



EV279XX-XX-Y-00A

5kV_{RMS}, Six-Channel Digital Isolator Evaluation Board

DESCRIPTION

The EV279XX-XX-Y-00A is an evaluation board designed to demonstrate the capabilities of the MP279xx family, a high-performance, six-channel digital isolator. The EV279XX-XX-Y-00A has several versions (see Table 1 on page 3). Throughout the datasheet, any mention of the EV279XX-XX-Y-00A applies to all versions, unless otherwise noted.

The MP279xx is available in a SOIC wide-body (WB) package and adopts capacitive isolation technology to support an insulation voltage rating up to 5kV_{RMS}.

This isolator offers a compact solution with low power consumption and improved reliability compared to traditional optocoupler isolators. A Schmitt trigger input and isolation encoding/decoding are provided for high immunity in noisy environments.

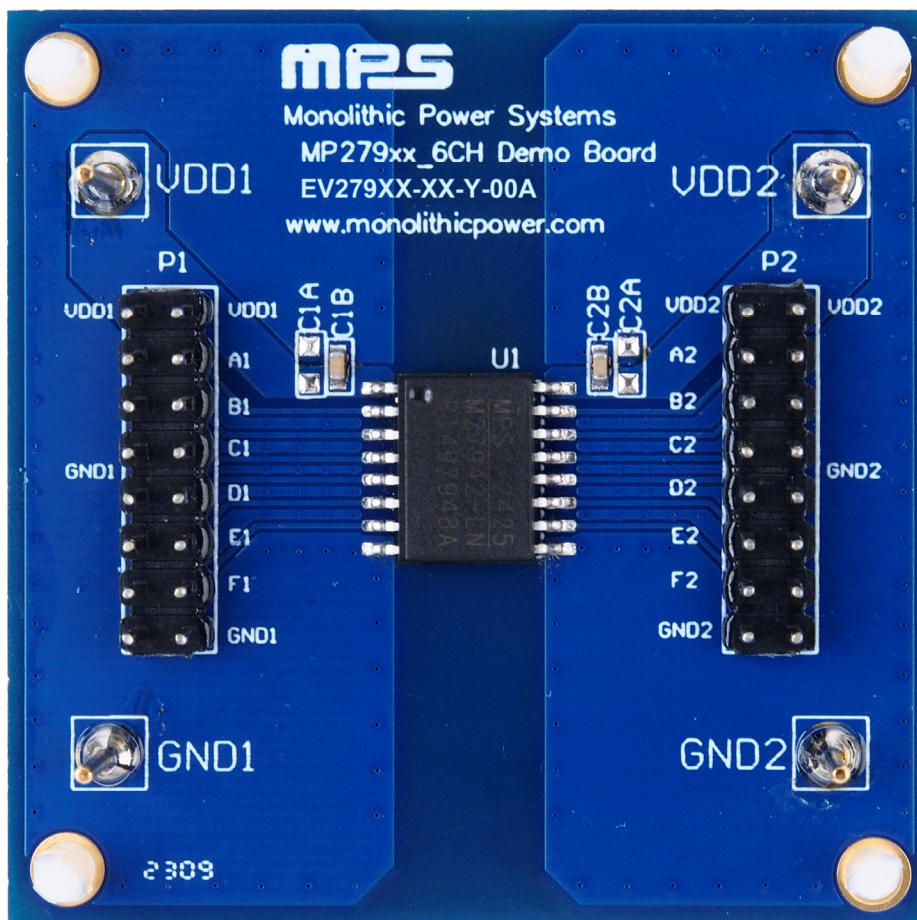
It is recommended to read the datasheets of MP27960, MP27951, MP27942, MP27933, MP27960-N, MP27951-N, MP27942-N, or MP27933-N prior to making any change to the EV279XX-XX-Y-00A.

PERFORMANCE SUMMARY

Specifications are at T_A = 25°C, unless otherwise noted.

Parameters	Conditions	Value
Supply voltage range (V _{DD1} - V _{GND1}) or (V _{DD2} - V _{GND2})		2.5V to 5.5V
Default logic output	MP279xx	High
	MP279xx-L	Low
Forward/reverse channel number	MP27960	6 forward, 0 reverse
	MP27951	5 forward, 1 reverse
	MP27942	4 forward, 2 reverse
	MP27933	3 forward, 3 reverse

EV279XX-XX-Y-00A EVALUATION BOARD



LxWxH (5.08cmx5.08cmx1.6mm)

