAMETER		SN74AHC132			UNIT
		MIN	TYP	MAX	
$V_{OL(P)}$	Quiet output, maximum dynamic V_{OL}		0.45	0.8	V
$V_{OL(V)}$	Quiet output, minimum dynamic V_{OL}		–0.35	–0.8	V
$V_{OH(V)}$	Quiet output, minimum dynamic V_{OH}		4.8		V
$V_{IH(D)}$	High-level dynamic input voltage	3.5			V
$V_{IL(D)}$	Low-level dynamic input voltage			1.5	V

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

5.9 Operating Characteristics

V_{CC} = 5 V, T_A = 25°C

PARAMETER		TEST CONDITIONS		TYP	UNIT
C_{pd}	Power dissipation capacitance	No load,	f = 1 MHz	11	pF

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5.10 Typical Characteristics

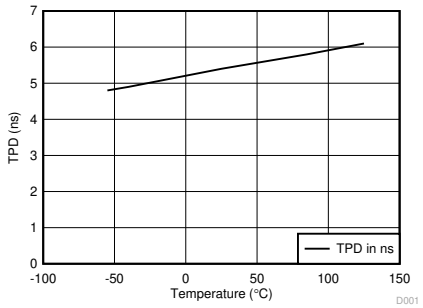


图 5-1. TPD vs Temperature

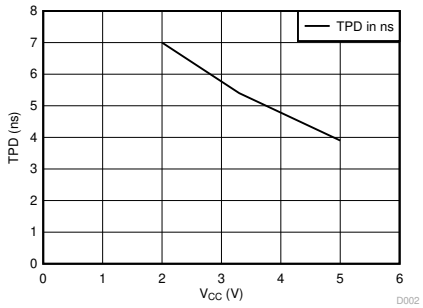
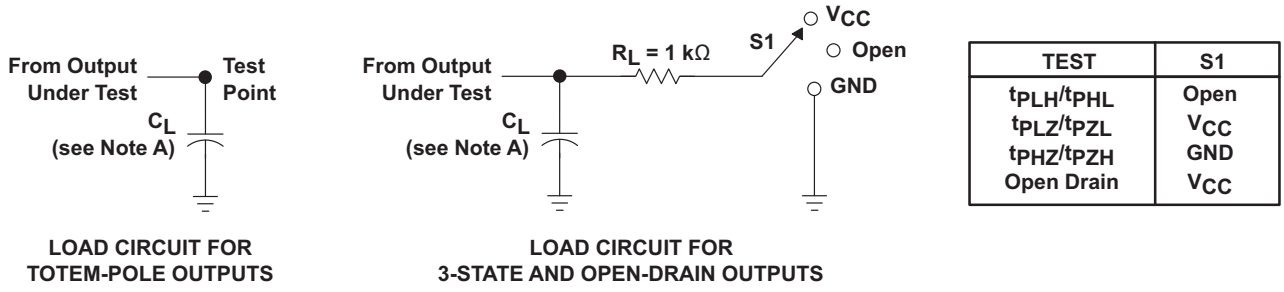


