

Rev History

- FID1 FIDUCS_40
- FID2 FIDUCS_40
- FID3 FIDUCS_40
- FID4 FIDUCS_40
- FID5 FIDUCS_40
- FID6 FIDUCS_40

LBL1
DNA

| | | |
|--|-----------------|------------|
| Titel ATT287035_Main Board V1.0.PrfPcb | | |
| SIZE A4 | Number * | Revision * |
| Data 09/10/2023 | Sheet: * of: 11 | |
| Drawn: Ilya Feldman | | |

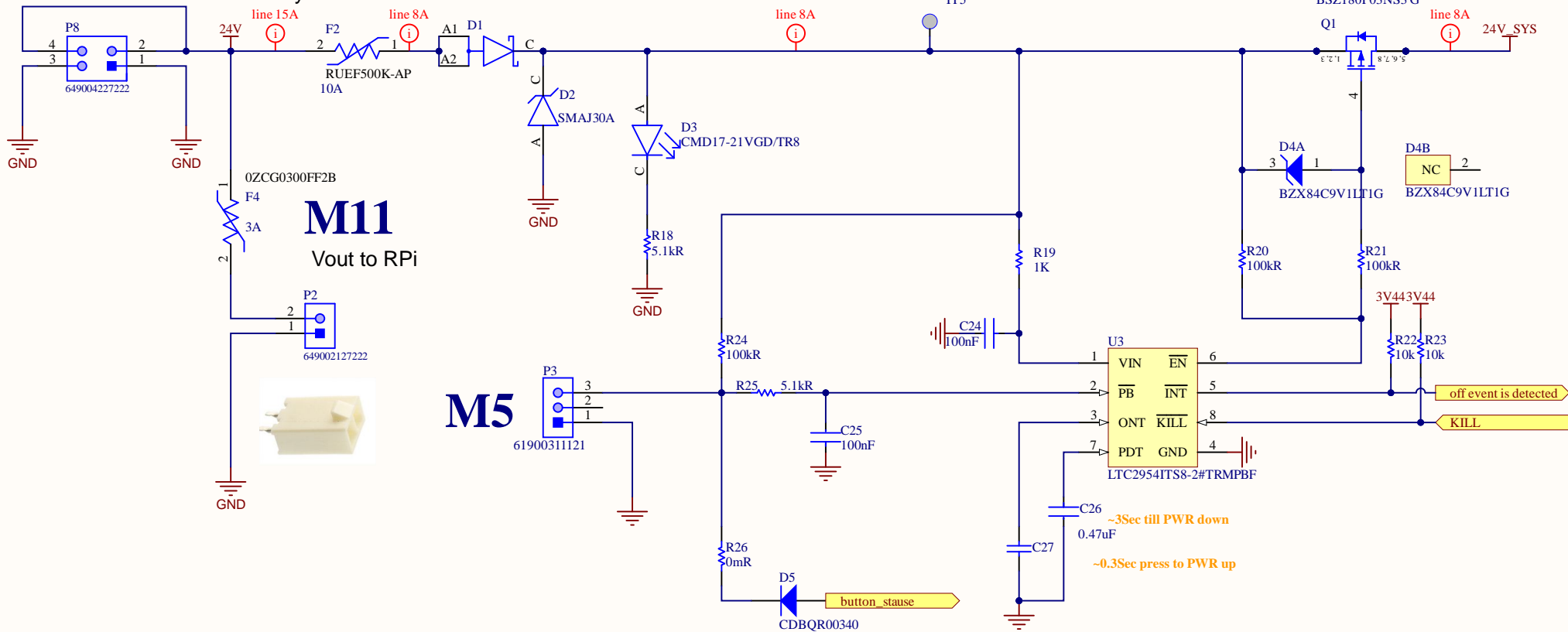


M8



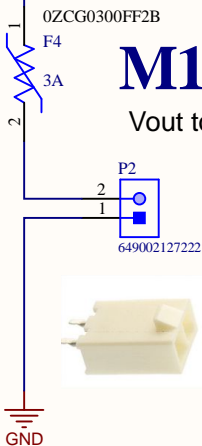
Main Vin

Vin System 24V

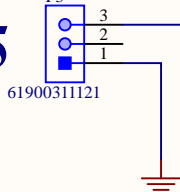


M11

Vout to RPi

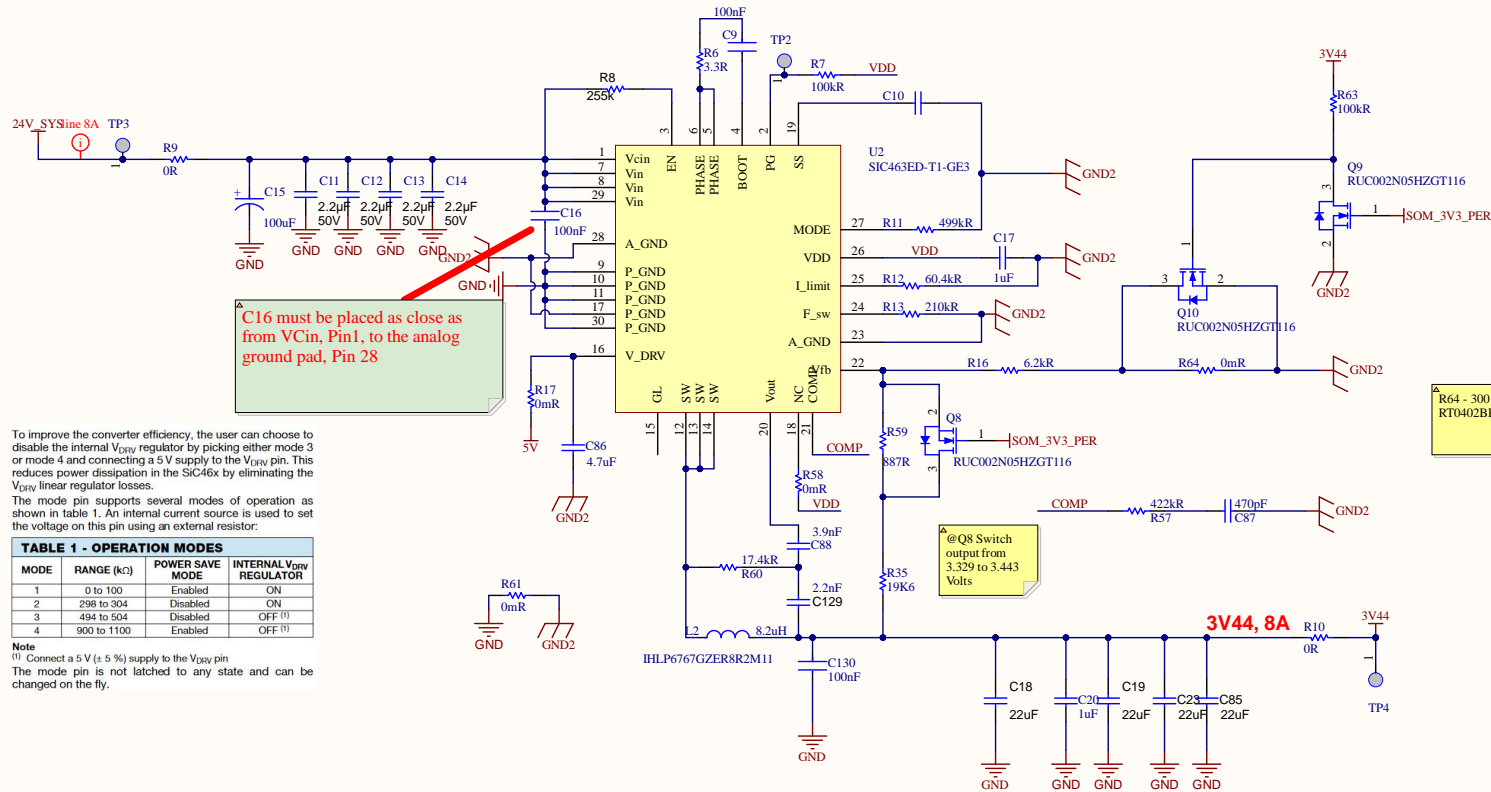
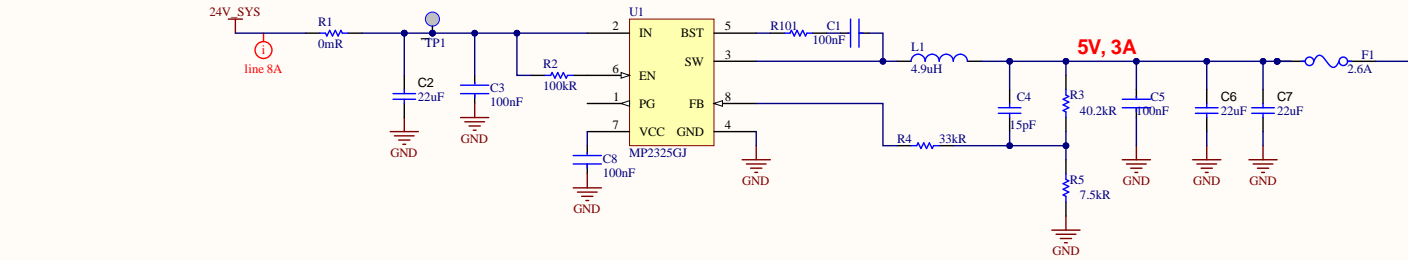


