

DEM-PCM2900/2902 EVM

User's Guide

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products		Applications	
Amplifiers	amplifier.ti.com	Audio	www.ti.com/audio
Data Converters	dataconverter.ti.com	Automotive	www.ti.com/automotive
DSP	dsp.ti.com	Broadband	www.ti.com/broadband
Interface	interface.ti.com	Digital Control	www.ti.com/digitalcontrol
Logic	logic.ti.com	Military	www.ti.com/military
Power Mgmt	power.ti.com	Optical Networking	www.ti.com/opticalnetwork
Microcontrollers	microcontroller.ti.com	Security	www.ti.com/security
Low Power Wireless	www.ti.com/lpw	Telephony	www.ti.com/telephony
		Video & Imaging	www.ti.com/video
		Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments
Post Office Box 655303, Dallas, Texas 75265

Copyright © 2007, Texas Instruments Incorporated

EVALUATION BOARD/KIT IMPORTANT NOTICE

Texas Instruments (TI) provides the enclosed product(s) under the following conditions:

This evaluation board/kit is intended for use for **ENGINEERING DEVELOPMENT, DEMONSTRATION, OR EVALUATION PURPOSES ONLY** and is not considered by TI to be a finished end-product fit for general consumer use. Persons handling the product(s) must have electronics training and observe good engineering practice standards. As such, the goods being provided are not intended to be complete in terms of required design-, marketing-, and/or manufacturing-related protective considerations, including product safety and environmental measures typically found in end products that incorporate such semiconductor components or circuit boards. This evaluation board/kit does not fall within the scope of the European Union directives regarding electromagnetic compatibility, restricted substances (RoHS), recycling (WEEE), FCC, CE or UL, and therefore may not meet the technical requirements of these directives or other related directives.

Should this evaluation board/kit not meet the specifications indicated in the User's Guide, the board/kit may be returned within 30 days from the date of delivery for a full refund. THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY MADE BY SELLER TO BUYER AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

The user assumes all responsibility and liability for proper and safe handling of the goods. Further, the user indemnifies TI from all claims arising from the handling or use of the goods. Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge.

EXCEPT TO THE EXTENT OF THE INDEMNITY SET FORTH ABOVE, NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

TI currently deals with a variety of customers for products, and therefore our arrangement with the user is **not exclusive**.

TI assumes **no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein**.

Please read the User's Guide and, specifically, the Warnings and Restrictions notice in the User's Guide prior to handling the product. This notice contains important safety information about temperatures and voltages. For additional information on TI's environmental and/or safety programs, please contact the TI application engineer or visit www.ti.com/esh.

No license is granted under any patent right or other intellectual property right of TI covering or relating to any machine, process, or combination in which such TI products or services might be or are used.

FCC WARNING

This evaluation board/kit is intended for use for **ENGINEERING DEVELOPMENT, DEMONSTRATION, OR EVALUATION PURPOSES ONLY** and is not considered by TI to be a finished end-product fit for general consumer use. It generates, uses, and can radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment in other environments may cause interference with radio communications, in which case the user at his own expense will be required to take whatever measures may be required to correct this interference.

Mailing Address: Texas Instruments Post Office Box 655303 Dallas, Texas 75265

Copyright © 2007, Texas Instruments Incorporated

EVM WARNINGS AND RESTRICTIONS

It is important to operate this EVM within the input voltage range of 5 V and the output voltage range of 5 V.

Exceeding the specified input range may cause unexpected operation and/or irreversible damage to the EVM. If there are questions concerning the input range, please contact a TI field representative prior to connecting the input power.

Applying loads outside of the specified output range may result in unintended operation and/or possible permanent damage to the EVM. Please consult the EVM User's Guide prior to connecting any load to the EVM output. If there is uncertainty as to the load specification, please contact a TI field representative.

During normal operation, some circuit components may have case temperatures greater than 55°C. The EVM is designed to operate properly with certain components above 55°C as long as the input and output ranges are maintained. These components include but are not limited to linear regulators, switching transistors, pass transistors, and current sense resistors. These types of devices can be identified using the EVM schematic located in the EVM User's Guide. When placing measurement probes near these devices during operation, please be aware that these devices may be very warm to the touch.

