EV4835A-RD-00A

180V, 32-Channel Analog Switch Evaluation Board

DESCRIPTION

The EV4835A-RD-00A is an evaluation board for the MP4835A, a high voltage 32-channel analog switch. The MP4835A is designed for medical ultrasound application. It can also be used for non-destructive test (NDT) as the application is very similar to medical ultrasound.

The high voltage analog switches are used to multiplex the transmitter and receiver circuitries to different piezoelectric transducer (PZT) elements. The MP4835A has a resistor to ground on the output pins, SWout. This is to help ensure there is no significant DC voltage built up across the PZT element. The switches can be turned on/off via a serial 32-bit shift register. The serial control interface will help minimize the number of I/O connection.

FEATURES

- 32 Channels
- No High Voltage Bias Required
- Up to ±90V Analog Signal
- 14Ω Typical Switch Resistance
- ±2.0A Typical Switch Peak Current
- 80MHz Clock Frequency at VLL=5.0V
- 40MHz Clock Frequency at VLL=3.3V
- Integrated Bleed Resistors – MP4835A

APPLICATIONS

- Medical Ultrasound
- Industrial NDT

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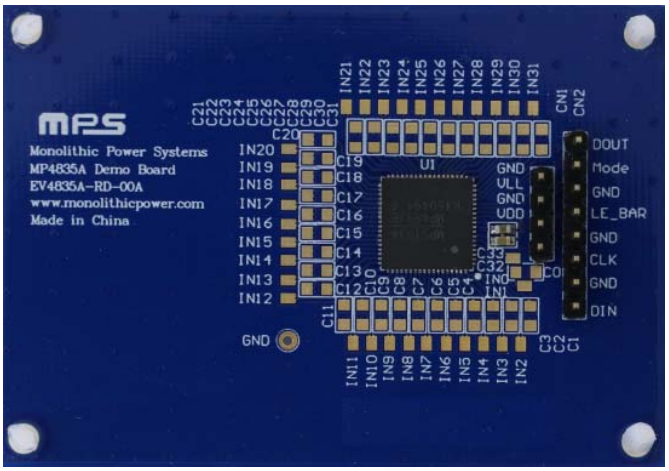
EV4835A-RD-00A EVALUATION BOARD



(L x W x H)
(2.875’’ x 2.0’’ x 0.0625’’)

Board Number	MPS IC Number
EV4835A-RD-00A	MP4835AGRD

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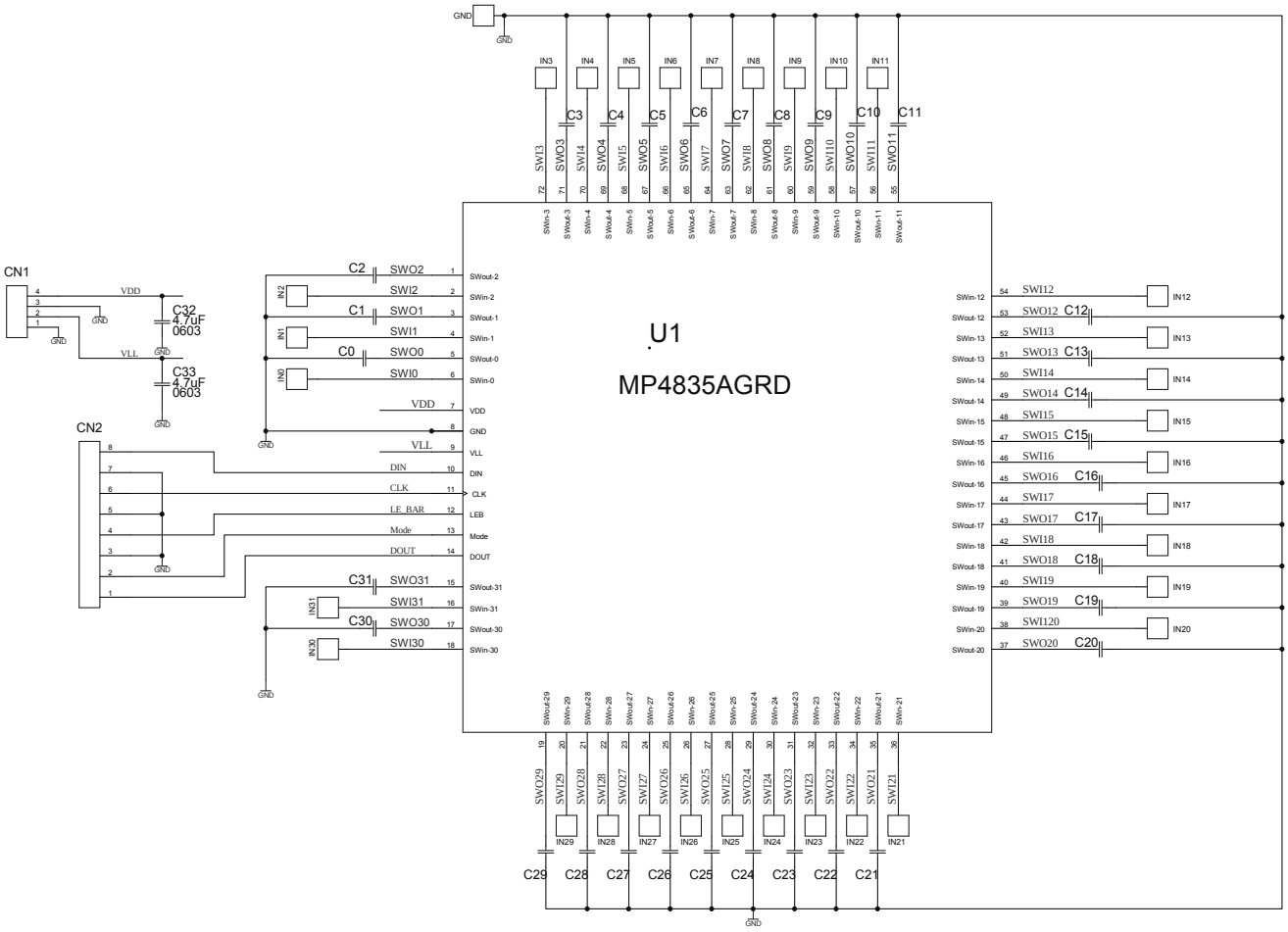
EVALUATION BOARD SCHEMATIC