M5



| | | | | | |
|--------|--------------|----------|----------------------------------|--------|--|
| Titel | | | ATT287035_Main Board V1.0.PrfPcb | | |
| SIZE | Number | Revision | | | |
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| Drawn: | Ilya Feldman | | | | |





C16 must be placed as close as from VCin, Pin 1, to the analog ground pad, Pin 28

R64 - 300 Ohm 0.1% - RT0402BRD07300RL

@Q8 Switch output from 3.329 to 3.443 Volts

To improve the converter efficiency, the user can choose to disable the internal V_{DRV} regulator by picking either mode 3 or mode 4 and connecting a 5 V supply to the V_{DRV} pin. This reduces power dissipation in the SiC46x by eliminating the V_{DRV} linear regulator losses.

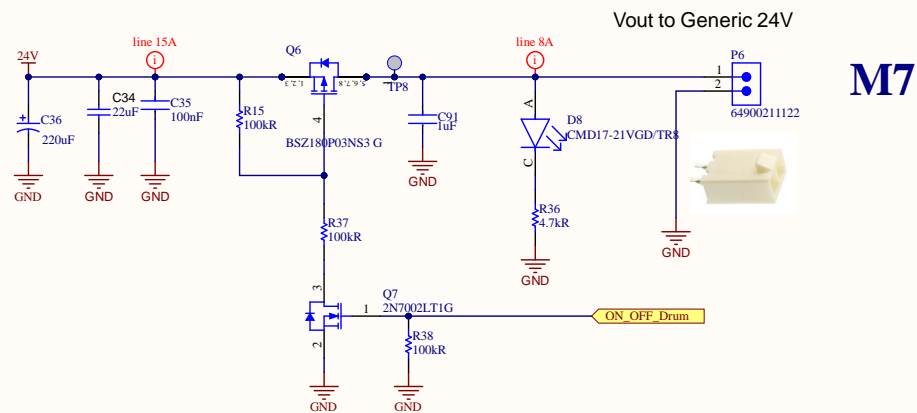
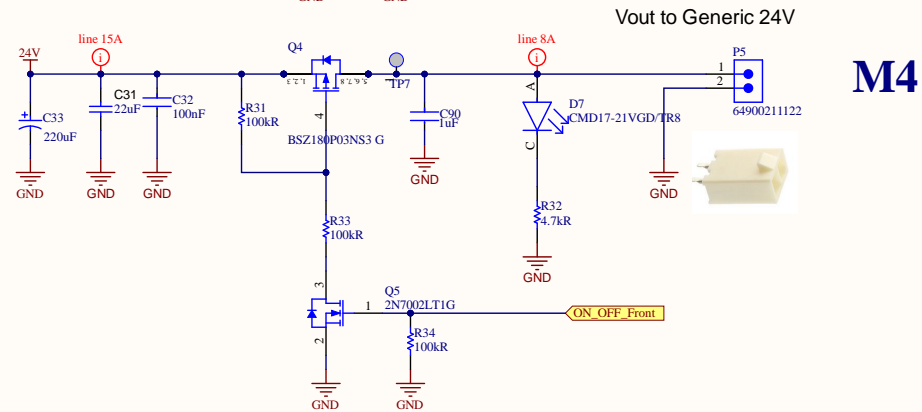
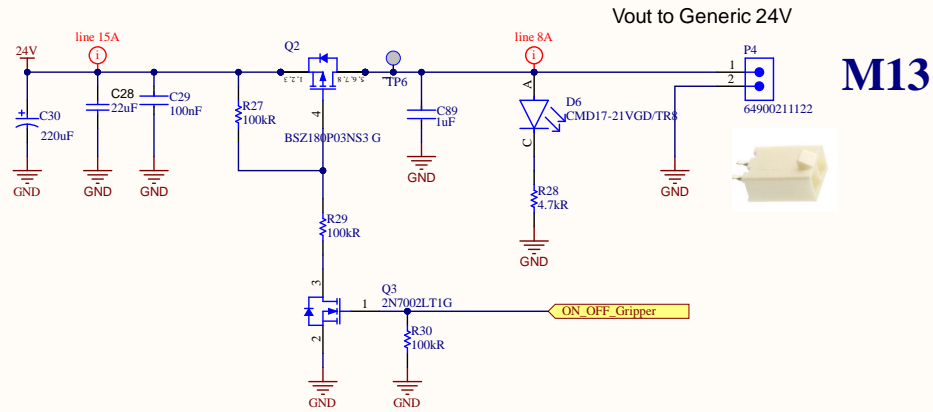
The mode pin supports several modes of operation as shown in table 1. An internal current source is used to set the voltage on this pin using an external resistor:

| MODE | RANGE (k Ω) | POWER SAVE MODE | INTERNAL V_{DRV} REGULATOR |
|------|---------------------|-----------------|------------------------------|
| 1 | 0 to 100 | Enabled | ON |
| 2 | 298 to 304 | Disabled | ON |
| 3 | 494 to 504 | Disabled | OFF (1) |
| 4 | 900 to 1100 | Enabled | OFF (1) |

Note
 (1) Connect a 5 V ($\pm 5\%$) supply to the V_{DRV} pin. The mode pin is not latched to any state and can be changed on the fly.

