

SN74HCS573-Q1 シュミット・トリガ入力、3ステート出力、フロースルー・ピン配置、車載用オクタール・トランスペアレントDタイプ・ラッチ

1 特長

- 車載アプリケーション用に AEC-Q100 認定済み:
 - デバイス温度グレード 1: $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$, T_A
 - デバイス HBM ESD 分類レベル 2
 - デバイス CDM ESD 分類レベル C6
- ウェットابل・フランク QFN (WRKS) パッケージで供給
- 広い動作電圧範囲: $2\text{V} \sim 6\text{V}$
- シュミット・トリガ入力により低速の信号またはノイズの多い信号に対応
- 低い消費電力
 - I_{CC} : 100nA (標準値)
 - 入力リーク電流: $\pm 100\text{nA}$ (標準値)
- 6V で $\pm 7.8\text{mA}$ の出力駆動能力

2 アプリケーション

- パラレル・データ・ストレージ
- デジタル・バス・バッファ

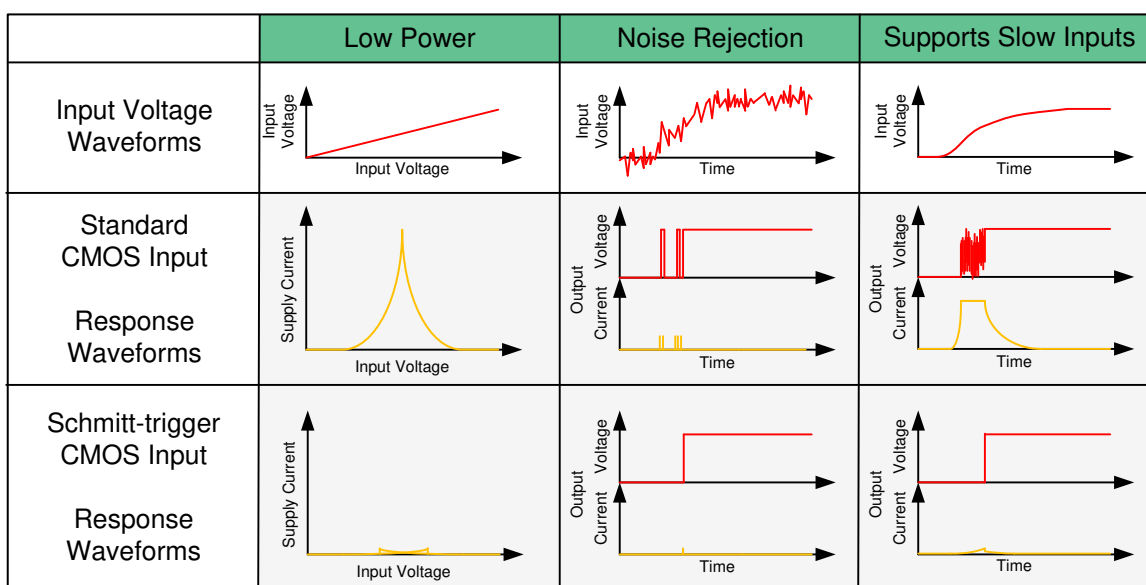
3 概要

SN74HCS573-Q1 には 8 つの D タイプ・ラッチが搭載されています。すべての入力はシュミット・トリガ・アーキテクチャを採用しています。すべてのチャネルがラッチ・イネーブル (LE) 入力と出力イネーブル ($\overline{\text{OE}}$) 入力を共有しています。このデバイスはフロースルー・ピン配置を採用しているため、バス配線が簡単です。

製品情報

部品番号	パッケージ ⁽¹⁾	本体サイズ (公称)
SN74HCS573WRKS-Q1	VQFN (20)	4.50mm × 2.50mm

- (1) 利用可能なすべてのパッケージについては、このデータシートの末尾にある注文情報を参照してください。



シュミットトリガ入力の利点



Table of Contents

1 特長	1	8.3 Feature Description.....	9
2 アプリケーション	1	8.4 Device Functional Modes.....	11
3 概要	1	9 Application and Implementation	12
4 Revision History	2	9.1 Application Information.....	12
5 Pin Configuration and Functions	3	9.2 Typical Application.....	12
6 Specifications	4	10 Power Supply Recommendations	15
6.1 Absolute Maximum Ratings.....	4	11 Layout	15
6.2 ESD Ratings.....	4	11.1 Layout Guidelines.....	15
6.3 Recommended Operating Conditions.....	4	11.2 Layout Example.....	15
6.4 Thermal Information.....	4	12 Device and Documentation Support	16
6.5 Electrical Characteristics.....	5	12.1 Documentation Support.....	16
6.6 Timing Characteristics.....	5	12.2 Receiving Notification of Documentation Updates.....	16
6.7 Switching Characteristics.....	6	12.3 サポート・リソース.....	16
6.8 Operating Characteristics.....	6	12.4 Trademarks.....	16
6.9 Typical Characteristics.....	7	12.5 Electrostatic Discharge Caution.....	16
7 Parameter Measurement Information	8	12.6 Glossary.....	16
8 Detailed Description	9	13 Mechanical, Packaging, and Orderable Information	17
8.1 Overview.....	9		
8.2 Functional Block Diagram.....	9		

4 Revision History

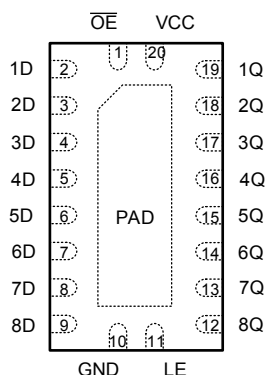
資料番号末尾の英字は改訂を表しています。その改訂履歴は英語版に準じています。

Changes from Revision * (December 2021) to Revision A (February 2022)

Page

• データシートを「事前情報」から「量産データ」に変更.....	1
----------------------------------	----------

5 Pin Configuration and Functions



WRKS package
20-Pin VQFN
Top View

PIN		I/O	DESCRIPTION
NAME	NO.		
OE	1	Input	Output enable for all channels, active low
D1	2	Input	Input for channel 1
D2	3	Input	Input for channel 2
D3	4	Input	Input for channel 3
D4	5	Input	Input for channel 4
D5	6	Input	Input for channel 5
D6	7	Input	Input for channel 6
D7	8	Input	Input for channel 7
D8	9	Input	Input for channel 8
GND	10	—	Ground
LE	11	Input	Latch enable
Q8	12	Output	Output for channel 8
Q7	13	Output	Output for channel 7
Q6	14	Output	Output for channel 6
Q5	15	Output	Output for channel 5
Q4	16	Output	Output for channel 4
Q3	17	Output	Output for channel 3
Q2	18	Output	Output for channel 2
Q1	19	Output	Output for channel 1
V _{CC}	20	—	Positive supply
Thermal Pad		—	The thermal pad can be connect to GND or left floating. Do not connect to any other signal or supply.

