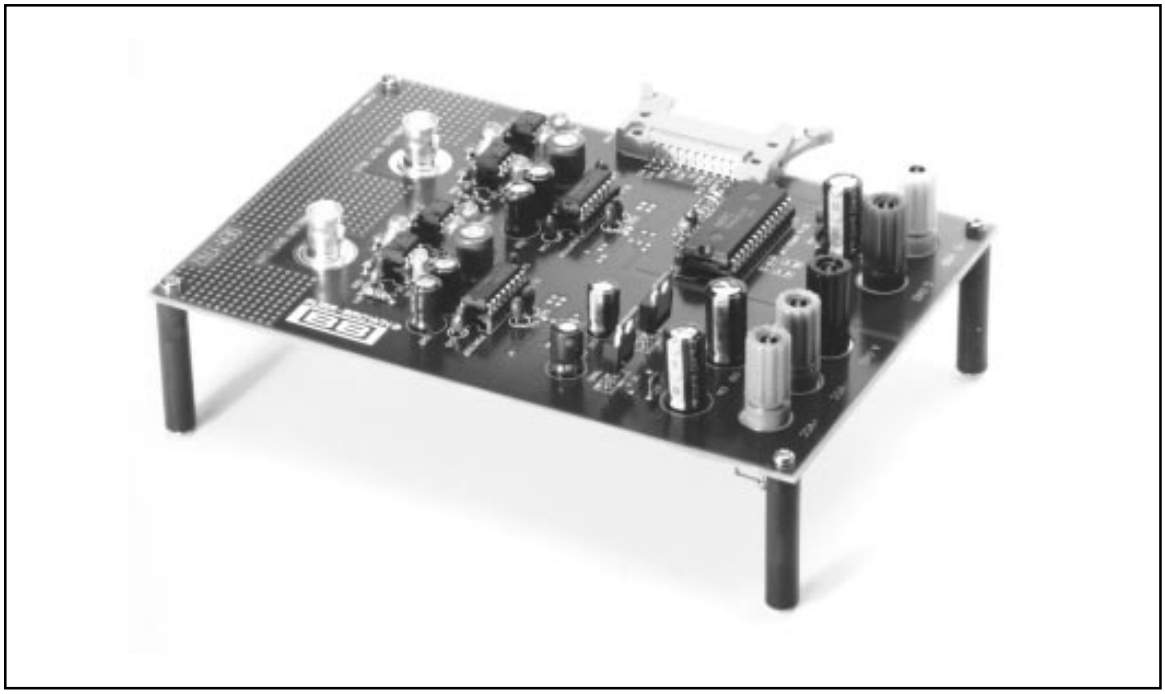
BURR - BROWN®

DEM-PCM1702
EVALUATION FIXTURE



FEATURES

- **COMPLETE 20-BIT STEREO D/A CONVERSION SYSTEM**
- **NEW SIGN-MAGNITUDE DAC: PCM1702P**
- **8x DIGITAL FILTER: SM5842AP**
- **HIGH PERFORMANCE**
  THD+N at (F/S): 0.0015%
  Dynamic Range: 108dB (EIAJ)
  S/N Ratio: 120dB (EIAJ)
  Non Zero Cross Distortion
- **SERIAL DIGITAL INTERFACE**
- **ANALOG OUTPUT: ±3V**
- **POWER SUPPLY: ±9V to ±12V, +5V**
- **DIRECT INTERFACE TO DEM-PCM1760**
- **BOARD SIZE: 182mm X 128mm**

DESCRIPTION

The DEM-PCM1702 is an evaluation fixture for Burr-Brown's sign-magnitude, 20-bit digital-to-analog converter, the PCM-1702. It is primarily intended for quick evaluation of the PCM1702P's spectral purity and sound fidelity.

Two PCM1702s are provided to allow full stereo evaluation. The input to the DEM-PCM1702 can be the output serial data from DEM-PCM1760 (Burr-Brown's evaluation fixture for its 20-bit A/D and digital filter, the PCM1760 and DF1760), or other digital signal source through the interface connector.

