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USB AKD4571

AK4571 Evaluation board Rev.1

General Description

AKD4571 is an evaluation board for CODEC with USB I/F part, AK4571. As the AK4571 is highly integrated, only a few external components, which are a regulator, Xtal, resistors and capacitors, are required for building USB I/F headset. The AK4571 has also EEPROM I/F for customizing Device Descriptor and String Descriptor. So the AK4571 can customize Vendor ID, Product ID in Device Descriptor and String Descriptor. AK4571 is a bus-powered device and can operate with only standard USB audio, HID drivers. So you don't need external power supply and any special software.

Components

- AK4571
- Xtal (12.000MHz)
- Microphone IN & Lineout Jacks
- 3.3V output voltage Regulator (LT1521)
- 4 Push buttons for HID (LINE_MUTE, VOL_DOWN, VOL_UP, MIC_MUTE)
- 1K(M93C46) EEPROM
- Headphone Amplifier (LM4881)
- USB B-type Connector

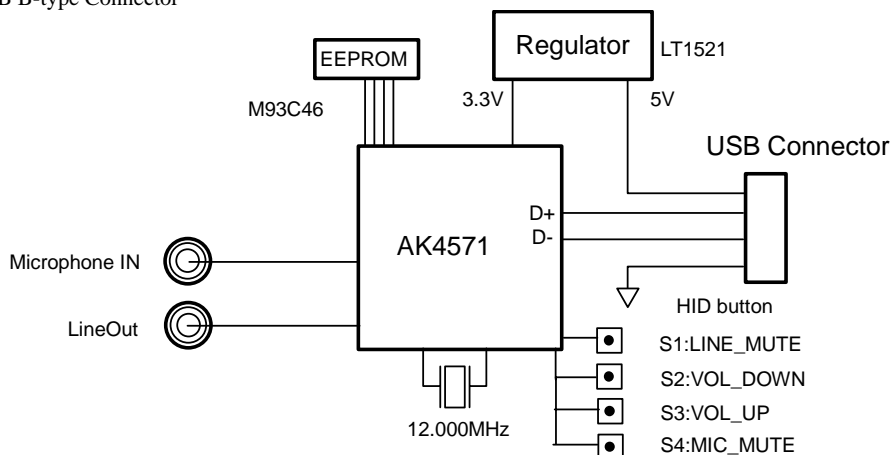


Figure 1 AKD4571 Block Diagram

Operations

[Jumper setup]

Put the board like this [USB Port: upside, Microphone IN, LineOUT jack downside] then You have to check a jumper setup before AK4571 attaches to USB in case of transportation problems.

Jumper JP1 (IAMP): headphone amp power ON/OFF SW

Open: OFF
Short: ON (**default**)

Jumper JP2 (EPEN): EEPROM Enable Jumper

Open: Read Device/String descriptor from **Internal ROM (default)**
Short: Read Device/String descriptor from External ROM (M93C46)

Jumper JP3 (EEPROM I/F): CS, SK, EPAO, and EPDI Interface

When you would like to write the information you want to external EEPROM, this EEPROM I/F is used.

SW1 (LINEOUT SEL) select whether using Headphone Amp or not

THR: Lineout pin connected directly to HeadPhone jack, ie. Without using Headphone amp.
AMP: Lineout pin connected to HeadPhone jack by way of headphone amp (LM4881) (**default**)

HID Function

HID function is supported under Windows ME, Windows 2000 and Windows XP. There are 2 functions such as mute, volume up/down. Pressing buttons S1, S2, S3 makes the AK4571 set playback mute, volume up/down respectively via PC to AK4571. The slider on the speaker box is moving upon pressing HID button simultaneously.

Note:

Current Windows HID driver doesn't support recording mute function. But Analog input/recording signals to AK4571 can be muted independently of the HID driver. AK4571 has also a feature of status that is MIC_MUTE LED (D2). If analog input signals force to mute, MIC_MUTE LED is ON.