6 Specifications

6.1 Absolute Maximum Ratings

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

		MIN	MAX	UNIT
V _{CC}	Supply voltage	−0.5	7	V
I _{IK}	Input clamp current ⁽²⁾	V _I < 0 or V _I > V _{CC}	±20	mA
I _{OK}	Output clamp current ⁽²⁾	V _O < 0 or V _O > V _{CC}	±20	mA
I _O	Continuous output current	V _O = 0 to V _{CC}	±35	mA
I _{CC}	Continuous current through V _{CC} or GND		±70	mA
T _J	Junction temperature		150	°C
T _{stg}	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) The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

6.2 ESD Ratings

		VALUE	UNIT
V _(ESD)	Electrostatic discharge	Human body model (HBM), per AEC Q100-002 ⁽¹⁾ HBM ESD Classification Level 2	±4000
		Charged device model (CDM), per AEC Q100-011 CDM ESD Classification Level C4B	±1500

- (1) AEC Q100-002 indicate that HBM stressing shall be in accordance with the ANSI/ESDA/JEDEC JS-001 specification.

6.3 Recommended Operating Conditions

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

		MIN	NOM	MAX	UNIT
V _{CC}	Supply voltage	2		6	V
V _I	Input voltage	0		V _{CC}	V
V _O	Output voltage	0		V _{CC}	V
T _A	Ambient temperature	−40		125	°C

6.4 Thermal Information

THERMAL METRIC ⁽¹⁾		SN74HCS573-Q1	UNIT
		WRKS (VQFN)	
		20 PINS	
R _{θJA}	Junction-to-ambient thermal resistance	83.2	°C/W
R _{θJC(top)}	Junction-to-case (top) thermal resistance	82.6	°C/W
R _{θJB}	Junction-to-board thermal resistance	57.4	°C/W
Ψ _{JT}	Junction-to-top characterization parameter	14.5	°C/W
Ψ _{JB}	Junction-to-board characterization parameter	56.4	°C/W
R _{θJC(bot)}	Junction-to-case (bottom) thermal resistance	40.0	°C/W

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

6.5 Electrical Characteristics

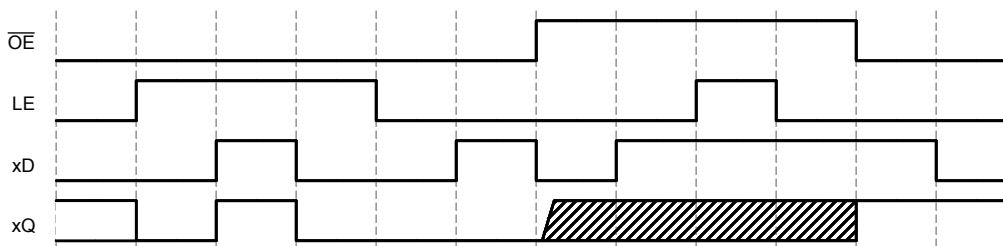
over operating free-air temperature range; typical values measured at $T_A = 25^\circ\text{C}$ (unless otherwise noted).

PARAMETER		TEST CONDITIONS		V_{CC}	MIN	TYP	MAX	UNIT
V_{T+}	Positive switching threshold			2 V	0.7		1.5	V
				4.5 V	1.7		3.15	
				6 V	2.1		4.2	
V_{T-}	Negative switching threshold			2 V	0.3		1	V
				4.5 V	0.9		2.2	
				6 V	1.2		3	
ΔV_T	Hysteresis ($V_{T+} - V_{T-}$)			2 V	0.2		1	V
				4.5 V	0.4		1.4	
				6 V	0.6		1.6	
V_{OH}	High-level output voltage	$V_I = V_{IH}$ or V_{IL}	$I_{OH} = -20\ \mu\text{A}$	2 V to 6 V	$V_{CC} - 0.1$	$V_{CC} - 0.002$		V
			$I_{OH} = -6\ \text{mA}$	4.5 V	4	4.3		
			$I_{OH} = -7.8\ \text{mA}$	6 V	5.4	5.75		
V_{OL}	Low-level output voltage	$V_I = V_{IH}$ or V_{IL}	$I_{OL} = 20\ \mu\text{A}$	2 V to 6 V		0.002	0.1	V
			$I_{OL} = 6\ \text{mA}$	4.5 V		0.18	0.3	
			$I_{OL} = 7.8\ \text{mA}$	6 V		0.22	0.33	
I_I	Input leakage current	$V_I = V_{CC}$ or 0		6 V		± 100	± 1000	nA
I_{CC}	Supply current	$V_I = V_{CC}$ or 0, $I_O = 0$		6 V		0.1	2	μA
C_i	Input capacitance			2 V to 6 V			5	pF

6.6 Timing Characteristics

over operating free-air temperature range (unless otherwise noted), $C_L = 50\ \text{pF}$

PARAMETER		CONDITION	V_{CC}	MIN	MAX	UNIT
t_w	Pulse duration	LE high	2 V	12		ns
			4.5 V	6		ns
			6 V	6		ns
t_{su}	Setup time	Data before LE $\downarrow$	2 V	18		ns
			4.5 V	6		ns
			6 V	6		ns
t_h	Hold time, Data before LE $\downarrow$		2 V	0		ns
			4.5 V	0		ns
			6 V	0		ns



6-1. Timing diagram

6.7 Switching Characteristics

over operating free-air temperature range; typical values measured at $T_A = 25^\circ\text{C}$ (unless otherwise noted). See *Parameter Measurement Information*. $C_L = 50\text{ pF}$.

