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NCS2632 Evaluation Board User's Manual



ON Semiconductor®

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Introduction

This document gives a description of the NCS2632 evaluation board with the bill of materials (BOM), board schematic, and evaluation setup. The NCS2632 evaluation board has been designed to help for a quick evaluation of the NCS2632 audio line driver performance.

This document is to be used with the NCS2632 data sheet. The data sheet contains full technical details regarding the NCS2632 specifications and operation.

The board is implemented in 2 metal layers. The layers have thicknesses of 35 μm (1 oz). The PCB thickness is 1.6 mm (63 mils) with dimensions of 115 \times 100 mm (4.5" \times 3.9", respectively).

EVAL BOARD USER'S MANUAL

Documents of Reference

- [NCS2632/D](#) Data Sheet

Basic Equipment

- DC Power Supply
- Multimeter
- Waveform Generator
- Oscilloscope

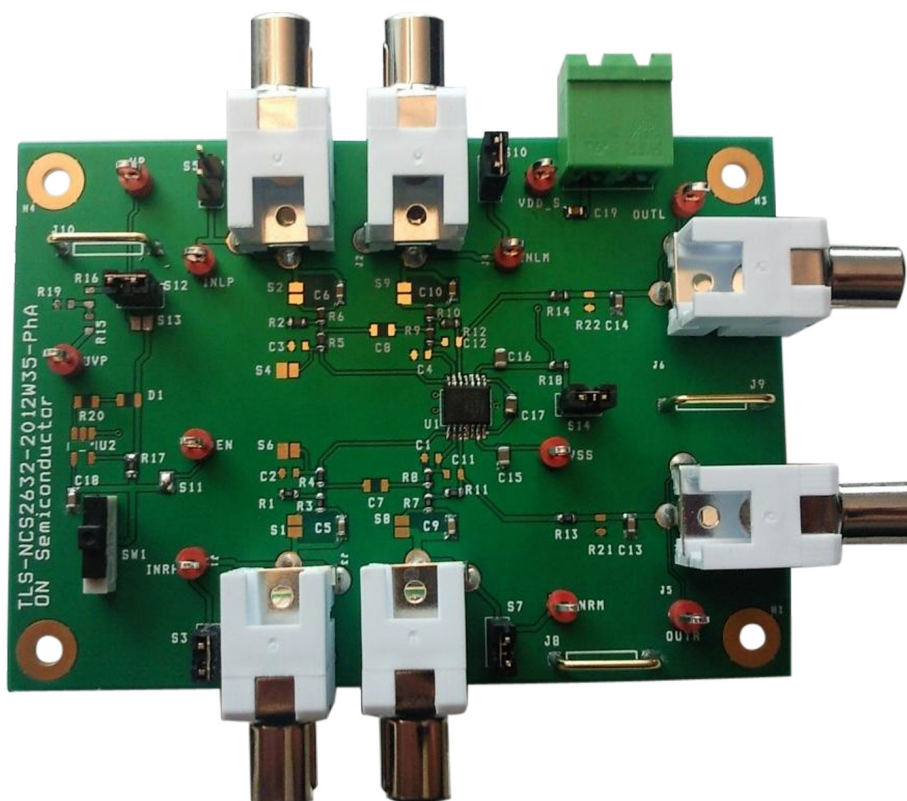


Figure 1. NCS2632 Evaluation Board

NCS2632DTBGEVB

EVALUATION BOARD OVERVIEW

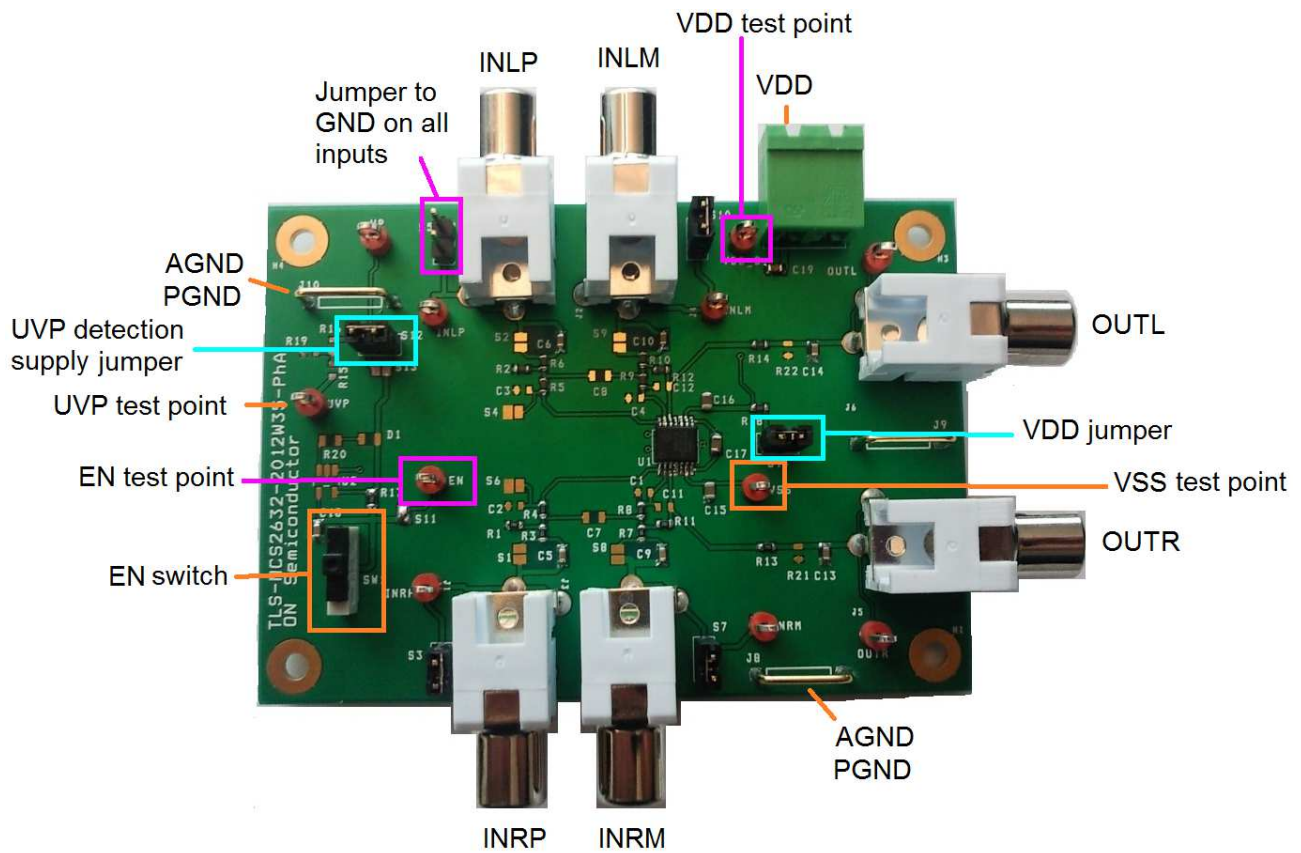


Figure 2. NCS2632 Evaluation Board Overview

QUICK START PROCEDURE WITH DIFFERENTIAL SETUP

By default, each channel is set up in a differential configuration with a gain of 2 V/V. Follow this procedure to quickly get familiar with the evaluation board features.

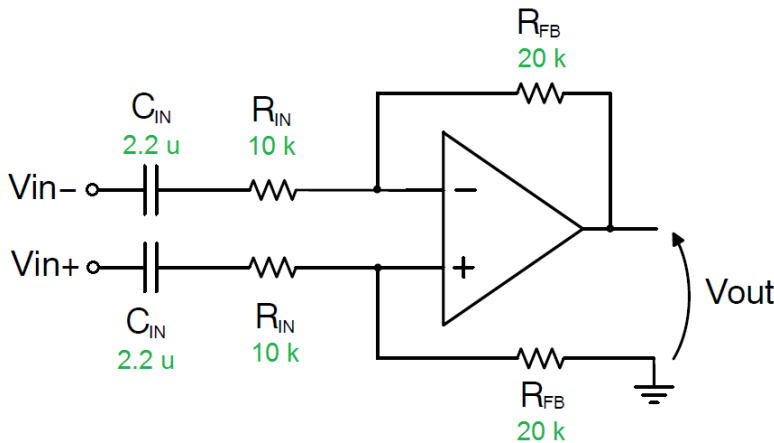
1. Make sure that the VDD jumper and UVP detection supply jumper are in place. Remove all input jumpers to ground. Table 1 summarizes the position of each switch and jumper.
2. Connect a 3.3 V supply between the VDD pin and GND.
3. Set the EN switch to high to enable the IC. Check the supply current. Verify that EN is high with a multimeter, if necessary.

