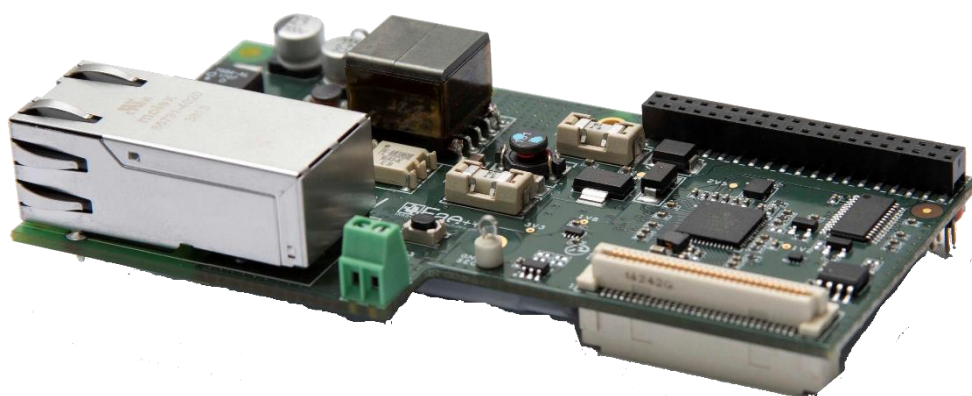




# SCHEDA USB-ETH V1

## Datasheet

11/09/2017



## Summary

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**.1 REVISION HISTORY**

| <b>Date</b>       | <b>Revision</b> | <b>Description</b> |
|-------------------|-----------------|--------------------|
| <b>11/09/2017</b> | V1.0            | Draft version      |
|                   |                 |                    |
|                   |                 |                    |

## .2 INTRODUCTION

Board was manufactured by FAE Technology commissioned by Arrow Electronics.

## .3 DESCRIPTION

The PoE+ Mezzanine Board is a solution that enables the 96Boards to be powered over Ethernet. The Board consists of three key components. The LAN7850 from Microchip provides Gigabit Ethernet through high speed USB 2.0, which is connected to the 96Boards standard HS expansion connector. For a secure transmission of data the Mezzanine Board is equipped with Atmel's Hardware Asymmetric Crypto Engine TPM AT97SC3205T. Furthermore, it allows the 96Boards to be powered over the external Ethernet POE+ line by Linear Technology's LT4276. The 2 poles connector on the shield can be used to power an external device using the 12V generated by the POE+ circuitry. The Mezzanine Board can be plugged directly on top of 96Boards consumer edition (CE) products and on top of it you have the possibility to plug other extension shields.

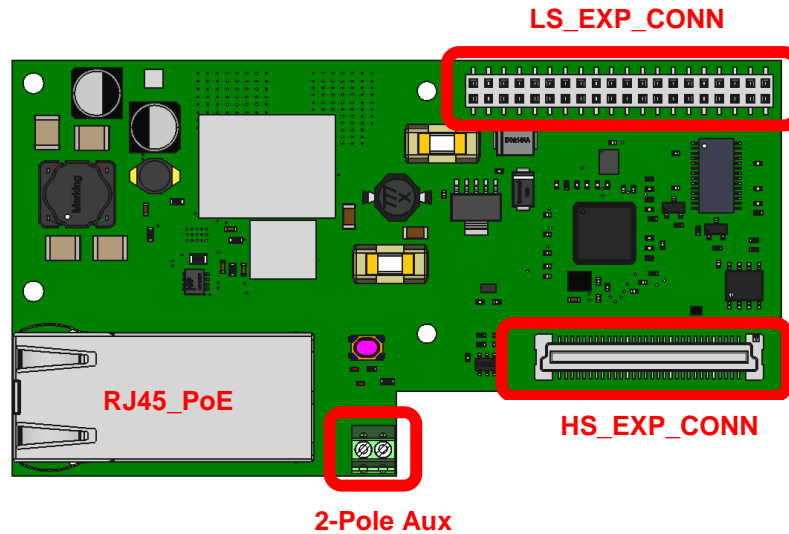
## .4 ABSOLUTE MAXIMUM RATING

|                      | min  | max | unit |
|----------------------|------|-----|------|
| Supply voltage (PoE) | -0.3 | 100 | V    |
| Storage Temperature  | -40  | 85  | °C   |