The number of digital input data bits and optional functions are selectable by switches on board.

The analog output signal is filtered by a GIC type low pass filter (dual OP AMP) and the filtered output appears on the output connectors (BNCs).

International Airport Industrial Park • Mailing Address: PO Box 11400 • Tucson, AZ 85734 • Street Address: 6730 S. Tucson Blvd. • Tucson, AZ 85706
Tel: (602) 746-1111 • Twx: 910-952-1111 • Cable: BBRCORP • Telex: 066-6491 • FAX: (602) 889-1510 • Immediate Product Info: (800) 548-6132

LI-429 Printed in U.S.A. July, 1994

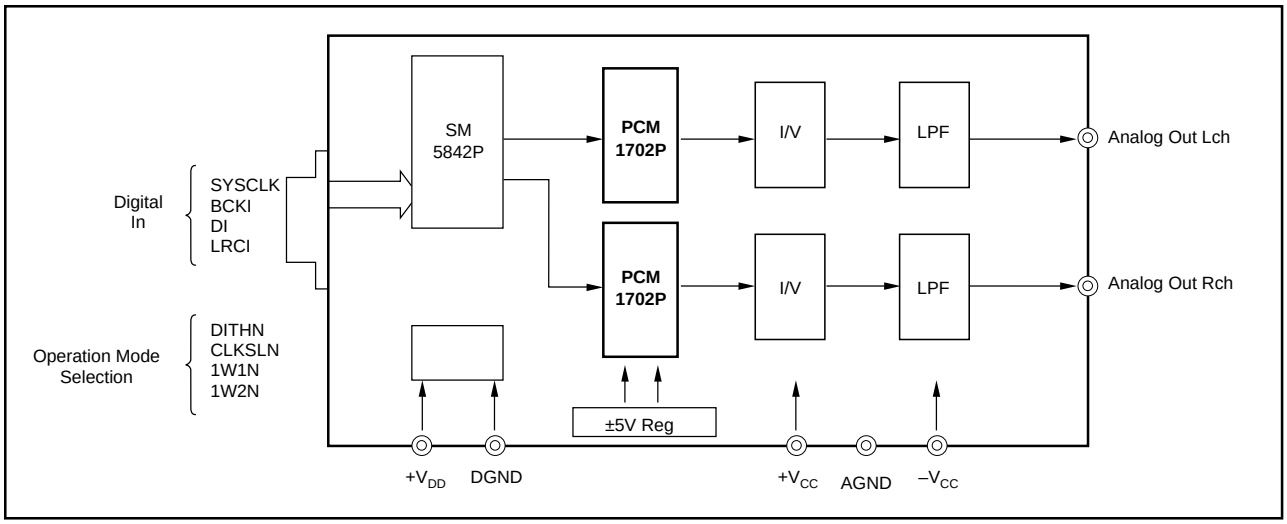


FIGURE 1. Block Diagram of the DEM-PCM1702.