PARAMETER		FROM (INPUT)	TO (OUTPUT)	V_{CC}	MIN	TYP	MAX	UNIT
t_t	Transition-time		Any Q	2 V		14.6	19.4	ns
				4.5 V		7.7	9.6	
				6 V		7.4	10.4	
t_{pd}	Propagation delay	D	Q	2 V		24.5	33	ns
				4.5 V		9.9	14	
				6 V		9.6	11	
		LE	Any Q	2 V		24.5	33	
				4.5 V		9.9	14	
				6 V		9.6	11	
t_{en}	Enable time	$\overline{OE}$	Any Q	2 V		15	44	ns
				4.5 V		7	22	
				6 V		6	18	
t_{dis}	Disable time	$\overline{OE}$	Any Q	2 V		12	30	ns
			Any Q	4.5 V		9	20	
			Any Q	6 V		8	19	

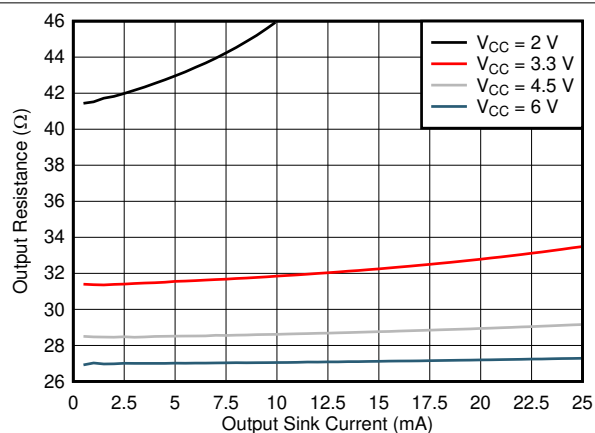
6.8 Operating Characteristics

over operating free-air temperature range; typical values measured at $T_A = 25^\circ\text{C}$ (unless otherwise noted).

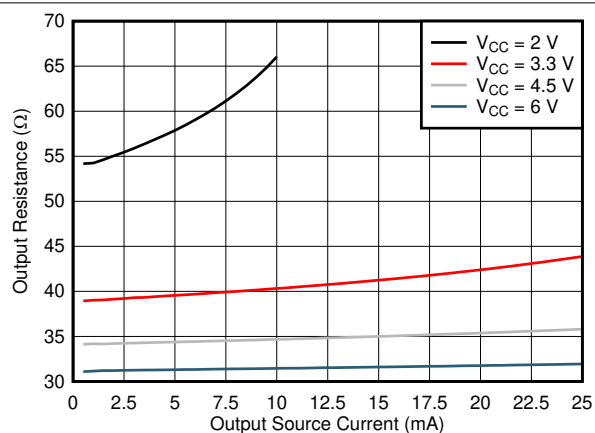
PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
C_{pd}	Power dissipation capacitance per gate	No load		20		pF

6.9 Typical Characteristics

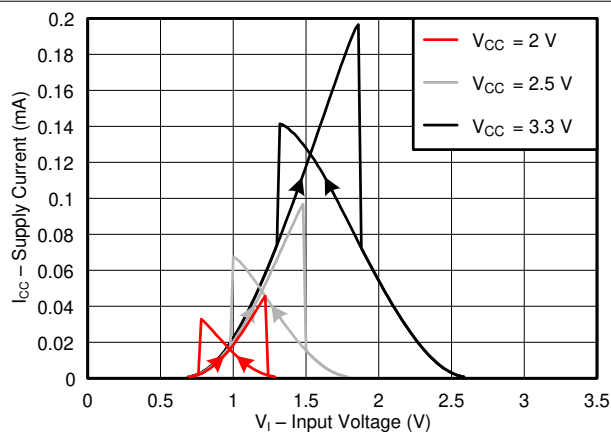
$T_A = 25^\circ\text{C}$



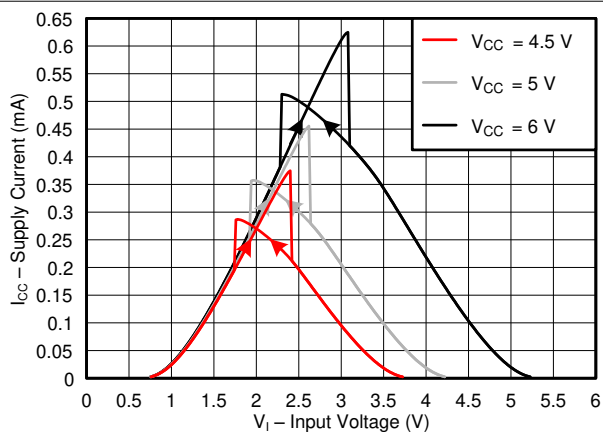
6-2. Output Driver Resistance in LOW State



6-3. Output Driver Resistance in HIGH State



6-4. Supply Current Across Input Voltage, 2-, 2.5-, and 3.3-V Supply



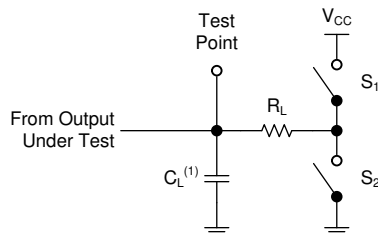
6-5. Supply Current Across Input Voltage, 4.5-, 5-, and 6-V Supply

7 Parameter Measurement Information

Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics: $PRR \leq 1 \text{ MHz}$, $Z_O = 50 \Omega$, $t_f < 2.5 \text{ ns}$.

For clock inputs, $f_{\max}$ is measured when the input duty cycle is 50%.

The outputs are measured one at a time with one input transition per measurement.



(1) C_L includes probe and test-fixture capacitance.

