DEM-PCM2903B EVM

User's Guide

Literature Number: SLAU277
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Contents

DEM-PCM2903B EVM

1 Description

The DEM-PCM2903B is an evaluation board for Texas Instruments' newly developed USB interface codec, the PCM2903B. The DEM-PCM2903B includes a PCM2903B device, a self-powered USB codec with an S/PDIF interface, operational amplifiers for line input/output buffers, TOSLINK™ for S/PDIF input/output, a 3.3V regulator, and a USB connector.

The USB connector is mounted on the DEM-PCM2903B printed circuit board (PCB). Connecting a USB interface to this USB connector enables the evaluation of codec performance.

The DEM-PCM2903B 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 and input are available on four RCA jacks.

The PCM2903B supports 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
- Self-powered

1.1 Block Diagram

A block diagram of the DEM-PCM2903B is shown in Figure 1.

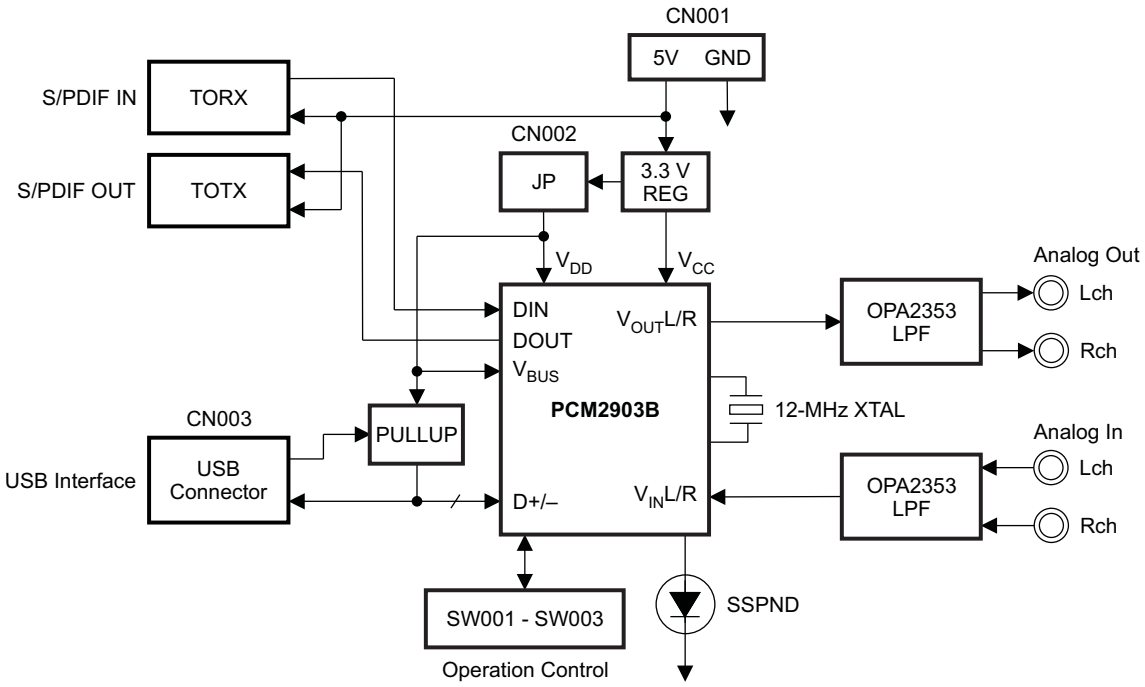

Figure 1. DEM-PCM2903B Block Diagram

1.2 Connectors and Jumpers

Table 1 summarizes the connectors and jumpers on the DEM-PCM2903B.

Table 1. Connectors and Jumpers

Connector/Jumper	Description
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
U003	S/PDIF Out

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.

1.4 LED Monitor

- D001 (Red): Indicates suspend state

2 Schematic and PCB

This section presents the DEM-PCM2903B PCB layout and schematic.

