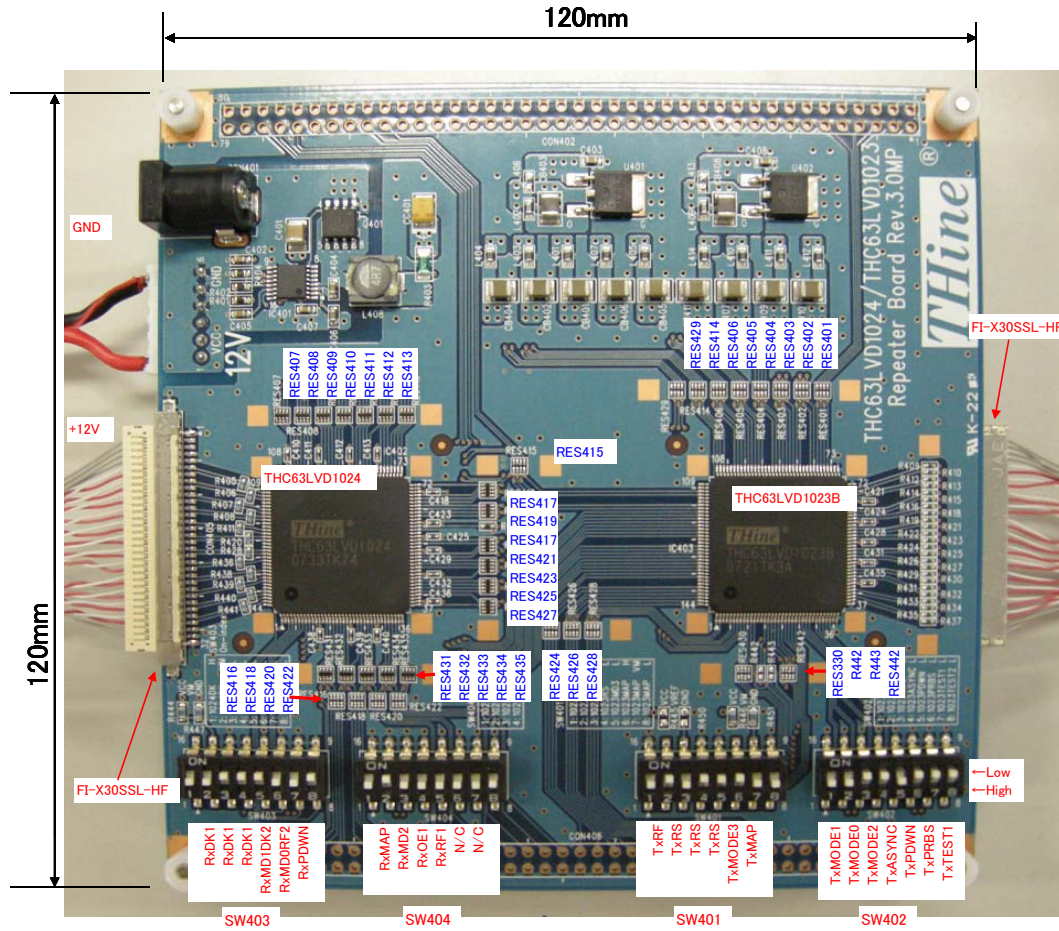
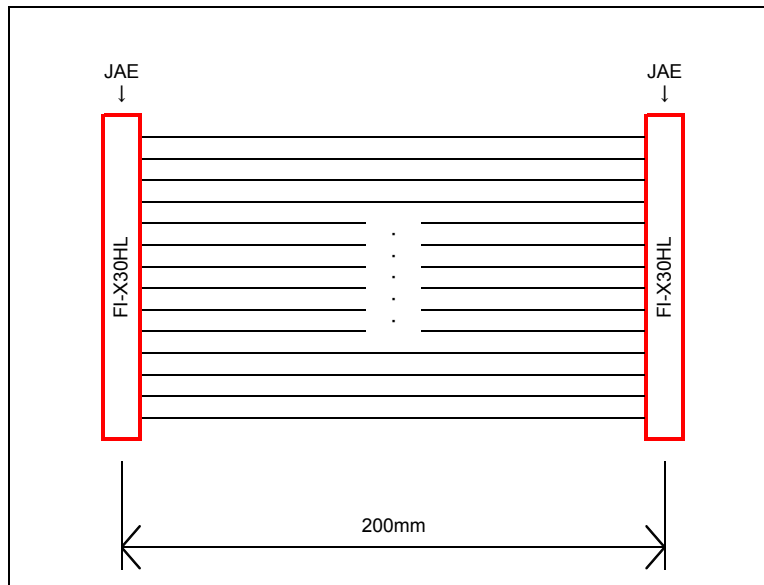


Description

t=1.6mm



LVDS-Cable Type.



