EV8017-RJ45-00A

PoE Cable Connection Board for the EVL8017 Evaluation Boards

DESCRIPTION

The EV8017-RJ45-00A RJ45 connection board is designed to deliver power over Ethernet (PoE) power from the Ethernet cable to the EVL8017. The EVL8017 evaluation boards demonstrate the capabilities of the MP8017, an integrated IEEE 802.3af-compatible, PoE-powered device.

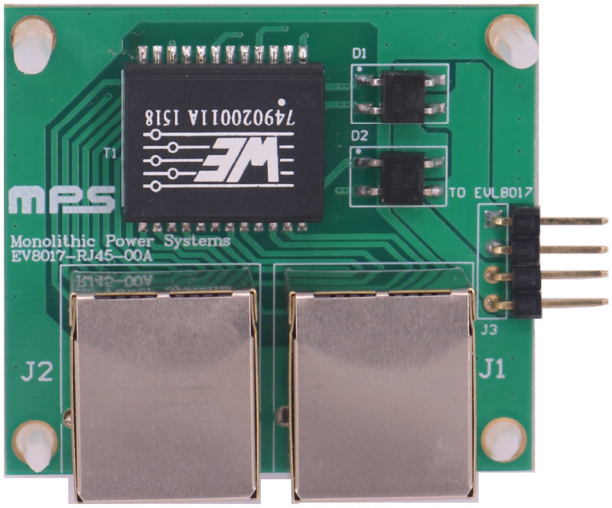
It is recommended to read the MP8017 and EVL8017 datasheets prior to making any changes to the EV8017-RJ45-00A.

PERFORMANCE SUMMARY

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

Parameters	Jack	Value
Input (IN)	J1	Ethernet cable from PSE
Output 1 (OUT1)	J2	Ethernet cable signal output
Output 2 (OUT2)	J3	Ethernet cable power output
Power specification		IEEE 802.3af

CONNECTION BOARD



LxWxH (4.7cmx4.2cmx1.5cm)
2 Layers, 1oz/1oz

Board Number	MPS IC Number
EV8017-RJ45-00A	MP8017GL (1)

Note:

1) The MP8017 IC is not included on the EV8017-RJ45-00A.

QUICK START GUIDE

The EV8017-RJ45-00A is the RJ45 connection board for the EVL8017. The EV8017-RJ45-00A delivers power over Ethernet (PoE) from the Ethernet cable to the EVL8017 evaluation boards to evaluate the MP8017's performance. To set up the EV8017-RJ45-00A, refer to Figure 1 and follow the steps below:

1. Figure 1 shows the connection method using the EVL8017-L-00A.
2. Connect the EVL8017-L-00A J1 connector to the EV8017-RJ45-00A J3 connector.
3. Connect the load terminals to:
   a. Positive (+): VOUT
   b. Negative (-): VOGND
4. Connect the Ethernet cable from the power-sourcing equipment (PSE) to the EV8017-RJ45-00A's J1 connector. The board should automatically start up.