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| Title ATT287035_Main Board V1.0.PjtPeb | | |
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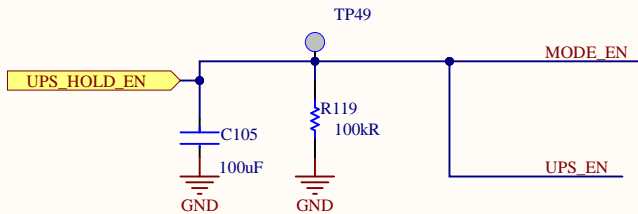
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| Title ATT287035_Main Board V1.0.PjtPeb | | |
| SIZE | Number | Revision |
| A4 | * | * |
| Data | 09/10/2023 | Sheet: * of: 11 |
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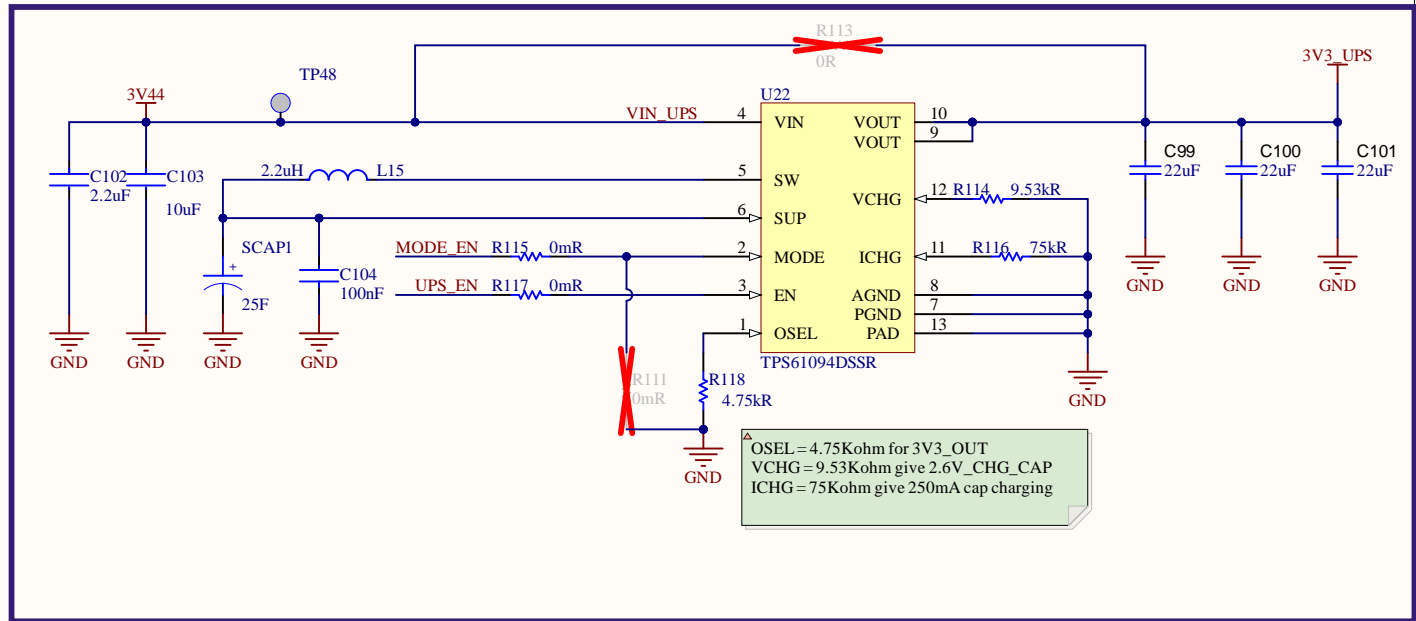
Table 7-4. Operation Modes

| MODES | EN | MODE | BYPASS | BOOST | BUCK | FUNCTION |
|--------------------|----|------|--------|-------|------|---|
| Forced bypass | 0 | 0 | √ | x | x | Turn on bypass MOSFET, turn off boost/buck, $V_{OUT} = V_{IN}$ |
| True shutdown | 0 | 1 | x | x | x | Bypass disconnect, turn off boost/buck, $V_{OUT} = 0\text{ V}$ |
| Forced buck | 1 | 0 | √ | x | √ | Buck enabled, turn on bypass MOSFET, $V_{OUT} = V_{IN}$ while charging the supercap or backup battery |
| Auto buck or boost | 1 | 1 | √ | x | √ | Buck enable, when $V_{IN} > \text{target } V_{OUT} + 100\text{ mV}$ and $V_{OUT} > \text{target } V_{OUT}$, supercap is charged by buck |
| | 1 | 1 | √ | √ | x | Boost and bypass enabled; when $V_{OUT} + 100\text{ mV} > V_{IN} > \text{target } V_{OUT}$ and $V_{OUT} = \text{target } V_{OUT}$, V_{OUT} is from both V_{IN} through bypass and supercap by boost. |
| | 1 | 1 | x | √ | x | Boost enable; when $V_{IN} < \text{target } V_{OUT}$, V_{OUT} is powered from supercap by boost. |

UPS for SoM



Only when SOM starts working and raises leg - UPS_HOLD_EN to 1 which gives EN=MODE=2 only then UPS comes into operation and connect CUP to system



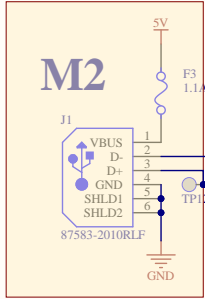
OSEL = 4.75Kohm for 3V3_OUT
 VCHG = 9.53Kohm give 2.6V_CHG_CAP
 ICHG = 75Kohm give 250mA cap charging

| | | |
|---|-----------------|------------|
| Titel ATT287035_Main Board V1.0.PrijPcb | | |
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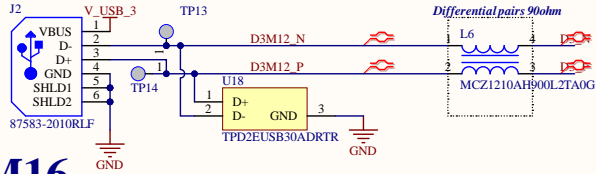