## .5 OPERATING CONDITION

|                               | min  | typ | max  | unit |
|-------------------------------|------|-----|------|------|
| $V_{out}$ @LS expansion Conn. | 11.2 | 12  | 12.5 | V    |
| $V_{out}$ @ 2pole Conn.       | 11.2 | 12  | 12.5 | V    |
| PoE $V_{in}$                  |      |     | 60   | V    |
| Total $P_{out}$               |      |     | 25.5 | W    |
| Operating Temperature         | 0    |     | 70   | °C   |

## .6 CONNECTORS AND INTERFACES



### .6.1 LS – Low Speed connector fully compliant to 96Boards specification

40 pin low profile female 2mm receptacle (20x2) 4.5mm height is specified

- UART0
- UART1 (optional)
- SPI bus
- I2C x2
- I2S
- GPIO x12
- Reset and Power button
- 1.8V, 5V and DC\_IN power supplies

Pins used by the Mezzanine card:

**LS\_EXP\_GPIO\_B, LS\_EXP\_GPIO\_D, I2C0\_SCL, I2C0\_SDA**

### .6.2 HS – High Speed connector fully compliant to 96Boards specification

60 pin 0.8mm high speed Board to Board low profile receptacle connector is specified

- MIPI DSI
- USB
- SD or SPI interface
- MIPI CSI-2 (x2 optional)
- I2C (x2 optional, but 1 shall be provided if CSI interface(s) are provided)
- HSIC (optional)

Pins used by the mezzanine card:

