

## SN74AHC1G32 シングル 2 入力、正論理 OR ゲート

### 1 特長

- 動作範囲: 2V~5.5V
- 最大  $t_{pd}$  6.5ns (5V 時)
- 低消費電力、最大  $I_{CC}$ : 10 $\mu$ A
- 5V で  $\pm 8$ mA の出力駆動能力
- 全入力でのシュミットトリガ アクションにより、低速の入力立ち上がり / 立ち下がり時間を許容
- JESD 17 準拠で 250mA 超のラッチアップ性能

### 2 アプリケーション

- AV レシーバ
- 携帯用オーディオ ドック
- Blu-ray プレーヤおよびホームシアター
- MP3 プレーヤ / レコーダ
- パーソナル デジタル アシスタント(PDA)
- 電源:
  - テレコム / サーバー AC/DC 電源
  - シングルコントローラ
    - アナログ
    - デジタル
- クライアントおよびエンタープライズ SSD (ソリッドステートドライブ)
- LCD およびデジタル TV、高解像度 TV (HDTV)
- エンタープライズ タブレット
- ビデオ アナリティクス サーバー
- ワイヤレス ヘッドセット、キーボード、マウス

### 3 概要

SN74AHC1G32 はシングル 2 入力正論理 OR ゲートです。このデバイスはブール関数  $Y = A + B$  or  $Y = \overline{A} \cdot \overline{B}$  を正論理で実行します。

#### パッケージ情報

部品番号	パッケージ (1)	パッケージ サイズ (2)	本体サイズ (3)
SN74AHC1G32	DBV (SOT-23, 5)	2.90mm × 2.8mm	2.90mm × 1.60mm
	DCK (SC70, 5)	2.00mm × 2.1mm	2.00mm × 1.25mm
	DRL (SOT, 5)	1.60mm × 1.6mm	1.60mm × 1.20mm

- 詳細については、[セクション 11](#) を参照してください。
- パッケージ サイズ (長さ × 幅) は公称値であり、該当する場合はピンも含まれます。
- 本体サイズ (長さ × 幅) は公称値であり、ピンは含まれません。



概略回路図



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## 4 Pin Configuration and Functions

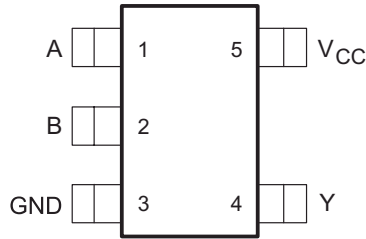


図 4-1. DBV Package 5-Pin SOT-23 Top View

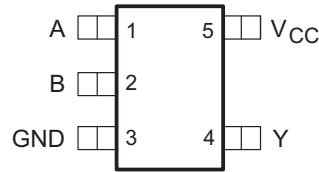
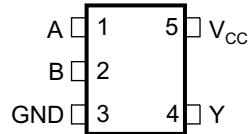


図 4-2. DCK Package 5-Pin SC70 Top View



See mechanical drawings for dimensions.

図 4-3. DRL Package 5-Pin SOT Top View

表 4-1. Pin Functions

PIN		TYPE <sup>(1)</sup>	DESCRIPTION
NO.	NAME		
1	A	I	Input A
2	B	I	Input B
3	GND	—	Ground Pin
4	Y	O	Output Y
5	V <sub>CC</sub>	—	Power Pin

(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)</sup>

		MIN	MAX	UNIT
V <sub>CC</sub>	Supply voltage	-0.5	7	V
V <sub>I</sub>	Input voltage <sup>(2)</sup>	-0.5	7	V
V <sub>O</sub>	Output voltage <sup>(2)</sup>	-0.5	V <sub>CC</sub> + 0.5	V
I <sub>IK</sub>	Input clamp current	(V <sub>I</sub> < 0)	-20	mA
I <sub>OK</sub>	Output clamp current	(V <sub>O</sub> < 0 or V <sub>O</sub> > V <sub>CC</sub> )	±20	mA
I <sub>O</sub>	Continuous output current	(V <sub>O</sub> = 0 to V <sub>CC</sub> )	±25	mA
	Continuous current through V <sub>CC</sub> or GND		±50	mA
T <sub>J</sub>	Maximum junction temperature		150	°C
T <sub>stg</sub>	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, 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 ESD Ratings

		VALUE	UNIT
V <sub>(ESD)</sub>	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/JEDEC JS-001 <sup>(1)</sup>	±1500
		Charged device model (CDM), per JEDEC specification JESD22-C101 <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 Recommended Operating Conditions