1x4 USB HUB

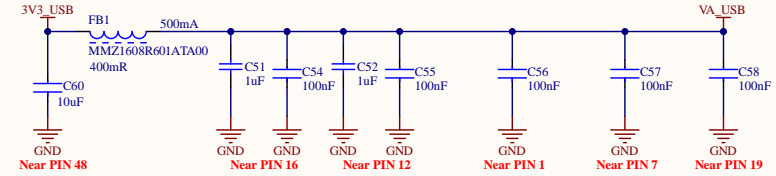
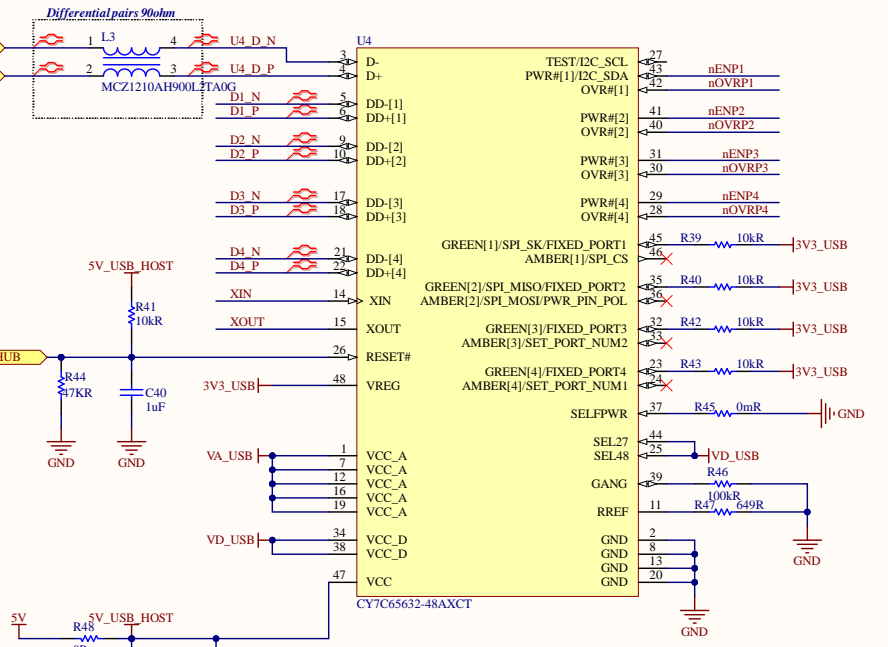
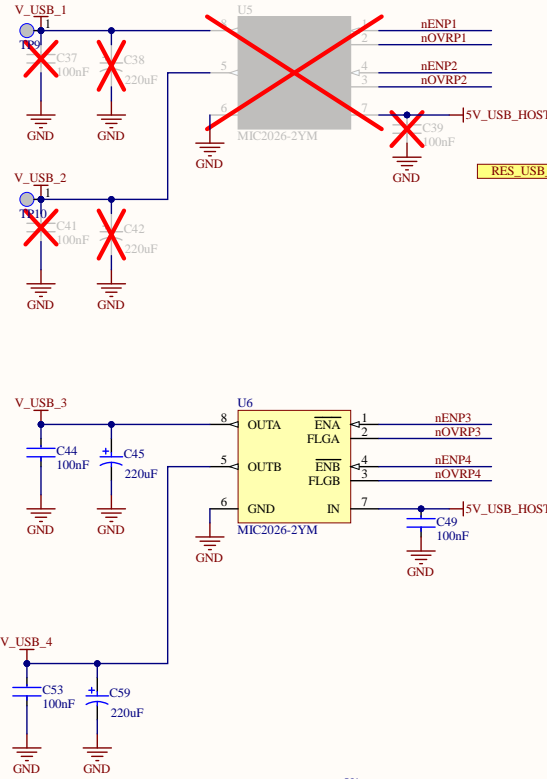
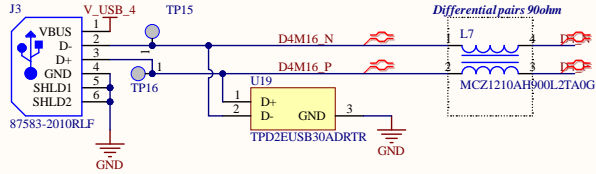
Screen



M12



M16

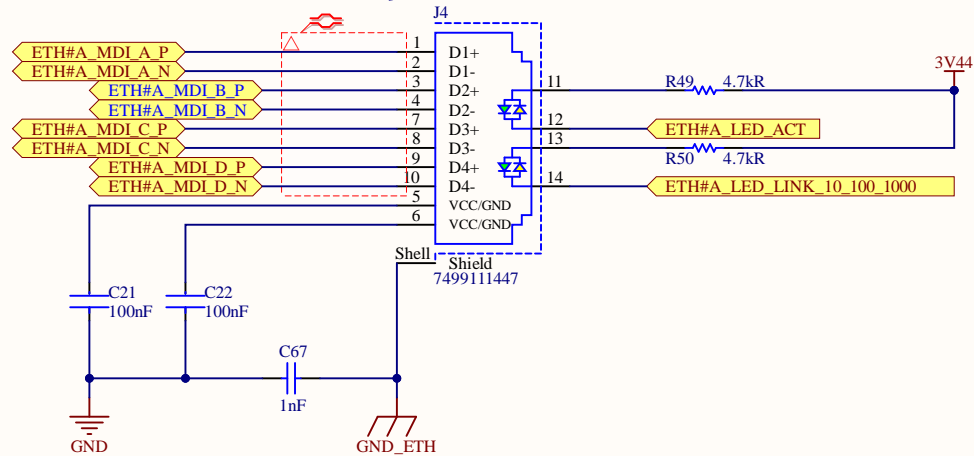


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| A4 | * | * |
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Ethernet connector

M9

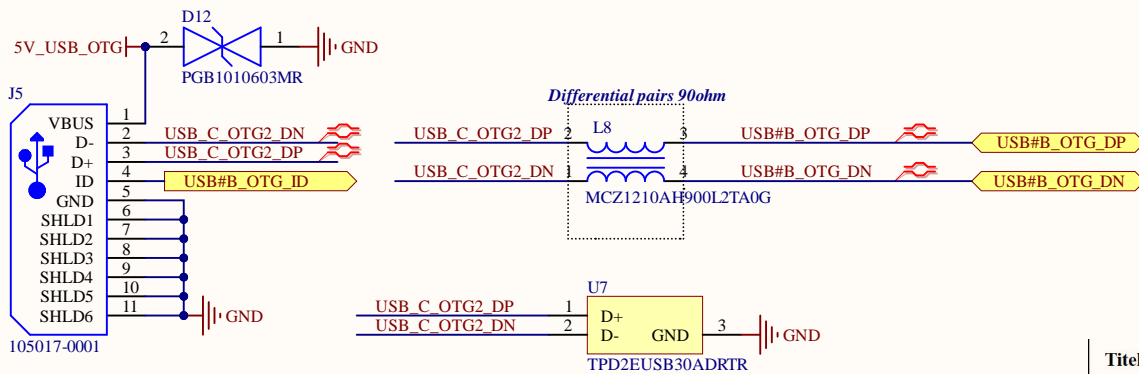


| Pin | Description | 10base-T | 100Base-T | 1000Base-T |
|-----|---------------------------------|----------|-----------|------------|
| 1 | Transmit Data+ or BiDirectional | TX+ | TX+ | BL_DA+ |
| 2 | Transmit Data- or BiDirectional | TX- | TX- | BL_DA- |
| 3 | Receive Data+ or BiDirectional | RX+ | RX+ | BL_DB+ |
| 4 | Not connected or BiDirectional | n/c | n/c | BL_DC+ |
| 5 | Not connected or BiDirectional | n/c | n/c | BL_DC- |
| 6 | Receive Data- or BiDirectional | RX- | RX- | BL_DB- |
| 7 | Not connected or BiDirectional | n/c | n/c | BL_DD+ |
| 8 | Not connected or BiDirectional | n/c | n/c | BL_DD- |