Mailing Address:

Texas Instruments
Post Office Box 655303
Dallas, Texas 75265

Contents

1	Description	1-1
1.1	Block Diagram	1-2
1.2	Connection Setting	1-2
1.3	Switch Settings	1-2
2	Schematic and Printed-Circuit Board	2-1
2.1	DEM-PCM2900/2902 Printed-Circuit Board	2-2
2.2	DEM-PCM2900/2902 Schematic	2-4

Figures

1-1	DEM-PCM2900/2902 Block Diagram	1-2
2-1	DEM-PCM2900/2902 Silkscreen	2-2
2-2	DEM-PCM2900/2902 Top View	2-2
2-3	DEM-PCM2900/2902 Bottom View	2-3
2-4	DEM-PCM2900/2902 Schematic	2-4

Description

The DEM-PCM2900 and DEM-PCM2902 are evaluation boards for the newly developed Texas Instruments USB interface codecs, PCM2900 and PCM2902. The DEM-PCM2900 includes a PCM2900. It is a bus-powered USB codec without an S/PDIF interface. The DEM-PCM2902 includes a PCM2902. It is a bus-powered USB codec with an S/PDIF interface.

A USB connector is mounted on DEM-PCM2900/2902. Connecting a USB interface to this connector enables the evaluation of codec performance.

The DEM-PCM2900/2902 is operated by the 5-V bus power supply of the USB. A 3.3-V IC regulator is mounted on the board to provide power for analog circuitry and optionally for the codec.

Stereo audio output and input are available on two stereo minijacks.

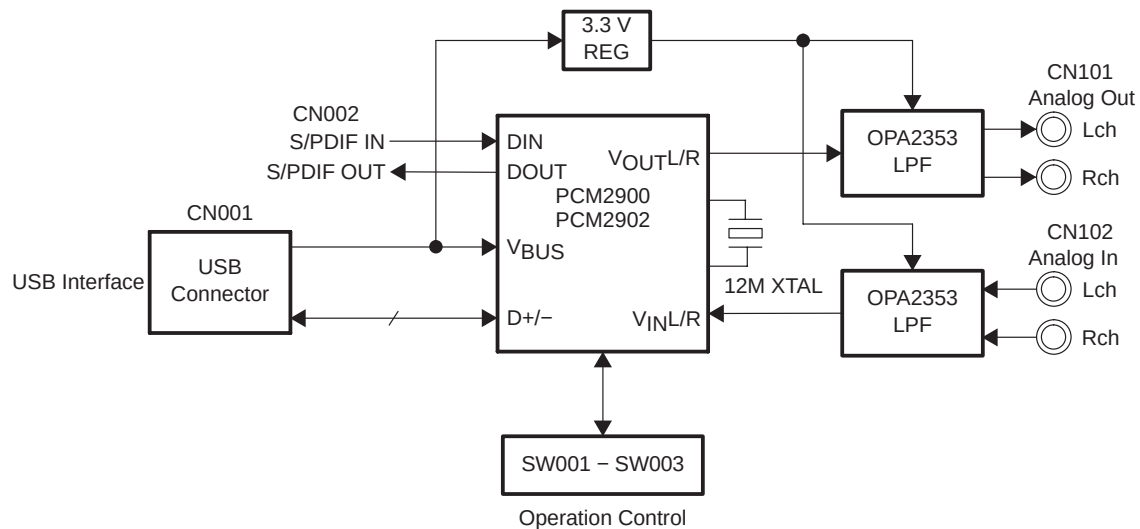
The PCM2900/2902 supports the following USB features:

- ☐ Fully compliant with the USB 1.1 specification
- ☐ Partially programmable descriptors
- ☐ USB adaptive mode for playback
- ☐ USB asynchronous mode for record
- ☐ Bus powered
- ☐ Full-speed transceivers

Topic	Page
1.1 Block Diagram	1-2
1.2 Connection Setting	1-2
1.3 Switch Settings	1-2

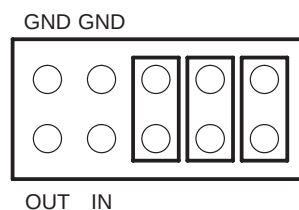
1.1 Block Diagram

Figure 1–1. DEM-PCM2900/2902 Block Diagram



1.2 Connection Setting

- ☐ CN001 : USB port (series B connector), connects to a USB cable/connector
- ☐ CN101 : Audio LINE OUT (stereo minijack, 1.98 V_{pp} full scale)
- ☐ CN102 : Audio LINE IN (stereo minijack, 1.98 V_{pp} full scale)
- ☐ CN002 : S/PDIF IN/OUT for DEM-PCM2902



1.3 Switch Settings

- ☐ SW001: Human interface device (HID) key state (mute)
- ☐ SW002: HID key state (volume up)
- ☐ SW003: HID key state (volume down)

These switches should be set to LOW logic level when no HID is being used, or toggled HIGH for HID control of their respective parameters.