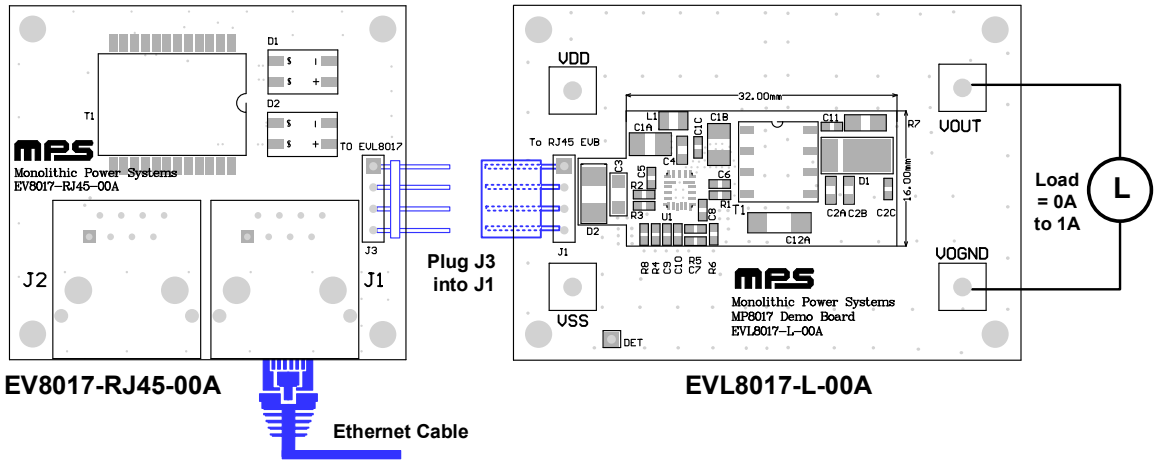


Figure 1: EV8017-RJ45-00A Set-Up Method

CONNECTION BOARD SCHEMATIC

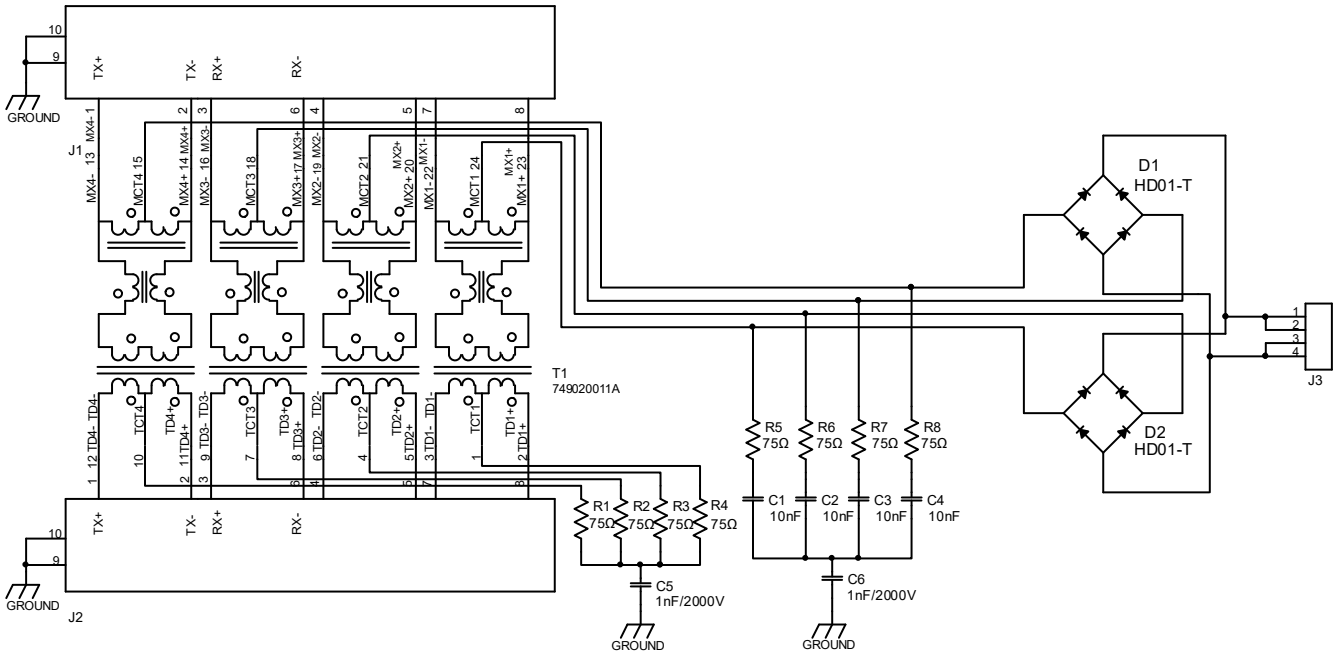


Figure 2: Connection Board Schematic

EV8017-RJ45-00A BILL OF MATERIALS

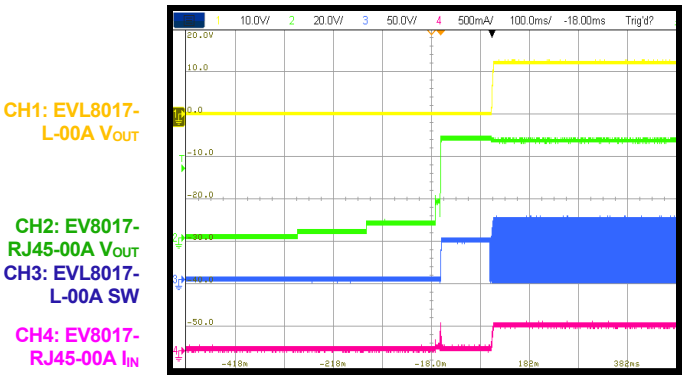
Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
4	C1, C2, C3, C4	10nF	Ceramic capacitor, 100V, X7R	0603	Murata	GRM188R72A103KA01D
2	C5, C6	1nF	Ceramic capacitor, 2000V, X7R	1808	Murata	GR442QR73D102KW01L
8	R1, R2, R3, R4, R5, R6, R7, R8	75Ω	Film resistor, 1%	0603	Royal	RC0603FR-0775RL
2	D1, D2	100V	Surface-mount, bridge rectifier, 800mA	SMD	Diodes, Inc.	HD01-T
2	J1, J2	1.5A	Jack modular connector, RJ45, 120V_{AC}	8P8C	Wurth	615008140121
1	J3	2.54mm	Connector, angled pin header	DIP	Wurth	61300411021
1	T1	350μH	WE-LAN series LAN transformer	SMD	Wurth	749020011A

EVB TEST RESULTS

Performance curves and waveforms are tested on the evaluation board, input = Ethernet cable, J3 connected to the EVL8017-L-00A, unless otherwise noted.