EEPROM Write Program for AK4571 Demo Board

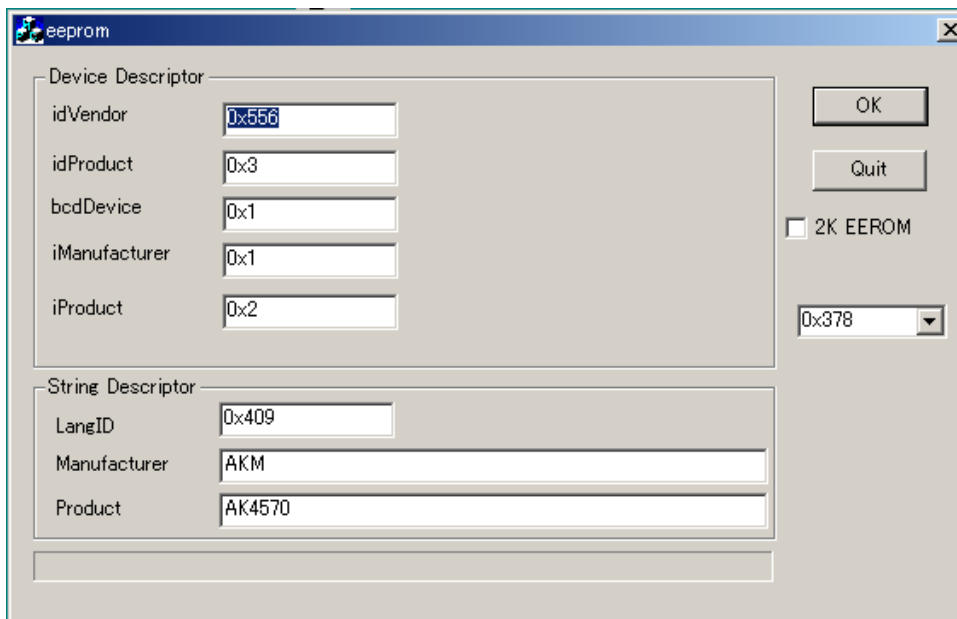
Note: This program operates under Windows 98/Me, but does NOT operate Windows 2000.

a) Installation

- 1) Copy eeprom.exe and view.exe to appropriate directly
- 2) Set JP2 to be open on the demo board.
- 3) Connect parallel port cable to PC and JP3 (EEPROM I/F) on the Demo Board.
- 4) Connect USB cable to PC and Demo Board
- 5) Run eeprom.exe

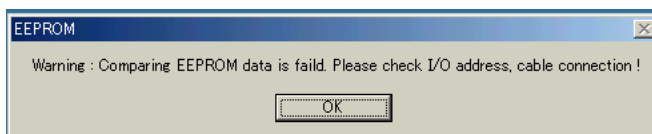
b) How to use

It is easy to use this software. Please write appropriate values to each string box, and select I/O address. After that, push "OK" button.



c) Trouble Shooting

- 1) If PC displays the following dialog boxes after pressing "OK" button, please check JP2 on the Demo Board, USB cable and EEPROM I/F signal cable.



- 2) Note that this Program doesn't support 2K/4K EEPROM.
- 3) If you can't resolve the problem, Please use view.exe program under MSDOS Console Window. Type "view [I/O address]" like "view 0x378" under MSDOS prompt. Program reads EEPROM data and displays Device Descriptor and String Descriptors.

d) Plug in

- 1) Disconnect EEPROM I/F signal cable and USB cable
- 2) Set JP2 [EPEN] to be short on the demo board [EEPROM mode]
- 3) Connect USB cable to PC and Demo Board

Configuration with EEPROM mode

1) Check Jumper J2 (EPEN)

Short

The following strings are already stored in EEPROM of this evaluation board before shipment. So you can easily confirm this function without writing data. Plug in the device into USB port. You can see the string "AK4571 EEPROM mode" on the screen during installation.

The written data on the EEPROM is below.