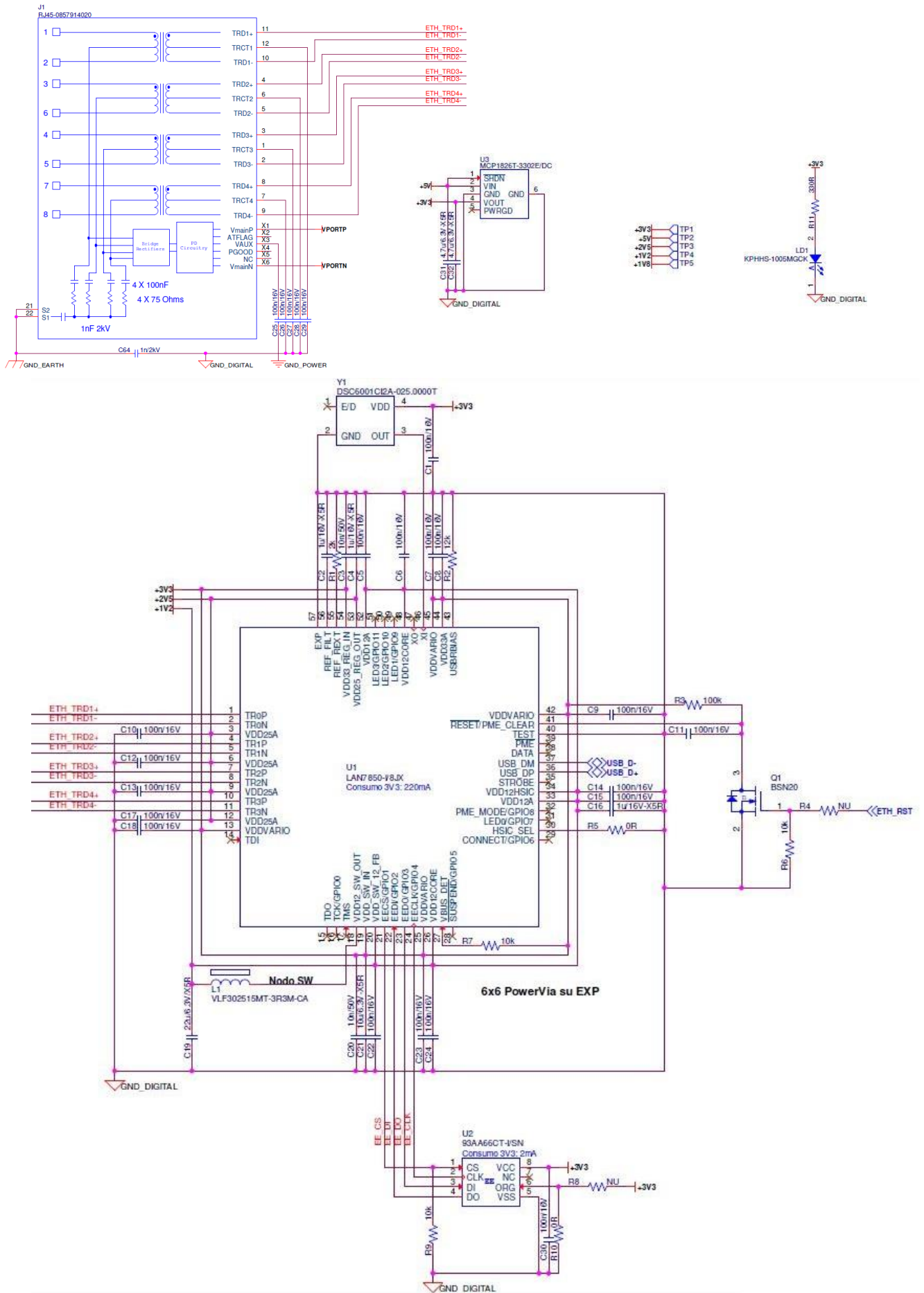
**USB\_HS\_D\_P\_EXP, USB\_HS\_M\_EXP**

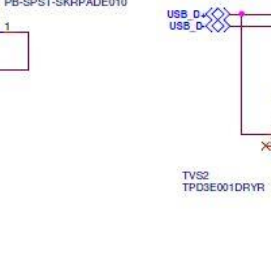
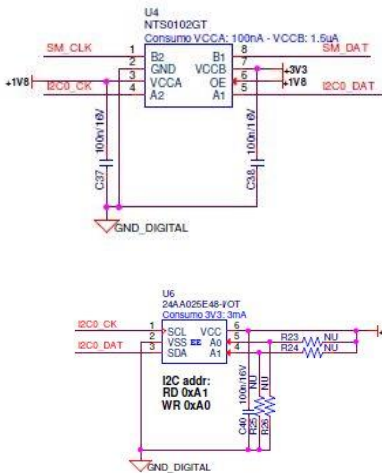
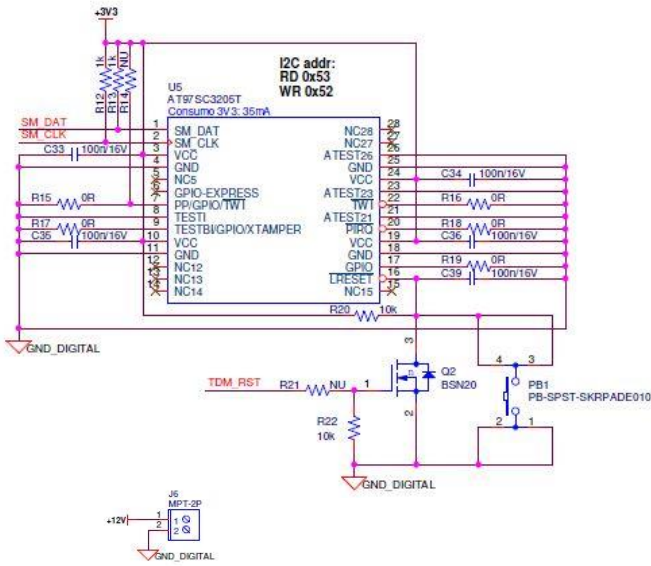
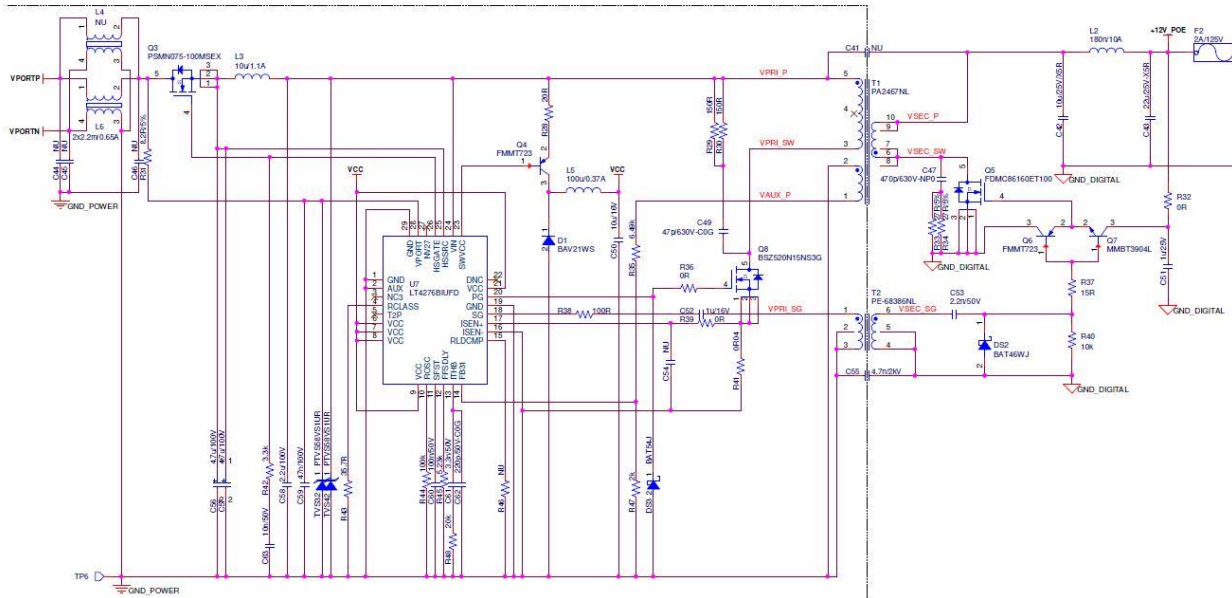
### .6.3 2-Pole Auxiliary power connector

Power output for optional extra module, connected to the SYS\_DCIN (12V DC).

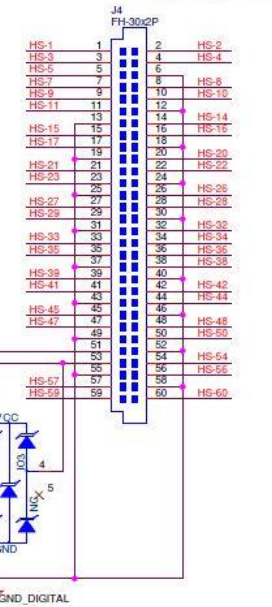
### .6.4 RJ45 PoE Capable Ethernet Connector