SW401 Setting

* Def. : Default Setting

| THC63LVD1023B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---------|-------------------------------------|---------|---------------|---|--------------|---------------------------|---------|--|--|----|--------------|---------------------------|---|---|---|---------|---------|---------|---------------|---------|-----|---------|------|---------------|---------|---------|----------|---------|---------------|---|------|-------|-----|
| SW Pin# | * Def. | NodeName | IC Pin# | PinName | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | H | TxRF | 21 | R/F | Input Clock Triggering Edge Select. H : Rising edge, L : Falling edge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | L | TxRS | 22 | RS | LVDS swing mode, VREF select. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | H | | | | <table border="1"> <thead> <tr> <th colspan="3">SW-Pin#</th> <th rowspan="2">RS</th> <th rowspan="2">LVDS Swing</th> <th rowspan="2">Small Swing Input Support</th> </tr> <tr> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>H(open)</td> <td>H(open)</td> <td>VIHM</td> <td>350mV</td> <td>N/A</td> </tr> <tr> <td>H(open)</td> <td>L</td> <td>H(open)</td> <td>VIMM</td> <td>350mV</td> <td>RS=VREFa</td> </tr> <tr> <td>H(open)</td> <td>H(open)</td> <td>L</td> <td>VILM</td> <td>200mV</td> <td>N/A</td> </tr> </tbody> </table> | | | SW-Pin# | | | RS | LVDS Swing | Small Swing Input Support | 2 | 3 | 4 | L | H(open) | H(open) | VIHM | 350mV | N/A | H(open) | L | H(open) | VIMM | 350mV | RS=VREFa | H(open) | H(open) | L | VILM | 200mV | N/A |
| SW-Pin# | | | | | RS | LVDS Swing | Small Swing Input Support | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L | H(open) | H(open) | VIHM | 350mV | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H(open) | L | H(open) | VIMM | 350mV | RS=VREFa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H(open) | H(open) | L | VILM | 200mV | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | H | a) VREF is Input Reference Voltage. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | L | TxMODE3 | 23 | MODE3 | Input port switching function enable when MODE<1:0>=HL(Single-in/Dual-out Mode). H or Open: Port switch disable. L: Port switch enable. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | L | TxMAP | 24 | MAP | LVDS mapping table select. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | H | | | | <table border="1"> <thead> <tr> <th colspan="3">SW-Pin#</th> <th rowspan="2">RS</th> <th rowspan="2">Mapping Mode</th> </tr> <tr> <th>6</th> <th>7</th> <th>8</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>H(open)</td> <td>H(open)</td> <td>VIHM</td> <td>Mapping MODE1</td> </tr> <tr> <td>H(open)</td> <td>L</td> <td>H(open)</td> <td>VIMM</td> <td>Mapping MODE2</td> </tr> <tr> <td>H(open)</td> <td>H(open)</td> <td>L</td> <td>VILM</td> <td>Mapping MODE3</td> </tr> </tbody> </table> | | | SW-Pin# | | | RS | Mapping Mode | 6 | 7 | 8 | L | H(open) | H(open) | VIHM | Mapping MODE1 | H(open) | L | H(open) | VIMM | Mapping MODE2 | H(open) | H(open) | L | VILM | Mapping MODE3 | | | | |
| SW-Pin# | | | | | RS | Mapping Mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L | H(open) | H(open) | VIHM | Mapping MODE1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H(open) | L | H(open) | VIMM | Mapping MODE2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H(open) | H(open) | L | VILM | Mapping MODE3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SW402 Setting