Figure 7-1. Load Circuit for 3-State Outputs

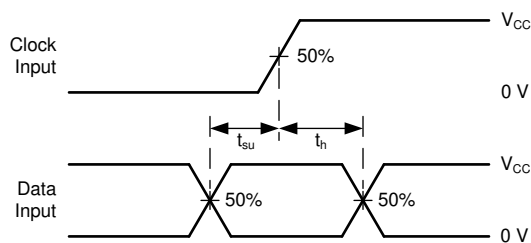


Figure 7-3. Voltage Waveforms, Setup and Hold Times

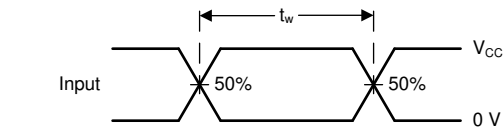
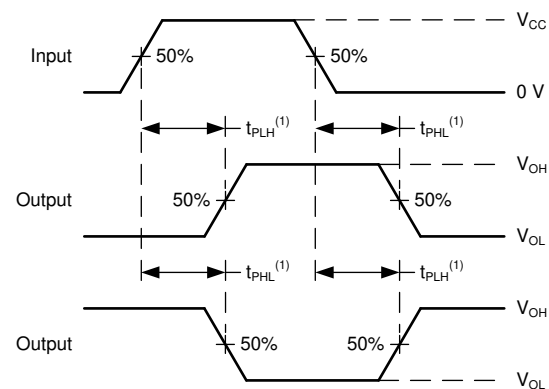


Figure 7-2. Voltage Waveforms, Pulse Duration



(1) The greater between t_{PLH} and t_{PLH} is the same as t_{pd} .

Figure 7-4. Voltage Waveforms Propagation Delays

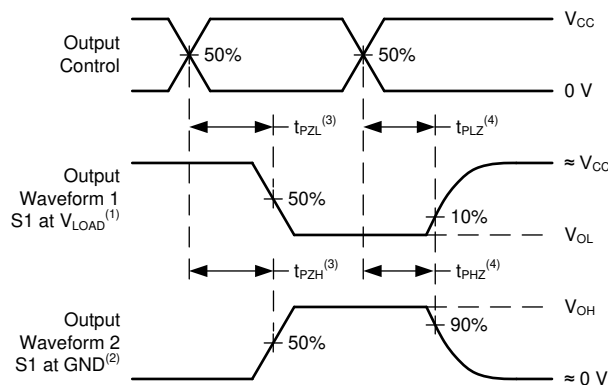
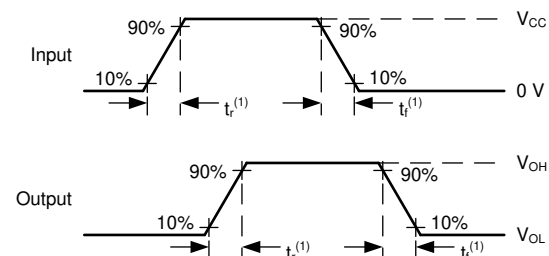


Figure 7-5. Voltage Waveforms Propagation Delays



(1) The greater between t_f and t_f is the same as t_f .

Figure 7-6. Voltage Waveforms, Input and Output Transition Times

8 Detailed Description

8.1 Overview

The SN74HCS573-Q1 contains eight D-type latches. All inputs include Schmitt-trigger architecture. All channels share a latch enable (LE) and output enable ($\overline{OE}$) input.

When the latch is enabled (LE is high), data is allowed to pass through from the D inputs to the Q outputs.

When the latch is disabled (LE is low), the Q outputs hold the last state they had regardless of changes at the D inputs.

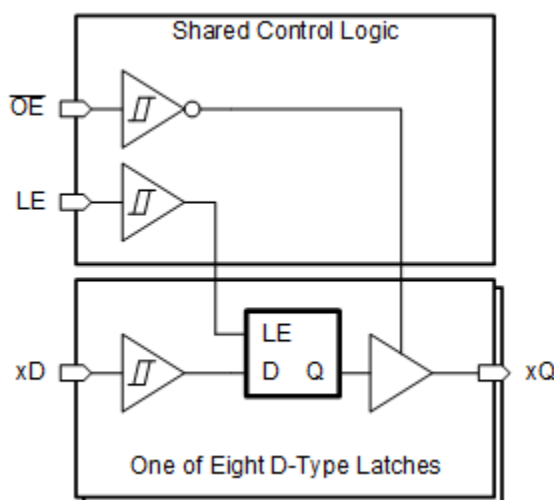
If the latch enable (LE) input is held low during startup, the output state of all channels is unknown until the latch enable (LE) input is driven high with valid input signals at all data (D) inputs.

When the outputs are enabled ($\overline{OE}$ is low), the outputs are actively driving low or high.

When the outputs are disabled ($\overline{OE}$ is high), the outputs are set into the high-impedance state.

The active low output enable ($\overline{OE}$) does not have any impact on the stored state in the latches.

8.2 Functional Block Diagram



8.3 Feature Description

8.3.1 Balanced CMOS 3-State Outputs

This device includes balanced CMOS 3-State outputs. The three states that these outputs can be in are driving high, driving low, and high impedance. The term *balanced* indicates that the device can sink and source similar currents. The drive capability of this device may create fast edges into light loads so routing and load conditions should be considered to prevent ringing. Additionally, the outputs of this device are capable of driving larger currents than the device can sustain without being damaged. It is important for the output power of the device to be limited to avoid damage due to overcurrent. The electrical and thermal limits defined in the *Absolute Maximum Ratings* must be followed at all times.

When placed into the high-impedance mode, the output will neither source nor sink current, with the exception of minor leakage current as defined in the *Electrical Characteristics* table. In the high-impedance state, the output voltage is not controlled by the device and is dependent on external factors. If no other drivers are connected to the node, then this is known as a floating node and the voltage is unknown. A pull-up or pull-down resistor can be connected to the output to provide a known voltage at the output while it is in the high-impedance state. The value of the resistor will depend on multiple factors, including parasitic capacitance and power consumption limitations. Typically, a 10 kΩ resistor can be used to meet these requirements.

Unused 3-state CMOS outputs should be left disconnected.

