TEXAS INSTRUMENTS

DEM-PCM2901/2903 EVM

User's Guide

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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.

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Texas Instruments
Post Office Box 655303
Dallas, Texas 75265

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Description

The DEM-PCM2901 and DEM-PCM2903 are evaluation boards for Texas Instruments' newly developed USB interface codecs, PCM2901 and PCM2903. The DEM-PCM2901 includes a PCM2901. It is a self-powered USB codec without an S/PDIF interface. The DEM-PCM2903 includes a PCM2903. It is a self-powered USB codec with an S/PDIF interface.

A USB connector is mounted on the DEM-PCM2901/2903. Connecting a USB interface to this USB connector enables the evaluation of codec performance.

The DEM-PCM2901/2903 requires a 5-V power supply for the codec and S/PDIF sections and a 5-V power supply for the analog input/output amplifier section.

Stereo audio output is available on two RCA jacks.

The PCM2901/2903 supports the following USB features:

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

1.1 Block Diagram

Figure 1−1. DEM-PCM2901/2903 Block Diagram
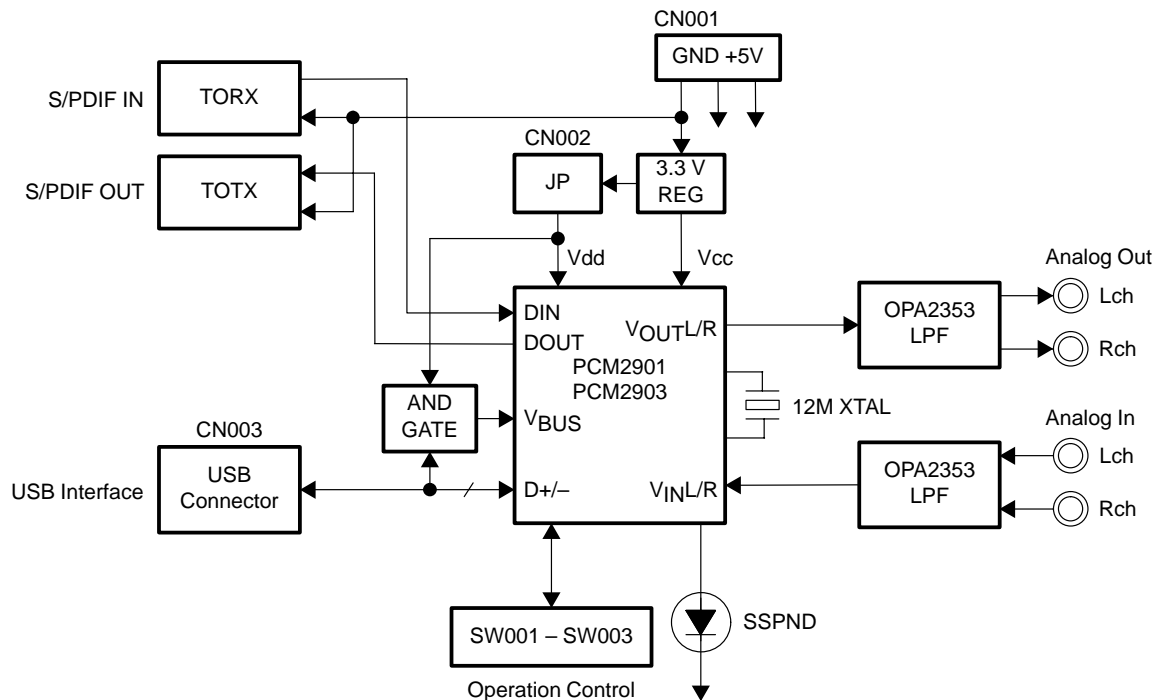
1.2 Connectors and Jumpers

❑ CN001   : Power supply, 5 V

❑ CN002   : Jumper (connecting regulated 3.3 V)

❑ CN003   : USB port (series B connector), connects to USB cable/ connector

❑ CN101, CN102 : Audio LINE OUT (RCA, 1.98 V_{PP} full scale)

❑ CN103, CN104 : Audio LINE IN (RCA, 1.98 V_{PP} full scale)

❑ U002   : S/PDIF In (DEM-PCM2903 only)

❑ U003   : S/PDIF Out (DEM-PCM2903 only)

1.3 Switch Settings

❑ SW001: 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 for software control, or toggled HIGH for manual control of their respective parameters.