* Def. : Default Setting

| THC63LVD1023B | | | | | | | | | | | | | | | | | | | | |
|--|--------|-----------------------------------|---------|----------|---|-------|-------|------|---|---|-----------------------------------|---|---|---------------------------------|---|---|-------------------------------|---|---|-------------------------------|
| SW Pin# | * Def. | NodeName | IC Pin# | PinName | Description | | | | | | | | | | | | | | | |
| 1 | H | TxMODE1 | 25 | MODE1 | Pixel Data Mode. | | | | | | | | | | | | | | | |
| 2 | H | TxMODE0 | 26 | MODE0 | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>MODE1</th> <th>MODE0</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>H</td> <td>H</td> <td>Single Link(Single-in/Single-out)</td> </tr> <tr> <td>H</td> <td>L</td> <td>Single Link(Single-in/Dual-out)</td> </tr> <tr> <td>L</td> <td>H</td> <td>Dual Link(Dual-in/Single-out)</td> </tr> <tr> <td>L</td> <td>L</td> <td>Dual Link(Dual-in/Single-out)</td> </tr> </tbody> </table> | | | | | | MODE1 | MODE0 | Mode | H | H | Single Link(Single-in/Single-out) | H | L | Single Link(Single-in/Dual-out) | L | H | Dual Link(Dual-in/Single-out) | L | L | Dual Link(Dual-in/Single-out) |
| MODE1 | MODE0 | Mode | | | | | | | | | | | | | | | | | | |
| H | H | Single Link(Single-in/Single-out) | | | | | | | | | | | | | | | | | | |
| H | L | Single Link(Single-in/Dual-out) | | | | | | | | | | | | | | | | | | |
| L | H | Dual Link(Dual-in/Single-out) | | | | | | | | | | | | | | | | | | |
| L | L | Dual Link(Dual-in/Single-out) | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| 3 | L | TxMODE2 | 27 | MODE2 | The use of these multi-function depends on the setting of MODE<1:0> or ASYNC. ASYNC=H(MODE<1:0>=Don't care.) H: Cross point switching enable. L: Cross point switching disable. ASYNC=L MODE<1:0>=HH(Single-in/Single-out Mode) H: Distribution function enable. L: Distribution function disable. MODE<1:0>=HL(Single-in/Dual-out Mode) H: DDR (Double Edge input) function enable. L: DDR (Double Edge input) function disable. | | | | | | | | | | | | | | | |
| 4 | L | TxASYNC | 28 | ASYNC | Asynchronous function enable. H : Asynchronous mode enable.(MODE<1:0>=Disable) L : Asynchronous mode disable.(MODE<1:0>=Enable) | | | | | | | | | | | | | | | |
| 5 | H | TxPDWN | 30 | /PDWN | H: Normal operation, L: Power down (all outputs are Hi-Z) | | | | | | | | | | | | | | | |
| 6 | L | TxPRBS | 31 | PRBS | PRBS(Pseudo-Random Binary Sequence) generator is active in order to evaluate eye patterns when MODE<1:0> = LL(Dual-in/Dual-out mode) or ASYNC=H H: PRBS generator is enable. L: Normal Operation | | | | | | | | | | | | | | | |
| 7 | L | TxTEST1 | 32 | Reserved | Must be tied to GND. | | | | | | | | | | | | | | | |
| 8 | H | TxTEST2 | 33 | N/C | Must be Open. | | | | | | | | | | | | | | | |

SW403 Setting

* Def. : Default Setting

| THC63LVD1024 | | | | | | | | | |
|--------------|--------|----------|---------|----------|--|-------------------------------|-----------------------------------|----------------------|----------------------|
| SW Pin# | * Def. | NodeName | IC Pin# | PinName | Description | | | | |
| 1 | H | RxDK1 | 7 | DK | Output Clock Delay Timing Select. tDOUT=Output Data Cycle | | | | |
| 2 | H | | | | LL HH HL | L | H(open) | H(open) | 6 $\frac{tDOUT}{28}$ |
| 3 | L | | | | | H(open) | H(open) | L | 0 |
| | | | | LH | L | H(open) | H(open) | 7 $\frac{tDOUT}{28}$ | |
| | | | | H(open) | L | H(open) | -7 $\frac{tDOUT}{28}$ | 0 | |
| 4 | L | RxMD1DK2 | 6 | MODE1 | Pixel Data Mode. | | | | |
| | | | | MODE1 | | MODE0 | Mode | | |
| | | | | H | | H | Single Link(Single-in/Single-out) | | |
| | | | | H | | L | Single Link(Single-in/Dual-out) | | |
| 5 | L | RxMD0RF2 | 5 | MODE0 | L | H | Dual Link(Dual-in/Single-out) | | |
| | | | | L | L | Dual Link(Dual-in/Single-out) | | | |
| 6 | H | RxPDWN | 4 | /PDWN | Power down and Output Control. H : Normal operation L : Power down | | | | |
| 7 | H | RxOE2 | 3 | Reserved | Must be tied to VCC. | | | | |
| 8 | L | RxTEST | 144 | LGND | Ground Pins for LVDS inputs. | | | | |