8.3.2 CMOS Schmitt-Trigger Inputs

This device includes inputs with the Schmitt-trigger architecture. These inputs are high impedance and are typically modeled as a resistor in parallel with the input capacitance given in the *Electrical Characteristics* table from the input to ground. The worst case resistance is calculated with the maximum input voltage, given in the *Absolute Maximum Ratings* table, and the maximum input leakage current, given in the *Electrical Characteristics* table, using Ohm's law ($R = V \div I$).

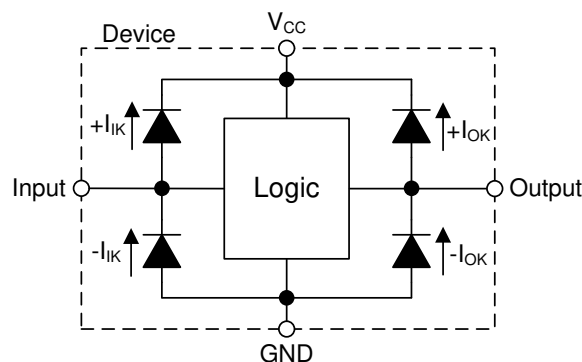
The Schmitt-trigger input architecture provides hysteresis as defined by ΔV_T in the *Electrical Characteristics* table, which makes this device extremely tolerant to slow or noisy inputs. While the inputs can be driven much slower than standard CMOS inputs, it is still recommended to properly terminate unused inputs. Driving the inputs with slow transitioning signals will increase dynamic current consumption of the device. For additional information regarding Schmitt-trigger inputs, please see [Understanding Schmitt Triggers](#).

8.3.3 Clamp Diode Structure

The inputs and outputs to this device have both positive and negative clamping diodes as depicted in [Electrical Placement of Clamping Diodes for Each Input and Output](#).

CAUTION

Voltages beyond the values specified in the *Absolute Maximum Ratings* table can cause damage to the device. The input and output voltage ratings may be exceeded if the input and output clamp-current ratings are observed.



✎ 8-1. Electrical Placement of Clamping Diodes for Each Input and Output

8.3.4 Wettable Flanks

This device includes wettable flanks for at least one package. See the *Features* section on the front page of the data sheet for which packages include this feature.

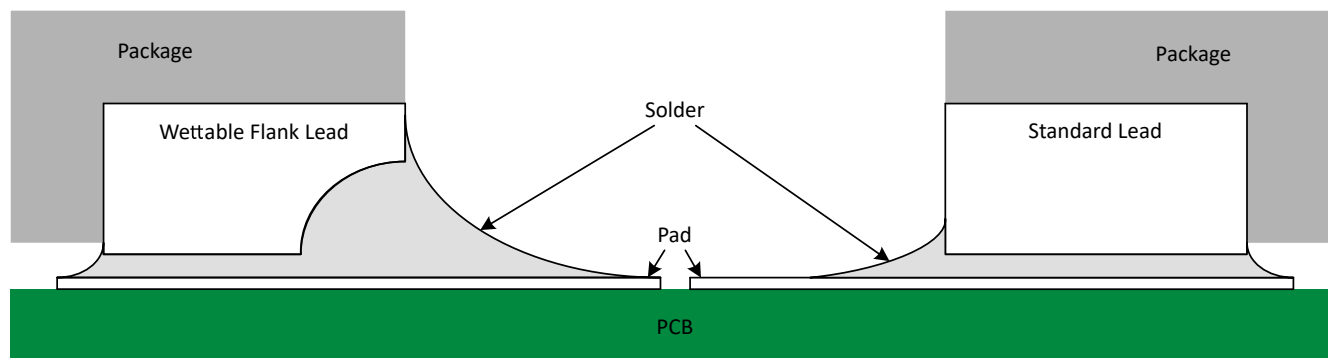


图 8-2. Simplified Cutaway View of Wettable-Flank QFN Package and Standard QFN Package After Soldering

Wettable flanks help improve side wetting after soldering which makes QFN packages easier to inspect with automatic optical inspection (AOI). A wettable flank can be dimpled or step-cut to provide additional surface area for solder adhesion which assists in reliably creating a side fillet as shown in 图 8-2. Please see the mechanical drawing for additional details.

8.4 Device Functional Modes

表 8-1. Function Table

INPUTS ⁽¹⁾			OUTPUT ⁽²⁾
OE	LE	D	Q
L	H	L	L
L	H	H	H
L	L	X	Q ₀ ⁽³⁾
H	X	X	Z

- (1) L = input low, H = input high, ↑ = input transitioning from low to high, ↓ = input transitioning from high to low, X = do not care
 (2) L = output low, H = output high, Q₀ = previous state, Z = high impedance
 (3) At startup, Q₀ is unknown

9 Application and Implementation

Note

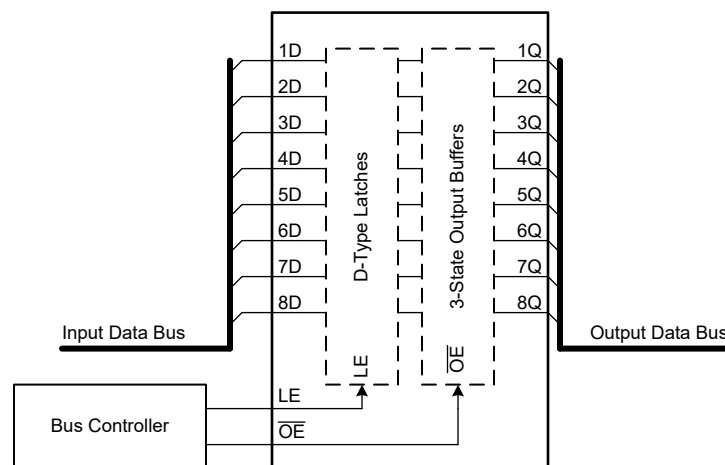
Information in the following applications sections is not part of the TI component specification, and TI does not warrant its accuracy or completeness. TI's customers are responsible for determining suitability of components for their purposes, as well as validating and testing their design implementation to confirm system functionality.

9.1 Application Information

In this application, the SN74HCS573-Q1 is used to control an 8-bit data bus.