Device Descriptor section

```
idVendor      :0x556
idProduct     :0x00FF
bcdDevice     :0x1
iManufacturer :0x1
iProduct      :0x2
```

String Descriptor section

```
LangID       :0x0409
Manufacturer  :AKM
Product      : AK4571 EEPROM mode
```

Conversion pin assign Table

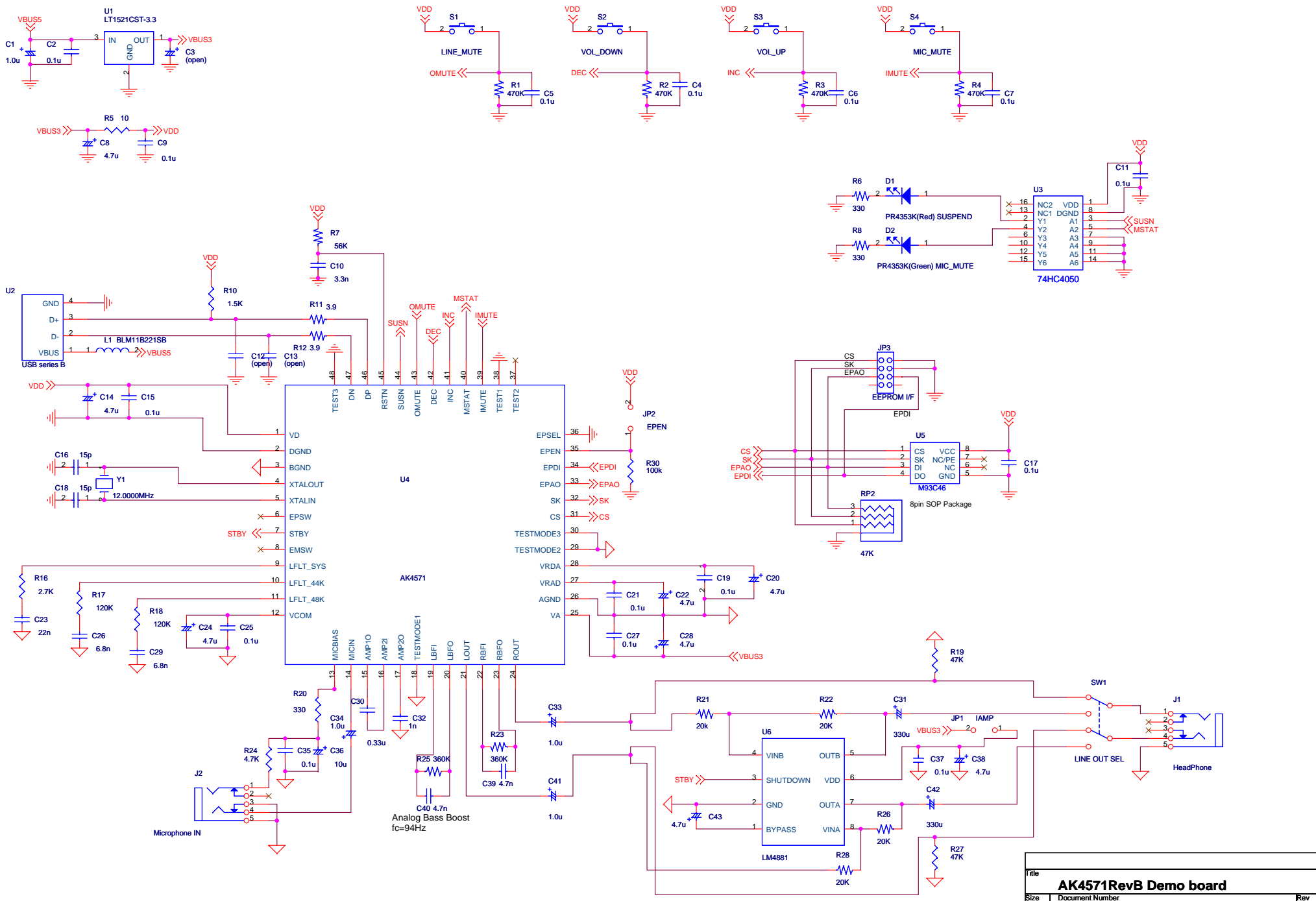
Parallel port Pin#	JP3 pin#	Function EEPROM
2	EPAO	DI: serial data input
3	SK	SK: serial data clock
4	CS	CS: chip select
10	EPDI	DO: serial data output