T-568A

PinoutsGuide.com

Micro USB Connector



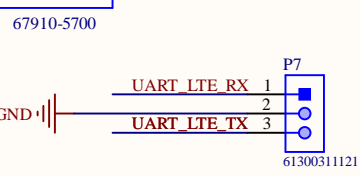
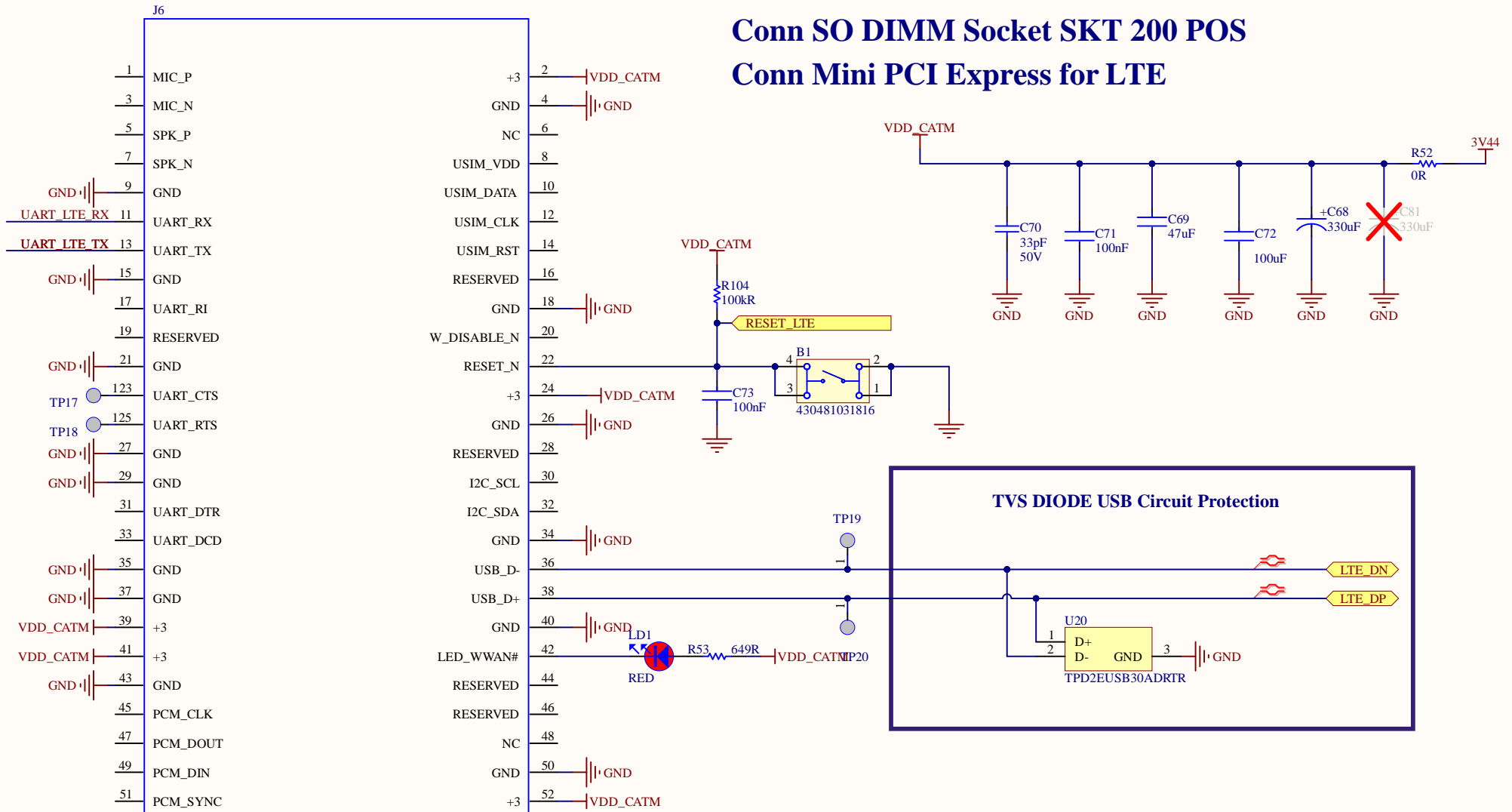
M10

| | | | | | |
|--------|--------------|----------|----------------------------------|--------|--|
| Titel | | | ATT287035_Main Board V1.0.PrfPcb | | |
| SIZE | Number | Revision | | | |
| A4 | * | * | | | |
| Data | 09/10/2023 | Sheet: * | | of: 11 | |
| Drawn: | Ilya Feldman | | | | |



Conn SO DIMM Socket SKT 200 POS

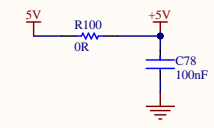
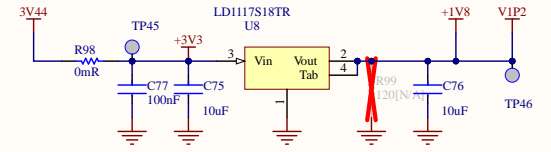
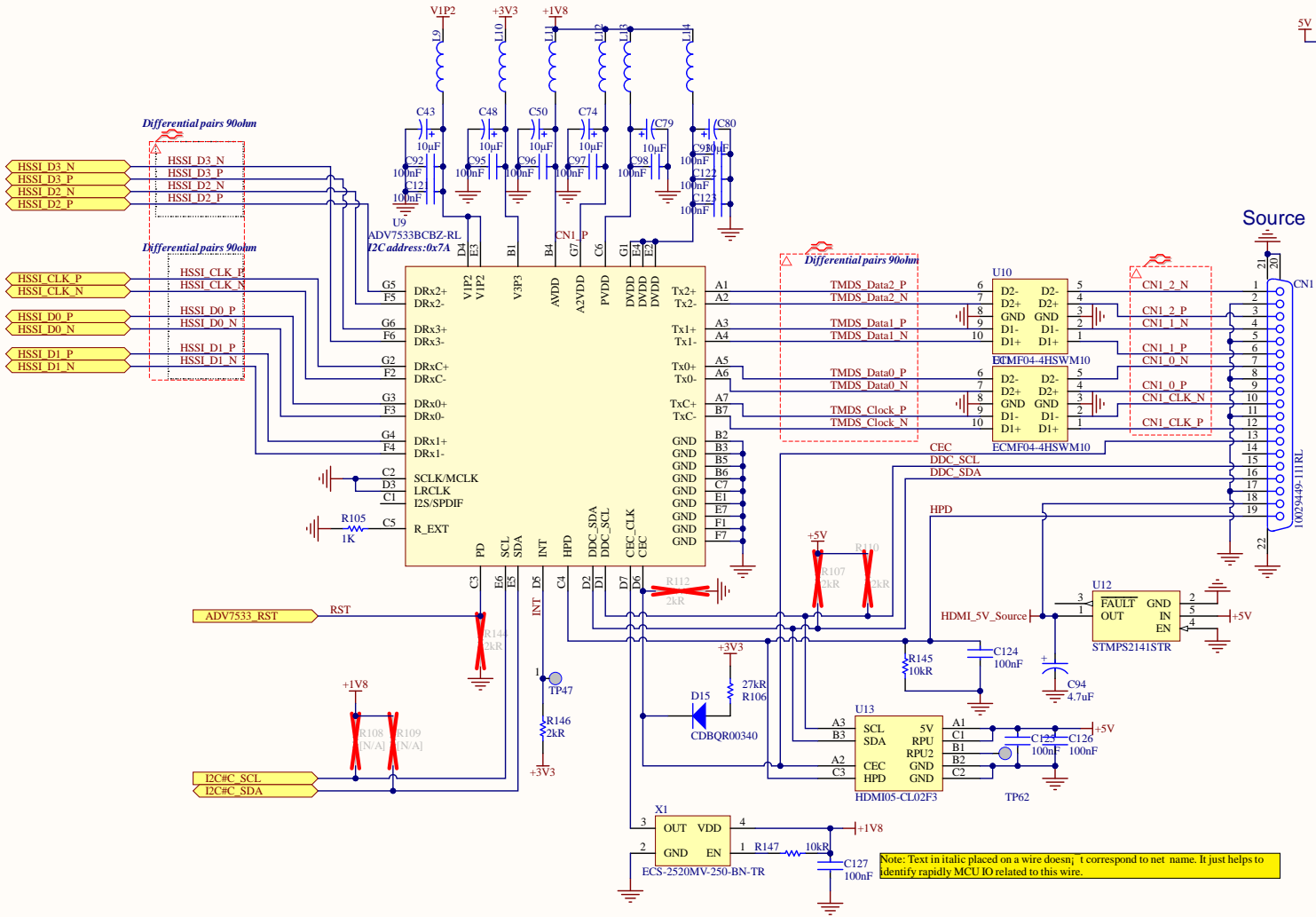
Conn Mini PCI Express for LTE