Outputs can be held in the high-impedance state, held in the last known state, or change together with the data inputs, depending on the control inputs at LE and $\overline{OE}$ coming from the bus controller.

9.2 Typical Application



9-1. Typical application block diagram

9.2.1 Design Requirements

9.2.1.1 Power Considerations

Ensure the desired supply voltage is within the range specified in the *Recommended Operating Conditions*. The supply voltage sets the device's electrical characteristics as described in the *Electrical Characteristics*.

The positive voltage supply must be capable of sourcing current equal to the total current to be sourced by all outputs of the SN74HCS573-Q1 plus the maximum static supply current, I_{CC} , listed in *Electrical Characteristics* and any transient current required for switching. The logic device can only source as much current as is provided by the positive supply source. Be sure not to exceed the maximum total current through V_{CC} listed in the *Absolute Maximum Ratings*.

The ground must be capable of sinking current equal to the total current to be sunk by all outputs of the SN74HCS573-Q1 plus the maximum supply current, I_{CC} , listed in *Electrical Characteristics*, and any transient current required for switching. The logic device can only sink as much current as can be sunk into its ground connection. Be sure not to exceed the maximum total current through GND listed in the *Absolute Maximum Ratings*.

The SN74HCS573-Q1 can drive a load with a total capacitance less than or equal to 50 pF while still meeting all of the data sheet specifications. Larger capacitive loads can be applied; however, it is not recommended to exceed 50 pF.

The SN74HCS573-Q1 can drive a load with total resistance described by $R_L \geq V_O / I_O$, with the output voltage and current defined in the *Electrical Characteristics* table with V_{OH} and V_{OL} . When outputting in the high state, the output voltage in the equation is defined as the difference between the measured output voltage and the supply voltage at the V_{CC} pin.

Total power consumption can be calculated using the information provided in [CMOS Power Consumption and Cpd Calculation](#).

Thermal increase can be calculated using the information provided in [Thermal Characteristics of Standard Linear and Logic \(SLL\) Packages and Devices](#).

CAUTION

The maximum junction temperature, $T_{J(max)}$ listed in the *Absolute Maximum Ratings*, is an additional limitation to prevent damage to the device. Do not violate any values listed in the *Absolute Maximum Ratings*. These limits are provided to prevent damage to the device.

9.2.1.2 Input Considerations

Input signals must cross $V_{t-(min)}$ to be considered a logic LOW, and $V_{t+(max)}$ to be considered a logic HIGH. Do not exceed the maximum input voltage range found in the *Absolute Maximum Ratings*.

Unused inputs must be terminated to either V_{CC} or ground. These can be directly terminated if the input is completely unused, or they can be connected with a pull-up or pull-down resistor if the input is to be used sometimes, but not always. A pull-up resistor is used for a default state of HIGH, and a pull-down resistor is used for a default state of LOW. The resistor size is limited by drive current of the controller, leakage current into the SN74HCS573-Q1, as specified in the *Electrical Characteristics*, and the desired input transition rate. A 10-k Ω resistor value is often used due to these factors.

The SN74HCS573-Q1 has no input signal transition rate requirements because it has Schmitt-trigger inputs.

Another benefit to having Schmitt-trigger inputs is the ability to reject noise. Noise with a large enough amplitude can still cause issues. To know how much noise is too much, please refer to the $\Delta V_{T(min)}$ in the *Electrical Characteristics*. This hysteresis value will provide the peak-to-peak limit.

Unlike what happens with standard CMOS inputs, Schmitt-trigger inputs can be held at any valid value without causing huge increases in power consumption. The typical additional current caused by holding an input at a value other than V_{CC} or ground is plotted in the *Typical Characteristics*.

Refer to the *Feature Description* section for additional information regarding the inputs for this device.

9.2.1.3 Output Considerations

The positive supply voltage is used to produce the output HIGH voltage. Drawing current from the output will decrease the output voltage as specified by the V_{OH} specification in the *Electrical Characteristics*. The ground voltage is used to produce the output LOW voltage. Sinking current into the output will increase the output voltage as specified by the V_{OL} specification in the *Electrical Characteristics*.

Push-pull outputs that could be in opposite states, even for a very short time period, should never be connected directly together. This can cause excessive current and damage to the device.

Two channels within the same device with the same input signals can be connected in parallel for additional output drive strength.

Unused outputs can be left floating. Do not connect outputs directly to V_{CC} or ground.

Refer to *Feature Description* section for additional information regarding the outputs for this device.

9.2.2 Detailed Design Procedure

1. Add a decoupling capacitor from V_{CC} to GND. The capacitor needs to be placed physically close to the device and electrically close to both the V_{CC} and GND pins. An example layout is shown in the *Layout* section.
2. Ensure the capacitive load at the output is ≤ 50 pF. This is not a hard limit, however it will ensure optimal performance. This can be accomplished by providing short, appropriately sized traces from the SN74HCS573-Q1 to one or more of the receiving devices.
3. Ensure the resistive load at the output is larger than $(V_{CC} / I_{O(max)}) \Omega$. This will ensure that the maximum output current from the *Absolute Maximum Ratings* is not violated. Most CMOS inputs have a resistive load measured in $M\Omega$; much larger than the minimum calculated above.
4. Thermal issues are rarely a concern for logic gates; the power consumption and thermal increase, however, can be calculated using the steps provided in the application report, [CMOS Power Consumption and Cpd Calculation](#).

