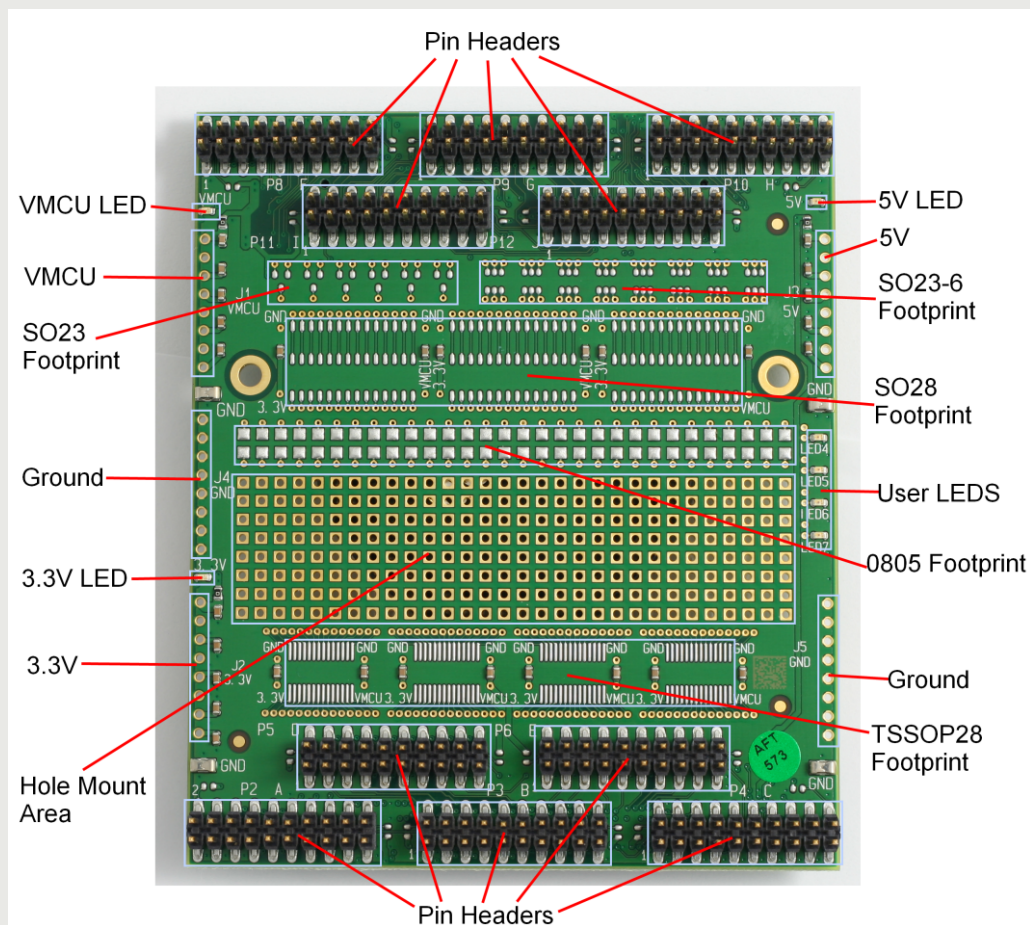


## EXP32 Prototype Board

The EXP32 Prototype Board is a versatile plugin module for integration of custom circuits with the EFM32. The VMCU power domain is tracked by the Advanced Energy Monitor (AEM), which gives detailed information about the current consumption.

### Features:

- Ready-to-use prototyping area for hole-mount, TSSOP, SO, SOT23-6, SOT23 and 0805 SMD components.
- VMCU power domain tracked by the Advanced Energy Monitor (AEM).
- 3.3V and 5V power domains available.
- All EFM32 IO lines directly accessible through pin headers.
- User LEDs ready for use.
- LEDs indicating power.



# 1 Usage

## 1.1 Placement

This board is intended for use with the EFM32 Gecko Development Kit.

## 1.2 Prototyping Area

The prototype area supports hole-mounted devices as well as TSSOP, SO, SOT23-x, SOT23 and 0805 SMD components. For some of the IC footprints there is a dedicated footprint for decoupling capacitors. Please see schematic for details.