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

		MIN	MAX	UNIT
V <sub>CC</sub>	Supply voltage	2	5.5	V
V <sub>IH</sub>	High-level input voltage	V <sub>CC</sub> = 2 V	1.5	V
		V <sub>CC</sub> = 3 V	2.1	
		V <sub>CC</sub> = 5.5 V	3.85	
V <sub>IL</sub>	Low-level input voltage	V <sub>CC</sub> = 2 V	0.5	V
		V <sub>CC</sub> = 3 V	0.9	
		V <sub>CC</sub> = 5.5 V	1.65	
V <sub>I</sub>	Input voltage	0	5.5	V
V <sub>O</sub>	Output voltage	0	V <sub>CC</sub>	V
I <sub>OH</sub>	High-level output current	V <sub>CC</sub> = 2 V	-50	μA
		V <sub>CC</sub> = 3.3 V ± 0.3 V	-4	mA
		V <sub>CC</sub> = 5 V ± 0.5 V	-8	
I <sub>OL</sub>	Low-level output current	V <sub>CC</sub> = 2 V	50	μA
		V <sub>CC</sub> = 3.3 V ± 0.3 V	4	mA
		V <sub>CC</sub> = 5 V ± 0.5 V	8	
Δt/Δv	Input transition rise and fall rate	V <sub>CC</sub> = 3.3 V ± 0.3 V	100	ns/V
		V <sub>CC</sub> = 5 V ± 0.5 V	20	

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

		MIN	MAX	UNIT
T <sub>A</sub>	Operating free-air temperature	-40	125	°C

(1) All unused inputs of the device must be held at V<sub>CC</sub> or GND to ensure proper device operation. See [Implications of Slow or Floating CMOS Inputs](#), SCBA004.

## 5.4 Thermal Information

THERMAL METRIC <sup>(1)</sup>	SN74AHC1G32			UNIT	
	DBV (SOT-23)	DCK (SC70)	DRL (SOT)		
	5 PINS	5 PINS	5 PINS		
R <sub>θJA</sub>	Junction-to-ambient thermal resistance	278	293.4	328.7	°C/W
R <sub>θJC(top)</sub>	Junction-to-case (top) thermal resistance	180.5	208.8	105.1	°C/W
R <sub>θJB</sub>	Junction-to-board thermal resistance	184.4	180.6	150.3	°C/W
Ψ <sub>JT</sub>	Junction-to-top characterization parameter	115.4	120.6	6.9	°C/W
Ψ <sub>JB</sub>	Junction-to-board characterization parameter	183.4	179.5	148.4	°C/W
R <sub>θJC(bot)</sub>	Junction-to-case (bottom) thermal resistance	N/A	N/A	N/A	°C/W

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

## 5.5 Electrical Characteristics

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

PARAMETER	TEST CONDITIONS	V <sub>CC</sub>	T <sub>A</sub> = 25°C			-40 TO +80°C		-40 TO +125°C		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
V <sub>OH</sub> High level output voltage	I <sub>OH</sub> = -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 <sub>OH</sub> = -4 mA	3 V	2.58			2.48		2.48		
	I <sub>OH</sub> = -8 mA	4.5 V	3.94			3.8		3.8		
V <sub>OL</sub> Low level output voltage	I <sub>OL</sub> = 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 <sub>OL</sub> = 4 mA	3 V			0.36		0.44		0.44	
	I <sub>OL</sub> = 8 mA	4.5 V			0.36		0.44		0.44	
I <sub>I</sub> Input leakage current	V <sub>I</sub> = 5.5 V or GND	0 V to 5.5 V			±0.1		±1		±1	μA
I <sub>CC</sub> Supply current	V <sub>I</sub> = V <sub>CC</sub> or GND, I <sub>O</sub> = 0	5.5 V			1		10		10	μA
C <sub>i</sub> Input Capacitance	V <sub>I</sub> = V <sub>CC</sub> or GND	5 V		2	10		10		10	pF

## 5.6 Switching Characteristics, V<sub>CC</sub> = 3.3 V ± 0.3 V

over recommended operating free-air temperature range (unless otherwise noted) (see [Load Circuit And Voltage Waveforms](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	T <sub>A</sub> = 25°C			-40°C to +85°C			-40°C to +125°C			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
t <sub>PLH</sub>	A or B	Y	C <sub>L</sub> = 15 pF	5.5	7.9		1		9.5	1		10	ns
t <sub>PHL</sub>				5.5	7.9		1		9.5	1		10	

over recommended operating free-air temperature range (unless otherwise noted) (see [Load Circuit And Voltage Waveforms](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	T <sub>A</sub> = 25°C			-40°C to +85°C			-40°C to +125°C			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
t <sub>PLH</sub>	A or B	Y	C <sub>L</sub> = 50 pF	8	11.4		1		13	1		14	ns
t <sub>PHL</sub>				8	11.4		1		13	1		14	