| | | | | | |
|--------|--------------|----------|----------------------------------|--------|--|
| Titel | | | ATT287035_Main Board V1.0.PrfPcb | | |
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| Drawn: | Ilya Feldman | | | | |



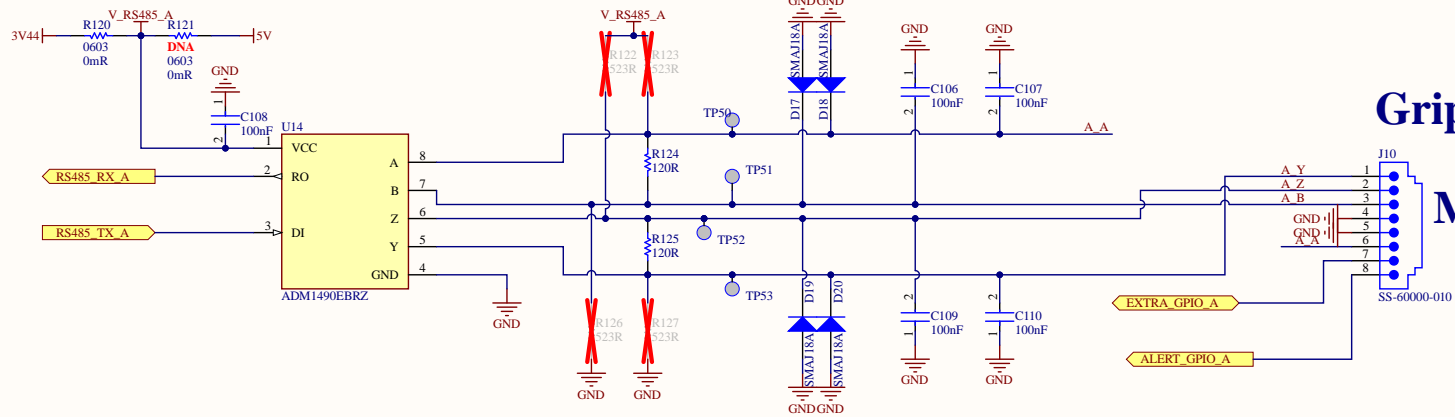
DSI to HDMI converter



M1

| | | |
|--|--------------|-----------------|
| Title ATT287035_Main Board V1.0.PrtGep | | |
| SIZE | Number | Revision |
| A4 | * | * |
| Data | 09/10/2023 | Sheet: * of: 11 |
| Drawn: | Ilya Feldman | |

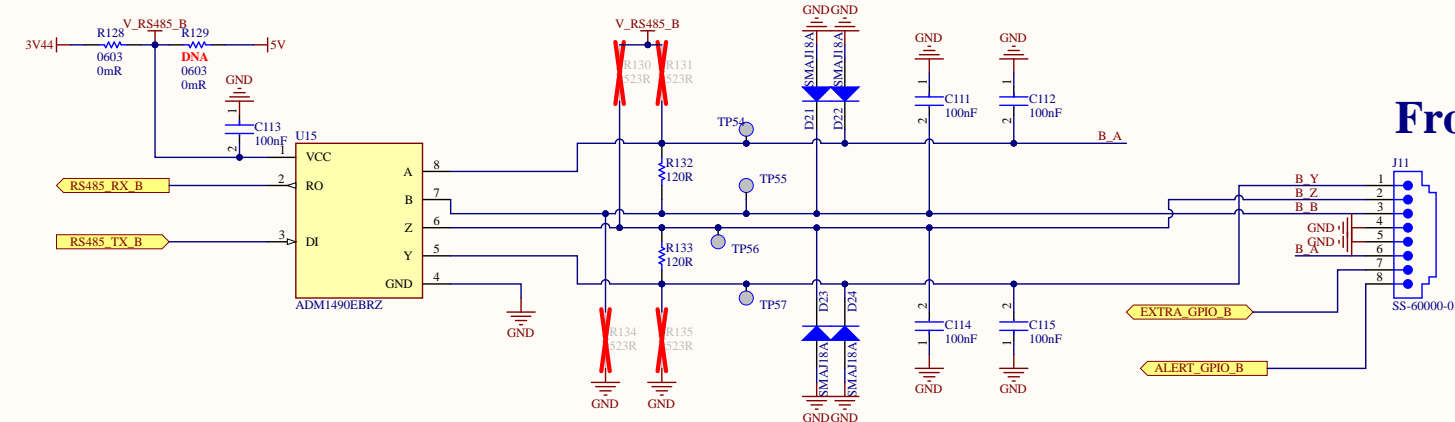
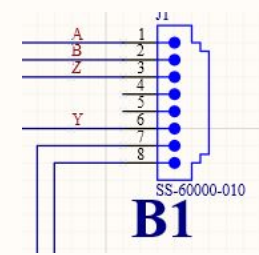




