

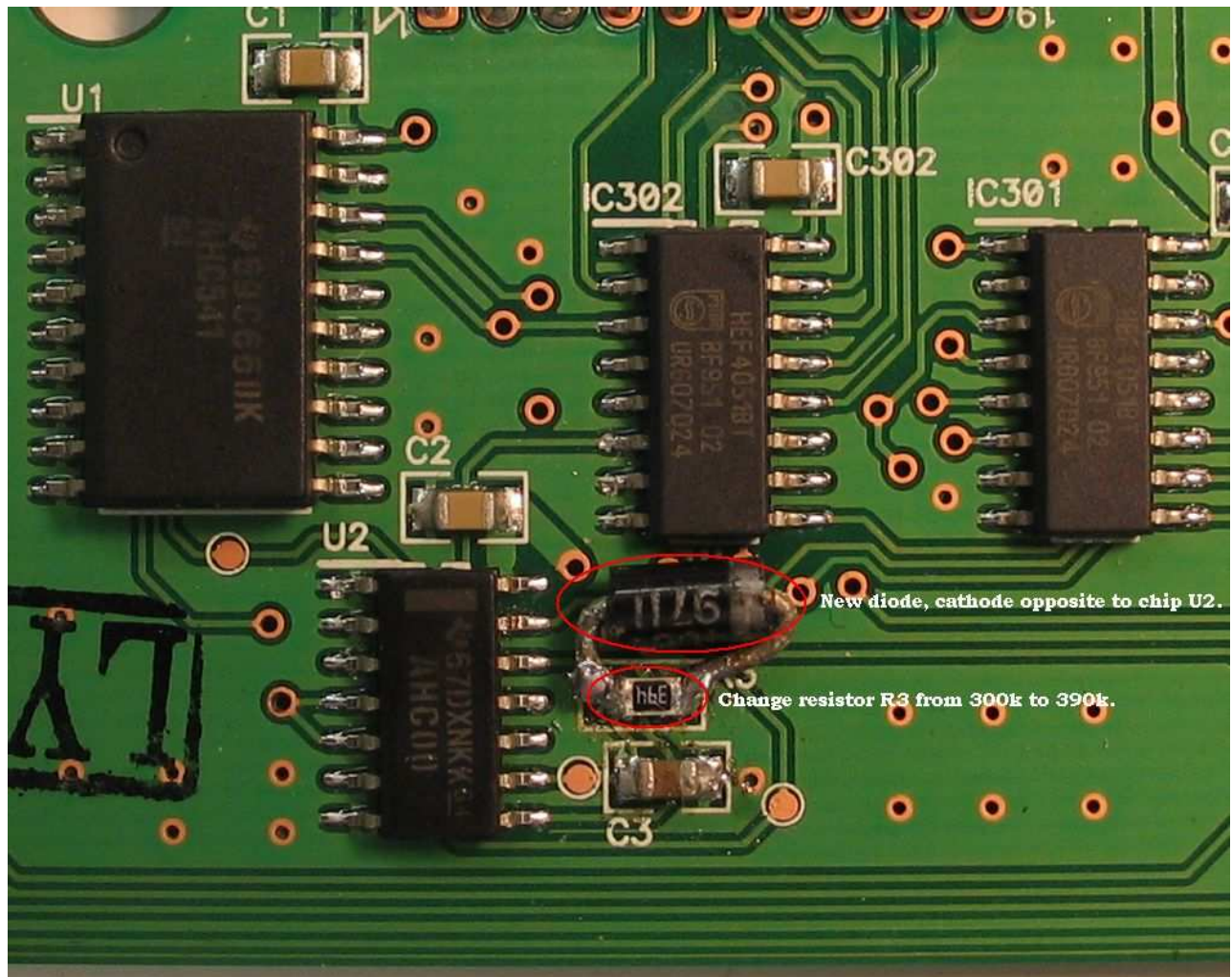


# AC1A Pad Version Detect Fix

## Procedure:

Note: The following modification is to be performed on the rev A Operation PCB connected to the pads (AL9-40-0456-A).

1. Remove resistor R3 (330k $\Omega$ ).
2. Solder 390k $\Omega$  resistor into location R3.
3. Solder 1N4004 or 1N4148 diode across resistor R3, with cathode (line) on VDD (the end of resistor R3 further away from chip U2), and anode on the point between R3 and C3.



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Requirements:

A circuit is to be added such that the microcontroller can determine that the current board is of a later rev than the original board. This must be done with changing only the PAD PCB and without changing the connectors to the main board.

Theory of operation:

An RSFF is set by an RC and cleared by PS0. This turns on and off tristate buffers and analog muxes. An RSFF circuit has 4 states:

Inputs	Outputs
00	11
01	10
10	01
11	Hold previous state

One input to the RSFF is an RC, chosen such that its time constant is slower than the time needed for the microcontroller to pull PS0 low. When PS0 is pulled low, and the RC has not charged up, the inputs are 01 from top to bottom, thus outputting 10. This inhibits the analog muxes, tristating the outputs, and turns on the tristate buffers. The output 10 will be held even when the RC charges up, since that will put the RSFF into the hold state.