### 5.7 Switching Characteristics, V<sub>CC</sub> = 5 V ± 0.5 V

over recommended operating free-air temperature range (unless otherwise noted) (see [Load Circuit And Voltage Waveforms](#))

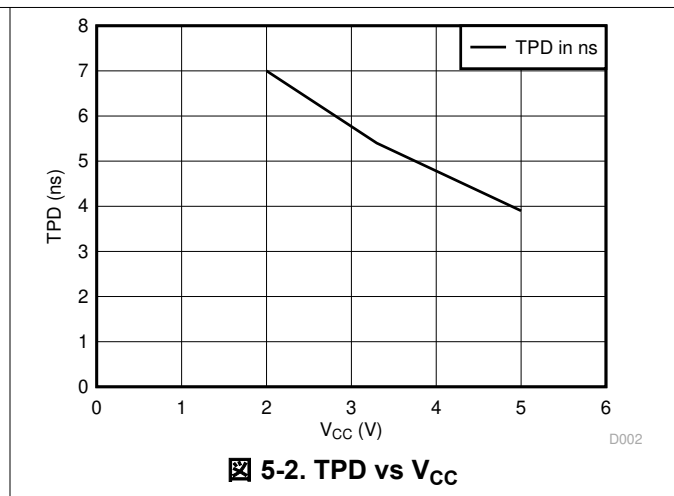
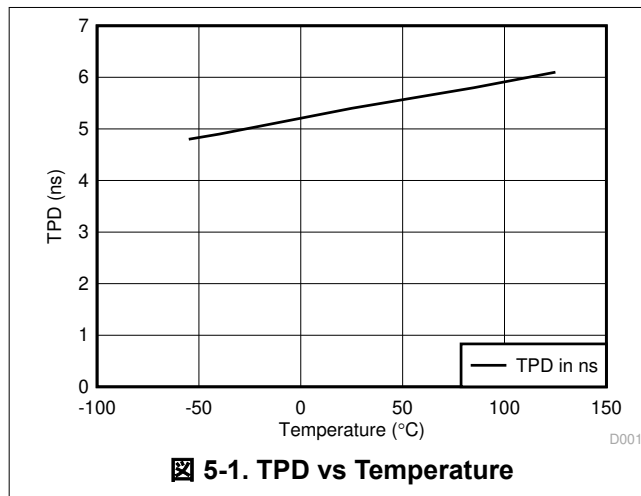
PARAMETER	FROM (INPUT)	TO (OUTPUT)	LOAD CAPACITANCE	T <sub>A</sub> = 25°C			-40°C to +85°C			-40°C to +125°C			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	
t <sub>PLH</sub>	A or B	Y	C <sub>L</sub> = 15 pF	3.8	5.5		1		6.5	1		7	ns
t <sub>PHL</sub>				3.8	5.5		1		6.5	1		7	
t <sub>PLH</sub>	A or B	Y	C <sub>L</sub> = 50 pF	5.3	7.5		1		8.5	1		9.5	ns
t <sub>PHL</sub>				5.3	7.5		1		8.5	1		9.5	

### 5.8 Operating Characteristics

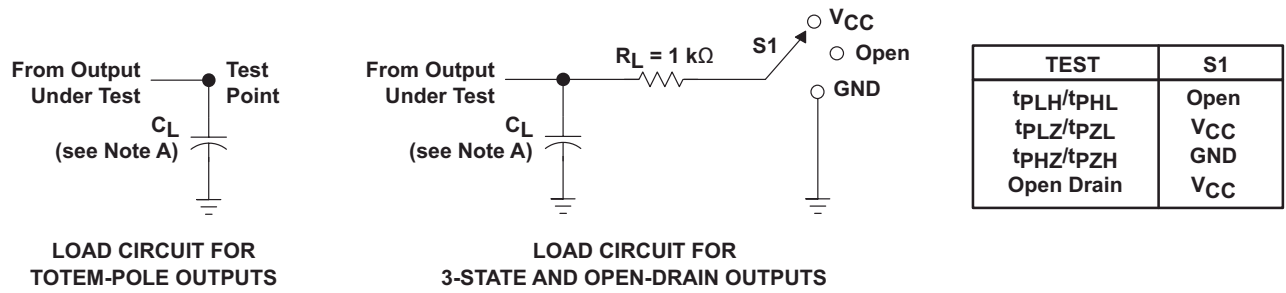
V<sub>CC</sub> = 5 V, T<sub>A</sub> = 25°C

PARAMETER	TEST CONDITIONS	TYP	UNIT
C <sub>pd</sub>	Power dissipation capacitance No load, f = 1 MHz	14	pF