Revision History

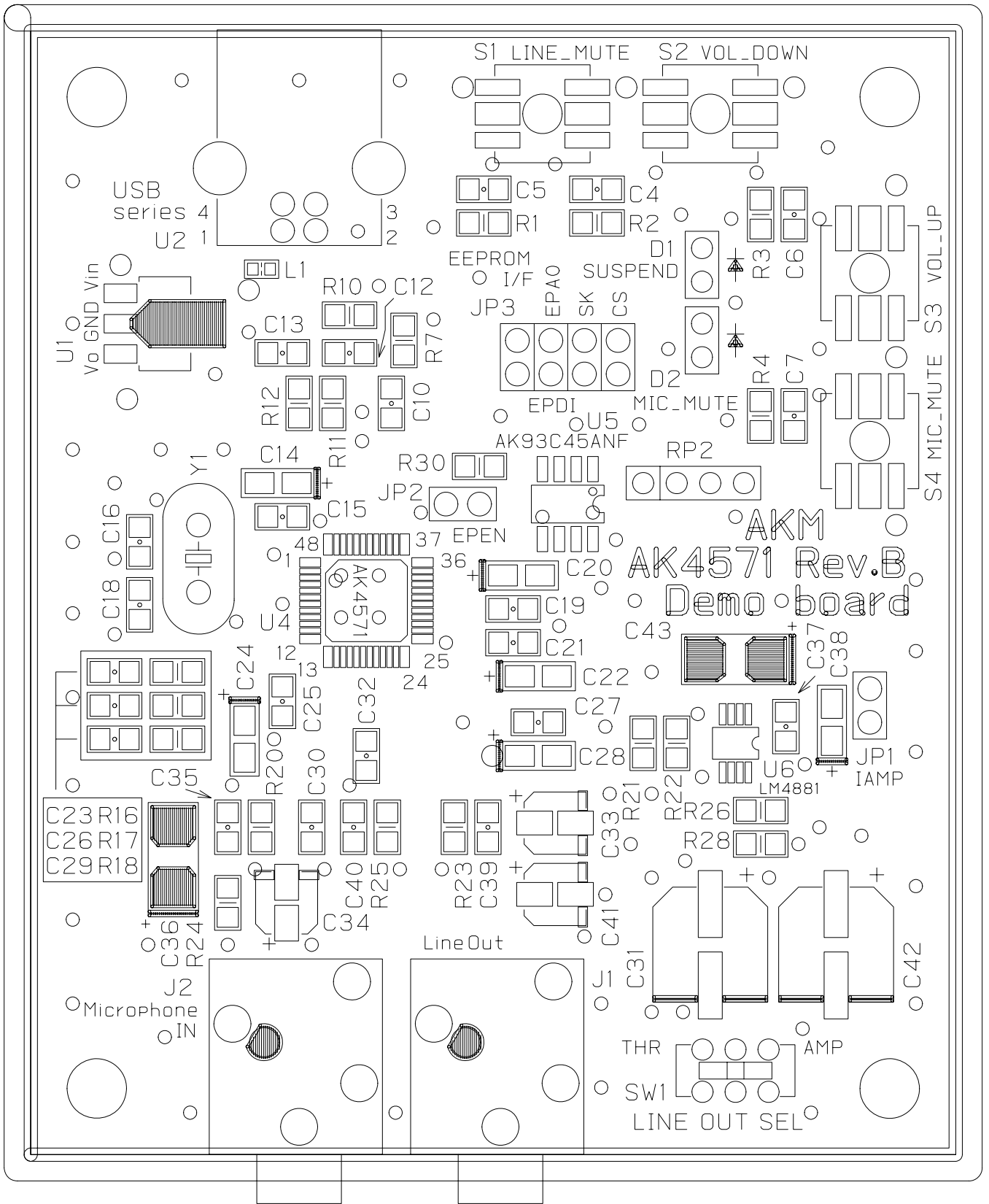
Date (YY/MM/DD)	Manual Revision	Board Revision	Reason	Contents
02/02/02	KM068400	0	First edition	
07/06/11	KM068401	1	Device Changed	AK93C45ANF M93C46