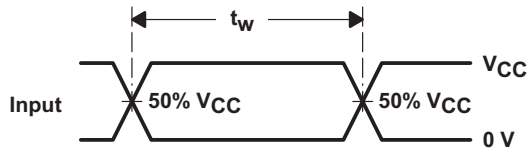
图 5-2. TPD vs V_{CC}

6 Parameter Measurement Information

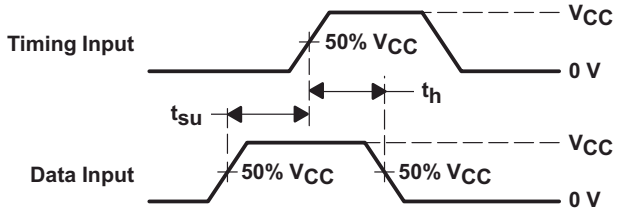


LOAD CIRCUIT FOR TOTEM-POLE OUTPUTS

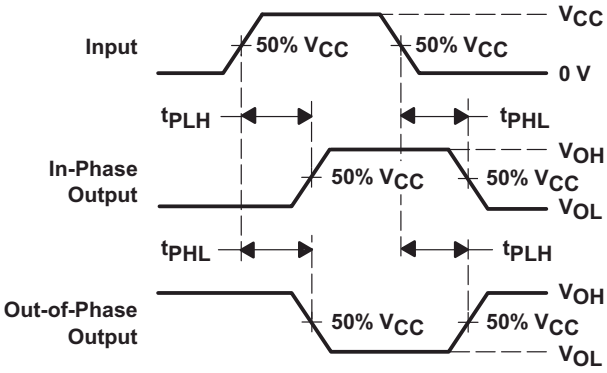
LOAD CIRCUIT FOR 3-STATE AND OPEN-DRAIN OUTPUTS



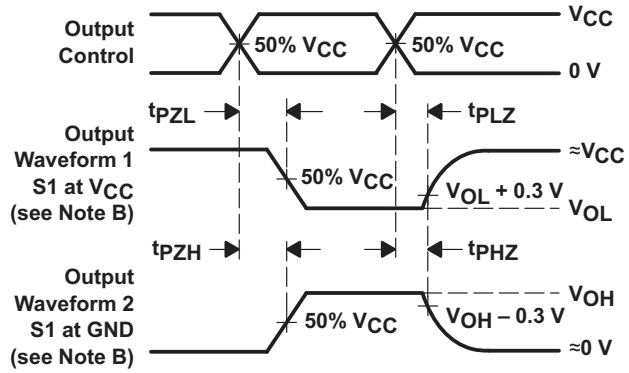
VOLTAGE WAVEFORMS PULSE DURATION



VOLTAGE WAVEFORMS SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS PROPAGATION DELAY TIMES INVERTING AND NONINVERTING OUTPUTS



VOLTAGE WAVEFORMS ENABLE AND DISABLE TIMES LOW- AND HIGH-LEVEL ENABLING

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 ≤ 1 MHz, Z_O = 50 Ω, t_r ≤ 3 ns, t_f ≤ 3 ns.
D. The outputs are measured one at a time with one input transition per measurement.
E. All parameters and waveforms are not applicable to all devices.

图 6-1. Load Circuit and Voltage Waveforms

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7 Detailed Description

7.1 Overview

The SN74AHC132 is a quadruple 2-input positive-NAND gate with low drive that produces slow rise and fall times. This reduces ringing on the output signal.

Each circuit functions as a NAND gate, but because of the Schmitt action, it has different input threshold levels for positive- and negative-going signals.

These circuits are temperature compensated and can be triggered from the slowest of input ramps and still give clean, jitter-free output signals.

7.2 Functional Block Diagram

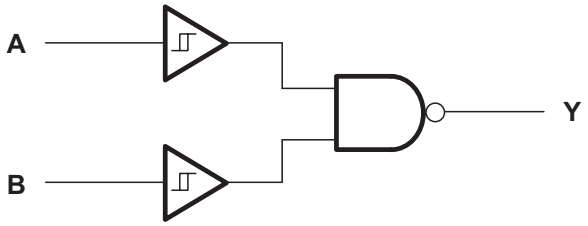


图 7-1. Logic Diagram, Each Gate (Positive Logic)

7.3 Feature Description

- Wide operating voltage range
  - Operates from 2 V to 5.5 V
- Allows down voltage translation
  - Inputs accept voltages to 5.5 V

7.4 Device Functional Modes

表 7-1. Function Table
(Each Gate)

INPUTS		OUTPUT
A	B	Y
H	H	L
L	X	H
X	L	H

8 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。

8.1 Application Information

The SN74AHC132 is a low-drive CMOS device that can be used for a multitude of bus interface type applications where output ringing is a concern. The low drive and slow edge rates will minimize overshoot and undershoot on the outputs. The inputs can accept voltages to 5.5 V at any valid V_{CC}, thus making the device an excellent choice for down translation.