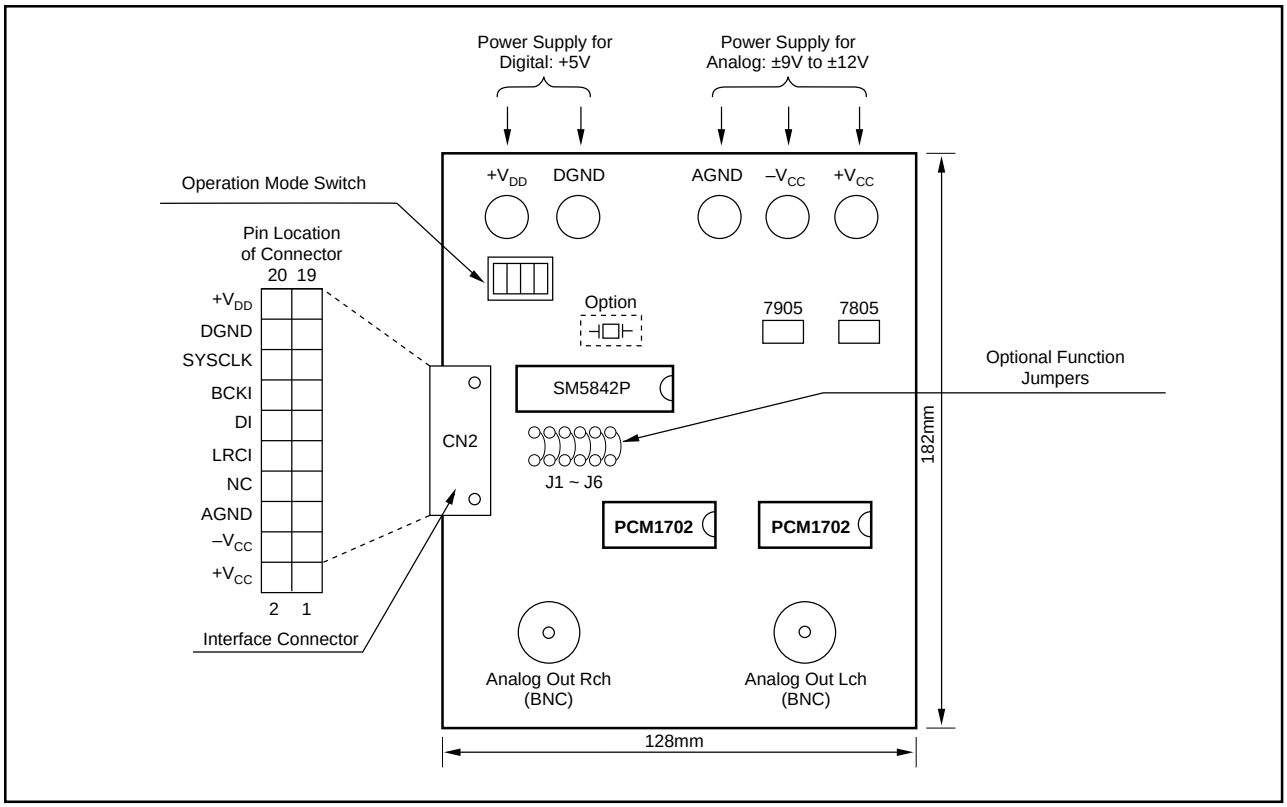


FIGURE 2. Component Location and Function.

OPERATION MODE SELECT SWITCH

The Operation Mode Select switch provides for the selection of dither, system clock and input format as described in the tables below.

NAME	FUNCTION	L	H
DITHN	Dither Select	Dither On	Dither Off
CLKSL	System Clock Select	256fs	384fs
1W1N (2N)	Input Format Select	Table of Below	

INPUT FORMAT	1W1N	1W2N
MSB First, Right-justified, 16-Bit	H	H
MSB First, Right-justified, 18-Bit	L	H
MSB First, Right-justified, 20-Bit	H	L
MSB First, Right-justified, 24-Bit	L	L

For detailed timing infomation, see the data sheet for the NPC SM5842AP.

From the factory, these switches are set to provide for no dither, system clock equal 256fs and data format set for MSB first, right justified, 20-bit, as shown below.

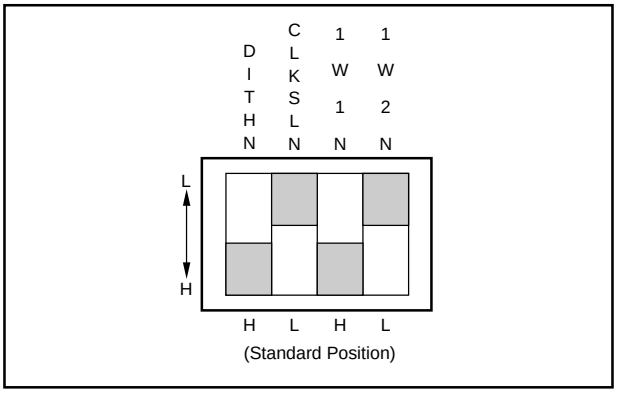


FIGURE 3. Opearation Mode Select Switch.

