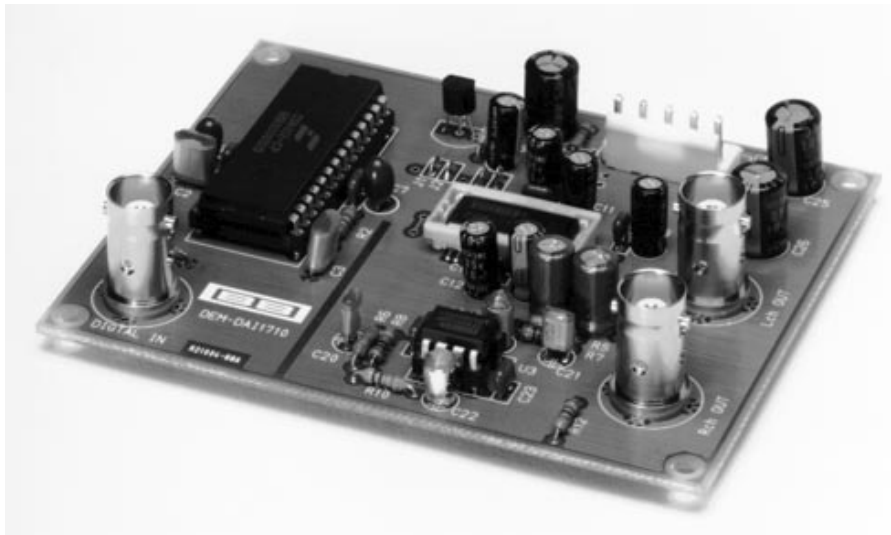




DEM-DAI1710

EVALUTION FIXTURE FOR PCM1710 WITH DAI INTERFACE



FEATURES

- NEWLY DESIGNED MULTI-LEVEL $\Delta\Sigma$ ARCHITECTURE DAC: PCM1710U
- STANDARD DIGITAL AUDIO INTERFACE COAX/BNC CONNECTOR INPUT
- SAMPLING RATE: 32kHz/44.1kHz/48kHz
- SUPERIOR DYNAMIC PERFORMANCE
- 2nd-ORDER ACTIVE LPF ($f_c = 24\text{kHz}$)
- STEREO VOLTAGE OUTPUT: 2Vrms
- POWER SUPPLY: +5V, $\pm 5\text{V}$ to $\pm 15\text{V}$
- BOARD SIZE: 3.94" x 3.15" (100mm x 80mm)

DESCRIPTION

The DEM-DAI1710 is a fully assembled, PCM1710 included, printed circuit board for evaluation of the PCM1710U, dual $\Delta\Sigma$ 20-bit audio Digital-to-Analog converter. The DEM-DAI1710 includes a Digital Audio Interface (DAI) receiver chip for ease of use and to provide the 256fs system clock to the PCM1710. Also included are dual 2nd-order lowpass output filters, employing Burr-Brown's OPA2604 dual FET Op Amp, which outputs stereo 2Vrms signals at the output BNC connectors.

All of the many features of the PCM1710 can be evaluated by using the DEM-DAI1710 jumper selections. The DEM-DAI1710 requires +5V and $\pm 5\text{V}$ to $\pm 15\text{V}$ power supplies.

OPERATIONAL CONDITIONS OF THE PCM1710

The DEM-DAI1710 accepts standard digital audio interface format from the on-board DAI receiver IC.

By Interface to DAI receiver IC (CS8412), operational conditions of the PCM1710 are selected to as follows:

- Parallel Mode/Normal Speed
- 16-bit Normal Interface
- 256fs System Clock Operation

Figure 1 shows selected conditions by Jumpers J1 thru J4. By changing jumper select, the PCM1710 can be operated in its other modes.

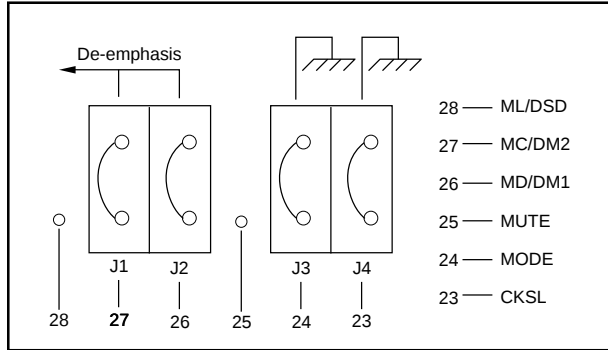


FIGURE 1. Jumper Function.