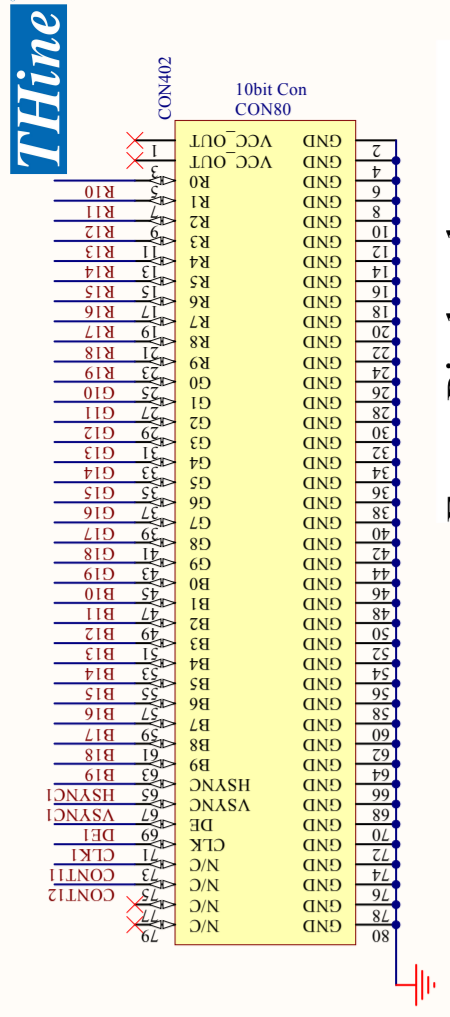
SW404 Setting

* Def. : Default Setting

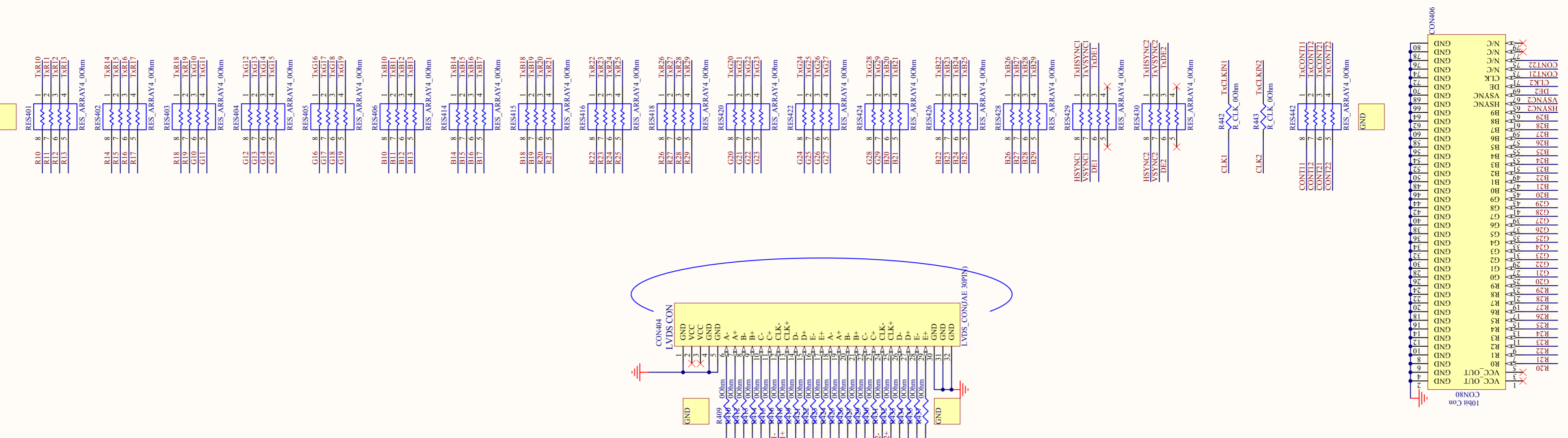
| THC63LVD1024 | | | | | | |
|--------------|--------|----------|---------|----------------|---|--|
| SW Pin# | * Def. | NodeName | IC Pin# | PinName | Description | |
| 1 | H | RxMAP | 11 | MAP | LVDS mapping table select. H : Mapping Mode1 L : Mapping Mode2 | |
| 2 | L | RxMD2 | 10 | MODE2 | DDR function enable. | |
| | | | | MODE<1:0> | MODE2 | Mode |
| | | | | LH | H | DDR (Double Edge Output) function enable. |
| | | | | LH | L | DDR (Double Edge Output) function disable. |
| | | | | LL HL HH | L | Must be tied to GND |
| 3 | H | RxOE1 | 9 | OE | Output Enable. H : Output enable, L : Output disable | |
| 4 | H | RxRF1 | 8 | R/F | Output Clock Triggering Edge Select. H : Rising edge. L : Falling edge. | |
| 5 | H | N/C | - | - | Non Connected | |
| 6 | H | N/C | | | | |
| 7 | H | N/C | | | | |
| 8 | H | N/C | | | | |

