

DEM-PCM2900B/2902B/2906B EVM

User's Guide



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DEM-PCM2900B/2902B/2906B EVM

1 Description

The DEM-PCM2900B/2902B/2906B is an evaluation board for Texas Instruments' newly developed USB interface codecs, the [PCM2900B](#), [PCM2902B](#), and [PCM2906B](#). The DEM-PCM2900B includes a PCM2900B device, a bus-powered USB codec without an S/PDIF interface. The DEM-PCM2902B includes a PCM2902B device, a bus-powered USB codec with an S/PDIF interface. The DEM-PCM2906B includes a PCM2906B device, a bus-powered (500 mA) USB codec with an S/PDIF interface. Each evaluation board also includes operational amplifiers for line input/output buffers, a 3.3V regulator, and a USB connector.

The USB connector is mounted on the DEM-PCM2900B/2902B/2906B printed circuit board (PCB). Connecting a USB interface to this USB connector enables the evaluation of codec performance.

The DEM-PCM2900B/2902B/2906B operates from 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 mini-jacks.

The PCM2900B/2902B/2906B support the following USB features:

- Fully compliant with USB2.0 specification
- Full-speed transceivers
- Partially-programmable descriptors
- USB adaptive mode for playback
- USB asynchronous mode for record
- Bus-powered
- Full-speed transceivers

1.1 Block Diagram

A block diagram of the DEM-PCM2900B/2902B/2906B is shown in Figure 1.

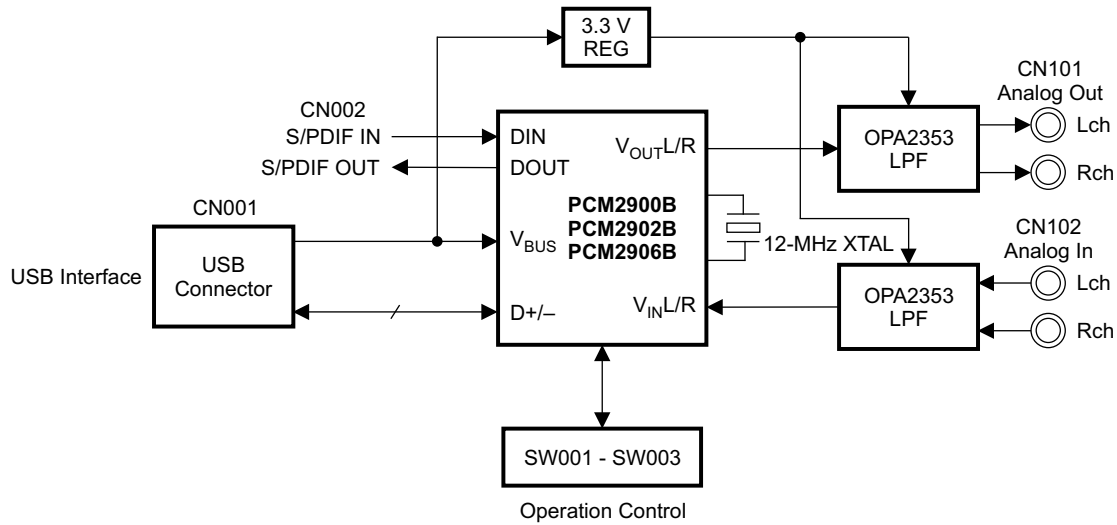


Figure 1. DEM-PCM2900B/2902B/2906B Block Diagram

1.2 Connectors and Jumpers

Table 1 summarizes the connectors and jumpers on the DEM-PCM2900B/2902B/2906B. Figure 2 illustrates the pinout for CN002.

Table 1. Connectors and Jumpers

Connector/Jumper	Description
CN001	USB port (series B connector); connects to a USB cable/connector
CN101	Audio LINE OUT (stereo mini-jack, 1.98 V _{PP} full-scale)
CN102	Audio LINE IN (stereo mini-jack, 1.98 V _{PP} full-scale)
CN002	S/PDIF IN/OUT for DEM-PCM2902B/PCM2906B

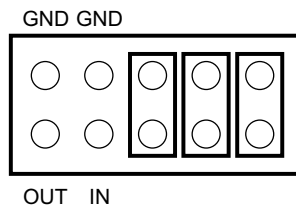


Figure 2. CN002 Pinout

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 logic level low when no HID is being used, or toggled high for HID control of the respective parameters.