4. Use the voltmeter to measure the VSS pin. It should measure near $-VDD$.
5. Apply a sine wave ($f = 1 \text{ kHz}$, 1 V_{pp}) across INLP and INLM. Observe the waveform at OUTL.
6. Apply a sine wave ($f = 1 \text{ kHz}$, 1 V_{pp}) across INRP and INRM. Observe the waveform at OUTR.

For more information and circuit examples refer to the Application Information section in the [data sheet](#).

Table 1. DEFAULT EVB CONFIGURATION – DIFFERENTIAL INPUT

Description	Designator	Pin	State
Input-to-ground Jumper	S3	INRP	Open
	S5	INLP	Open
	S7	INRM	Open
	S10	INLM	Open
Supply Voltage Jumper	S14	VDD	Closed
UVP Detection Circuit Supply Jumper	S12/S13	UVP	Closed
Enable Switch	SW1	EN	High



$$A_v = \frac{V_{out}}{V_{in+} - V_{in-}} = \frac{R_{FB}}{R_{in}}$$

$$A_v = 2 \text{ V/V}$$

Figure 3. Default Evaluation Board Schematic – Differential Input

EVALUATION BOARD SCHEMATIC



NCS2632DTBGEVB

EVALUATION BOARD LAYOUT

The evaluation board uses two copper layers for the top and bottom traces. The top layer is shown in blue while the bottom layer is shown in green.