8.2 Typical Application

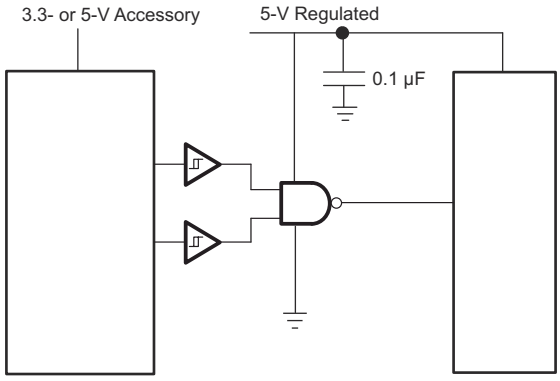


图 8-1. Typical Application Schematic

8.2.1 Design Requirements

This device uses CMOS technology and has balanced output drive. Take care to avoid bus contention because it can drive currents that would exceed maximum limits. The high drive will also create fast edges into light loads, so routing and load conditions should be considered to prevent ringing.

8.2.2 Detailed Design Procedure

1. Recommended input conditions:
   - For rise time and fall time specifications, see $\Delta t/\Delta V$ in the *Recommended Operating Conditions* table.
   - For specified high and low levels, see V_{IH} and V_{IL} in the *Recommended Operating Conditions* table.
   - Inputs are overvoltage tolerant allowing them to go as high as 5.5 V at any valid V_{CC}.
2. Recommend output conditions:
   - Load currents should not exceed 25 mA per output and 50 mA total for the part.
   - Outputs should not be pulled above V_{CC}.

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8.2.3 Application Curves

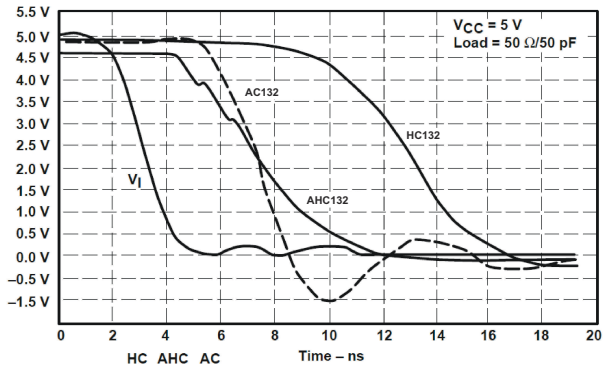


图 8-2. Switching Characteristics Comparison

8.3 Power Supply Recommendations

The power supply can be any voltage between the MIN and MAX supply-voltage rating located in the *Recommended Operating Conditions* table.

Each V_{CC} pin should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, 0.1 μF is recommended. If there are multiple V_{CC} pins, then a 0.01 μF or a 0.022 μF is recommended for each power pin. It is acceptable to parallel multiple bypass capacitors to reject different frequencies of noise. A 0.1 μF and a 1 μF are commonly used in parallel. Install the bypass capacitor as close to the power pin as possible for best results.

8.4 Layout

8.4.1 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 input pins should not be left unconnected because the undefined voltages at the outside connections result in undefined operational states.

Specified in the *Layout Examples* are rules that must be observed under all circumstances. All unused inputs of digital logic devices must be connected to a high or low bias to prevent them from floating. The logic level that should be applied to any particular unused input depends on the function of the device. Generally they will be tied to GND or V_{CC}, whichever makes more sense or is more convenient. It is acceptable to float outputs unless the part is a transceiver. If the transceiver has an output enable pin, then it will disable the outputs section of the part when asserted. This will not disable the input section of the I/Os so they also cannot float when disabled.