2 Schematic and PCB

This section presents the DEM-PCM2900B/2902B/2906B PCB layout and schematic.

2.1 DEM-PCM2900B/2902B/2906B PCB

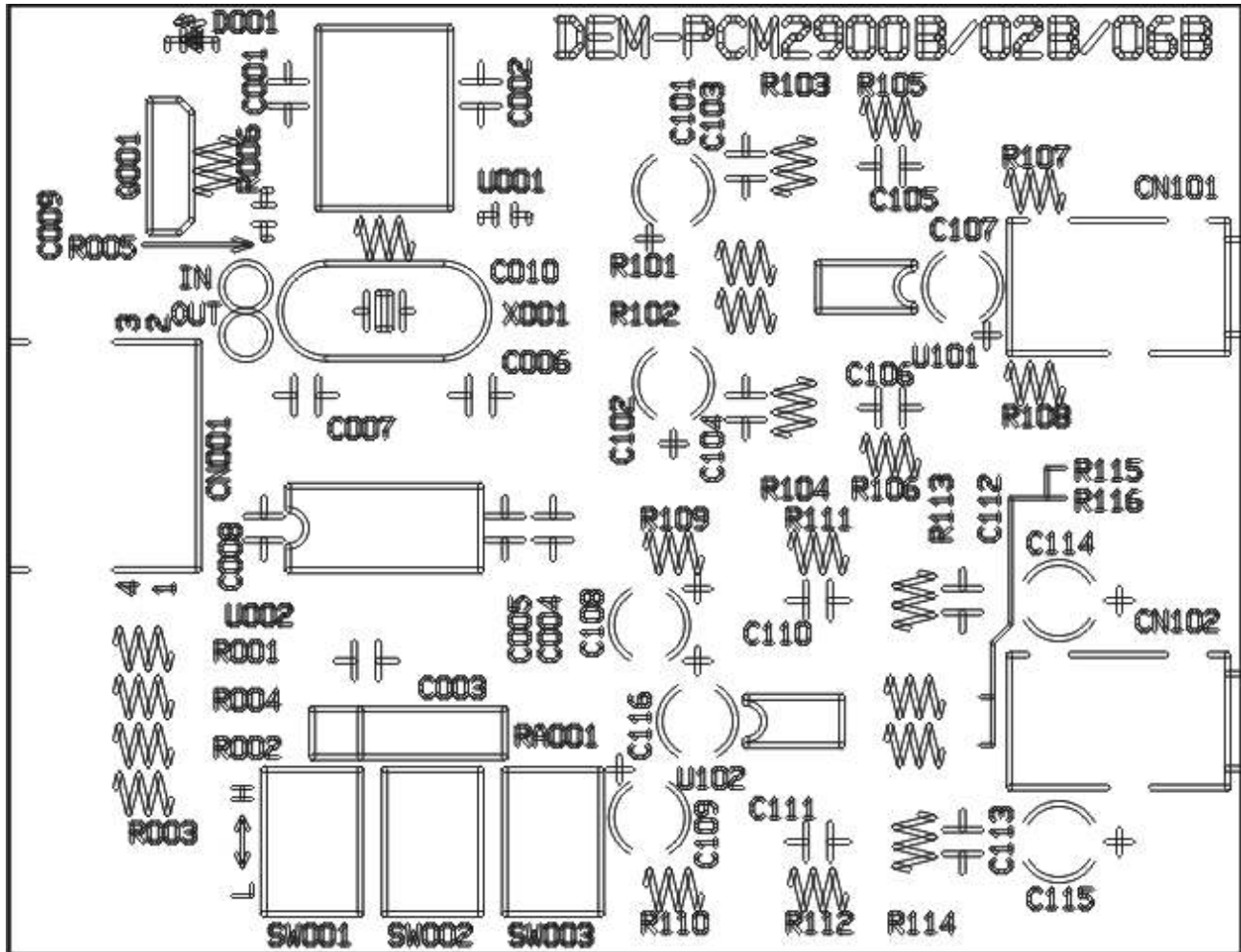


Figure 3. DEM-PCM2900B/2902B/2906B Silkscreen