Measures Type

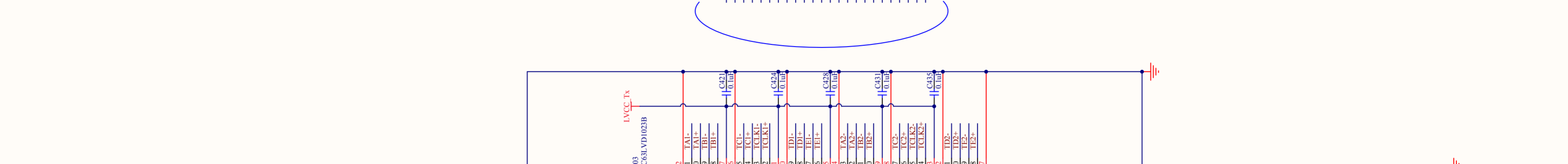
| # | Type | Un-Mount | 0Ω-Mount | 33Ω-Mount |
|---|------|--|--|---|
| 1 | | RES401 RES420 RES402 RES422 RES403 RES424 RES404 RES426 RES405 RES428 RES406 RES429 RES414 RES430 RES415 RES442 RES416 R442 RES418 R443 | | RES407 RES423 RES408 RES425 RES409 RES427 RES410 RES431 RES411 RES432 RES412 RES433 RES413 RES434 RES417 RES435 RES419 R417 RES421 |
| 2 | | | RES401 RES420 RES402 RES422 RES403 RES424 RES404 RES426 RES405 RES428 RES406 RES429 RES414 RES430 RES415 RES442 RES416 R442 RES418 R443 | RES407 RES423 RES408 RES425 RES409 RES427 RES410 RES431 RES411 RES432 RES412 RES433 RES413 RES434 RES417 RES435 RES419 R417 RES421 |
| 3 | | THC63LVD1023B | RES401 RES420 RES402 RES422 RES403 RES424 RES404 RES426 RES405 RES428 RES406 RES429 RES414 RES430 RES415 RES442 RES416 R442 RES418 R443 | RES407 RES423 RES408 RES425 RES409 RES427 RES410 RES431 RES411 RES432 RES412 RES433 RES413 RES434 RES417 RES435 RES419 R417 RES421 |
| 4 | | RES407 RES423 RES408 RES425 RES409 RES427 RES410 RES431 RES411 RES432 RES412 RES433 RES413 RES434 RES417 RES435 RES419 R417 RES421 | RES401 RES420 RES402 RES422 RES403 RES424 RES404 RES426 RES405 RES428 RES406 RES429 RES414 RES430 RES415 RES442 RES416 R442 RES418 R443 | |