## 1.3 Voltages

The prototype board has 3 supply voltages: 5V, 3.3V and VMCU. VMCU is used by the EFM32 microcontroller, and the corresponding current consumption is tracked by the AEM. For each of the supply voltages, there is a corresponding LED indicating if the power is present. Either of the voltages may be used to power custom circuitry, but verify not to connect different power-domains directly.

### Note

Make sure not to connect circuitry powered by different supply voltages without proper level translation! E.g. do not directly connect circuits powered by 3.3V to the EFM32.

## 1.4 User LEDs

4 user LEDs with corresponding resistors are available on the protoboard. They may easily be soldered to other circuitry. See schematic for details.

## 1.5 Pin Headers

The proto board features 10 20-pin headers. Pin 1 and 19 are connected to GND, whereas 2 and 20 may be connected to VMCU and 3V3 respectively by inserting 0-ohm resistors. See schematic for details.

When the protoboard is connected to the Kit, all GPIO-lines from the MCU-board are available, provided that the signals are available from the MCU-board. Also, several peripherals on the Kit mainboard are available. Please see the schematic of the respective boards for detailed information.

### Note

In order for a signal from a EFM32 port to be available on the protoboard, the signal must be routed out from the EFM32 board.

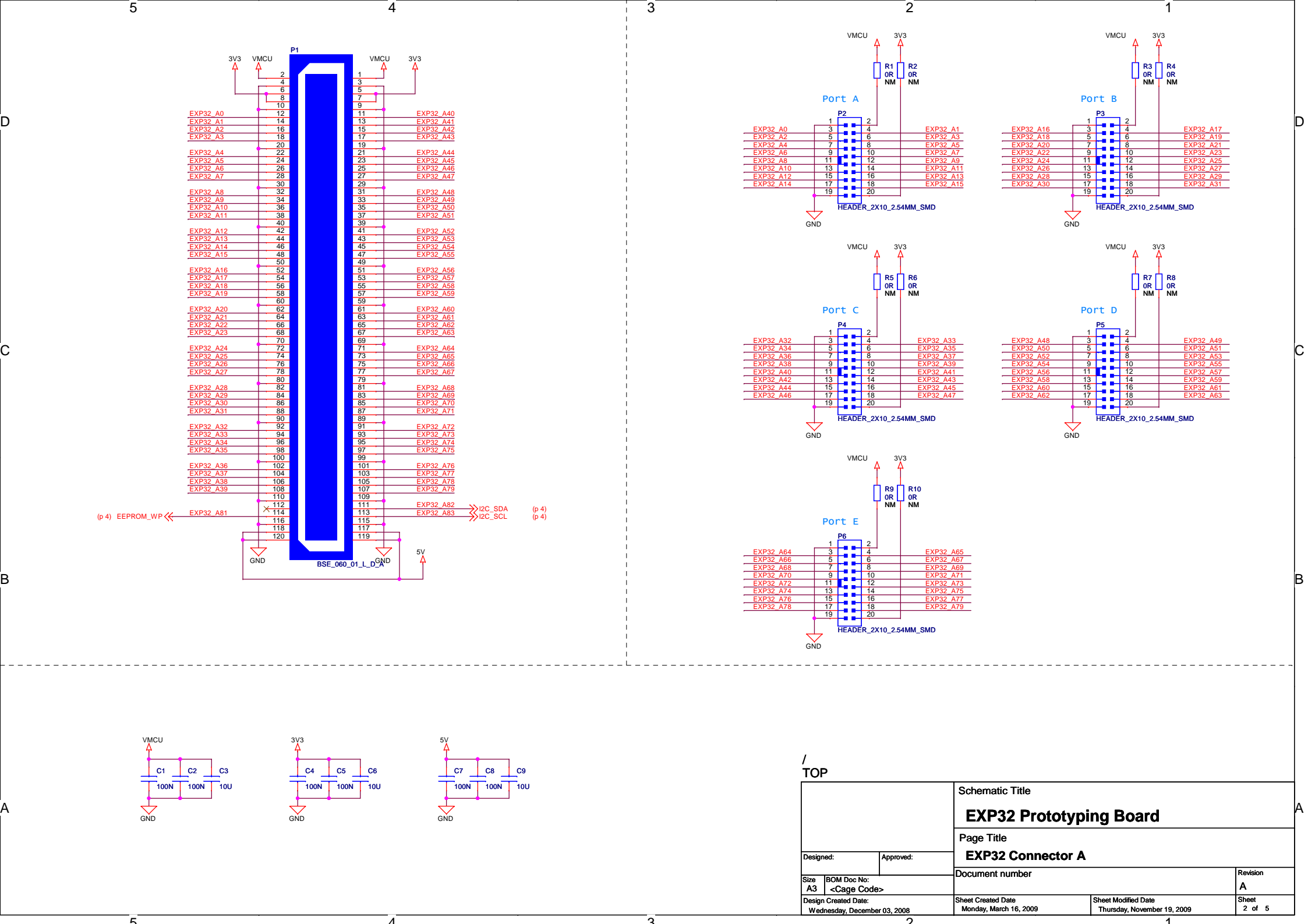


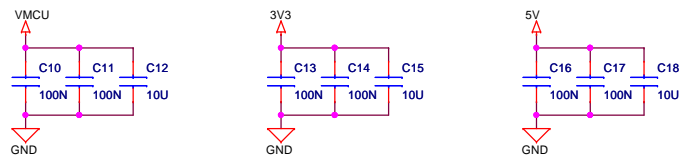
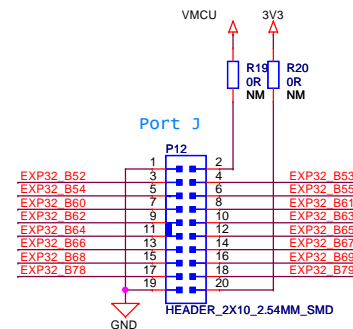
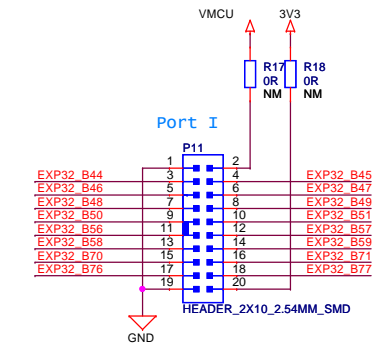
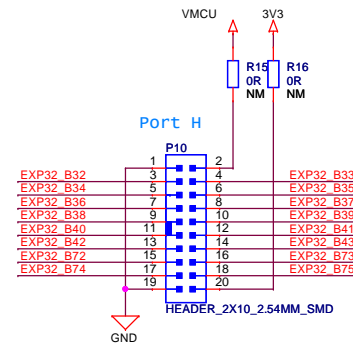
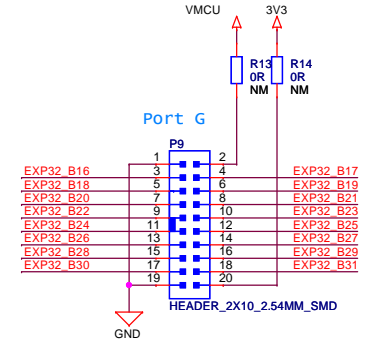
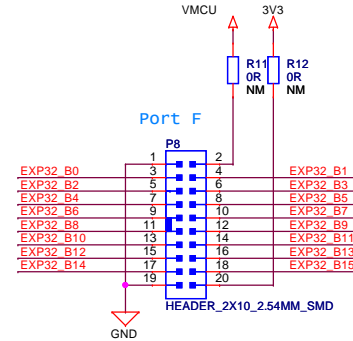
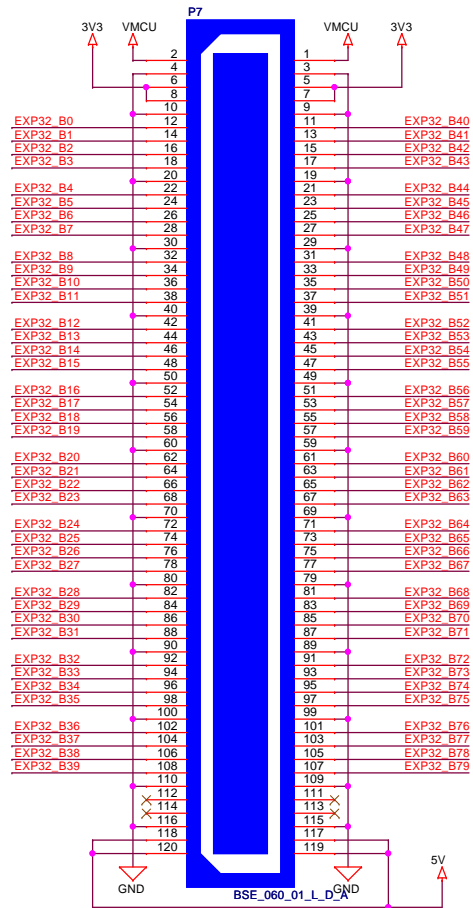
| EFM32 Development Kit |      |
|-----------------------|------|
| Board Function        | Page |
| Front Page            | 1    |
| EXP32 Connector A     | 2    |
| EXP32 Connector B     | 3    |
| Power Connectors      | 4    |
| Dummy Components      | 5    |
|                       |      |

