

## DESCRIPTION

The EV4816A-G-00A is an evaluation board for the MP4816A, a high voltage 16-channel analog switch. The MP4816A 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 MP4816A 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 16-bit shift register. The serial control interface will help minimize the number of I/O connection.

## FEATURES

- 16 Channels
- No High Voltage Bias Required
- Up to  $\pm 90V$  Analog Signal
- $12.5\Omega$  Typical Switch Resistance
- $\pm 2.0A$  Typical Switch Peak Current
- 80MHz Clock Frequency at VLL=5.0V
- 40MHz Clock Frequency at VLL=3.3V
- Integrated Bleed Resistors – MP4816A

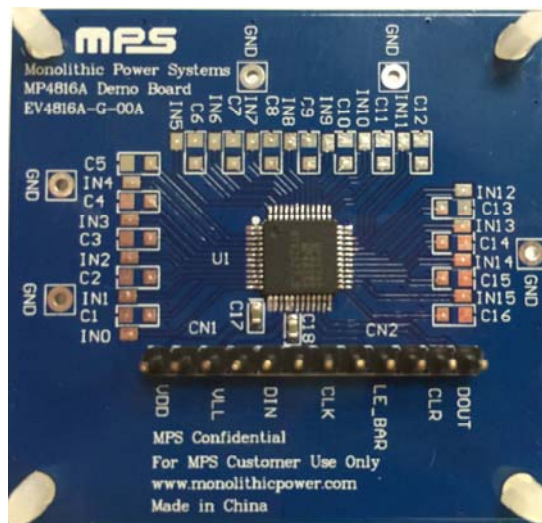
## APPLICATIONS

- Medical Ultrasound
- Industrial NDT

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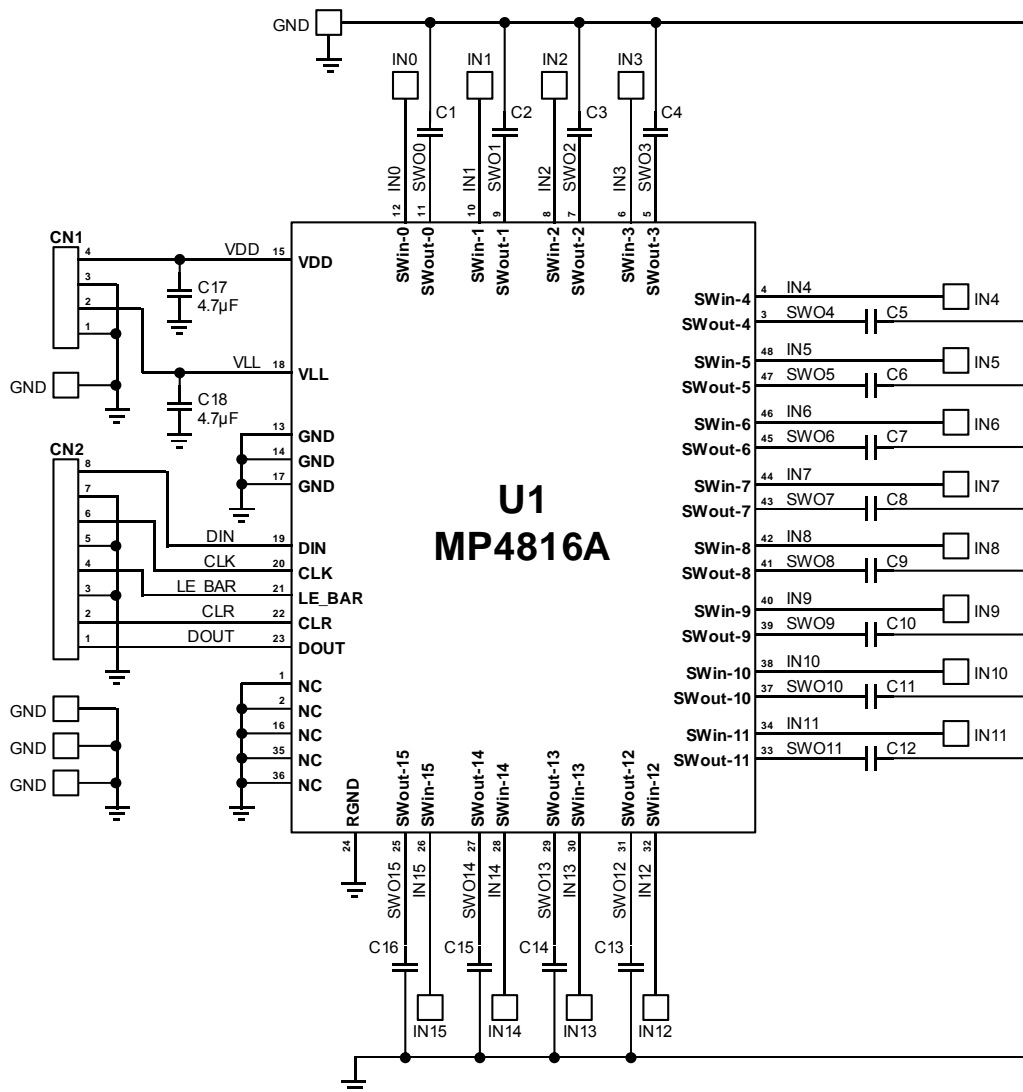
## EV4816A-G-00A EVALUATION BOARD