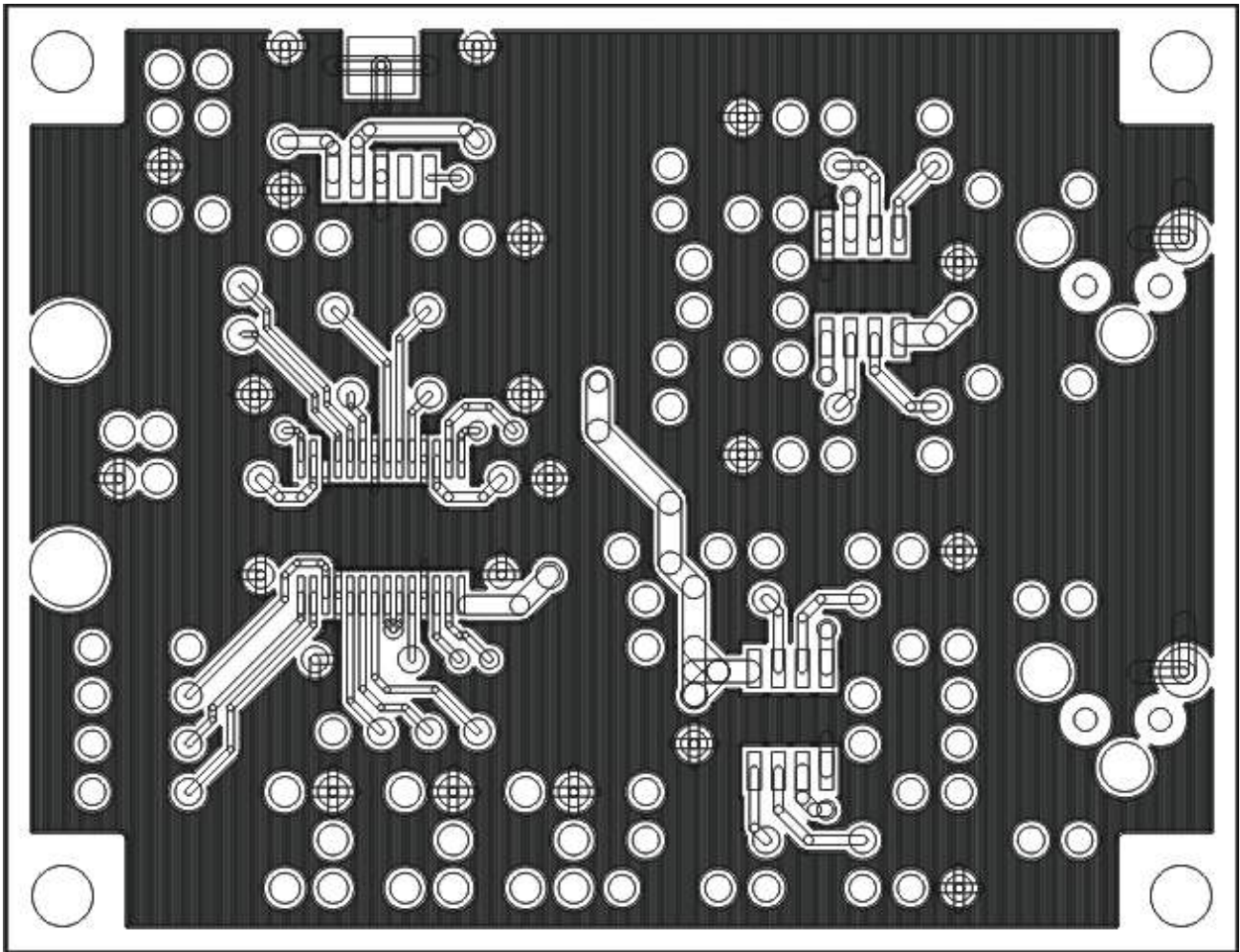


Figure 4. DEM-PCM2900B/2902B/2906B Top View

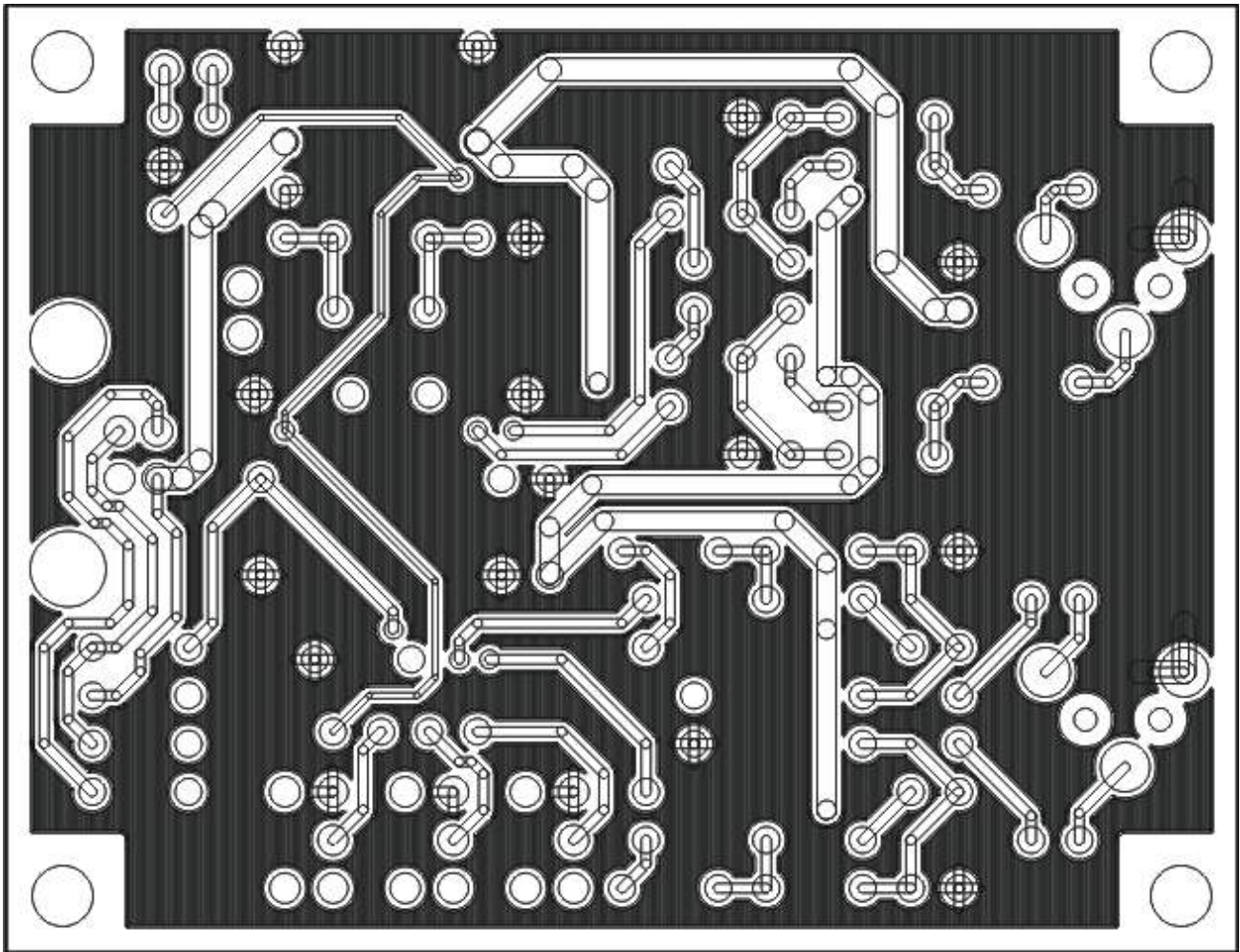
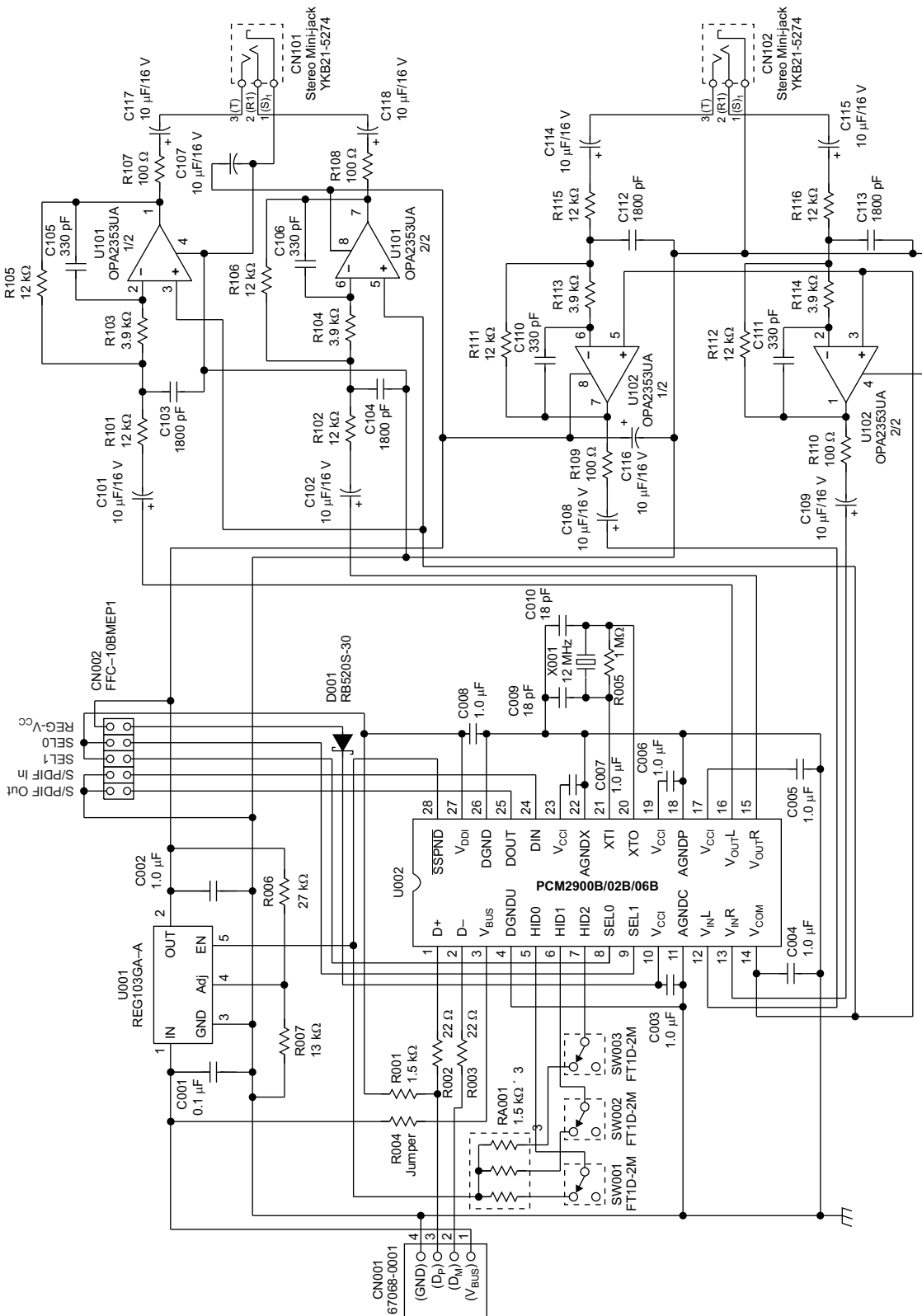


Figure 5. DEM-PCM2900B/2902B/2906B Bottom View

2.2 DEM-PCM2900B/2902B/2906B Schematic



NOTE: On the PCM2900B, pin 24 and pin 25 are test pins.

Figure 6. DEM-PCM2900B/2902B/2906B Schematic

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EVM WARNINGS AND RESTRICTIONS

It is important to operate this EVM within the input voltage range of 0 V to 5 V and the output voltage range of 0 V to 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.

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