| Revision History |  |
|------------------|--|
| Revision         | Comment  |
| PA4              | Added some and removed some vias                 |
| PA5              | Removed a rouge via                              |
| PA6              | BOM changes                                      |
| A                | Removed two voltage hooks and added one gnd hook |
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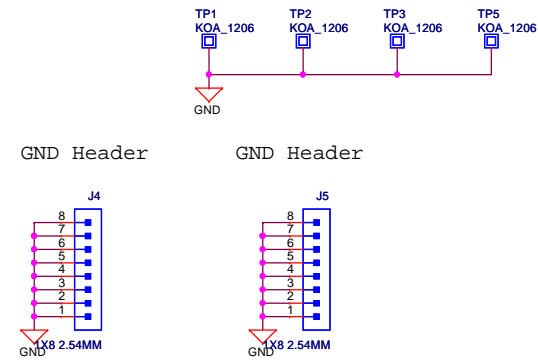
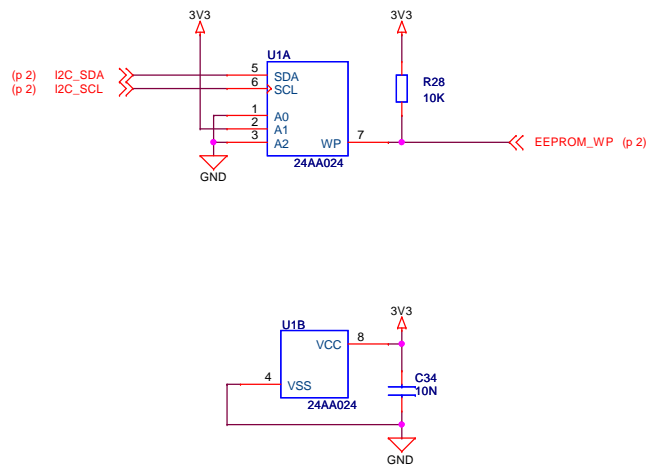
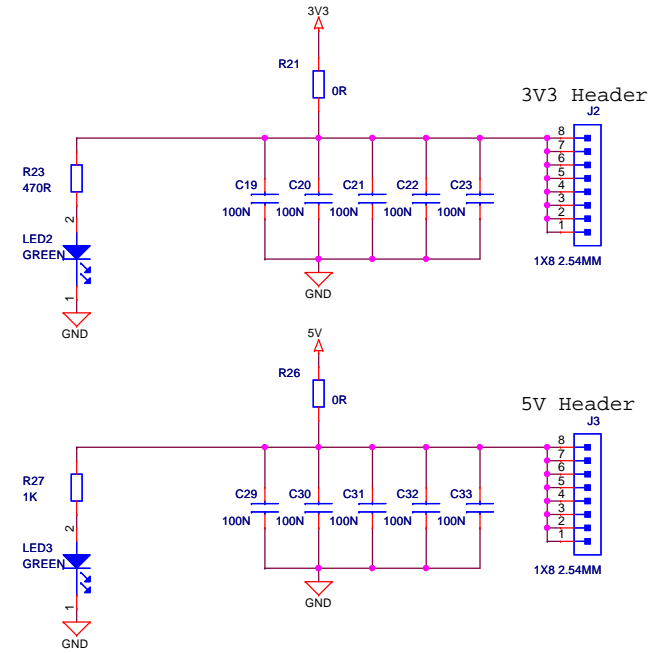
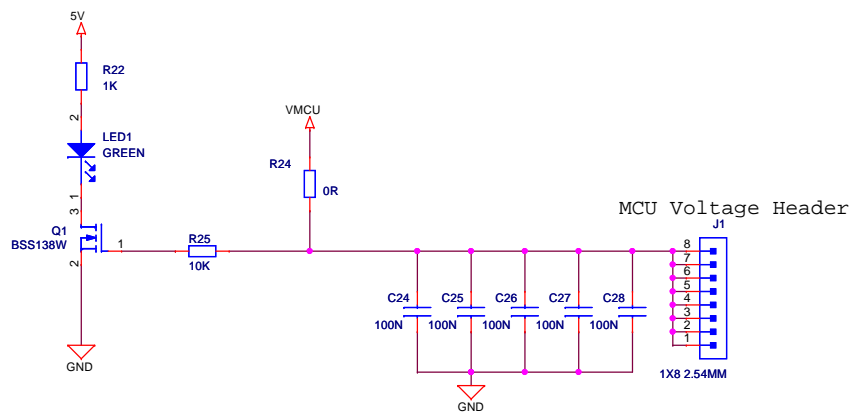
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|  |                            | EXP32 Prototyping Board                          |  |
| Designed:      Approved:                             |                            | Page Title                                       |  |
|  |                            | Front Page                                       |  |
|  |                            | Document number                                  | Revision   |
| Size<br>A3   | BOM Doc No:<br><Cage Code> |  | A  |
| Design Created Date:<br>Wednesday, December 03, 2008 |                            | Sheet Created Date<br>Tuesday, February 17, 2009 | Sheet Modified Date<br>Thursday, November 19, 2009 |
|  |                            | Sheet  | 1 of 5   |