2 Layers, 1oz/1oz

Board Number	MPS IC Number
EV279XX-XX-Y-00A	MP279xx-xxGY

EVALUATION BOARD BASIC INFORMATION

Table 1: EV279XX-XX-Y-00A Basic Information

Evaluation Board Part Number ⁽¹⁾ ⁽²⁾	Number of Channels	Forward Channels	Reverse Channels	Default Output Logic	IC Package Type
EV27960-Y-00A	6	6	0	High	SOIC-16 WB
EV27960-L-Y-00A				Low	
EV27951-Y-00A		5	1	High	
EV27951-L-Y-00A				Low	
EV27942-Y-00A		4	2	High	
EV27942-L-Y-00A				Low	
EV27933-Y-00A		3	3	High	
EV27933-L-Y-00A				Low	
EV27960-N-Y-00A	6	6	0	High	SOIC-16 WB
EV27960-LN-Y-00A				Low	
EV27951-N-Y-00A		5	1	High	
EV27951-LN-Y-00A				Low	
EV27942-N-Y-00A		4	2	High	
EV27942-LN-Y-00A				Low	
EV27933-N-Y-00A		3	3	High	
EV27933-LN-Y-00A				Low	

Notes:

- 1) Contact MPS sales or an MPS distributor regarding the availability of the ordering part numbers.
- 2) These evaluation boards can only be ordered as customized boards through the MPS CSR team.

QUICK START GUIDE

1. Prepare DC power supply A and DC power supply B, and ensure that their outputs are insulated from each other.
2. Preset DC power supply A to $2.5V \leq V_{DD1} - V_{GND1} \leq 5.5V$. If the chip's side 1 is controlled by external signals, ensure that V_{GND1} is the ground reference of these signals and V_{DD1} is not below the high level of any signal. Then turn DC power supply A off.
3. Preset DC power supply B to $2.5V \leq V_{DD2} - V_{GND2} \leq 5.5V$. If the chip's side 2 is controlled by external signals, ensure that V_{GND2} is the ground reference of these signals and V_{DD2} is not below the high level of any signal. Then turn DC power supply B off.
4. Connect DC power supply A's outputs to:
 - a. Positive (+): VDD1
 - b. Negative (-): GND1
5. Connect DC power supply B's outputs to:
 - a. Positive (+): VDD2
 - b. Negative (-): GND2
6. Connect the digital input control signals to the corresponding channels' INx pins.
7. Connect the data reading device/monitor to the corresponding channels' OUTx pins.
8. Float the unused I/O channel pins.
9. After making the connections, turn DC power supply A and DC power supply B on. The board should automatically start up.
10. If necessary, enable the external control signals.

Figure 1 shows the measurement equipment set-up.