(L x W x H) 2.0" x 1.9" x 0.0625"  
(5.08cm x 4.83cm x 0.016cm)

| Board Number  | MPS IC Number |
|---------------|---------------|
| EV4816A-G-00A | MP4816AGFP    |

## EVALUATION BOARD SCHEMATIC



## EV4816A-G-00A BILL OF MATERIALS

| Qty | Ref      | Value | Description                | Package | Manufacturer | Part Number        |
|-----|----------|-------|----------------------------|---------|--------------|--------------------|
| 2   | C17, C18 | 4.7µF | Ceramic, 16V, X7R          | 0603    | muRata       | GRM188R61C475KAAJD |
| 16  | C1-C16   | NS    |                            | 0805    |              |                    |
| 1   | U1       |       | 180V, 16-ch analog switch  | TQFP-48 | MPS          | MP4816A            |
| 1   | CN1      | 4pin  | 4 pin header, 0.100" pitch |         | Molex        |                    |
| 1   | CN2      | 8pin  | 8 pin header, 0.100" pitch |         | Molex        |                    |

## PRINTED CIRCUIT BOARD LAYOUT

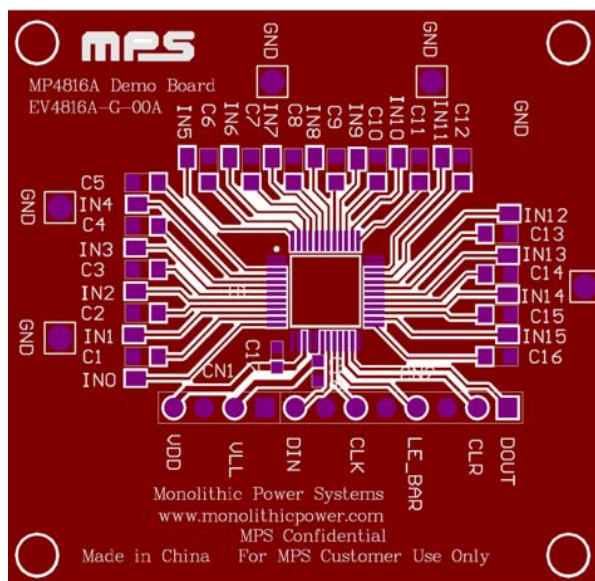


Figure 1—Top Layer

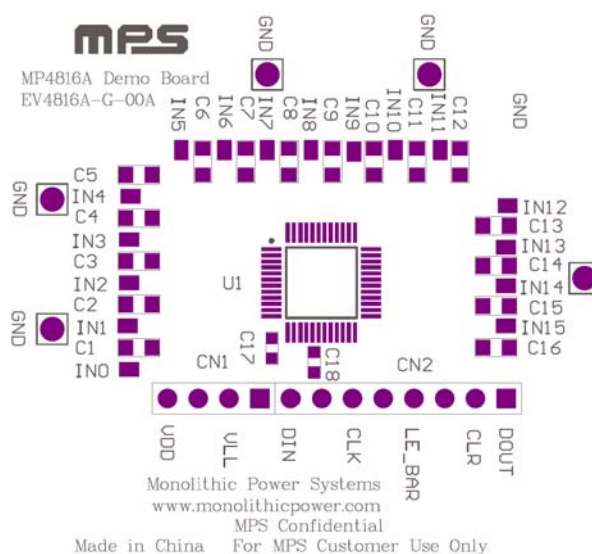


Figure 2—Top Silk Layer

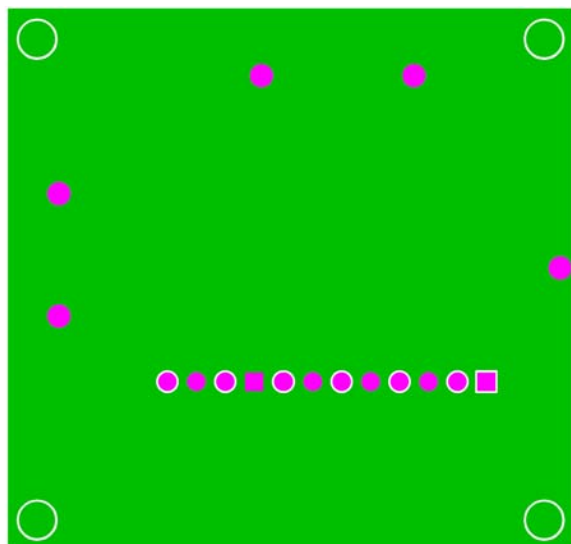
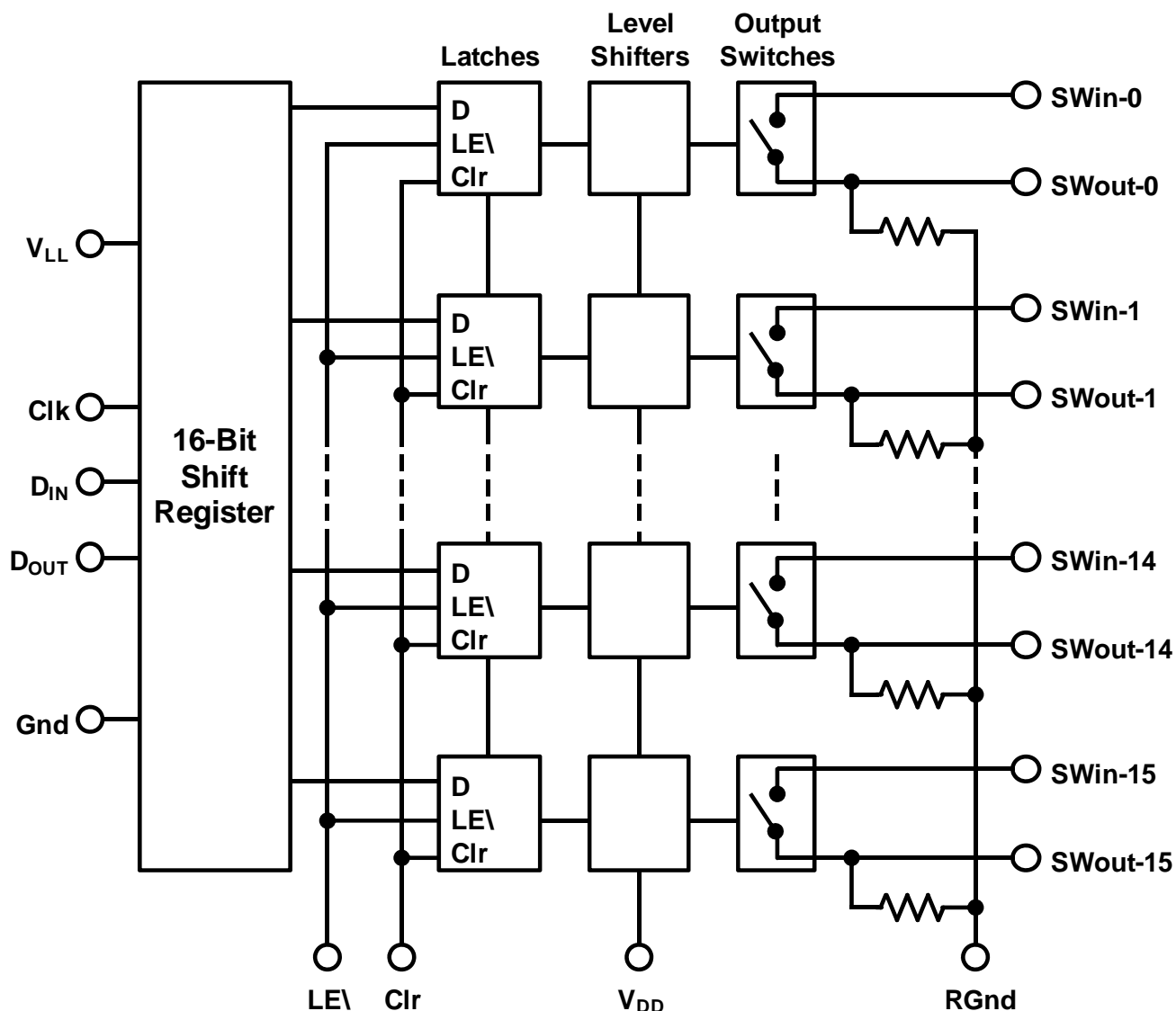


Figure 3—Bottom Layer

## FUNCTIONAL BLOCK DIAGRAM



## 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,  $V_{DD}$ : 9V to 10V  
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 16-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 Clr. Connections to these pins can be made through the 8-pin header on the board.
- 3) Pads are available for the 16 analog switches.  
Connect the pulser (transmitter) to the IN0 to IN15 pads.  
Connect the piezoelectric transducers to C1 to C16 pads.  
C1 to C16 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 MP4816A data sheet.

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