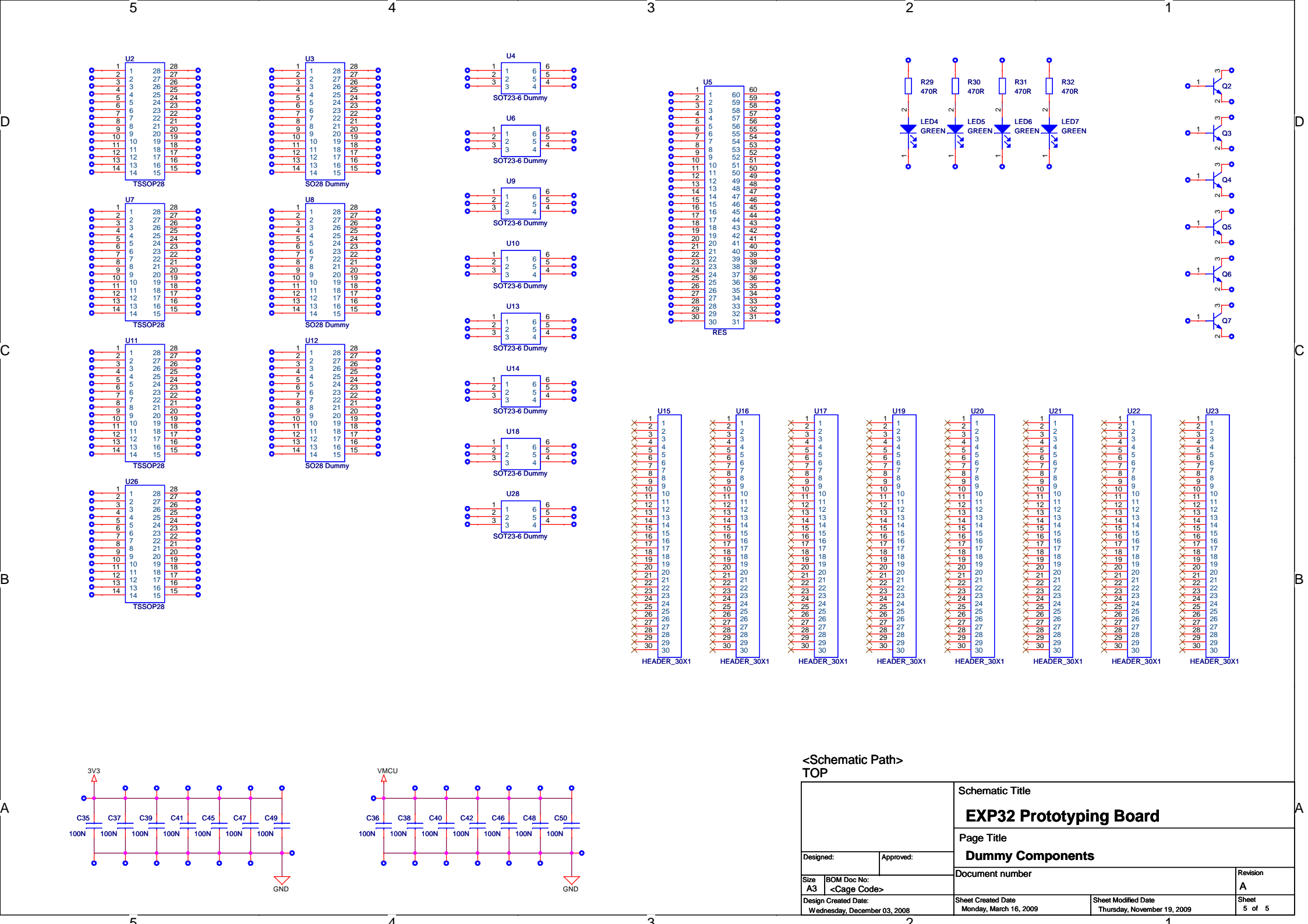
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|------------------------------|--|-----------------------------|--|
| Page Title                   |  | EXP32 Connector B           |  |
| Document number              |  | Revision A                  |  |
| Design Created Date:         |  | Sheet Created Date          |  |
| Wednesday, December 03, 2008 |  | Monday, March 16, 2009      |  |
| Design Created Date:         |  | Sheet Modified Date         |  |
| Wednesday, December 03, 2008 |  | Thursday, November 19, 2009 |  |
| Size A3                      |  | Sheet                       |  |
| <Cage Code>                  |  | 3 of 5                      |  |