### 5.9 Typical Characteristics

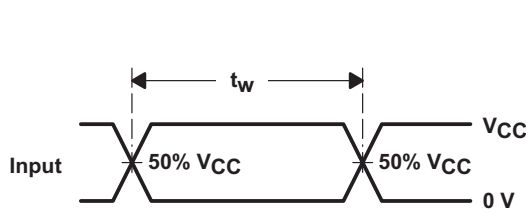


## 6 Parameter Measurement Information

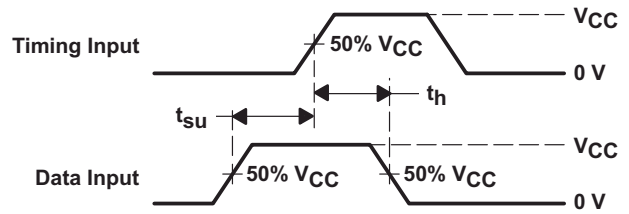


LOAD CIRCUIT FOR  
TOTEM-POLE OUTPUTS

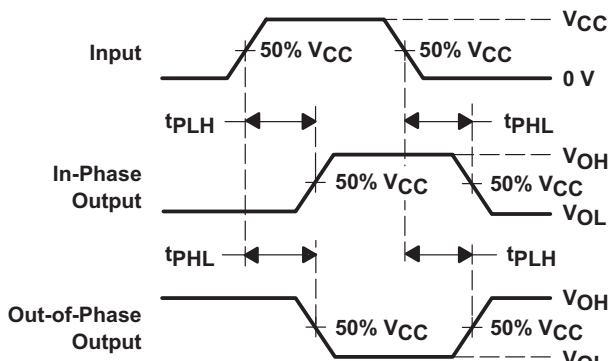
LOAD CIRCUIT FOR  
3-STATE AND OPEN-DRAIN OUTPUTS



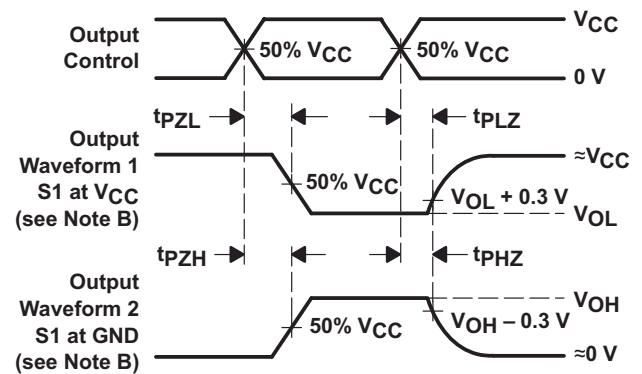
VOLTAGE WAVEFORMS  
PULSE DURATION



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:  $PRR \leq 1$  MHz,  $Z_O = 50 \Omega$ ,  $t_r \leq 3$  ns,  $t_f \leq 3$  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.

6-1. Load Circuit and Voltage Waveforms

## 7 Detailed Description

### 7.1 Overview

The SN74AHC1G32 device is a single 2-input positive OR gate with low drive that produces slow rise and fall times. This reduces ringing on the output signal. The device also has Schmitt-trigger action that will allow for slower or noisier inputs. The input signals are high impedance when  $V_{CC} = 0$  V.

### 7.2 Functional Block Diagram



### 7.3 Feature Description

- Wide operating voltage
  - Operates from 2 V to 5.5 V
- Allows down voltage translation
  - Accepts input voltages to 5.5 V

### 7.4 Device Functional Modes

表 7-1 shows the functional modes of the SN74AHC1G32 device.

表 7-1. Function Table

INPUTS <sup>(1)</sup>		OUTPUT <sup>(2)</sup>
A	B	Y
H	X	H
X	H	H
L	L	L

(1) H = High Voltage Level, L = Low Voltage Level, X = Don't Care

(2) H = Driving High, L = Driving Low, Z = High Impedance State



## 8 Application and Implementation

### 注

以下のアプリケーション情報は、TI の製品仕様に含まれるものではなく、TI ではその正確性または完全性を保証いたしません。個々の目的に対する製品の適合性については、お客様の責任で判断していただくこととなります。お客様は自身の設計実装を検証しテストすることで、システムの機能を確認する必要があります。

### 8.1 Application Information

The SN74AHC1G32 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 except voltages to 5.5 V at any valid  $V_{CC}$  making it ideal for down translation.