9.2.3 Application Curve

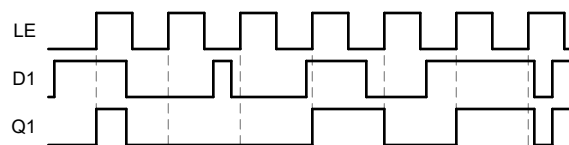


FIG 9-2. Example timing diagram for one channel

10 Power Supply Recommendations

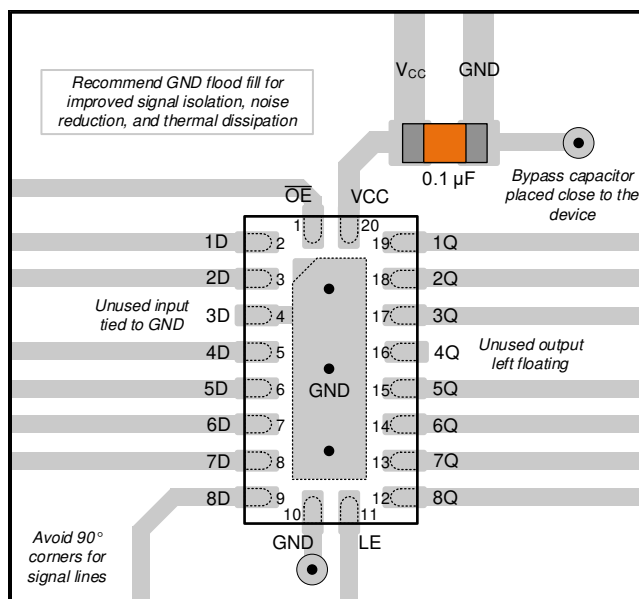
The power supply can be any voltage between the minimum and maximum supply voltage rating located in the *Recommended Operating Conditions*. Each V_{CC} terminal should have a good bypass capacitor to prevent power disturbance. A 0.1- μF capacitor is recommended for this device. It is acceptable to parallel multiple bypass caps to reject different frequencies of noise. The 0.1- μF and 1- μF capacitors are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for best results, as shown in given example layout image.

11 Layout

11.1 Layout Guidelines

When using multiple-input and multiple-channel logic devices inputs must not ever be left floating. 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 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.

11.2 Layout Example



11-1. Example layout for the SN74HCS573-Q1 in the RKS Package

12 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.

12.1 Documentation Support

12.1.1 Related Documentation

For related documentation, see the following:

- Texas Instruments, [HCMOS Design Considerations application report](#)
- Texas Instruments, [CMOS Power Consumption and \$C_{pd}\$ Calculation application report](#)
- Texas Instruments, [Designing With Logic application report](#)

12.2 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on [ti.com](https://www.ti.com). Click on *Subscribe to updates* to register and receive a weekly digest of any product information that has changed. For change details, review the revision history included in any revised document.

12.3 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。

リンクされているコンテンツは、該当する貢献者により、現状のまま提供されるものです。これらは TI の仕様を構成するものではなく、必ずしも TI の見解を反映したものではありません。TI の[使用条件](#)を参照してください。

12.4 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。

12.5 Electrostatic Discharge Caution



This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

12.6 Glossary

[TI Glossary](#) This glossary lists and explains terms, acronyms, and definitions.

13 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 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)
SN74HCS573QWRKSRQ1	Active	Production	VQFN (RKS) 20	3000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HCS573Q
SN74HCS573QWRKSRQ1.A	Active	Production	VQFN (RKS) 20	3000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 125	HCS573Q

⁽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.

Important Information and Disclaimer:The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

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.

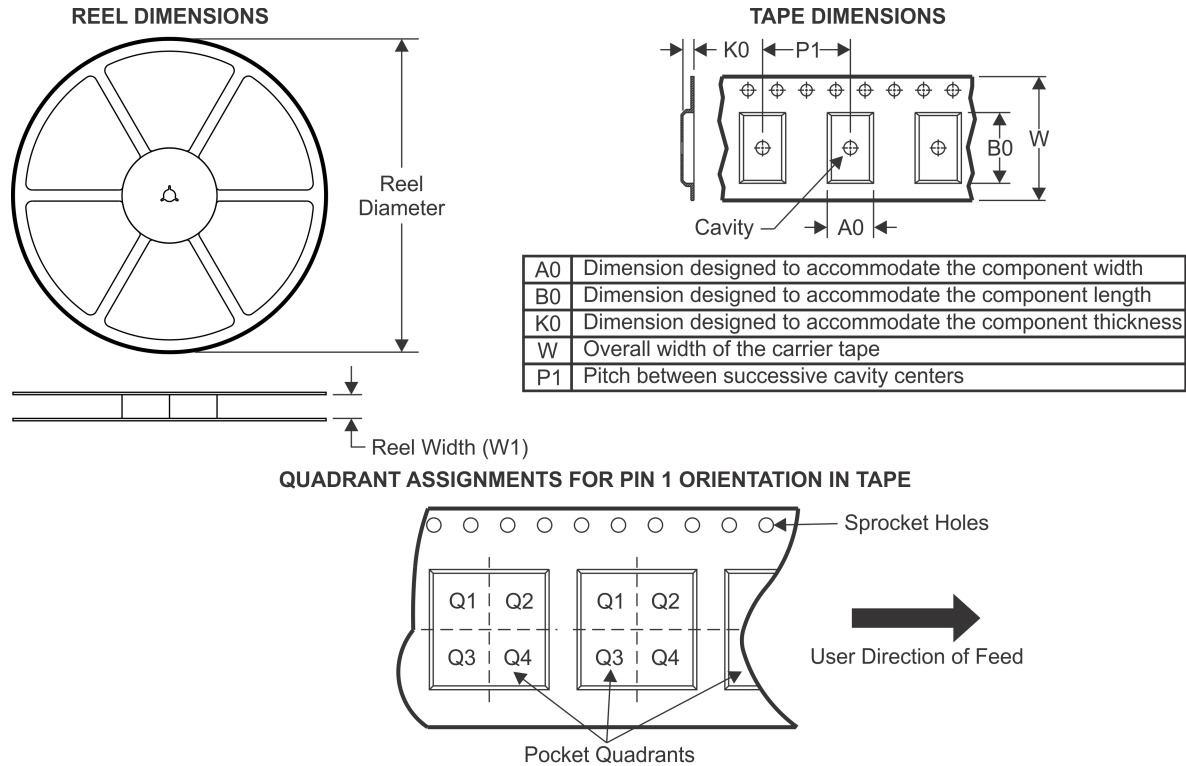
OTHER QUALIFIED VERSIONS OF SN74HCS573-Q1 :

- Catalog : [SN74HCS573](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product