## .7 SCHEMATICS





Bottom  
J2.1 to Jx.1 of DragonBoard



Top  
Over J2



Bottom  
J1.1 to Jx.2 of DragonBoard

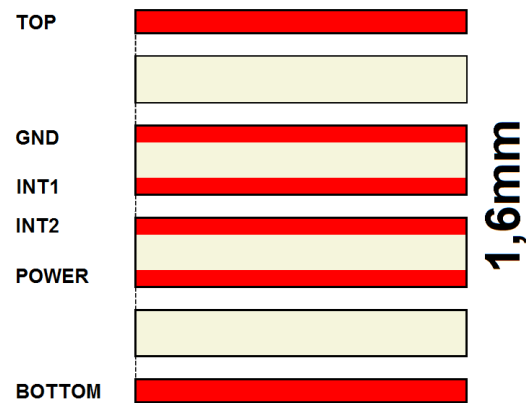


Top  
Over J1

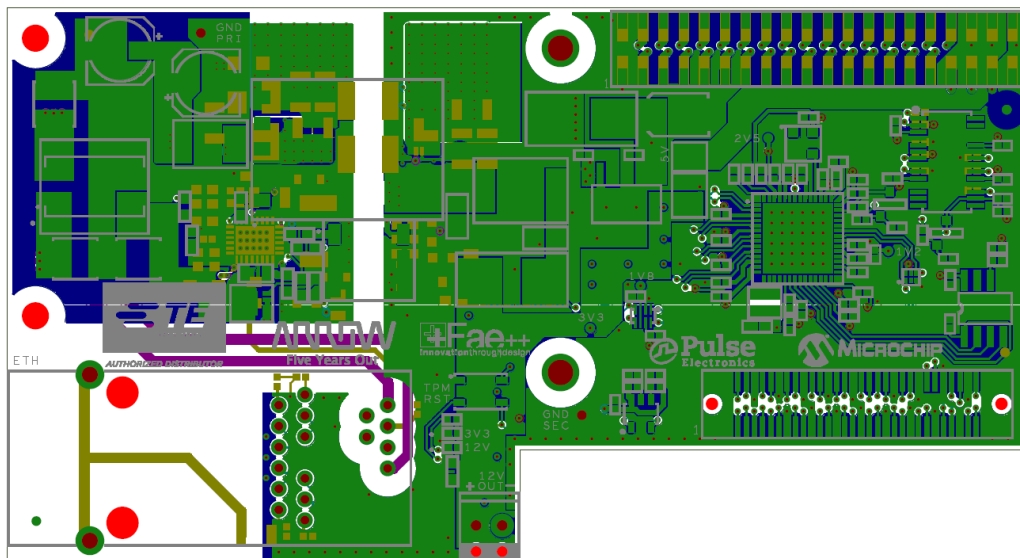


## .8 LAYOUT

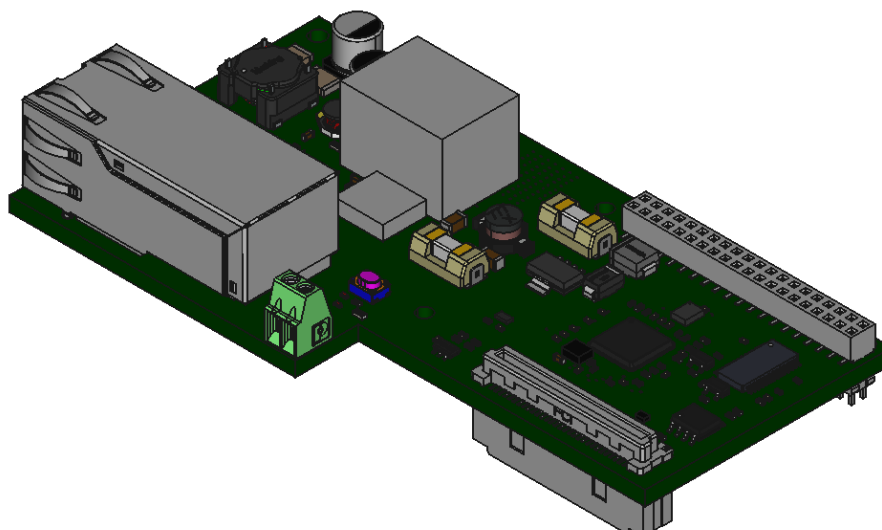
### .8.1 PCB Structure



### .8.2 PCB Global view

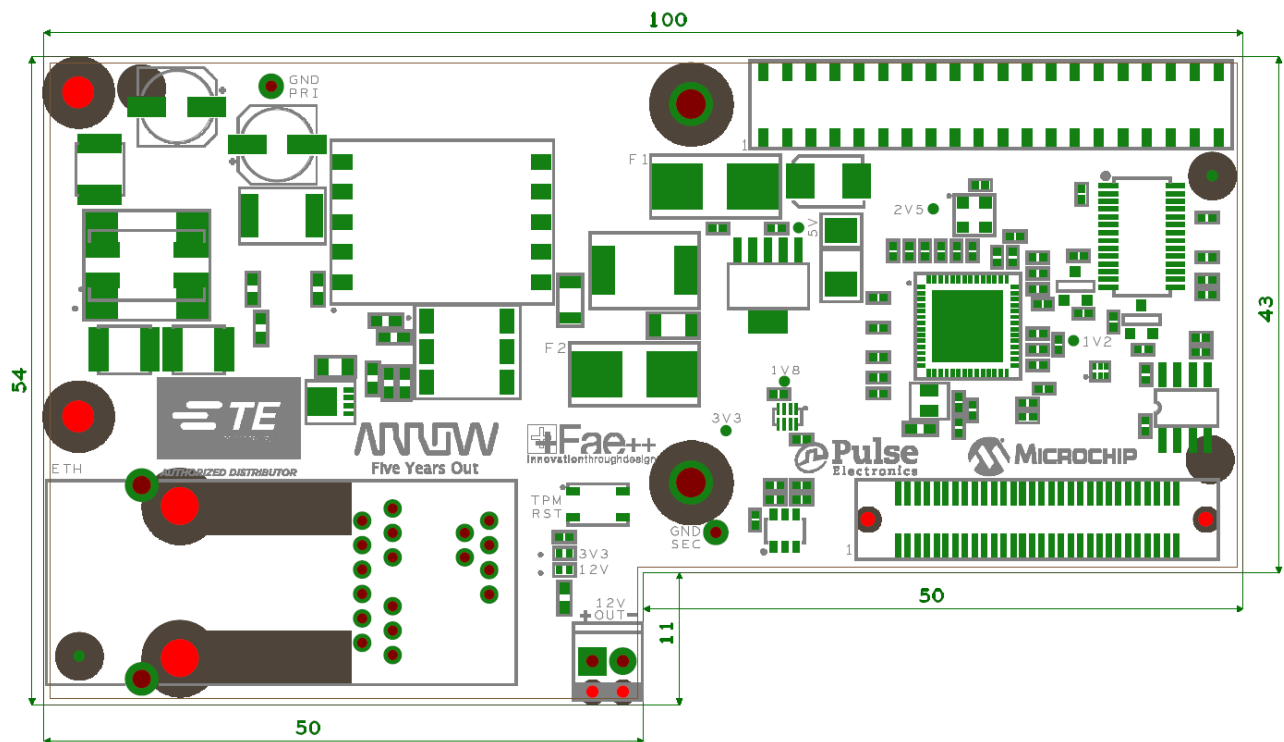


### .8.3 3D Model view





## 9 MECHANICAL DIMENSION



**Dimensions: L x W x H = 100mm x 54mm x 23.25mm**

## .10 NOTES

### ARROW ELECTRONICS

#### EVALUATION BOARD LICENSE AGREEMENT

By using this evaluation board or kit (together with all related software, firmware, components, and documentation provided by Arrow, "Evaluation Board"), You ("You") are agreeing to be bound by the terms and conditions of this Evaluation Board License Agreement ("Agreement"). Do not use the Evaluation Board until You have read and agreed to this Agreement. Your use of the Evaluation Board constitutes Your acceptance of this Agreement.