### 8.2 Typical Application

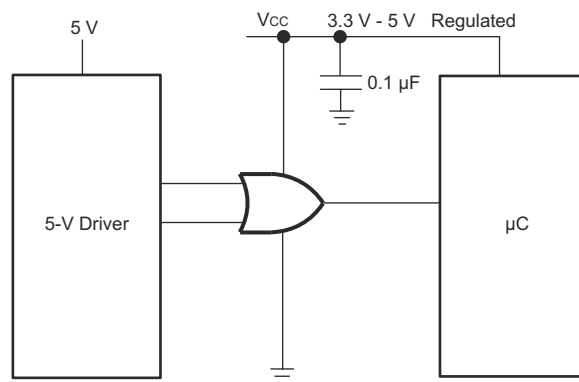


図 8-1. Specific Application Schematic

#### 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

- Recommended input conditions
  - Specified high and low levels. See ( $V_{IH}$  and  $V_{IL}$ ) in the [セクション 5.3](#) table.
  - Inputs are overvoltage tolerant allowing them to go as high as 5.5 V at any valid  $V_{CC}$
- Recommended output conditions
  - Load currents should not exceed 25 mA per output and 50 mA total for the part
  - Outputs should not be pulled above  $V_{CC}$

### 8.2.3 Application Curve

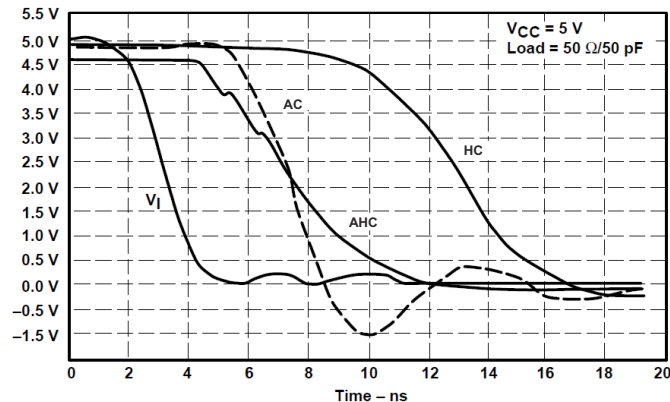


図 8-2. Switching Characteristics Comparison

### 8.3 Power Supply Recommendations

The power supply can be any voltage between the MIN and MAX supply voltage rating located in the [セクション 5.3](#) table.

Each  $V_{CC}$  pin should have a good bypass capacitor to prevent power disturbance. For devices with a single supply,  $0.1\ \mu\text{F}$  is recommended; if there are multiple  $V_{CC}$  pins, then  $0.01\ \mu\text{F}$  or  $0.022\ \mu\text{F}$  is recommended for each power pin. It is acceptable to parallel multiple bypass caps to reject different frequencies of noise. A  $0.1\ \mu\text{F}$  and a  $1\ \mu\text{F}$  are commonly used in parallel. The bypass capacitor should be installed 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 never float.

In many cases, functions or parts of functions of digital logic devices are unused, for example, when only two inputs of a triple-input AND gate are used or 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. [図 8-3](#) specifies the 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 most convenient. It is generally acceptable to float outputs, unless the part is a transceiver. If the transceiver has an output enable pin, it will disable the output section of the part when asserted. This will not disable the input section of the I/Os, so they cannot float when disabled.

#### 8.4.2 Layout Example

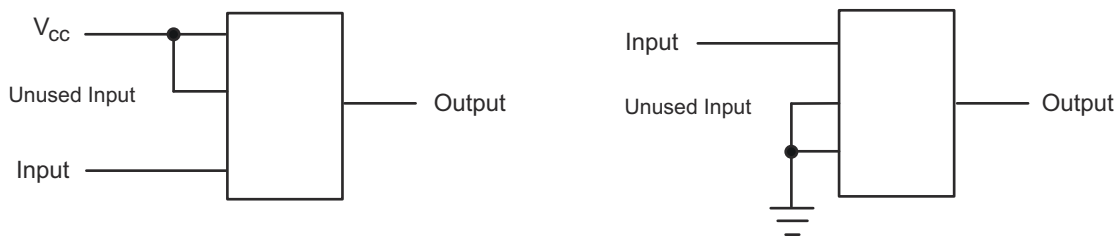


図 8-3. Layout Diagram

## 9 Device and Documentation Support

### 9.1 Documentation Support (Analog)

#### 9.1.1 Related Links

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 9-1. Related Links

PARTS	PRODUCT FOLDER	SAMPLE & BUY	TECHNICAL DOCUMENTS	TOOLS & SOFTWARE	SUPPORT & COMMUNITY
SN74AHC1G32	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>

### 9.2 ドキュメントの更新通知を受け取る方法

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

### 9.3 サポート・リソース

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

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### 9.4 Trademarks

TI E2E™ is a trademark of Texas Instruments.