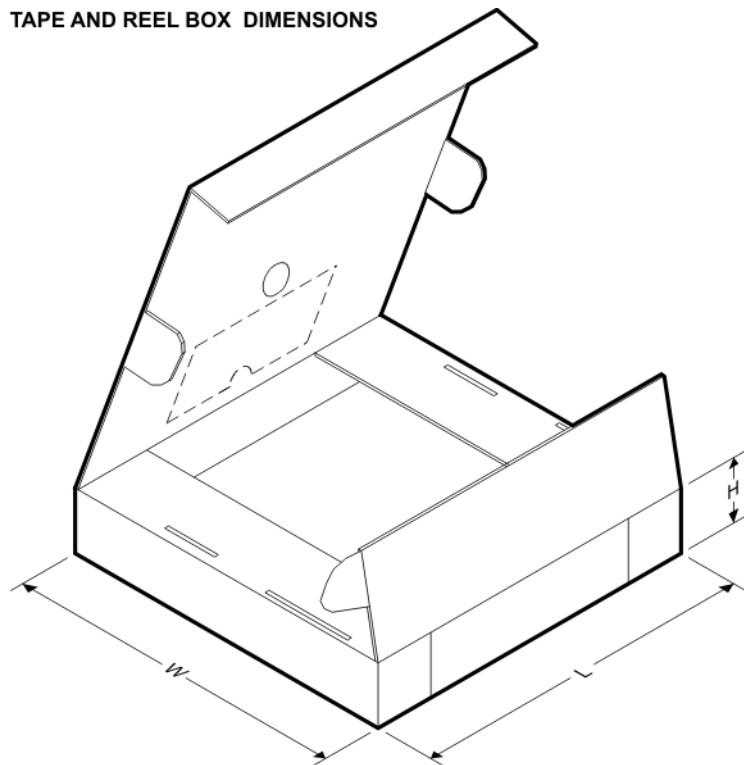
TAPE AND REEL INFORMATION



*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
SN74HCS573QWRKSRQ 1	VQFN	RKS	20	3000	180.0	12.4	2.8	4.8	1.2	4.0	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)
SN74HCS573QWRKSRQ1	VQFN	RKS	20	3000	210.0	185.0	35.0

GENERIC PACKAGE VIEW

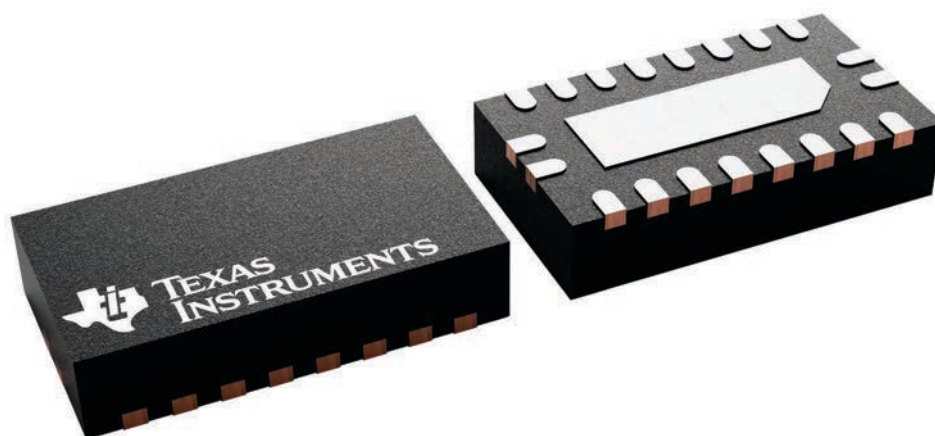
RKS 20

VQFN - 1 mm max height

2.5 x 4.5, 0.5 mm pitch

PLASTIC QUAD FLATPACK - NO LEAD

This image is a representation of the package family, actual package may vary.
Refer to the product data sheet for package details.



重要なお知らせと免責事項

テキサス・インスツルメンツは、技術データと信頼性データ (データシートを含みます)、設計リソース (リファレンス デザインを含みます)、アプリケーションや設計に関する各種アドバイス、Web ツール、安全性情報、その他のリソースを、欠陥が存在する可能性のある「現状のまま」提供しており、商品性および特定目的に対する適合性の黙示保証、第三者の知的財産権の非侵害保証を含むいかなる保証も、明示的または黙示的にかかわらず拒否します。

これらのリソースは、テキサス・インスツルメンツ製品を使用する設計の経験を積んだ開発者への提供を意図したものです。(1) お客様のアプリケーションに適した テキサス・インスツルメンツ製品の選定、(2) お客様のアプリケーションの設計、検証、試験、(3) お客様のアプリケーションに該当する各種規格や、その他のあらゆる安全性、セキュリティ、規制、または他の要件への確実な適合に関する責任を、お客様のみが単独で負うものとします。

上記の各種リソースは、予告なく変更される可能性があります。これらのリソースは、リソースで説明されている テキサス・インスツルメンツ製品を使用するアプリケーションの開発の目的でのみ、テキサス・インスツルメンツはその使用をお客様に許諾します。これらのリソースに関して、他の目的で複製することや掲載することは禁止されています。テキサス・インスツルメンツや第三者の知的財産権のライセンスが付与されている訳ではありません。お客様は、これらのリソースを自身で使用した結果発生するあらゆる申し立て、損害、費用、損失、責任について、テキサス・インスツルメンツおよびその代理人を完全に補償するものとし、テキサス・インスツルメンツは一切の責任を拒否します。

テキサス・インスツルメンツの製品は、[テキサス・インスツルメンツの販売条件](#)、または [ti.com](https://www.ti.com) やかかる テキサス・インスツルメンツ製品の関連資料などのいずれかを通じて提供する適用可能な条項の下で提供されています。テキサス・インスツルメンツがこれらのリソースを提供することは、適用される テキサス・インスツルメンツの保証または他の保証の放棄の拡大や変更を意味するものではありません。

お客様がいかなる追加条項または代替条項を提案した場合でも、テキサス・インスツルメンツはそれらに異議を唱え、拒否します。

郵送先住所：Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2025, Texas Instruments Incorporated