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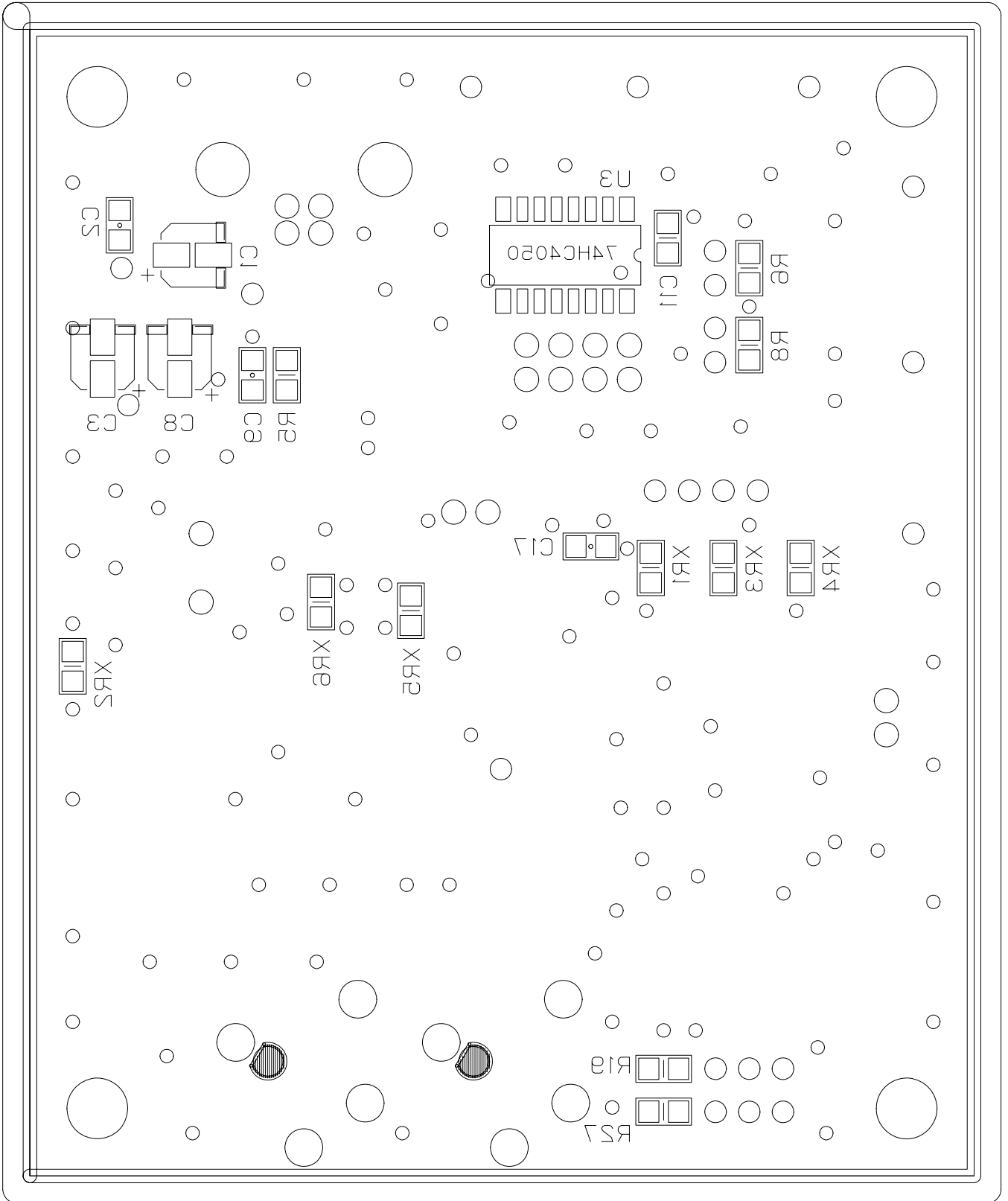
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