OPTIONAL FUNCTION JUMPERS

The optional functions of right and left channel de-emphasis, the de-emphasis system clock, and right and left channel mute are controlled by jumpers J1 through J6 as shown in the following table.

JUMPER #	FUNCTION	JUMPER	NO JUMPER
J1	De-emphasis, Rch	OFF	ON
J2	De-emphasis, Lch	OFF	ON
J3	De-emphasis, fs-32kHz		X
J4	De-emphasis, fs-32kHz		X
J3	De-emphasis, fs-41.4kHz	X	
J4	De-emphasis, fs-41.4kHz	X	
J3	De-emphasis, fs-48kHz	X	
J4	De-emphasis, fs-48kHz		X
J5	Mute, Rch	No Mute	Mute
J6	Mute, Lch	No Mute	Mute

From the factory, Jumpers J1, J2, J5 and J6 are installed, as shown below, setting the system clock at 32kHz, no de-emphasis and no mute.

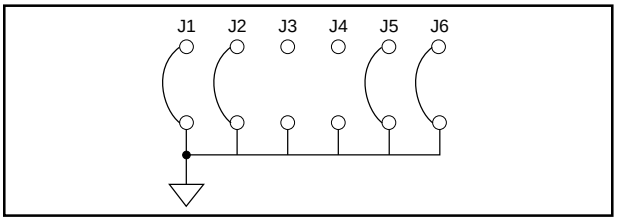


FIGURE 4. Optional Function Jumpers.

SYSTEM CLOCK OPERATION

A system clock (SYSCLK) is required for operation of the DEM-PCM1702. If the DEM-PCM1702 is being used with the DEM-PCM1760, the 256fs or 384fs system clock is provided by the DEM-PCM1760 through pin 16 of the Interface Connector, as described below. (NOTE: Care must be taken to insure both boards are set to the same master clock.)

If the DEM-PCM1702 is being used where it must generate the 256fs or 384fs master clock, the appropriate crystal can be connected to the SM5842.

COMBINATION WITH DEM-PCM1760

The DEM-PCM1702 can be directly combined with the DEM-PCM1760 (20-bit stereo A/D conversion system).

In this case, the connector pins of the DEM-PCM1702 and the DEM-PCM1760 are connected directly together.

The power supply for the DEM-PCM1760 is provided by the DEM-PCM1702 and the serial digital data (within system clock) is provided to the DEM-PCM1702 from the DEM-PCM1760.

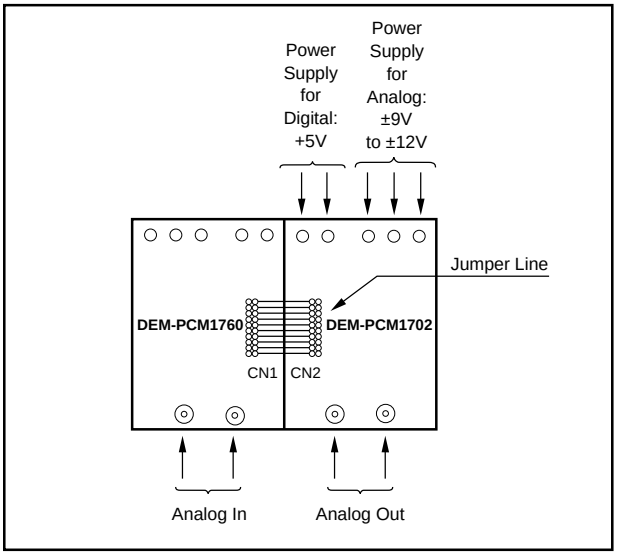


FIGURE 5. Combination with DEM-PCM1760.