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|  |  | Schematic Title                                    |  |                 |
|  |  | EXP32 Prototyping Board                            |  |                 |
| Designed:  |  | Page Title   |  |                 |
|  |  | Power Connectors                                   |  |                 |
| Size<br>A3   |  | BOM Doc No:<br><Cage Code>                         |  | Revision<br>A   |
| Design Created Date:<br>Wednesday, December 03, 2008 |  | Sheet Created Date<br>Monday, March 16, 2009       |  | Sheet<br>4 of 5 |
|  |  | Sheet Modified Date<br>Thursday, November 19, 2009 |  |                 |



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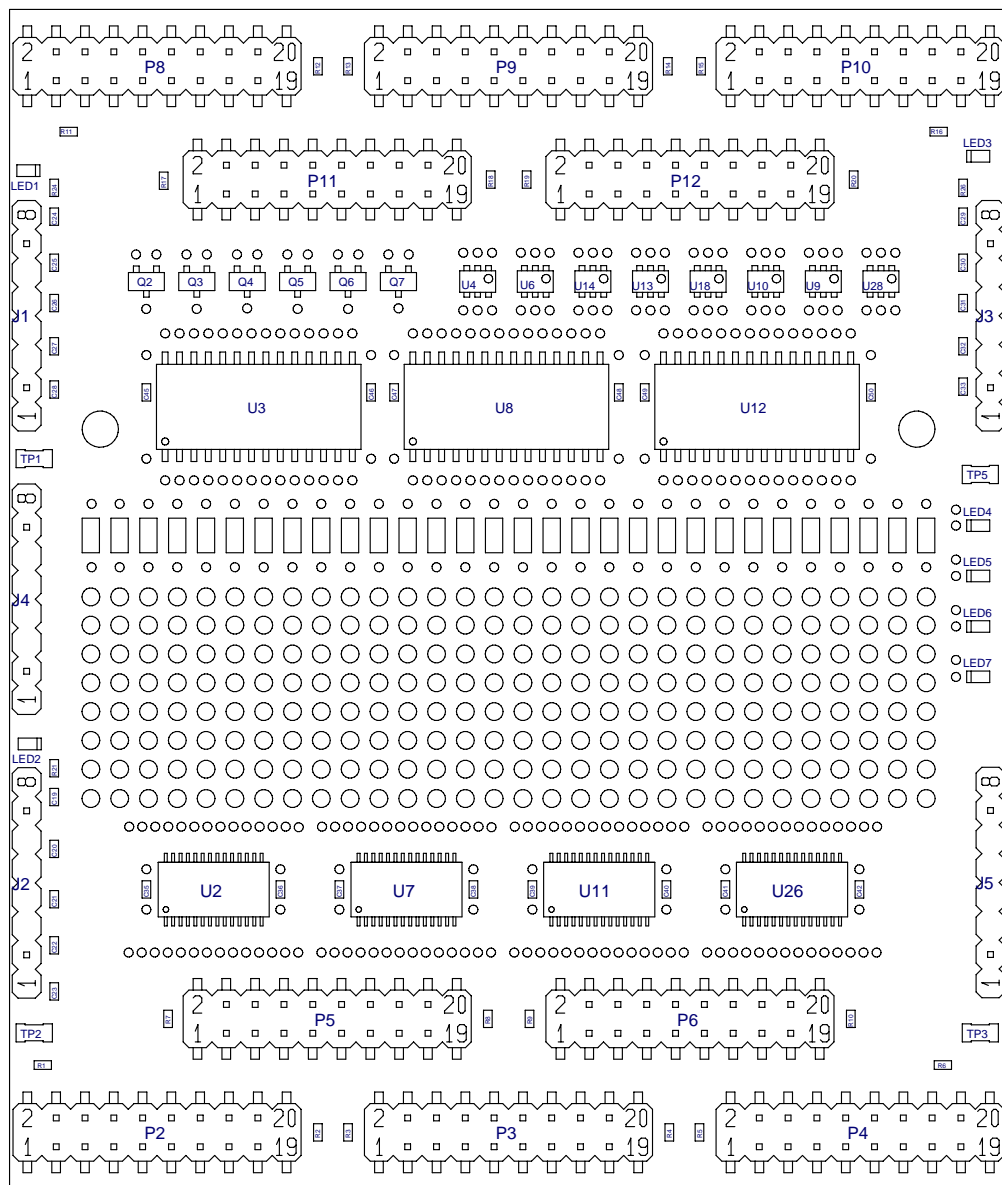
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Referanser - References

EFM32 PROTOTYPE BOARD

( Scale 1.5 : 1 )

Utført (også faktaansvarig hvis annen) - Prepared (also subject responsible if other)