8.4.2 Layout Example

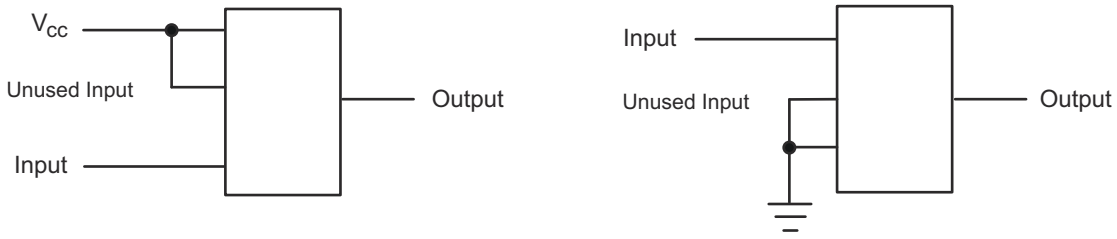


图 8-3. Layout Diagram

9 Device and Documentation Support

9.1 Documentation Support (Analog)

9.1.1 Related Documentation

For related documentation, see the following:

- Texas Instruments, *CMOS Power Consumption and Cpd Calculation* application note
- Texas Instruments, *Designing With Logic* application note
- Texas Instruments, *Thermal Characteristics of Standard Linear and Logic (SLL) Packages and Devices* application note
- Texas Instruments, *Implications of Slow or Floating CMOS Inputs* application note

9.2 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。

9.3 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。

9.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.
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9.5 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。

9.6 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。

10 Revision History

Changes from Revision J (October 2023) to Revision K (February 2024)	Page
• 删除了*特性* 中的机器放电模型	1
• Updated thermal values for D package from R θ JA = 90.6 to 124.6, R θ JC(top) = 50.9 to 79.7, R θ JB = 44.8 to 81.2, Ψ JT = 14.7 to 39.3, Ψ JB = 44.5 to 80.8, R θ JC(bot) = N/A, all values in °C/W	5

Changes from Revision I (August 2023) to Revision J (October 2023)	Page
• Updated thermal values for PW package from R θ JA = 122.6 to 147.7, R θ JC(top) = 51.4 to 77.4, R θ JB = 64.4 to 90.9, Ψ JT = 6.7 to 27.2, Ψ JB = 63.8 to 90.2, all values in °C/W	5

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11 Mechanical, Packaging, and Orderable Information

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

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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)
SN74AHC132BQAR	Active	Production	WQFN (BQA) | 14	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	AHC132
SN74AHC132BQAR.A	Active	Production	WQFN (BQA) | 14	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	AHC132
SN74AHC132D	Obsolete	Production	SOIC (D) | 14	-	-	Call TI	Call TI	-40 to 125	AHC132
SN74AHC132DBR	Active	Production	SSOP (DB) | 14	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HA132
SN74AHC132DBR.A	Active	Production	SSOP (DB) | 14	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HA132
SN74AHC132DGVR	Active	Production	TVSOP (DGV) | 14	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HA132
SN74AHC132DGVR.A	Active	Production	TVSOP (DGV) | 14	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HA132
SN74AHC132DR	Active	Production	SOIC (D) | 14	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AHC132
SN74AHC132DR.A	Active	Production	SOIC (D) | 14	2500 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AHC132
SN74AHC132N	NRND	Production	PDIP (N) | 14	25 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 125	SN74AHC132N
SN74AHC132N.A	NRND	Production	PDIP (N) | 14	25 | TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 125	SN74AHC132N
SN74AHC132NSR	Active	Production	SOP (NS) | 14	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AHC132
SN74AHC132NSR.A	Active	Production	SOP (NS) | 14	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AHC132
SN74AHC132PW	Obsolete	Production	TSSOP (PW) | 14	-	-	Call TI	Call TI	-40 to 125	HA132
SN74AHC132PWR	Active	Production	TSSOP (PW) | 14	2000 | LARGE T&R	Yes	NIPDAU | SN	Level-1-260C-UNLIM	-40 to 125	HA132
SN74AHC132PWR.A	Active	Production	TSSOP (PW) | 14	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HA132
SN74AHC132RGYR	Last Time Buy	Production	VQFN (RGY) | 14	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 125	HA132
SN74AHC132RGYR.A	Last Time Buy	Production	VQFN (RGY) | 14	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 125	HA132

(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.