Schematic and Printed-Circuit Board

This chapter presents the DEM-PCM2900/2902 printed-circuit board and schematic.

Topic	Page
2.1 DEM-PCM2900/2902 Printed-Circuit Board	2-2
2.2 DEM-PCM2900/2902 Schematic	2-4

2.1 DEM-PCM2900/2902 Printed-Circuit Board

Figure 2-1. DEM-PCM2900/2902 Silkscreen

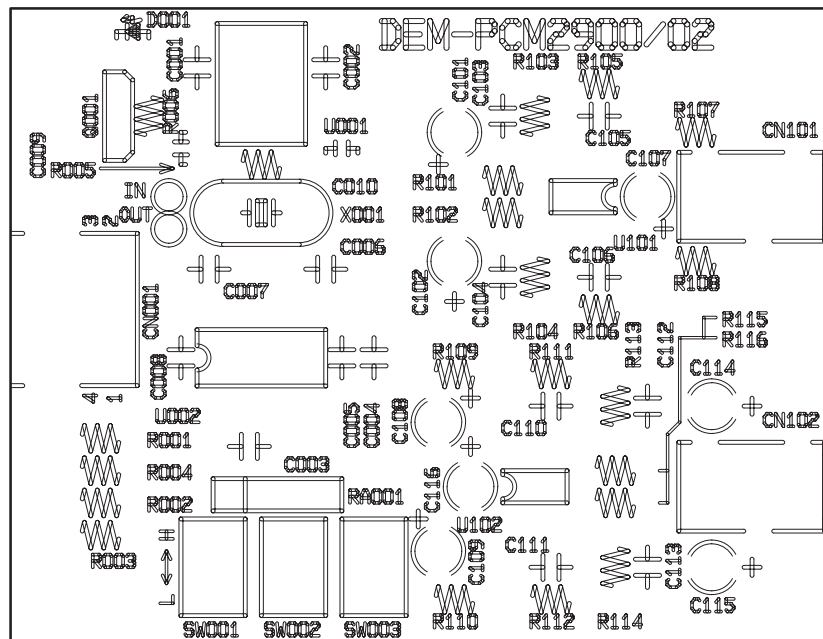


Figure 2-2. DEM-PCM2900/2902 Top View

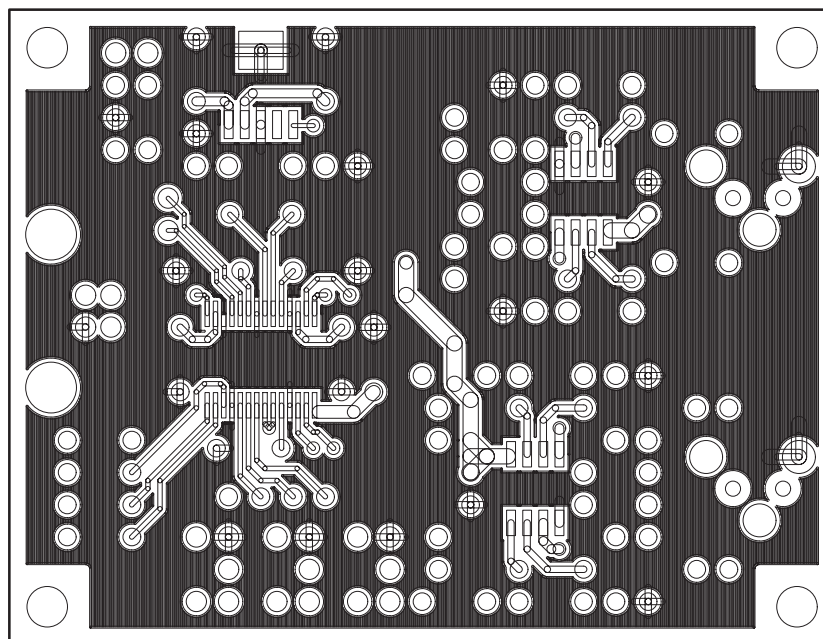


Figure 2-3. DEM-PCM2900/2902 Bottom View