Dokansv/Godk - Doc respons/Approved

Dato - Date

2009-10-07

Rev

A1

Produktbetegnelse - Product name

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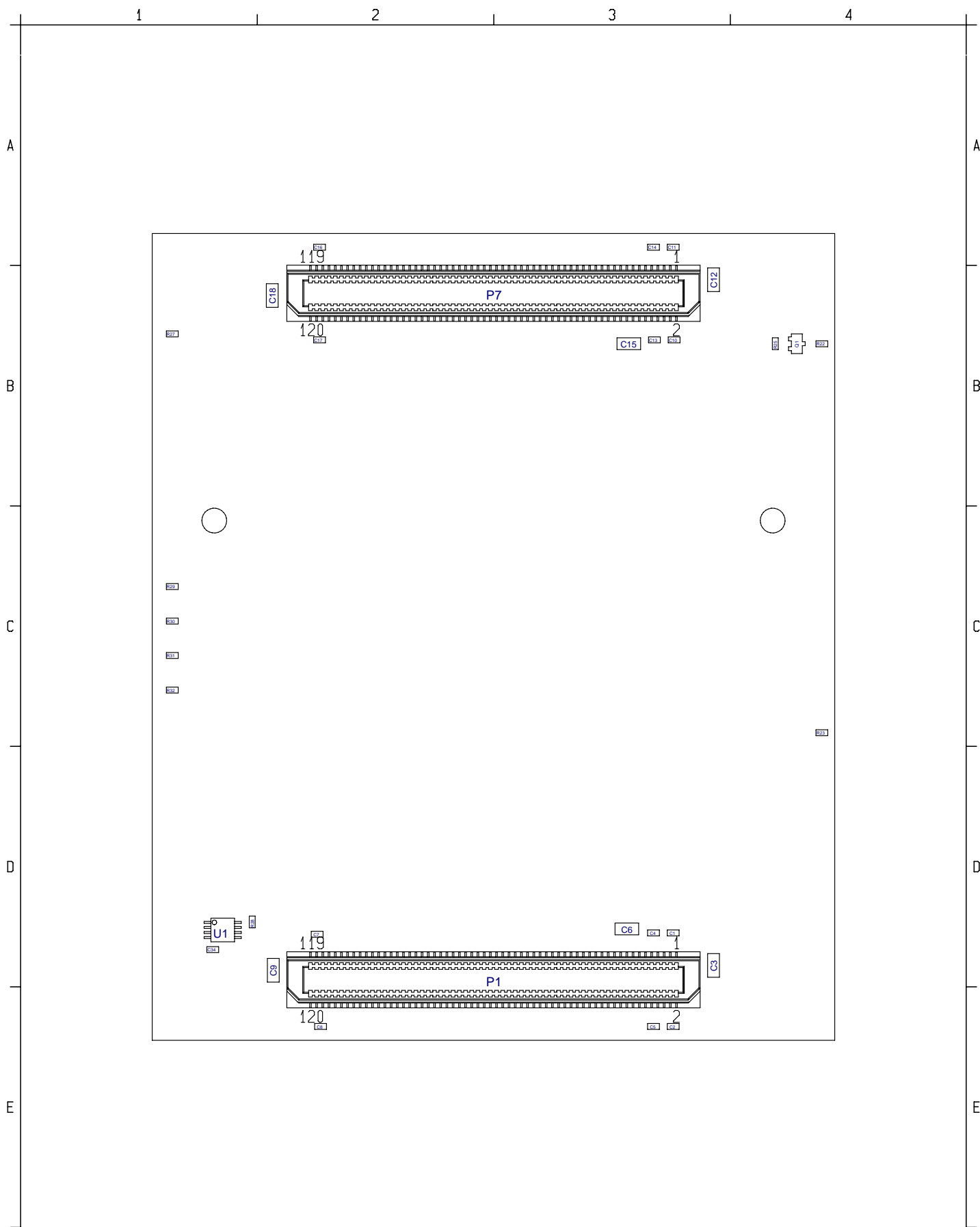
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BRD3500A1 (PCB3500 REV. 1. 1)

Side - Sheet

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Referanser - References

EFM32 PROTOTYPE BOARD

( Scale 1.5 : 1 )

Utført (også faktaansvarig hvis annen) - Prepared (also subject responsible if other)

Dokansv/Godk - Doc respons/Approved

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2009-10-07

Rev  
A1

Produktbetegnelse - Product name

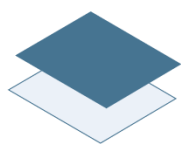
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Dokumentnr - Document No.

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Side - Sheet

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