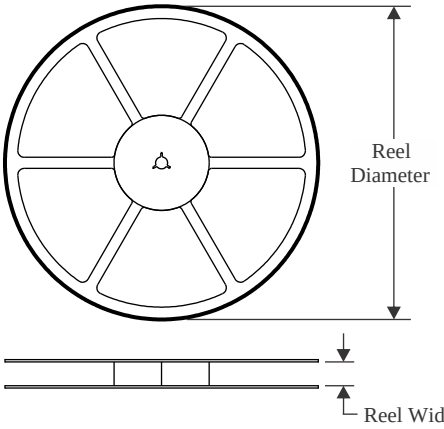
Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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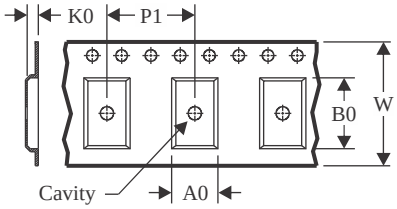
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TAPE AND REEL INFORMATION

REEL DIMENSIONS

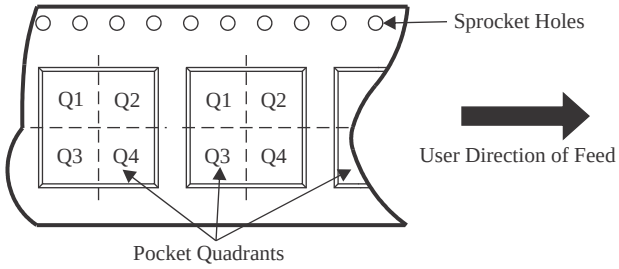


TAPE DIMENSIONS



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

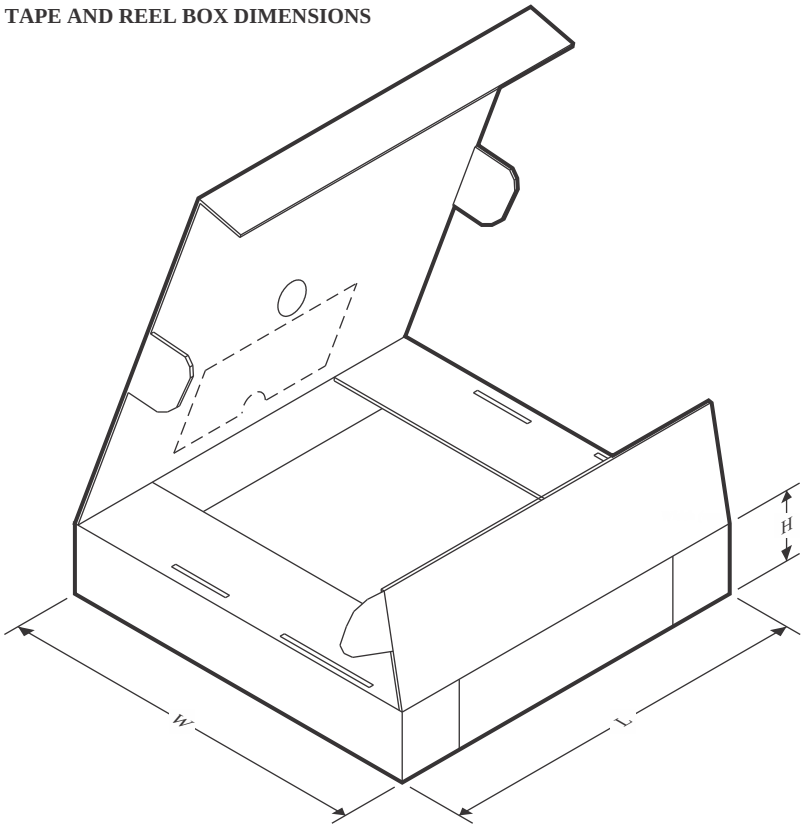
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
SN74AHC132BQAR	WQFN	BQA	14	3000	180.0	12.4	2.8	3.3	1.1	4.0	12.0	Q1
SN74AHC132DBR	SSOP	DB	14	2000	330.0	16.4	8.35	6.6	2.4	12.0	16.0	Q1
SN74AHC132DGVR	TVSOP	DGV	14	2000	330.0	12.4	6.8	4.0	1.6	8.0	12.0	Q1
SN74AHC132DR	SOIC	D	14	2500	330.0	12.4	3.75	3.75	1.15	8.0	12.0	Q1
SN74AHC132NSR	SOP	NS	14	2000	330.0	16.4	8.1	10.4	2.5	12.0	16.0	Q1
SN74AHC132PWR	TSSOP	PW	14	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74AHC132RGYR	VQFN	RGY	14	3000	330.0	12.4	3.75	3.75	1.15	8.0	12.0	Q1