1.4 LED Monitor

❑ D001 (Red): Indicates suspend state

Schematic and Printed-Circuit Board

This chapter presents the DEM-PCM2901/2903 printed-circuit board and schematic.

2.1 DEM-PCM2901/2903 Printed-Circuit Board
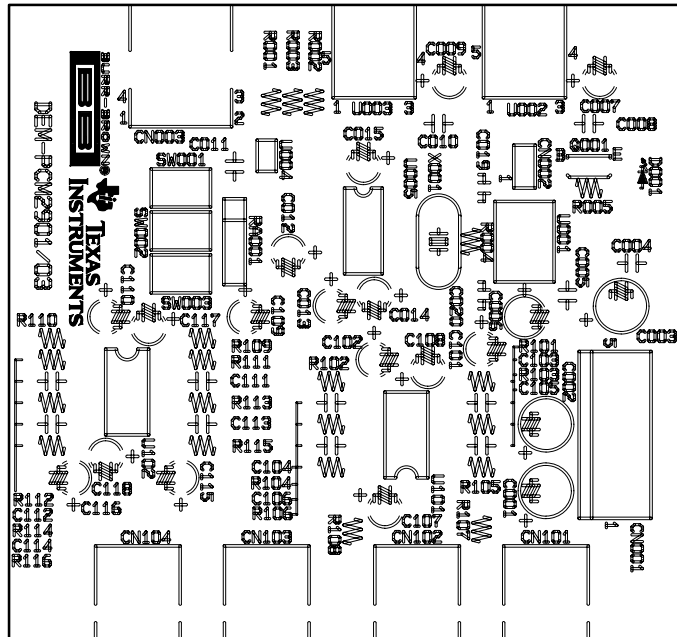