すべての商標は、それぞれの所有者に帰属します。

### 9.5 静電気放電に関する注意事項



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

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

### 9.6 用語集

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

## 10 Revision History

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

### Changes from Revision P (February 2017) to Revision Q (April 2024) Page

- 最新のデータシート規格を反映するように、文書全体にわたって採番方式、書式、表、図、相互参照を更新..... 1
- Updated RθJA values: DBV = 231.3 to 278, DCK = 287.6 to 293.4; Updated DBV and DCK packages for RθJC(top), RθJB, ΨJT, ΨJB, and RθJC(bot), all values in °C/W ..... 5

### Changes from Revision O (July 2014) to Revision P (February 2017) Page

- Changed *Handling Ratings* table to *ESD Ratings* table..... 4
- Added MAX values for T<sub>A</sub> = 25°C in both *Switching Characteristics* tables. .... 5

## 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
SN74AHC1G32DBVR	ACTIVE	SOT-23	DBV	5	3000	RoHS & Green	NIPDAU   SN	Level-1-260C-UNLIM	-40 to 125	(A323, A32G, A32J, A32L, A32S)	<a href="#">Samples</a>
SN74AHC1G32DBVRE4	ACTIVE	SOT-23	DBV	5	3000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	A32G	<a href="#">Samples</a>
SN74AHC1G32DBVRG4	ACTIVE	SOT-23	DBV	5	3000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	A32G	<a href="#">Samples</a>
SN74AHC1G32DBVT	OBSOLETE	SOT-23	DBV	5		TBD	Call TI	Call TI	-40 to 125	(A323, A32G, A32J, A32S)	
SN74AHC1G32DBVTG4	OBSOLETE	SOT-23	DBV	5		TBD	Call TI	Call TI	-40 to 125	A32G	
SN74AHC1G32DCK3	ACTIVE	SC70	DCK	5	3000	RoHS & Non-Green	SNBI	Level-1-260C-UNLIM	-40 to 85	AGY	<a href="#">Samples</a>
SN74AHC1G32DCKR	ACTIVE	SC70	DCK	5	3000	RoHS & Green	NIPDAU   SN	Level-1-260C-UNLIM	-40 to 125	(1RA, AG3, AGG, AGJ, AGL, AGS)	<a href="#">Samples</a>
SN74AHC1G32DCKRE4	ACTIVE	SC70	DCK	5	3000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AG3	<a href="#">Samples</a>
SN74AHC1G32DCKRG4	ACTIVE	SC70	DCK	5	3000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AG3	<a href="#">Samples</a>
SN74AHC1G32DCKT	OBSOLETE	SC70	DCK	5		TBD	Call TI	Call TI	-40 to 125	(AG3, AGG, AGJ, AGS)	
SN74AHC1G32DCKTE4	ACTIVE	SC70	DCK	5	250	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AG3	<a href="#">Samples</a>
SN74AHC1G32DCKTG4	ACTIVE	SC70	DCK	5	250	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	AG3	<a href="#">Samples</a>
SN74AHC1G32DRLR	ACTIVE	SOT-5X3	DRL	5	4000	RoHS & Green	NIPDAU   NIPDAUAG	Level-1-260C-UNLIM	-40 to 125	(AGB, AGS)	<a href="#">Samples</a>
SN74AHC1G32DRLRG4	ACTIVE	SOT-5X3	DRL	5	4000	RoHS & Green	NIPDAUAG	Level-1-260C-UNLIM	-40 to 125	(AGB, AGS)	<a href="#">Samples</a>

(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  $\leq 1000$ ppm threshold. Antimony trioxide based flame retardants must also meet the  $\leq 1000$ ppm 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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#### **OTHER QUALIFIED VERSIONS OF SN74AHC1G32 :**

- Automotive : [SN74AHC1G32-Q1](#)

NOTE: Qualified Version Definitions:

- Automotive - Q100 devices qualified for high-reliability automotive applications targeting zero defects

## 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
SN74AHC1G32DBVR	SOT-23	DBV	5	3000	180.0	8.4	3.23	3.17	1.37	4.0	8.0	Q3
SN74AHC1G32DBVR	SOT-23	DBV	5	3000	178.0	9.0	3.3	3.2	1.4	4.0	8.0	Q3
SN74AHC1G32DBVRG4	SOT-23	DBV	5	3000	178.0	9.0	3.23	3.17	1.37	4.0	8.0	Q3
SN74AHC1G32DCKR	SC70	DCK	5	3000	178.0	9.0	2.4	2.5	1.2	4.0	8.0	Q3
SN74AHC1G32DCKR	SC70	DCK	5	3000	178.0	9.2	2.4	2.4	1.22	4.0	8.0	Q3
SN74AHC1G32DCKRG4	SC70	DCK	5	3000	178.0	9.2	2.4	2.4	1.22	4.0	8.0	Q3
SN74AHC1G32DCKTG4	SC70	DCK	5	250	178.0	9.2	2.4	2.4	1.22	4.0	8.0	Q3
SN74AHC1G32DRLR	SOT-5X3	DRL	5	4000	180.0	8.4	1.98	1.78	0.69	4.0	8.0	Q3