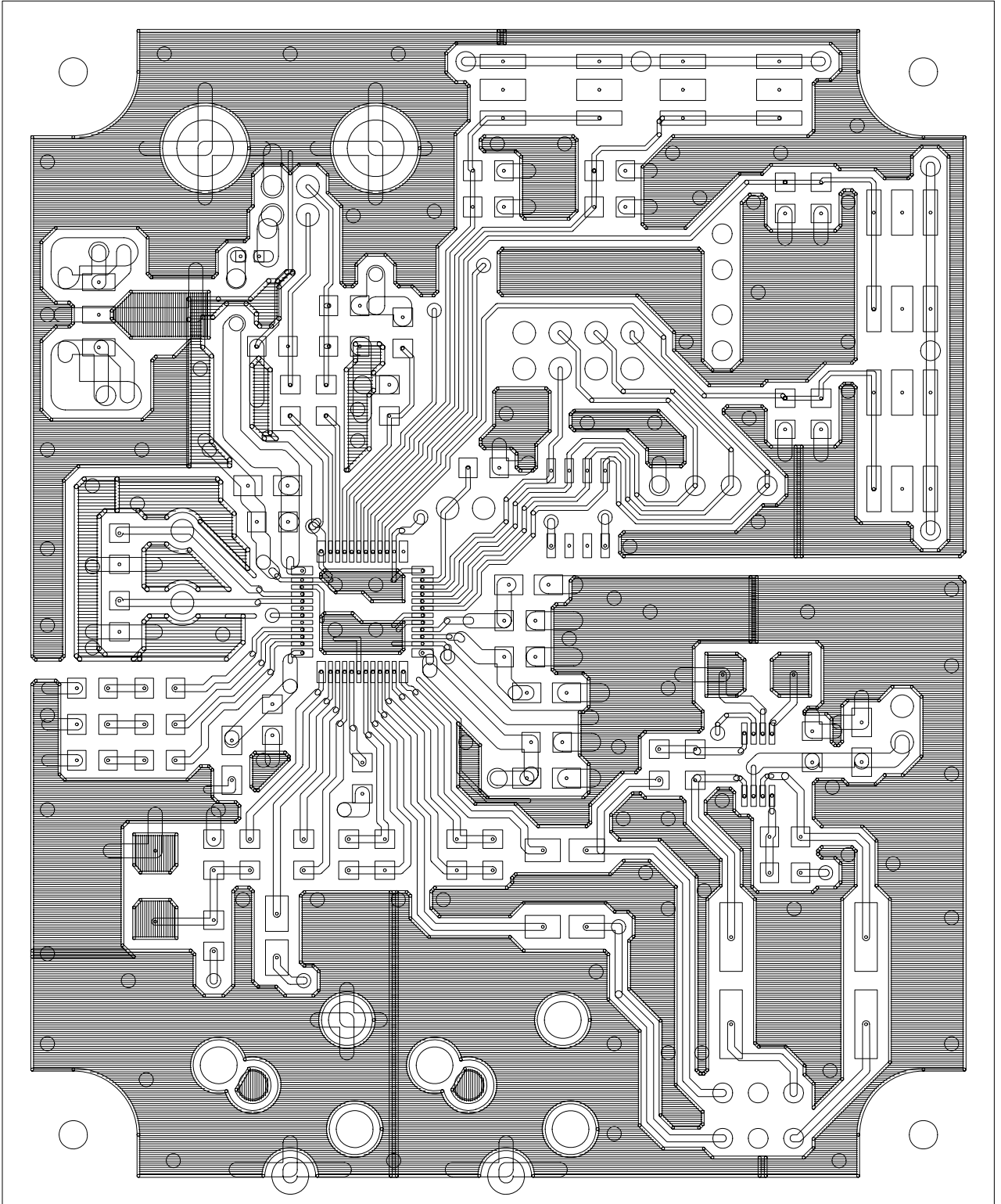
Title		
AK4571 RevB Demo board		
Size	Document Number	Rev
A3	Main Board	0.85
Date:	Monday, June 11, 2007	Sheet 1 of 1