#### PURPOSE

The purpose of this evaluation board is solely intended for evaluation purposes. Any use of the Board beyond these purposes is on your own risk. Furthermore, according the applicable law, the offering Arrow entity explicitly does not warrant, guarantee or provide any remedies to you with regard to the board.

#### LICENSE

Arrow grants You a non-exclusive, limited right to use the enclosed Evaluation Board offering limited features only for Your evaluation and testing purposes in a research and development setting. Usage in a live environment is prohibited. The Evaluation Board shall not be, in any case, directly or indirectly assembled as a part in any production of Yours as it is solely developed to serve evaluation purposes and has no direct function and is not a finished product.

#### EVALUATION BOARD STATUS

The Evaluation Board offers limited features allowing You only to evaluate and test purposes. The Evaluation Board is not intended for consumer or household use. You are not authorized to use the Evaluation Board in any production system, and it may not be offered for sale or lease, or sold, leased or otherwise distributed for commercial purposes.

#### OWNERSHIP AND COPYRIGHT

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#### RESTRICTIONS AND WARNINGS

Before You handle or use the Evaluation Board, You shall comply with all such warnings and other instructions and employ reasonable safety precautions in using the Evaluation Board. Failure to do so may result in death, personal injury, or property damage.

You shall not use the Evaluation Board in any safety critical or functional safety testing, including but not limited to testing of life support, military or nuclear applications. Arrow expressly disclaims any responsibility for such usage which shall be made at Your sole risk.

#### WARRANTY

**Arrow warrants that it has the right to provide the evaluation board to you. This warranty is provided by Arrow in lieu of all other warranties, written or oral, statutory, express or implied, including any warranty as to merchantability, non-infringement, fitness for any particular purpose, or uninterrupted or error-free operation, all of which are expressly disclaimed. The evaluation board is provided "as is" without any other rights or warranties, directly or indirectly.**

**You warrant to Arrow that the evaluation board is used only by electronics experts who understand the dangers of handling and using such items, you assume all responsibility and liability for any improper or unsafe handling or use of the evaluation board by you, your employees, affiliates, contractors, and designees.**

#### LIMITATION OF LIABILITIES

**In no event shall Arrow be liable to you, whether in contract, tort (including negligence), strict liability, or any other legal theory, for any direct, indirect, special, consequential, incidental, punitive, or exemplary damages with respect to any matters relating to this agreement. In no event shall arrow's liability arising out of this agreement in the aggregate exceed the amount paid by you under this agreement for the purchase of the evaluation board.**

#### INDEMNIFICATION

You shall, at Your expense, defend Arrow and its Affiliates and Licensors against a claim or action brought by a third party for infringement or misappropriation of any patent, copyright, trade secret or other intellectual property right of a third party to the extent resulting from (1) Your combination of the Evaluation Board with any other component, system, software, or firmware, (2) Your modification of the Evaluation Board, or (3) Your use of the Evaluation Board in a manner not permitted under this Agreement. You shall indemnify Arrow and its Affiliates and Licensors against and pay any resulting costs and damages finally awarded against Arrow and its Affiliates and Licensors or agreed to in any settlement, provided that You have sole control of the defense and settlement of the claim or action, and Arrow cooperates in the defense and furnishes all related evidence under its control at Your expense. Arrow will be entitled to participate in the defense of such claim or action and to employ counsel at its own expense.

#### RECYCLING

The Evaluation Board is not to be disposed as an urban waste. At the end of its life cycle, differentiated waste collection must be followed, as stated in the directive 2002/96/EC. In all the countries belonging to the European Union (EU Dir. 2002/96/EC) and those following differentiated recycling, the Evaluation Board is subject to differentiated recycling at the end of its life cycle, therefore: It is forbidden to dispose the Evaluation Board as an undifferentiated waste or with other domestic wastes. Consult the local authorities for more information on the proper disposal channels. An incorrect Evaluation Board disposal may cause damage to the environment and is punishable by the law.