Figure 2–1. DEM-PCM2901/2903 Silkscreen
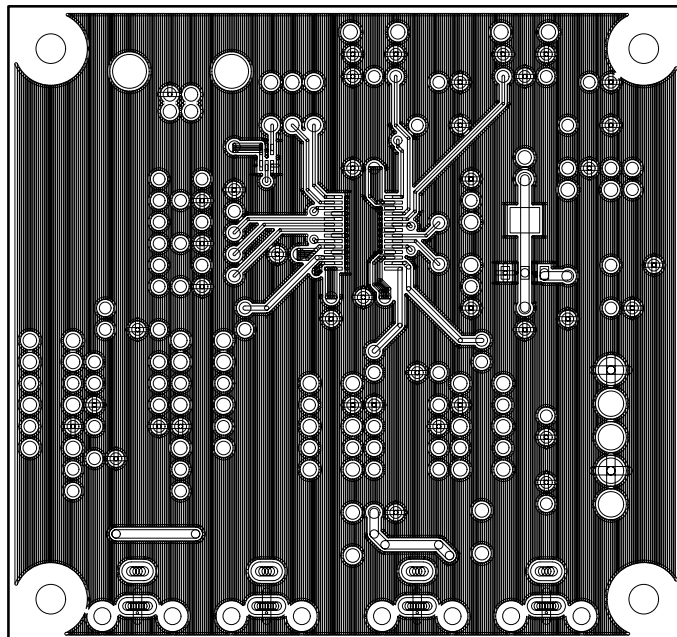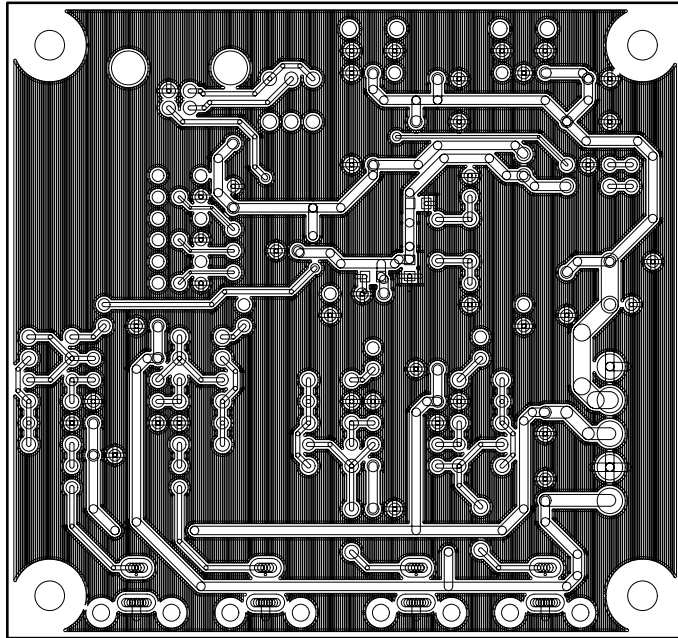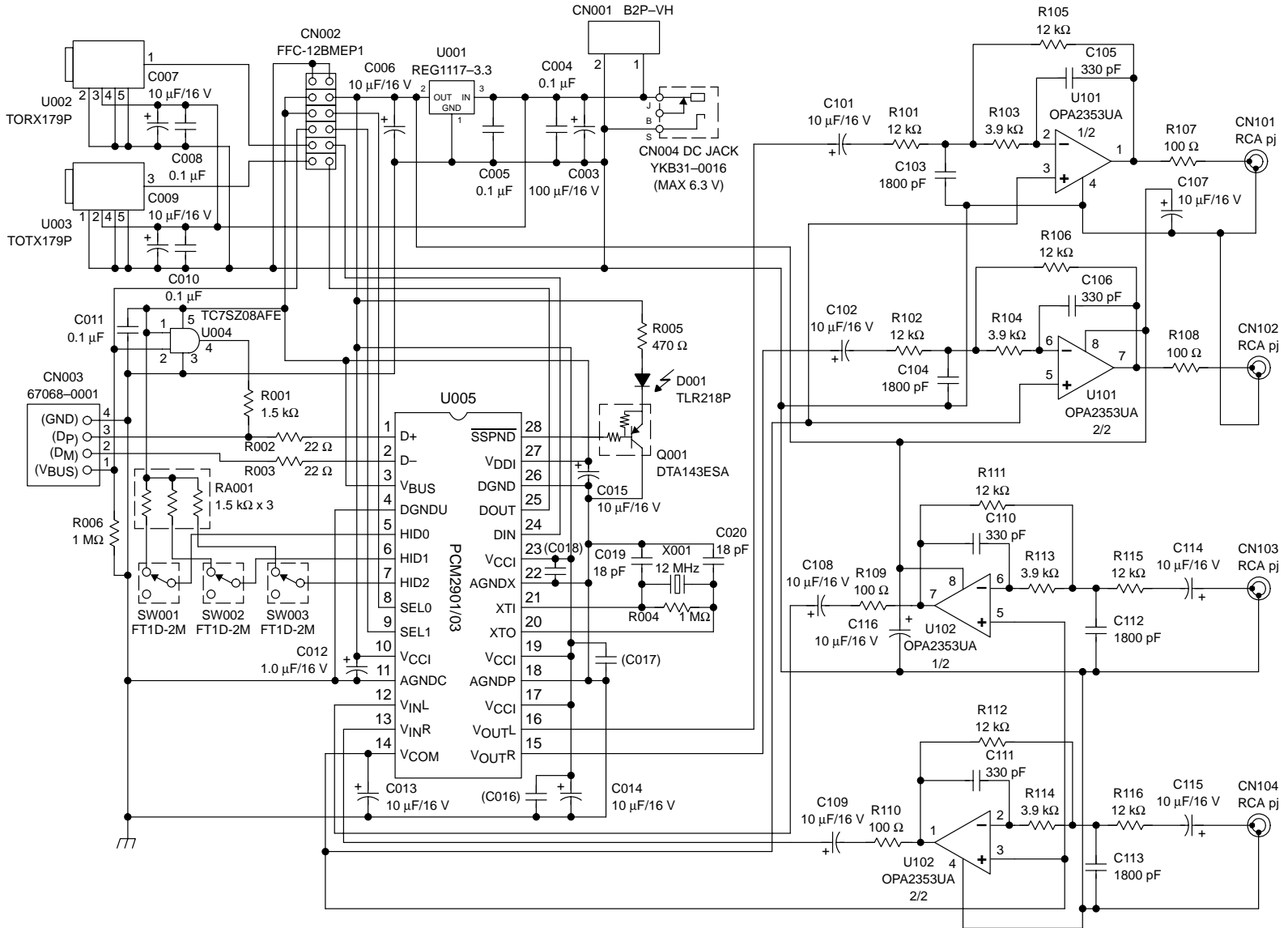

Figure 2–2. DEM-PCM2901/2903 Top View

Figure 2–3. DEM-PCM2901/2903 Bottom View

NOTE: On the PCM2901, pin 24 and pin 25 are test pins.