2.1 DEM-PCM2903B PCB

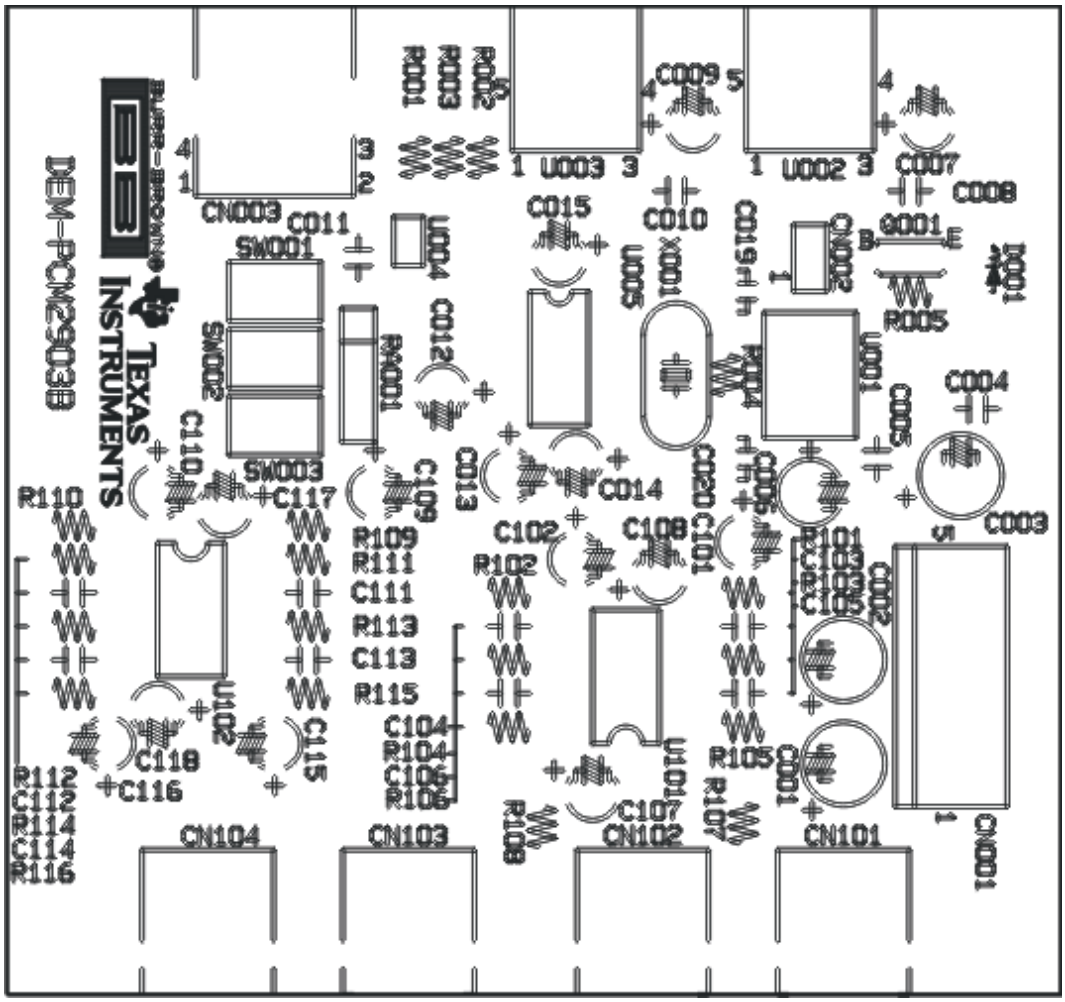

Figure 2. DEM-PCM2903B Silkscreen

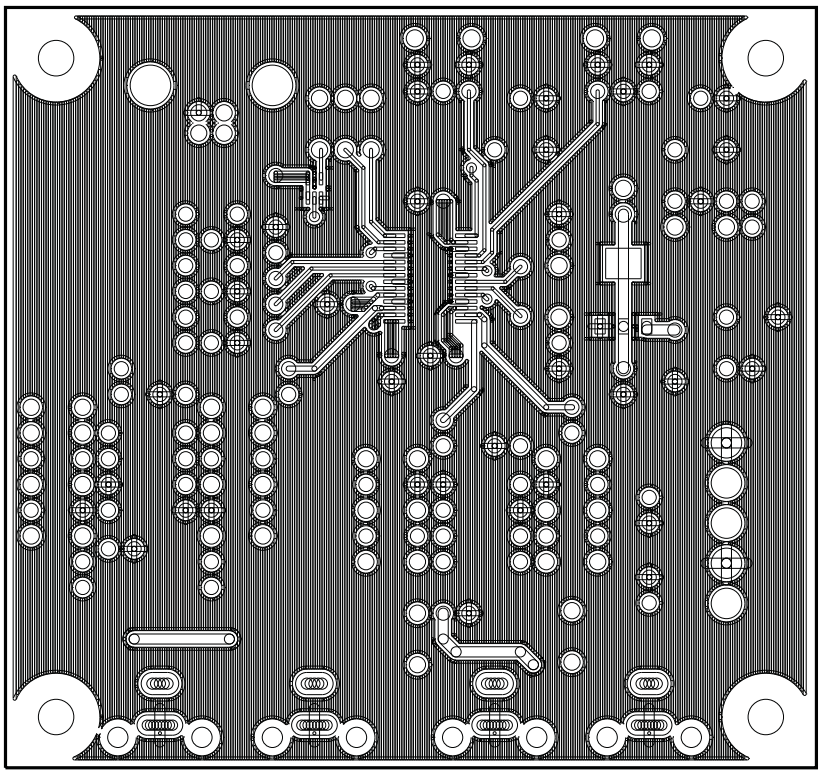

Figure 3. DEM-PCM2903B Top View