ELECTRICAL PERFORMANCE

DIGITAL SECTION

Digital Interface: Standard Digital Audio Interface
Digital Input: Coax/BNC Connector, 75Ω
Sample Rate: 32kHz/44.1kHz/48kHz
System Clock: 256fs

ANALOG SECTION

THD + N at F/S: -92dB typ (with 20kHz LPF)
-70dB typ (with 30kHz LPF)
S/N Ratio: 108dB typ (ELAJ, A-weighted)
Dynamic Range: 98dB typ (ELAJ, A-weighted)
Analog Output: 2Vrms
De-emphasis Error: ±0.1dB (fs: 44.1kHz)

POWER SUPPLY REQUIREMENTS

+V_{CC}: +4.75V to +5.25V
+I_{CC}: +60mA typ, +120mA max
±V_S: ±5V to ±15V
±I_S: ±15mA max

TEST CONDITIONS

The DEM-DAI1710 has 2nd-order active LPF (f_c = 24kHz) on board. However, by sampling theory, the noise spectrum out of the audio band still remains.

Figure 3 shows test block diagram of the DEM-DAI1710, using a 20kHz LPF to reduce noise spectrum out of the audio band.

Typical THD + N performance with 20kHz LPF is -92dB, without 20kHz LPF (with 30kHz LPF on THD meter) is -70dB.

BLOCK DIAGRAM

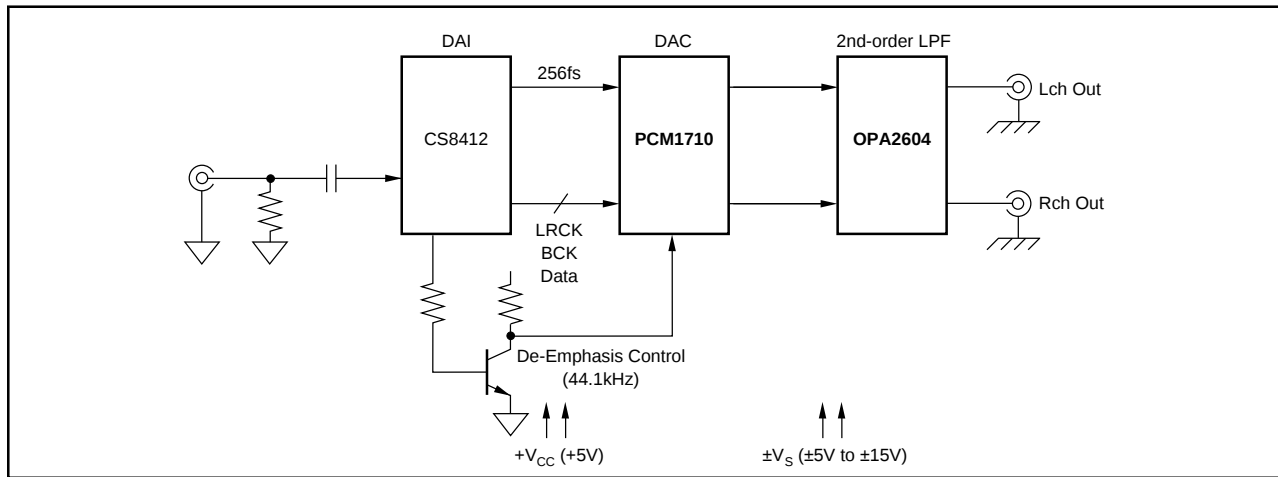


FIGURE 2. Block Diagram of the DEM-DAI1710.