Gripper

M14

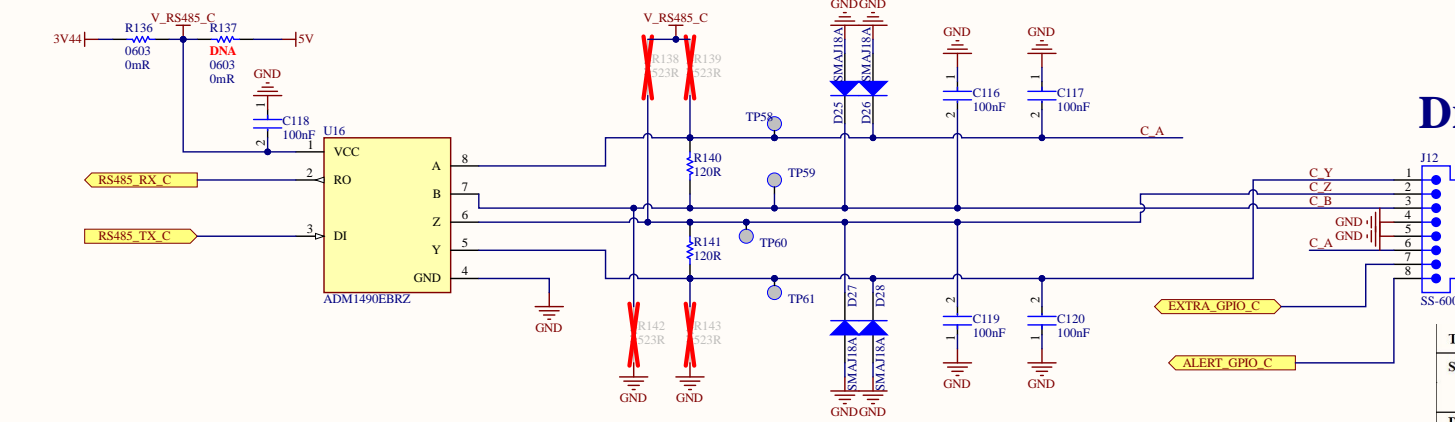
RS485 Full Duplex



Front

M3

| Main | Pin | Generic |
|---------|-----|---------|
| Y (Tx+) | 2 | A (Rx+) |
| Z (Tx-) | 2 | B (Rx-) |
| B (Rx-) | 3 | Z (Tx-) |
| A (Rx+) | 6 | Y (Tx+) |



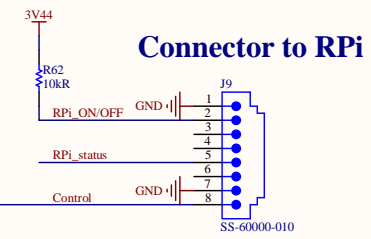
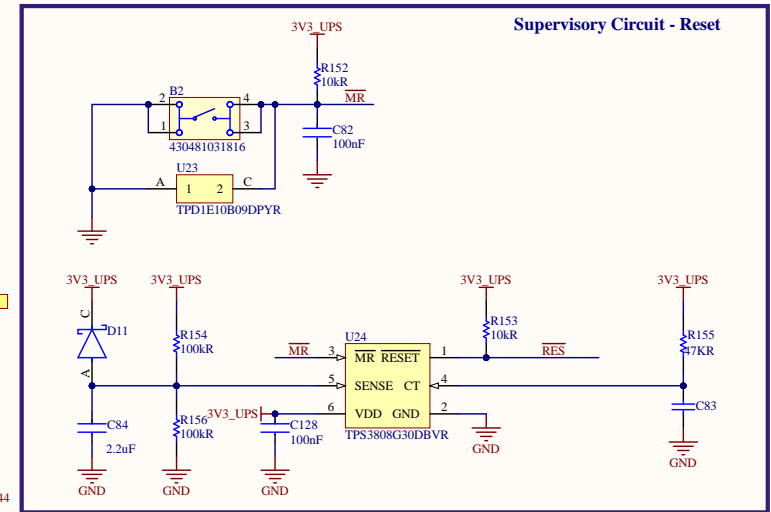
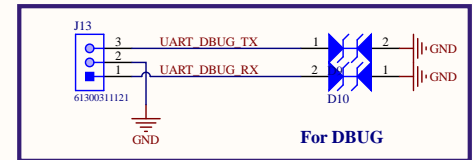
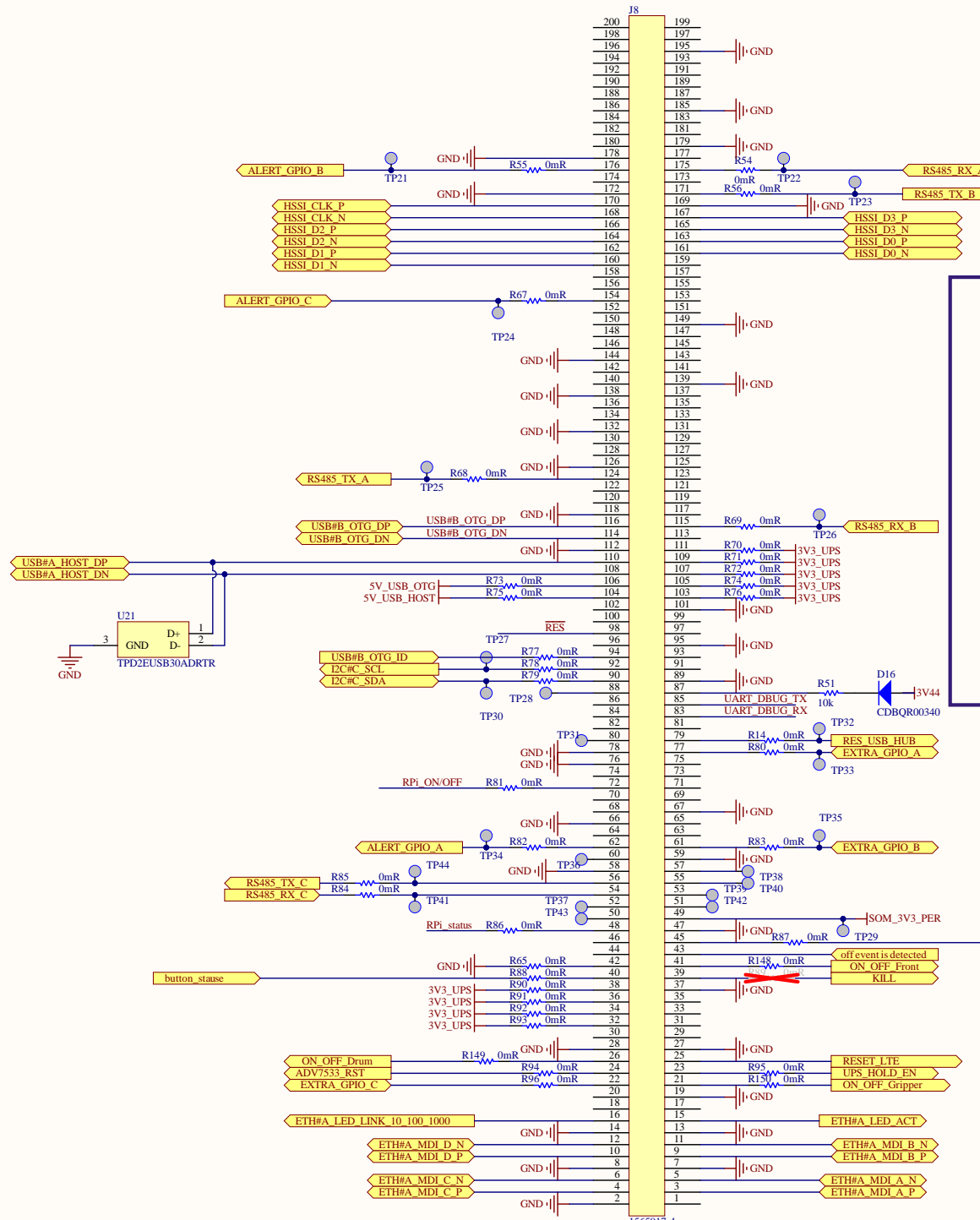
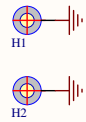
Drum