Start-Up Waveform

Input = Ethernet cable, J3 connected to the EVL8017-L-00A, I_{OUT} = 1A



PCB LAYOUT

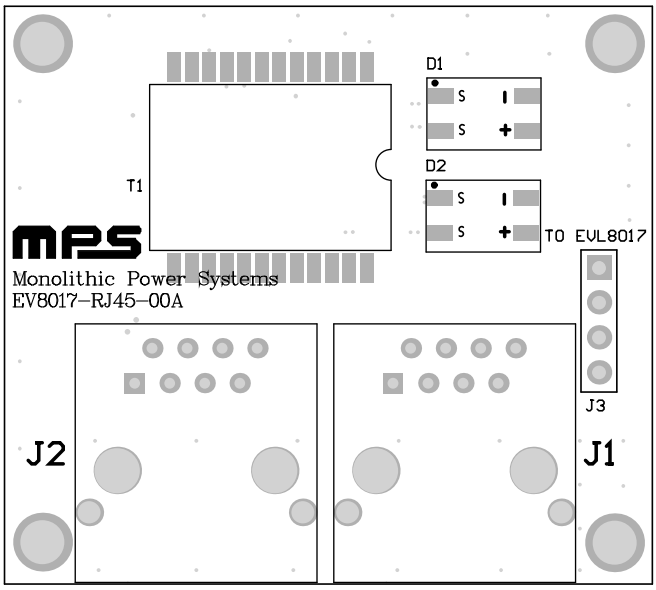


Figure 3: Top Silk

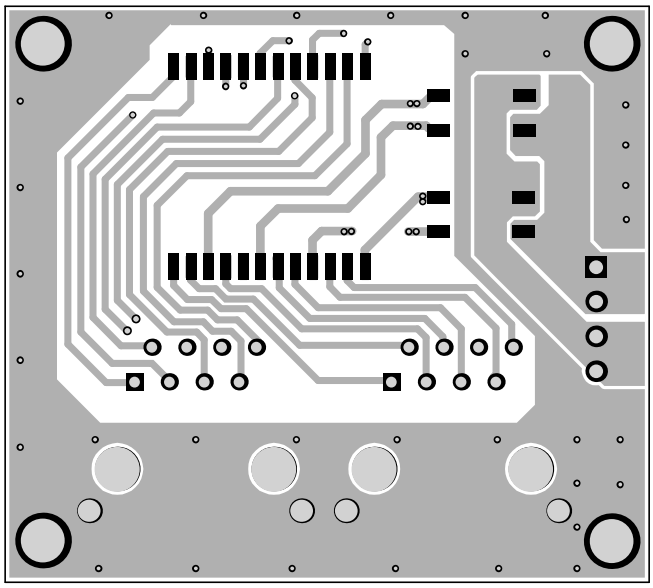


Figure 4: Top Layer

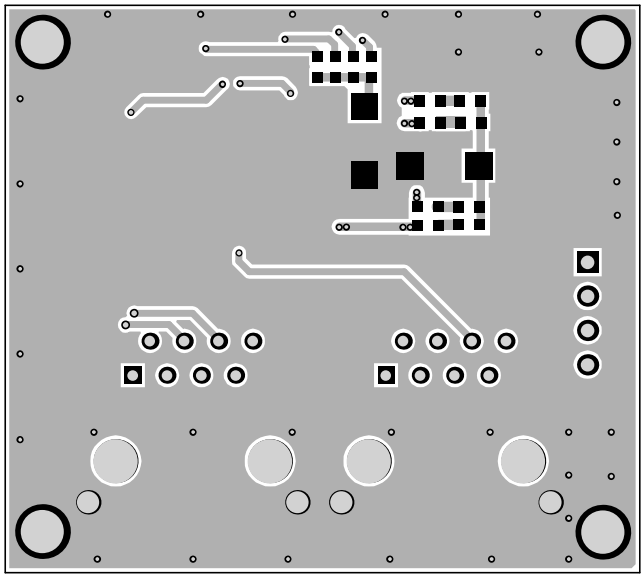


Figure 5: Bottom Layer

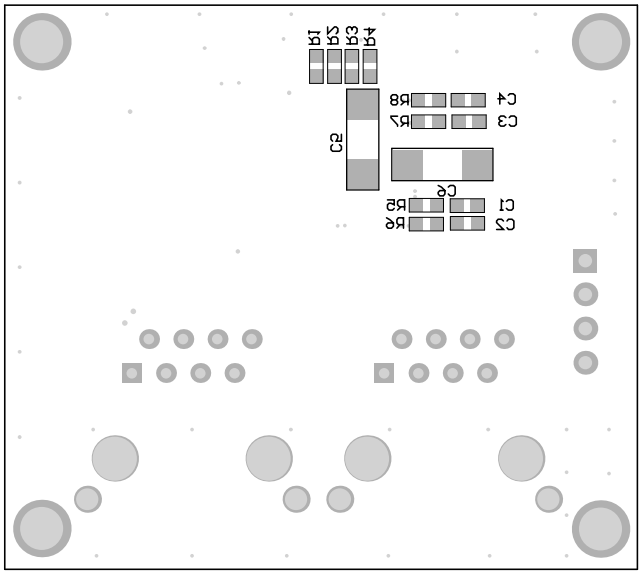


Figure 6: Bottom Silk

REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	09/16/2021	Initial Release	-