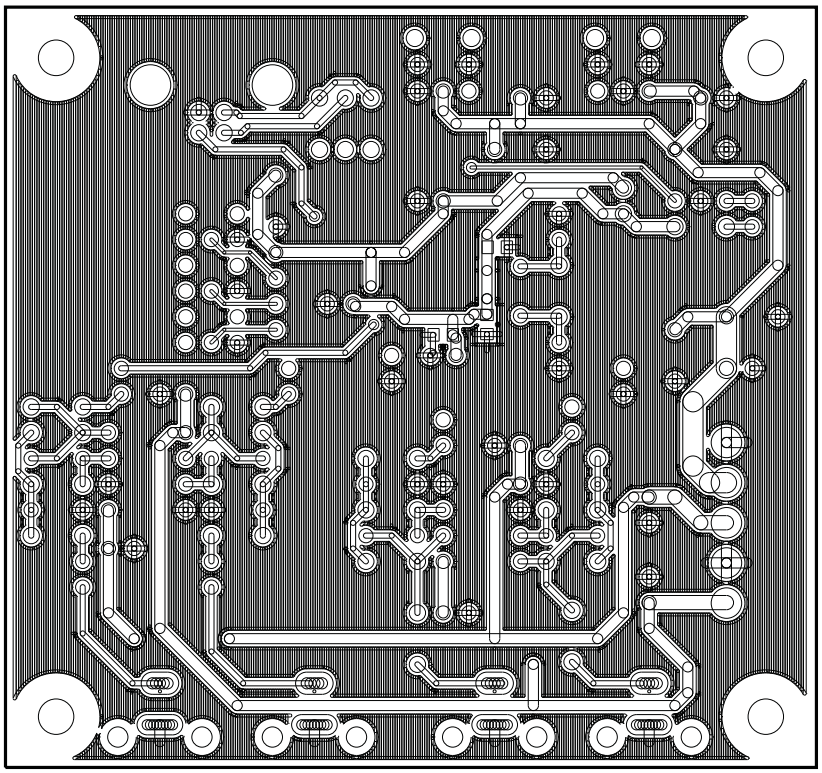

Figure 4. DEM-PCM2903B Bottom View

2.2 DEM-PCM2903B Schematic

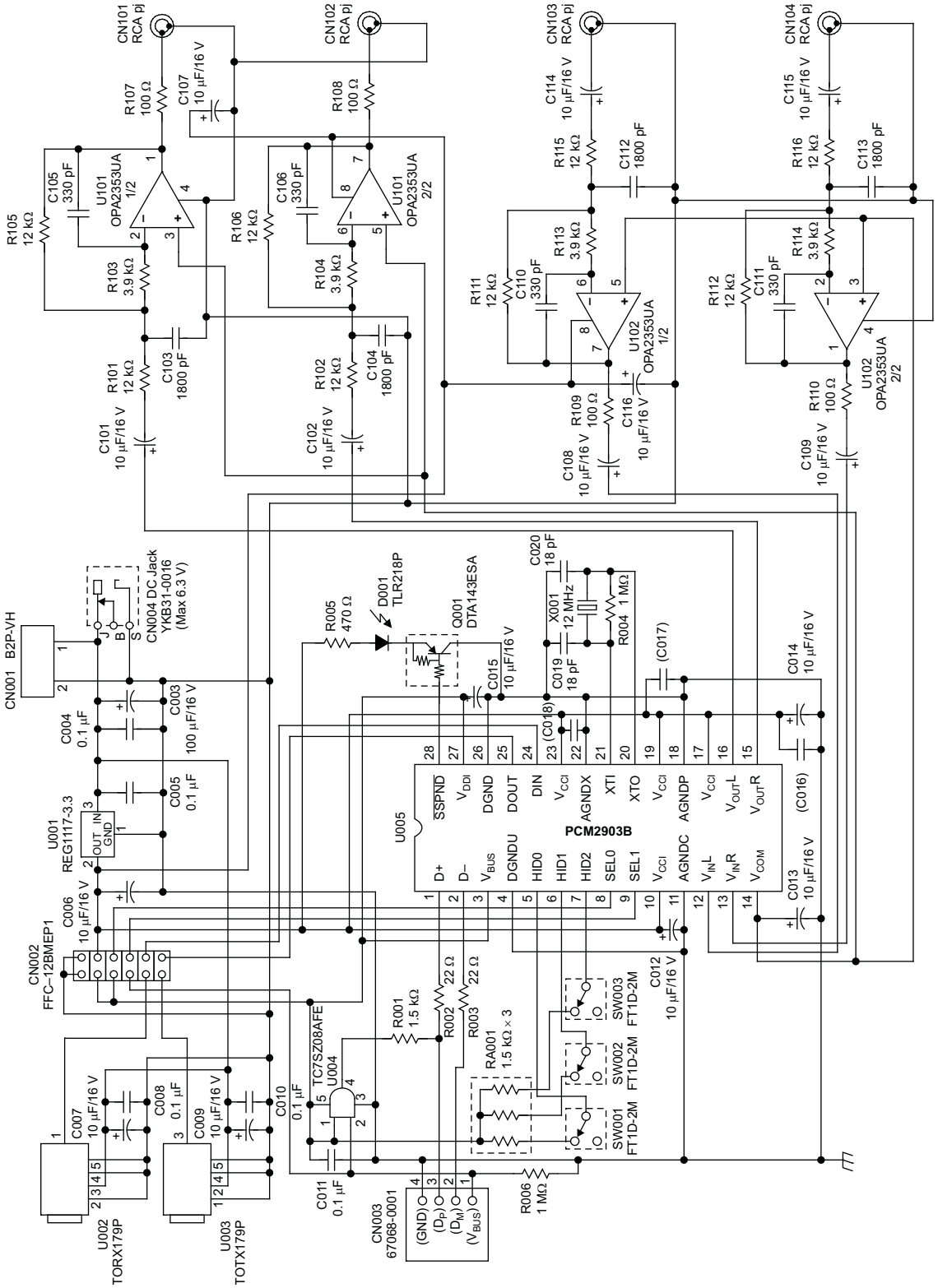

Figure 5. DEM-PCM2903B Schematic

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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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