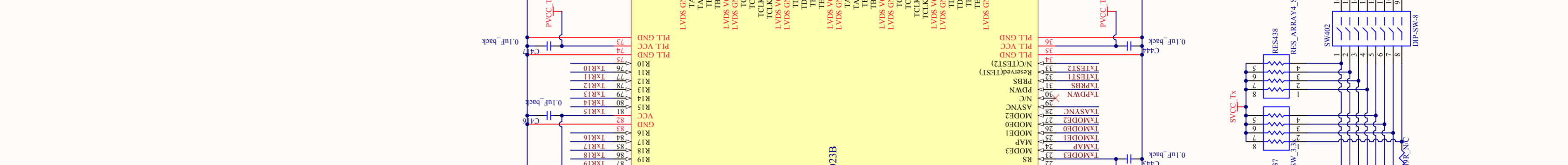
From Pin header



From Rx



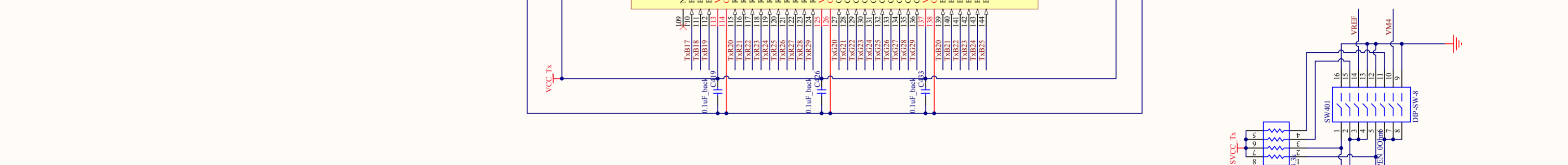
12V INPUT



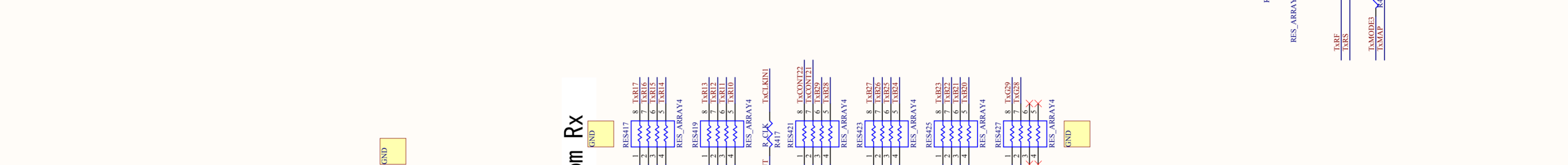
THC63LVD1024 (Rx)



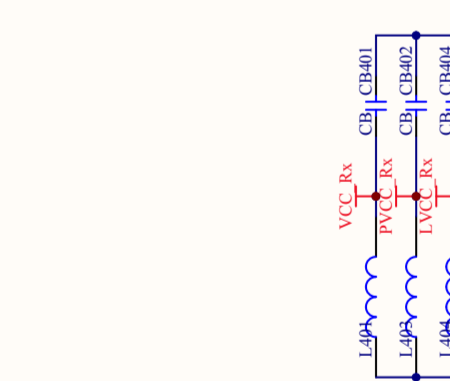
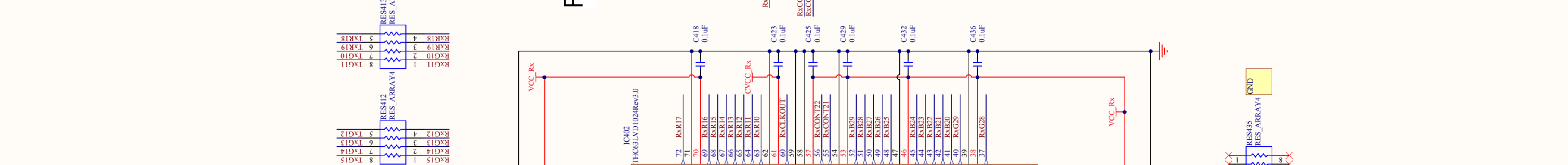
THC63LVD1023 (Tx)



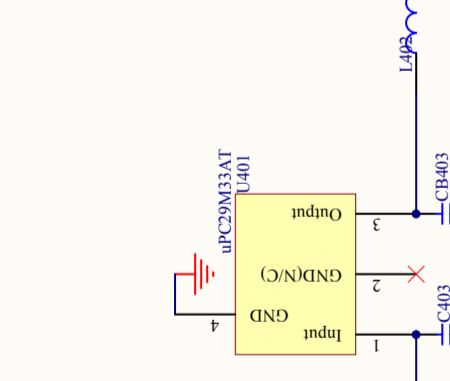
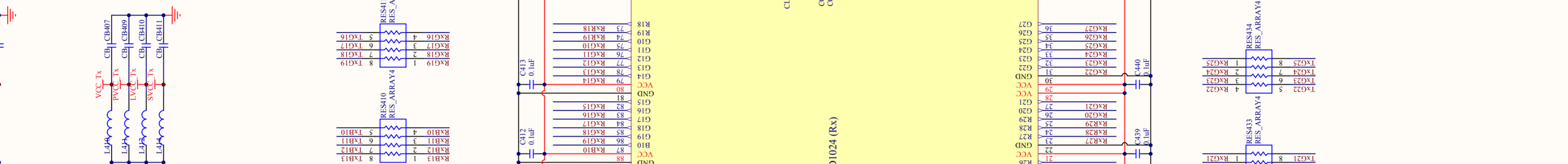
THC63LVD1024 (Tx)