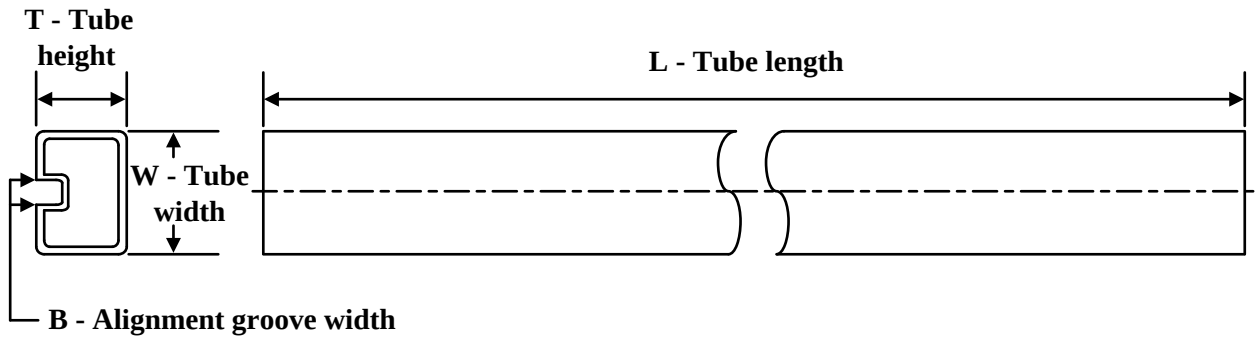
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74AHC132BQAR	WQFN	BQA	14	3000	210.0	185.0	35.0
SN74AHC132DBR	SSOP	DB	14	2000	353.0	353.0	32.0
SN74AHC132DGVR	TVSOP	DGV	14	2000	353.0	353.0	32.0
SN74AHC132DR	SOIC	D	14	2500	340.5	336.1	32.0
SN74AHC132NSR	SOP	NS	14	2000	353.0	353.0	32.0
SN74AHC132PWR	TSSOP	PW	14	2000	353.0	353.0	32.0
SN74AHC132RGYR	VQFN	RGY	14	3000	353.0	353.0	32.0

TUBE



*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (µm)	B (mm)
SN74AHC132N	N	PDIP	14	25	506	13.97	11230	4.32
SN74AHC132N	N	PDIP	14	25	506	13.97	11230	4.32
SN74AHC132N.A	N	PDIP	14	25	506	13.97	11230	4.32
SN74AHC132N.A	N	PDIP	14	25	506	13.97	11230	4.32

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最后更新日期：2025 年 10 月