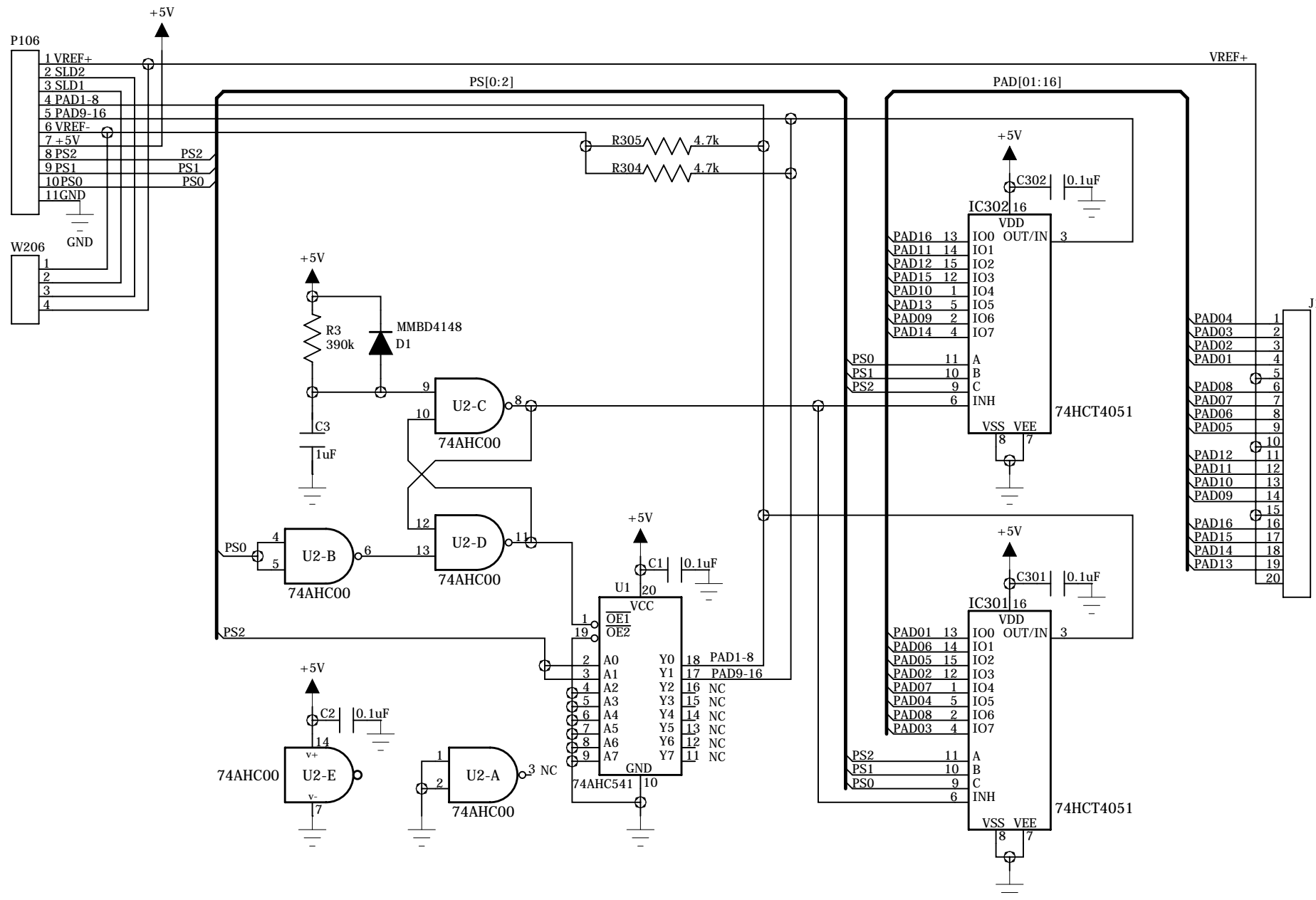
Once the microcontroller pulls PS0 low, it may then send any bitstream through PS2, and it will appear on the lines PAD1-8 and PAD9-16. It may send any bitstream pattern deemed necessary to distinguish the board from the previous rev.

When the microcontroller has determined the board rev, it then pulls PS0 high, which makes the inputs to the RSFF 10 and its outputs 01. This disinhibits the analog muxes and sets the tristate buffers to high-Z. The PS lines may then toggle freely since the RSFF can only transition between 10 and 11, both giving the same outputs, keeping the analog muxes on and the tristate buffers off. At this point the added circuit has been taken out of the loop, and will stay that way until the next power cycle.

At power down, the diode will discharge the capacitor at a rapid rate in preparation for the next power up.

This board is compatible with the previous revision in that if this board is placed into a unit with old microcontroller code, the board will act normally the first time the PS0 line gets pulled high after the RC charges. If an old board is placed in a unit with new microcontroller code, the code will detect nontransmission of the recognition stream on the PAD lines and revert to old code.

PS2	PS1	PS0	PAD1-8	PAD9-16
0	0	0	PAD01	PAD16
0	0	1	PAD06	PAD10
0	1	0	PAD05	PAD12
0	1	1	PAD02	PAD09
1	0	0	PAD07	PAD11
1	0	1	PAD04	PAD13
1	1	0	PAD08	PAD15
1	1	1	PAD03	PAD14



COMPANY:		<b>Akai</b>	
TITLE:		<b>PC(#)-Operation - Pad</b>	
PART NUMBER:		9-40-0456-j	
ASSY NUMBER:		9-79-0456-j-1	
FILENAME:		ac1apda01j.sch	
SCALE:		SHEET: 1 of 1	

DRAWN:	DATED:
SHSW	Jul 11, '07
RELEASED:	DATED:

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