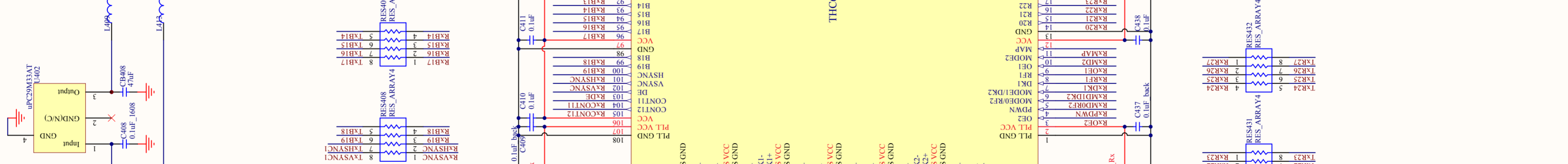
THC63LVD1023 (Rx)



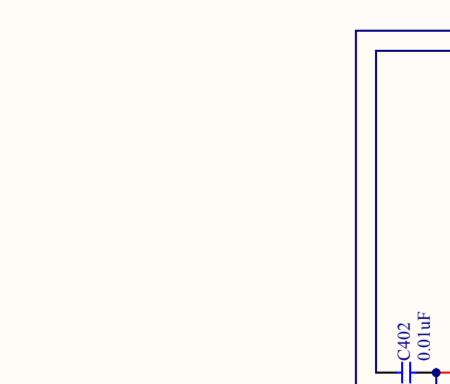
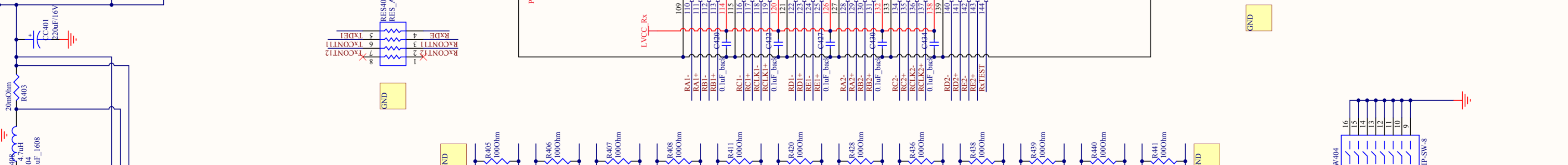
THC63LVD1024 (Rx)



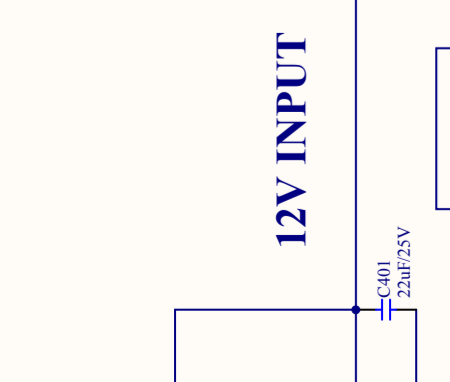
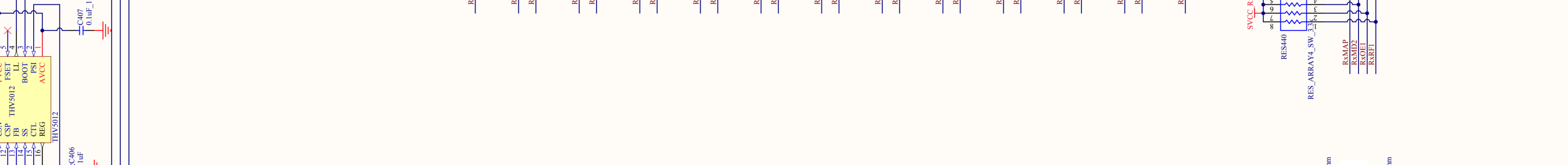
THC63LVD1023 (Tx)