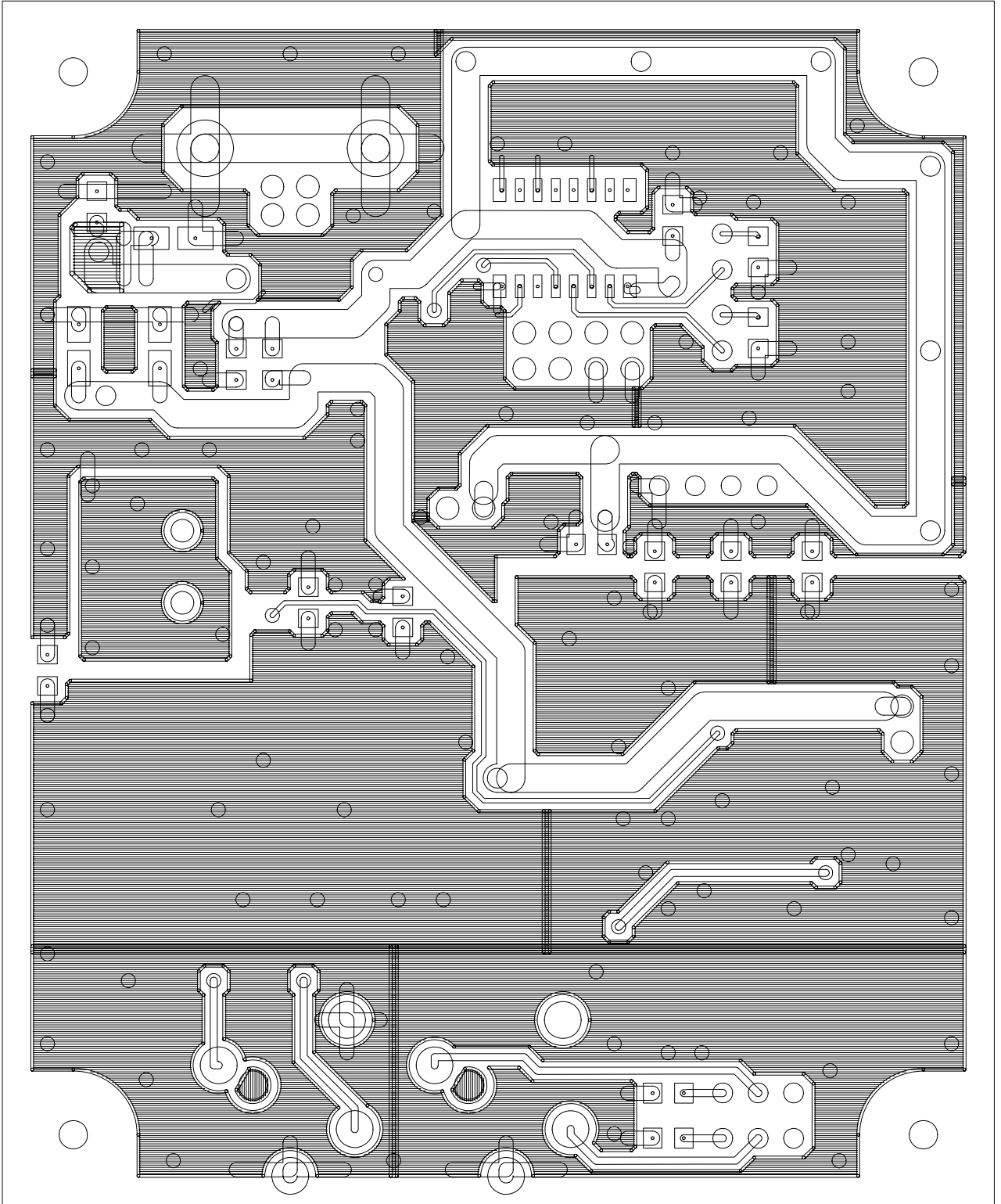
AKD4571 L1 Silk.Resist



AKD4571 L2 Silk.Resist



AKD4571 L1 Pattern



AKD4571 L2 Pattern