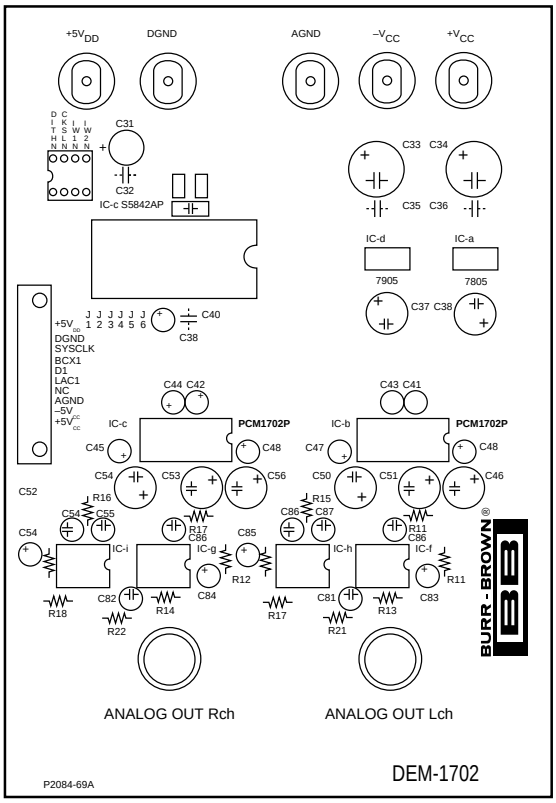
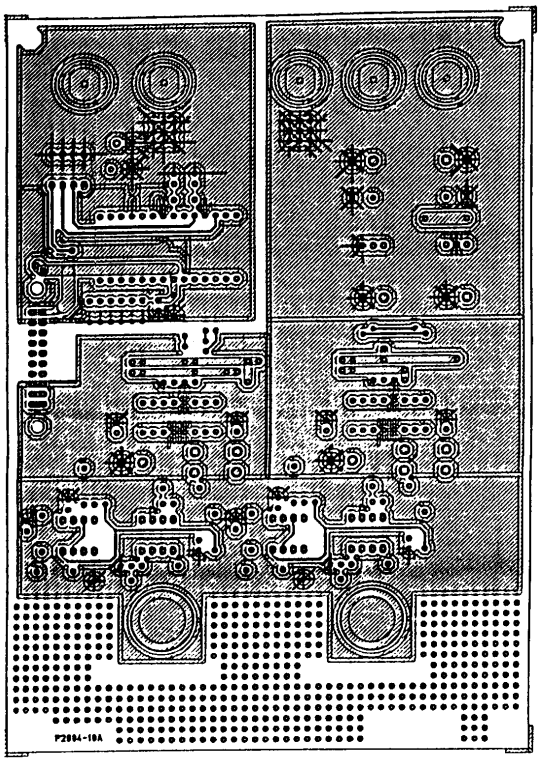
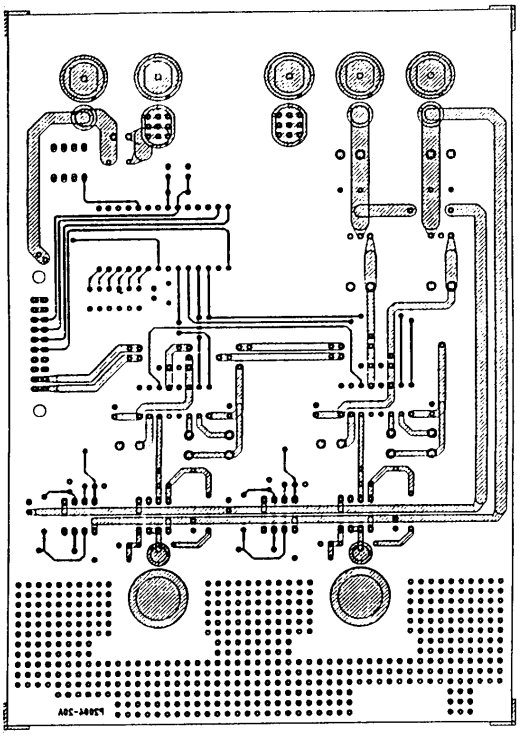


FIGURE 6. DEM-PCM1702 Board Layout and Component Location.



TOP



BOTTOM

FIGURE 7. DEM-PCM1702 Layer 1 and Layer 2.