## TAPE AND REEL BOX DIMENSIONS



\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74AHC1G32DBVR	SOT-23	DBV	5	3000	202.0	201.0	28.0
SN74AHC1G32DBVR	SOT-23	DBV	5	3000	180.0	180.0	18.0
SN74AHC1G32DBVRG4	SOT-23	DBV	5	3000	180.0	180.0	18.0
SN74AHC1G32DCKR	SC70	DCK	5	3000	180.0	180.0	18.0
SN74AHC1G32DCKR	SC70	DCK	5	3000	180.0	180.0	18.0
SN74AHC1G32DCKRG4	SC70	DCK	5	3000	180.0	180.0	18.0
SN74AHC1G32DCKTG4	SC70	DCK	5	250	180.0	180.0	18.0
SN74AHC1G32DRLR	SOT-5X3	DRL	5	4000	202.0	201.0	28.0



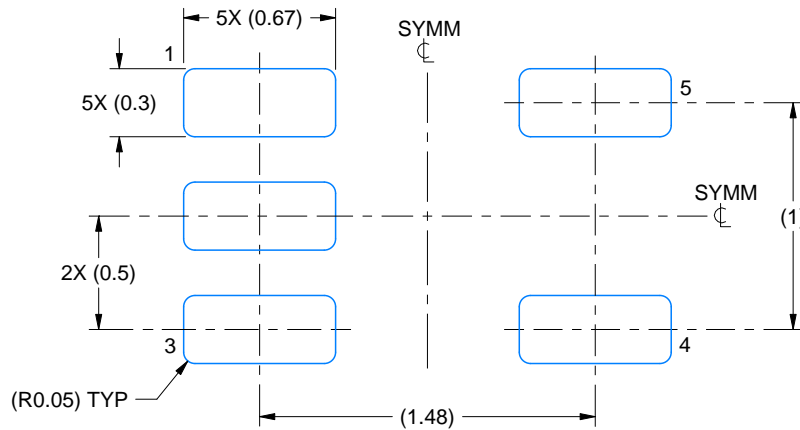


# EXAMPLE BOARD LAYOUT

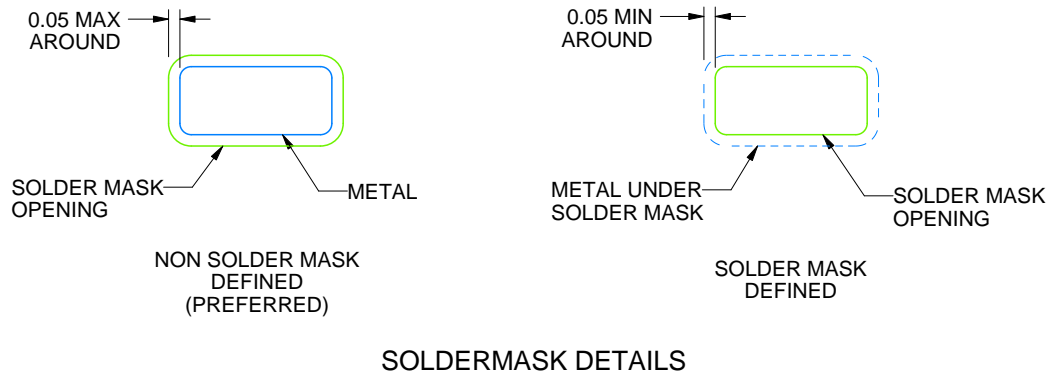
DRL0005A

SOT - 0.6 mm max height

PLASTIC SMALL OUTLINE



LAND PATTERN EXAMPLE  
SCALE:30X



SOLDERMASK DETAILS

4220753/D 07/2024

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

DRL0005A

SOT - 0.6 mm max height

PLASTIC SMALL OUTLINE



SOLDER PASTE EXAMPLE  
BASED ON 0.1 mm THICK STENCIL  
SCALE:30X

4220753/D 07/2024

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.



# EXAMPLE BOARD LAYOUT

DBV0005A

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE:15X



SOLDER MASK DETAILS

4214839/K 08/2024

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

DBV0005A

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE:15X

4214839/K 08/2024

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.