EV4835A-RD-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C32, C33	4.7µF	Ceramic, 16V, X7R	0603	muRata	GRM188R61C475KAAJD
32	C0-C31	NS		0805		
1	U1		180V, 32-ch analog switch	QFN-72	MPS	MP4835AGRD
1	CN1	4Pin	4 pin header, 0.100” pitch		Molex	
1	CN2	8Pin	8 pin header, 0.100” pitch		Molex	

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PRINTED CIRCUIT BOARD LAYOUT

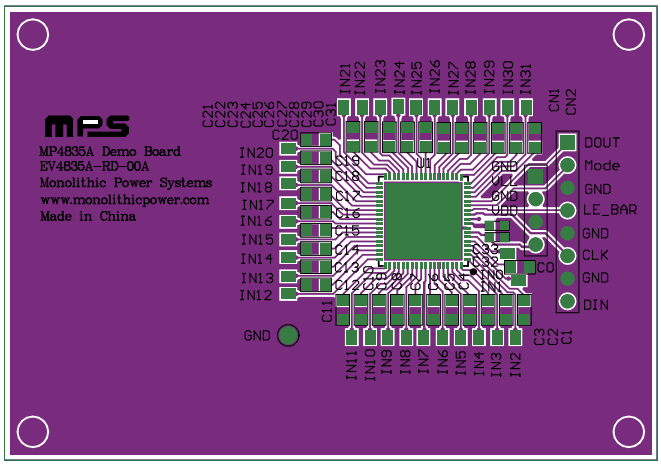

Figure 1: Top Layer

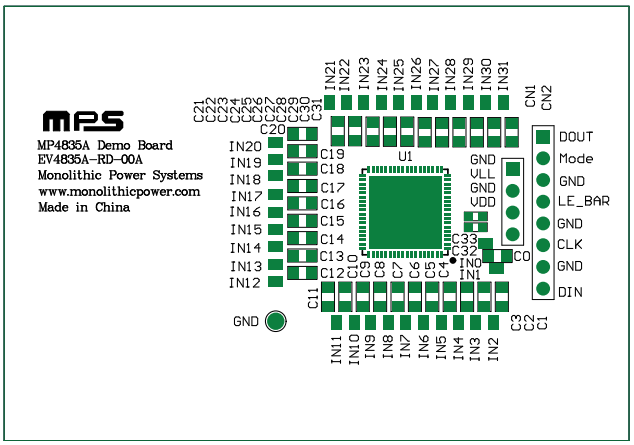

Figure 2: Top Silk Layer

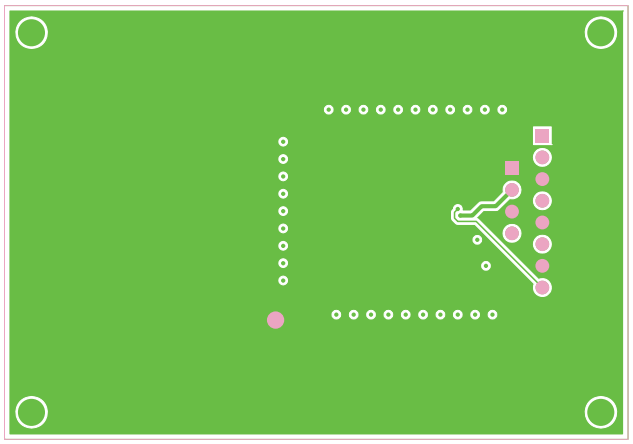

Figure 3: Bottom Layer

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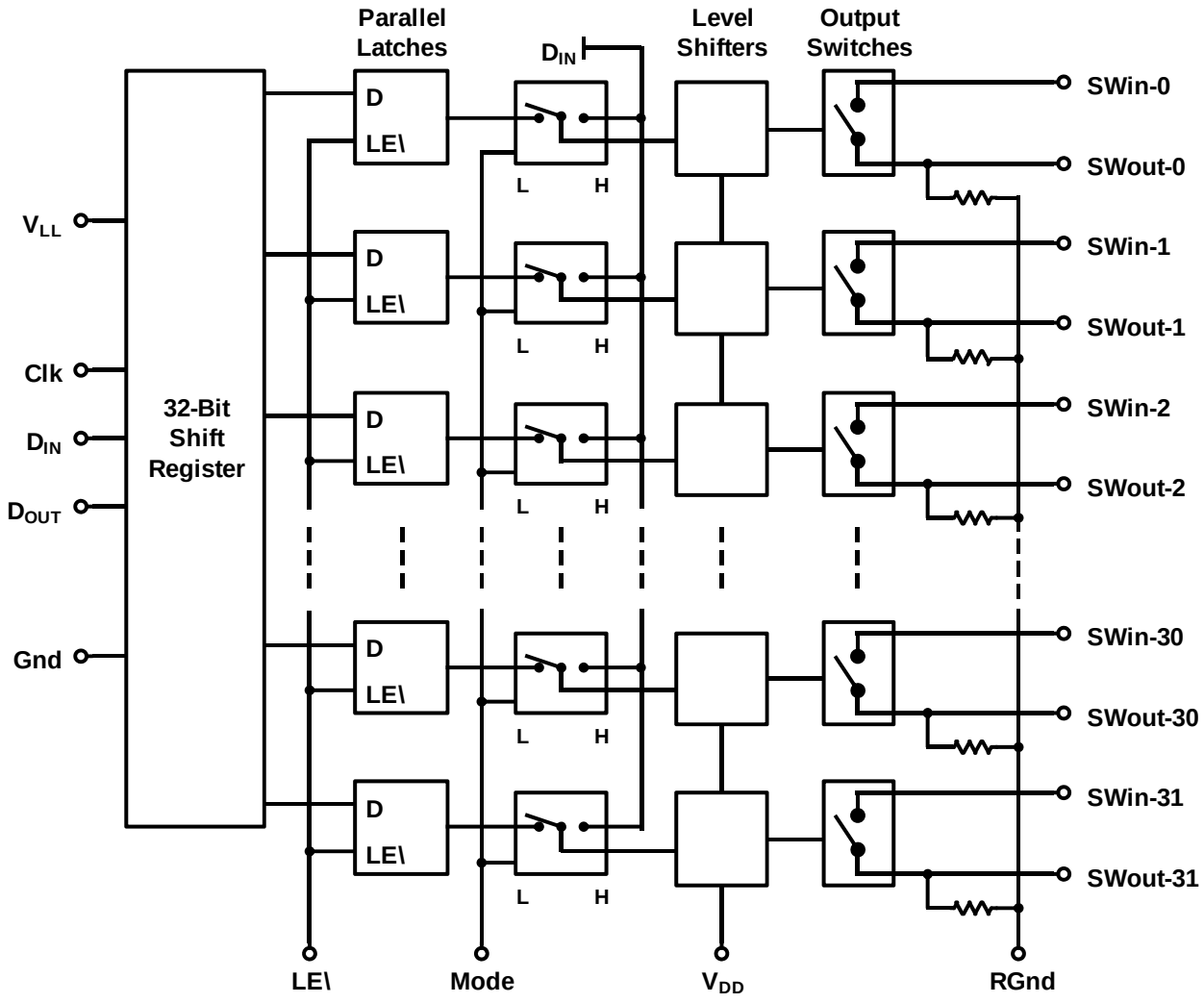
FUNCTIONAL BLOCK DIAGRAM



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QUICK START GUIDE

1) Only two low voltage DC supplies are required; V_{LL} and V_{DD}
   Logic interface, V_{LL}: 2.7V to 5.5V
   Internal translator, V_{DD}: 5V
   Connections to V_{LL} and V_{DD} can be made through the 4-pin header on the board.
2) The analog switches are controlled by a 32-bit serial shift register. A logic high will close the switch and a logic low will open the switch. There are five logic control pins; Clk, Din, Dout, LE_bar, and Mode. Connections to these pins can be made through the 8-pin header on the board.
3) Pads are available for the 32 analog switches.
   Connect the pulser (transmitter) to the IN0 to IN31 pads.
   Connect the piezoelectric transducers to C0 to C31 pads.
   C0 to C31 are pads for an 0805 pattern. This allows for a 330pF chip capacitor to be used as a reference load.

Additional information is available in the MP4835A data sheet.

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