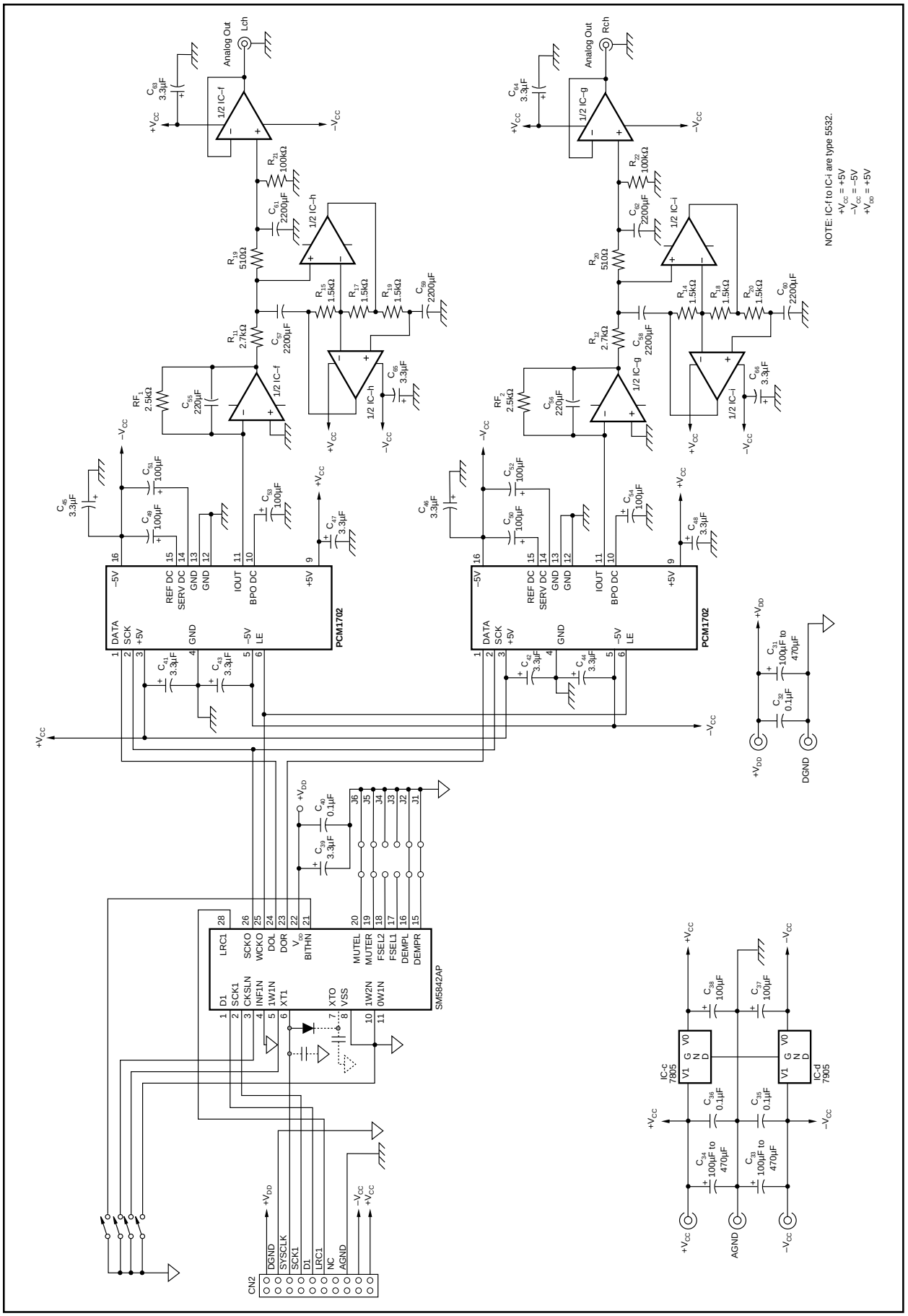


FIGURE 8. DEM-PCM1702 Circuit Diagram.