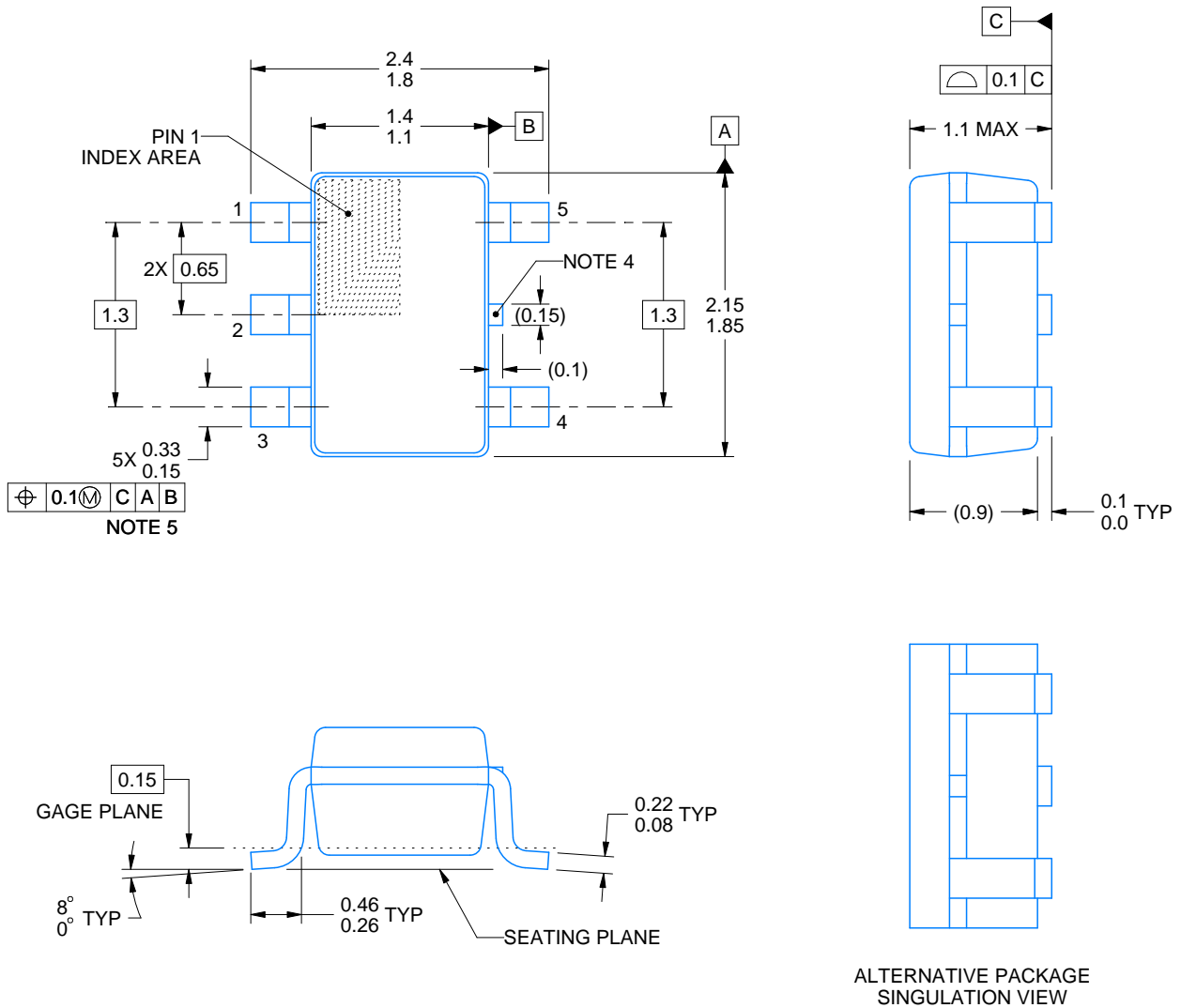
# DCK0005A



# PACKAGE OUTLINE

SOT - 1.1 max height

SMALL OUTLINE TRANSISTOR



4214834/E 06/2024

**NOTES:**

1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. Reference JEDEC MO-203.
4. Support pin may differ or may not be present.
5. Lead width does not comply with JEDEC.
6. Body dimensions do not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.25mm per side

# EXAMPLE BOARD LAYOUT

DCK0005A

SOT - 1.1 max height

SMALL OUTLINE TRANSISTOR



LAND PATTERN EXAMPLE  
EXPOSED METAL SHOWN  
SCALE:18X



SOLDER MASK DETAILS

4214834/E 06/2024

NOTES: (continued)

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



# EXAMPLE STENCIL DESIGN

DCK0005A

SOT - 1.1 max height

SMALL OUTLINE TRANSISTOR



SOLDER PASTE EXAMPLE  
BASED ON 0.125 THICK STENCIL  
SCALE: 18X

4214834/E 06/2024

NOTES: (continued)

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

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