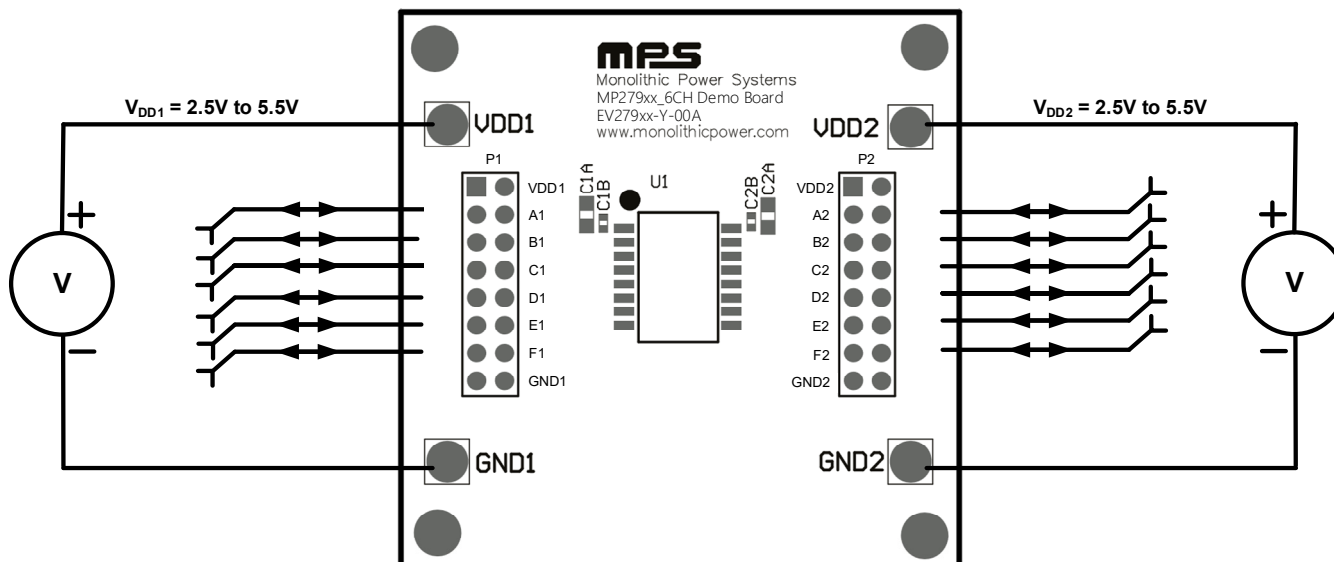


Figure 1: Measurement Equipment Set-Up

EVALUATION BOARD SCHEMATIC

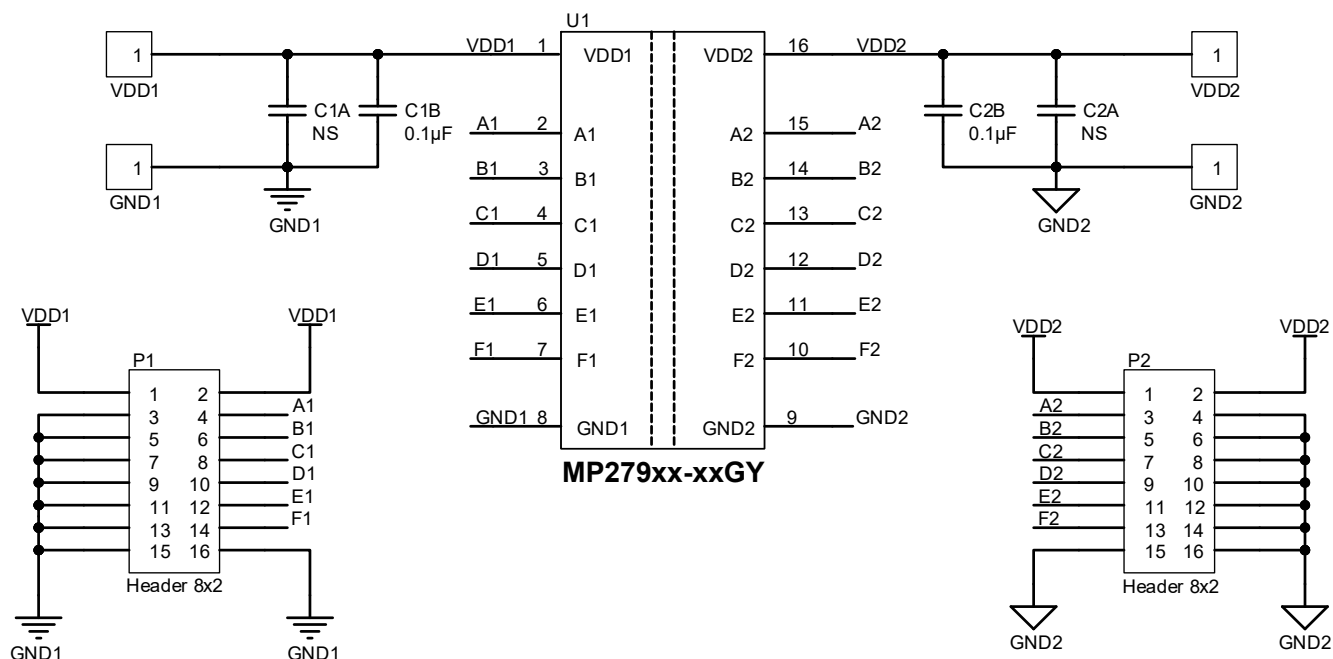


Figure 2: Evaluation Board Schematic

EV279XX-XX-Y-00A BILL OF MATERIALS

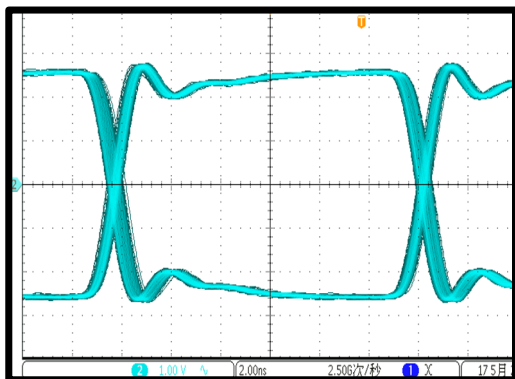
Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
0	C1A, C2A	NS				
2	C1B, C2B	0.1μF	Ceramic capacitor, 25V, X7R	0603	Murata	GRM188R71E104KA01D
4	VDD1, GND1, VDD2, GND2	1mm	Copper pin	DIP	Any	
2	P1, P2	2 x 8-pin	Straight test pin	DIP	Würth	61301621121
1	U1	MP279xx	Six-channel digital isolator	SOIC-16 WB	MPS	MP279xx-xxGY-Z

EVB TEST RESULTS

Performance waveforms are tested on the evaluation board. All channels are switching with 40MHz square wave clock input, no load, $T_J = 25^{\circ}\text{C}$, all voltages with respect to the corresponding ground(s), unless otherwise noted.