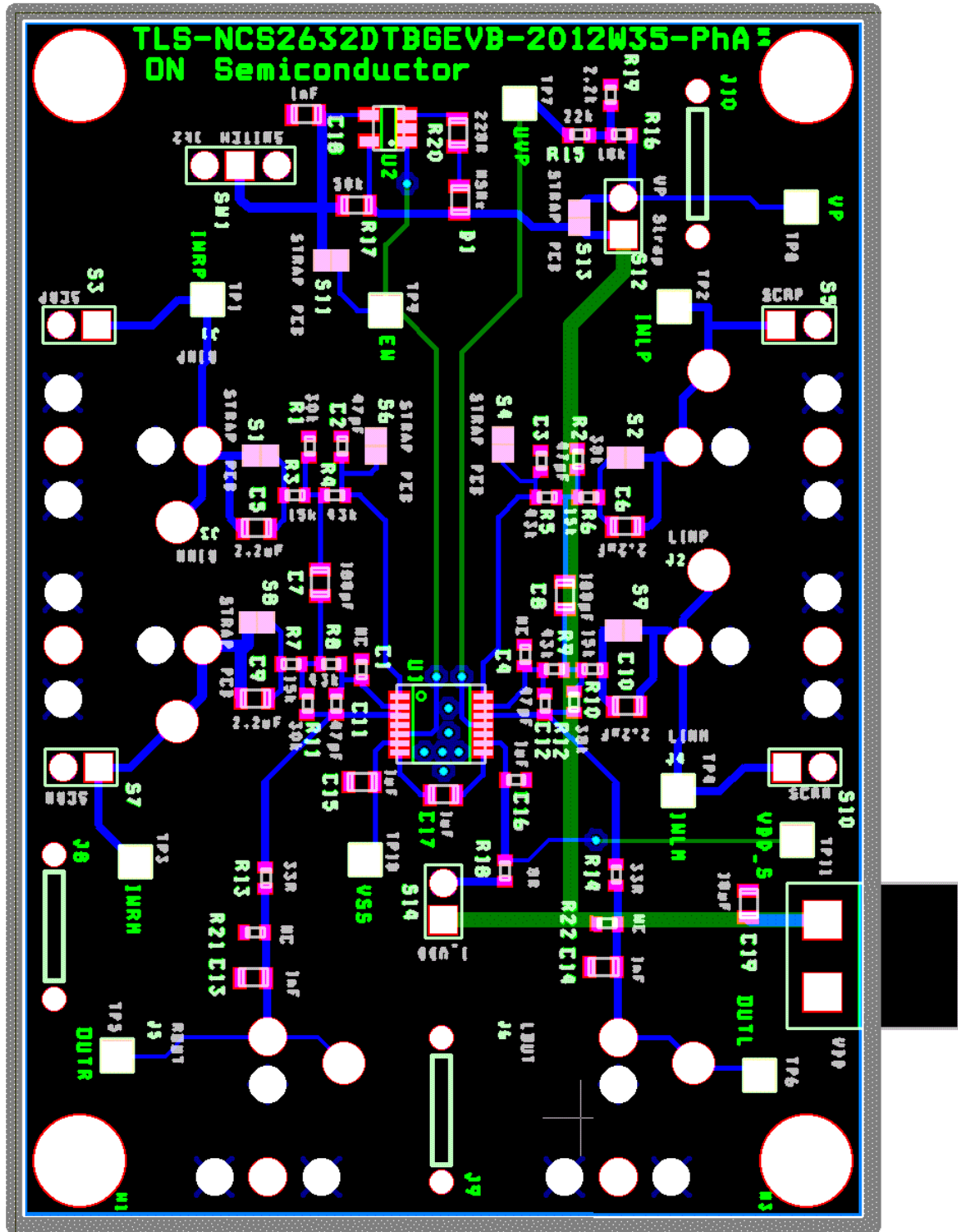



Figure 5. NCS2632 Evaluation Board Layout

NCS2632DTBGEVB

Table 2. EVALUATION BOARD BILL OF MATERIALS

Designator	Qty.	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number
C1, C2, C3, C4, C7, C8, C11, C12	–	Do Not Assemble	–	–	–	–	–
C5, C6, C9, C10	4	Surface Mount Capacitor	2.2 μ F	10 V	0805	TDK Corporation	C2012X5R1A225M085AA
C13, C14, C18	3	Surface Mount Capacitor	1 nF	10 V	0805	Kemet	C0805C102J4GACTU
C15, C16, C17	3	Surface Mount Capacitor	1 μ F	10 V	0603	TDK Corporation	C1608X5R1A105K080AC
C19	1	Surface Mount Capacitor	10 μ F	10 V	0805	TDK Corporation	C2012X5R1A106M125AB
D1	1	Do Not Assemble	–	–	–	–	–
J1, J2, J3, J4, J5, J6	6	RCA Phono Jack Connector	–	–	RCA PHONO JACK	Keystone Electronics	972
J7	1	2-pin Header, 5.08MM, Right Angle	–	–	SL5.08/2/90	Weidmuller	1512660000
J8, J9, J10	3	Uninsulated Shorting Plug, 1 mm	–	–	GND_STRP	Harwin Inc	D3082-05
R1, R2, R11, R12	4	Surface Mount Resistor	20 k Ω	5%	0603	Panasonic Electronic Components	ERJ-3EKF2002V
R3, R6, R7, R10	4	Surface Mount Resistor	10 k Ω	5%	0603	TE Connectivity	1622829-1
R4, R5, R8, R9, R18	5	Surface Mount Resistor	0R	–	0603	ANY	ANY
R13, R14	2	Surface Mount Resistor	33R	5%	0603	Panasonic Electronic Components	ERJ-3EKF33R0V
R15	1	Surface Mount Resistor	12 k Ω	5%	0603	Panasonic Electronic Components	ERJ-3GEYJ123V
R16	1	Surface Mount Resistor	1 k Ω	5%	0603	Panasonic Electronic Components	ERJ-3GEYJ102V
R17	1	Surface Mount Resistor	49.9 k Ω	5%	0805	Stackpole Electronics, Inc.	RNCP0805FTD49K9
R19	1	Surface Mount Resistor	1.5 k Ω	5%	0603	Panasonic Electronic Components	ERJ-3GEYJ152V
R20, R21, R22	–	Do Not Assemble	–	–	–	–	–
SW1	1	EAO SPDT Switch			EAO Switch	EAO	09.03290.01
S1, S2, S4, S6, S8, S9	–	Do Not Assemble	–	–	–	–	–
S11, S13	2	Solder Connection	–	–	–	–	–
S3, S5, S7, S10, S12, S14	6	2-pin Header, Breakaway	–	–	Header 2 100	TE Connectivity	5-826629-0
TP1 to TP11	11	Test Point Connector	–	–	–	Keystone Electronics	5010
U1	1	NCS2632 Audio Driver	–	–	TSSOP14	ON Semiconductor	NCS2632DTBR2G
U2	–	Do Not Assemble	–	–	–	–	–

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