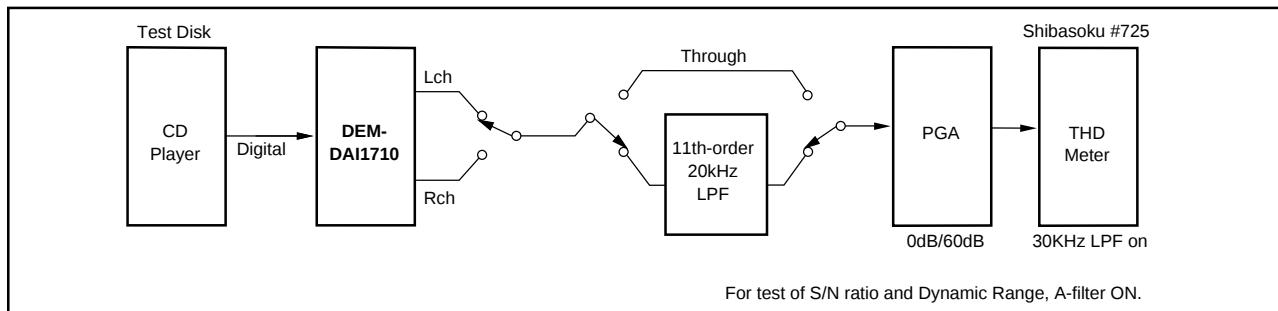


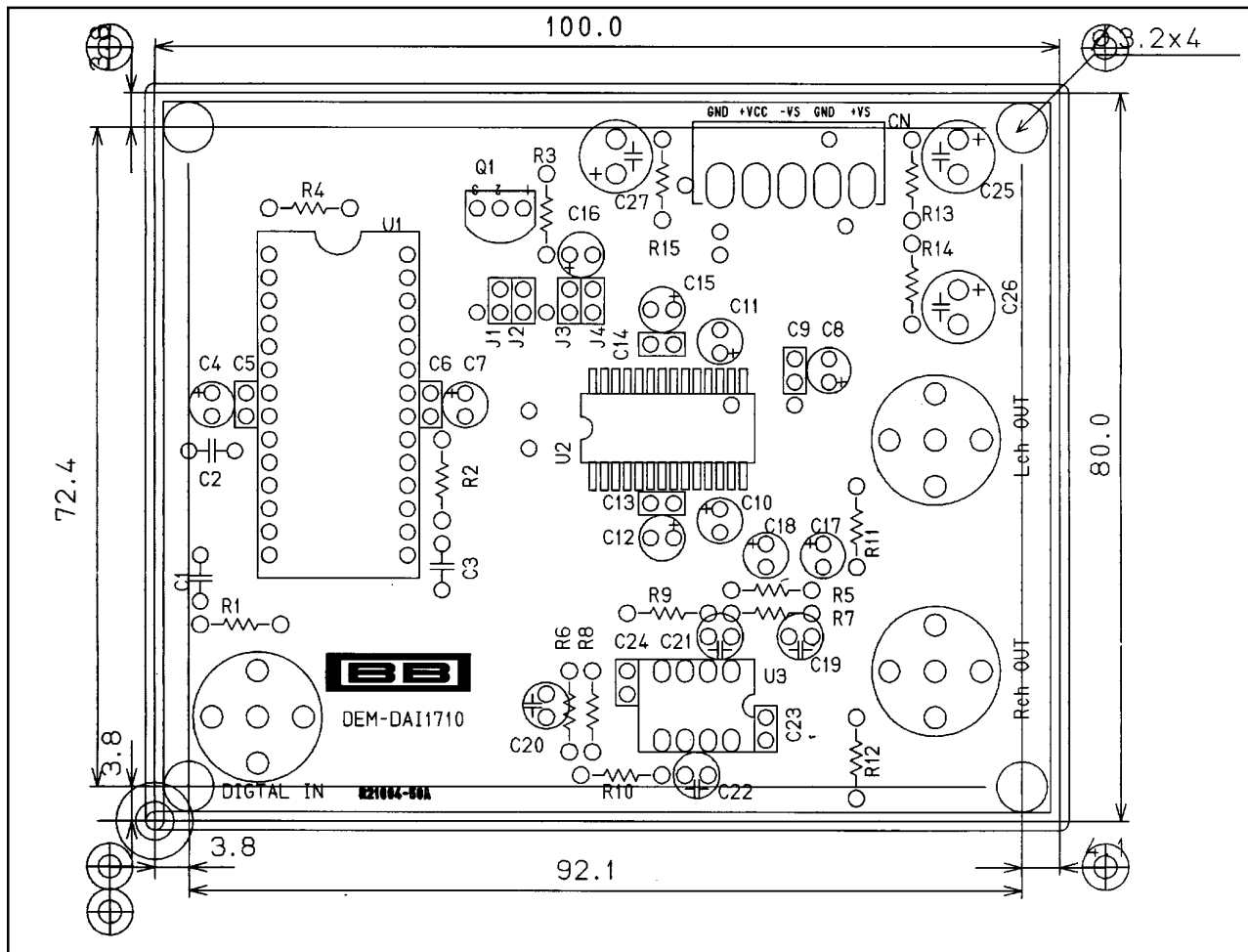
FIGURE 3. Test Block Diagram.



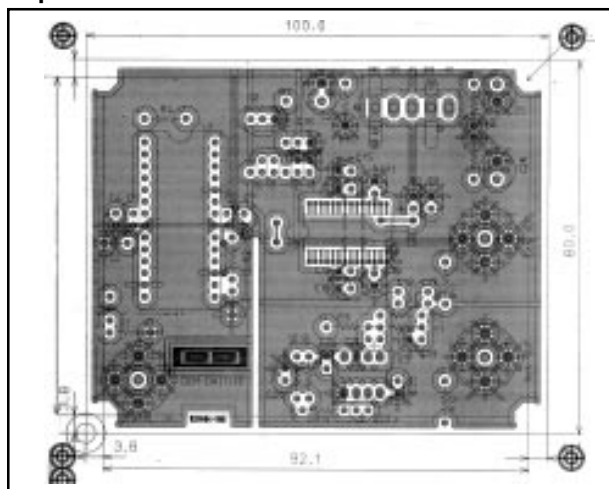
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PC BOARD LAYOUT

Parts Location



Top View



Bottom View