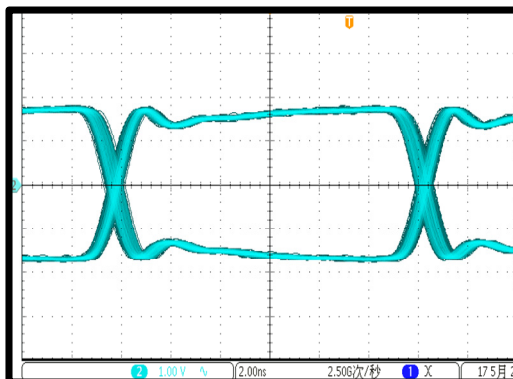
Eye Diagram at 80Mbps

$$V_{DD1} - V_{GND1} = V_{DD2} - V_{GND2} = 5V$$



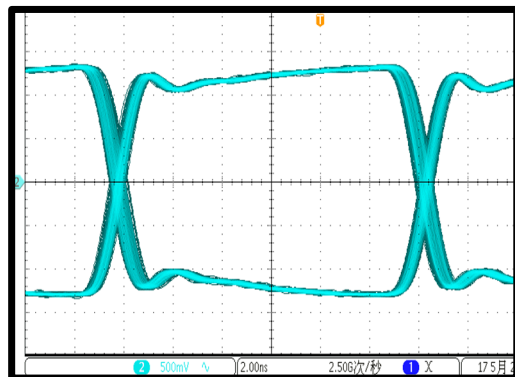
Eye Diagram at 80Mbps

$$V_{DD1} - V_{GND1} = V_{DD2} - V_{GND2} = 3.3V$$



Eye Diagram at 80Mbps

$$V_{DD1} - V_{GND1} = V_{DD2} - V_{GND2} = 2.5V$$



PCB LAYOUT

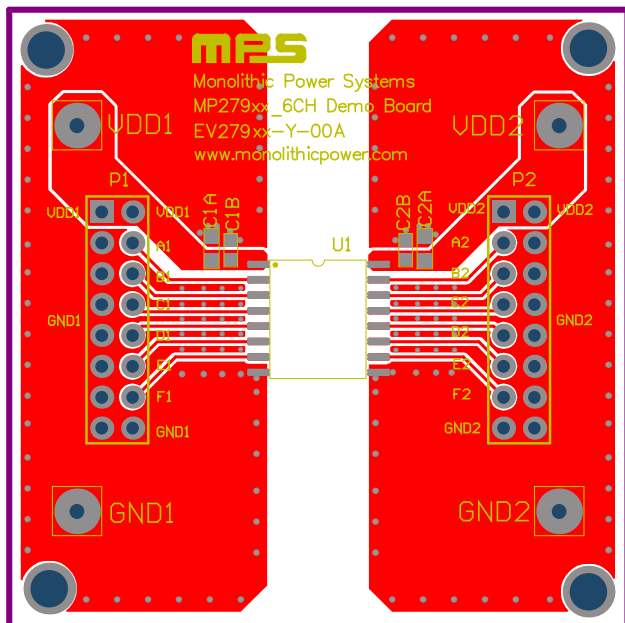


Figure 3: Top Silk and Top Layer

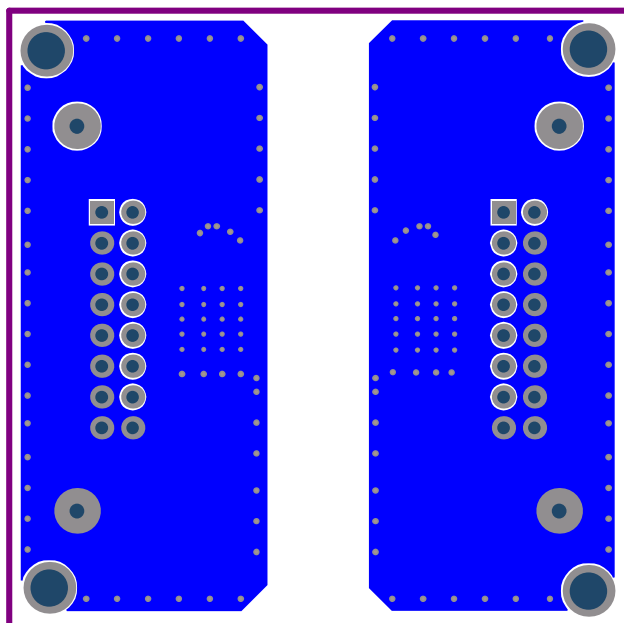


Figure 4: Bottom Layer and Bottom Silk



REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	9/3/2024	Initial Release	-

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