M6

| | | |
|--|--------------|-----------------|
| Title ATT287035_Main Board V1.0.PrtPcb | | |
| SIZE | Number | Revision |
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| Drawn: | Ilya Feldman | |



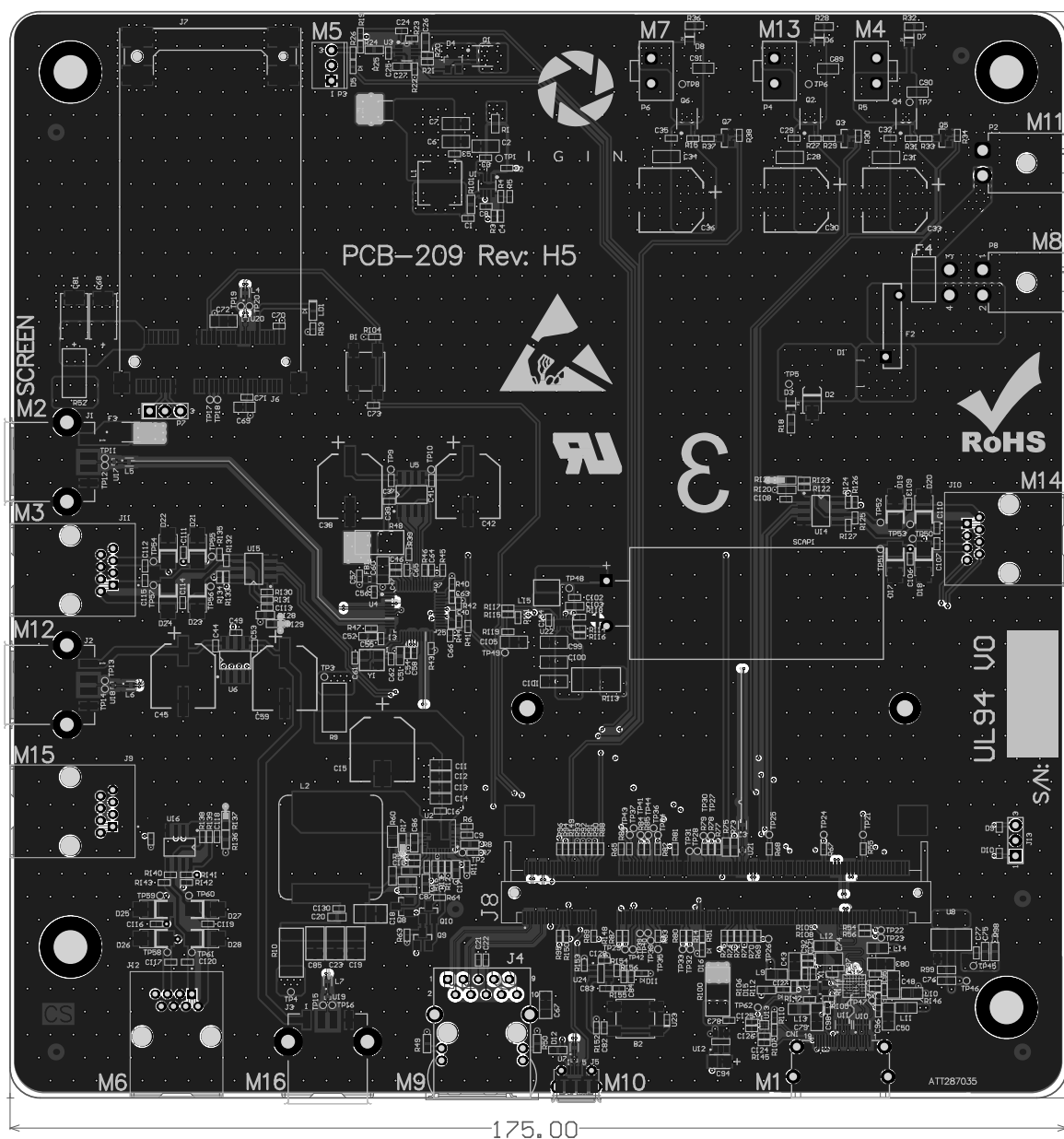
Conn SO DIMM Socket SKT 200 POS Conn for VAR-SOM-MX8M-MINI



M15

| | | |
|--|--------------|-----------------|
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| SIZE | Number | Revision |
| A4 | * | * |
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| Drawn: | Ilya Feldman | |





180.00

TOP
MID1
MID2
MID3
MID4
BOT

| Layer | Name | Material | Thickness | Constant | Board Layer Stack |
|-------|----------------|---------------|-----------|----------|-------------------|
| | Top Overlay | | | | |
| | Top Solder | Solder Resist | 0.40mil | 3.5 | |
| 1 | Top Layer | | 1.40mil | | |
| | Dielectric1 | FR-4 | 4.00mil | 4.2 | |
| 2 | MidLayer1 | | 1.40mil | | |
| | Dielectric2 | FR-4 | 4.00mil | 4.2 | |
| 3 | MidLayer2 | | 1.40mil | | |
| | Dielectric3 | FR-4 | 37.60mil | 4.2 | |
| 4 | MidLayer3 | | 1.40mil | | |
| | Dielectric4 | FR-4 | 4.00mil | 4.2 | |
| 5 | MidLayer4 | | 1.40mil | | |
| | Dielectric5 | FR-4 | 4.00mil | 4.2 | |
| 6 | Bottom Layer | | 1.40mil | | |
| | Bottom Solder | Solder Resist | 0.40mil | 3.5 | |
| | Bottom Overlay | | | | |

Total board thickness: 62.80mil

The thickness of TOP & BOT including plating.

- Note:
- Dimensions are in mm.
 - Viewed from CS.
 - Type of board 6 LAYERS P.T.H.
 - Dimension tolerance +/-0.1mm.
 - Board Thickness = 1.6mm +/- 10%
 - Holes are specified after plating.
Holes position +/- 0.05mm. PTH holes tolerance +0.1/-0.05mm.
NPTH holes tolerance +/- 0.05mm.
 - Marking shall be applied to CS & PS. Marking color WHITE.
 - Solder maskover bare copper. Solder mask per IPC-SM 840A. Color BLUE.
 - RoHS Compliant
 - P.C.B. material per MIL-P-13949F. Base material FR4, T6=I70.
 - Apply ENIG cover per RoHS on all exposed copper.
 - Please add manufacturing Date code (WW-YYYY) & Manufacturer UL License on each board.
 - This product according IPC 600 class 2
 - Board material according to the UL-94V-0 standard
 - Control Impedance: Yes. Please see the attached PDF file: Transmission_Line.pdf

| | |
|---------------------------------------|------------------------|
| Design By: | TandemG Ltd. |
| A.T.T. Automatac Test Technology Ltd. | Title: Main Board U1.0 |
| Phone: 09-7657179 | Number: ATT287035 |
| Fax: 09-7687523 | Date: 07/09/2023 |