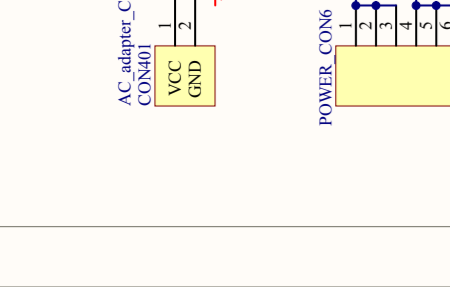
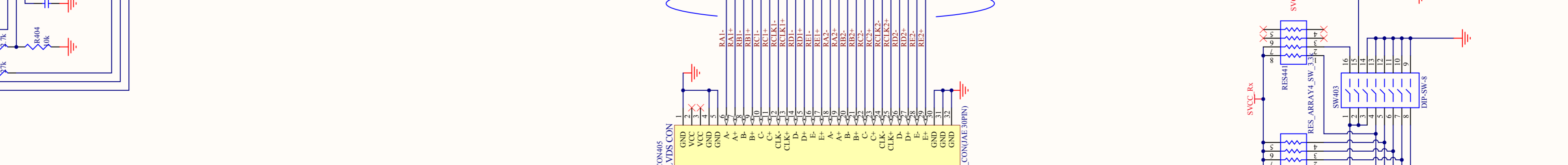
THC63LVD1024 (Tx)



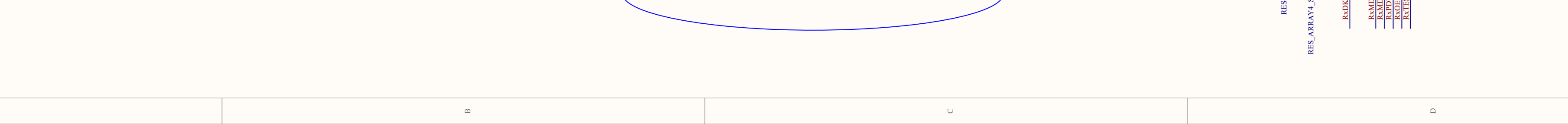
THC63LVD1023 (Rx)



THC63LVD1024 (Tx)



THC63LVD1023 (Rx)



| Comment | Designator | Description | Package | Manufacturer | Quantity |
|---------------------|--|----------------------|-------------------------------|--------------|----------|
| 22uF/25V | C401 | Capacitor | SMT3225 | | 1 |
| 0.01uF | C402, C405 | Capacitor | SMT1608 | | 2 |
| 0.1uF_1608 | C403, C404, C407, C408 | Capacitor | SMT1608 | | 4 |
| 1uF | C406 | Capacitor | SMT1608 | | 1 |
| 0.1uF_back | C409, C414, C415, C416, C417, C419, C420, C422, C426, C427, C430, C433, C434, C437, C441, C442, C443, C444 | Capacitor | SMT1608 | | 18 |
| 0.1uF | C410, C411, C412, C413, C418, C421, C423, C424, C425, C428, C429, C431, C432, C435, C436, C438, C439, C440 | Capacitor | SMT0603 | | 18 |
| CB | CB401, CB402, CB404, CB405, CB406, CB407, CB409, CB410, CB411 | GRM32EB11A106KC01 | SMT3225 | murata | 9 |
| 47uF | CB403, CB408 | Capacitor | SMT3225 | | 2 |
| 220uF/16V | CC401 | T520B157M006ATE045 | SMT3528 | KEMET | 1 |
| AC_adapter_CON | CON401 | MJ-179P | DC Jack : Mating Plug 5.5x2.1 | Marushin | 1 |
| CON80 | CON402, CON406 | 2x40 Pin Header | 2.54mm pitch (2x40pin) | | 2 |
| POWER_CON6 | CON403 | S 6B-EH | 2.5mmpitch 6pin | JST | 1 |
| LVDS_CON(JAE 30PIN) | CON404, CON405 | FI-X30SSL-HF | FI-X30SSL-HF | JAE | 2 |
| THV5012 | IC401 | THV5012 | TSSOP16 Pins | THine | 1 |
| THC63LVD1024 | IC402 | THC63LVD1024 | LQFP 144pin Exposed PAD | THine | 1 |
| THC63LVD1023B | IC403 | THC63LVD1023B | LQFP 144pin | THine | 1 |
| L | L401, L402, L403, L404, L405, L406, L407, L409, L410, L411, L412, L413, L414 | MPZ1608B471A | SMT1608 | TDK | 13 |
| 4.7uH | L408 | RLF7030T-4R7M3R4 | RLF Series | TDK | 1 |
| MOSFET-N | Q401 | uPA2706 | Power HSOP8 | NEC | 1 |
| 27k | R401 | Resistance | SMT1608 | | 1 |
| 2.7k | R402 | Resistance | SMT1608 | | 1 |
| 20mOhm | R403 | RL1632T-R015-G | SMT3216 | Susumu | 1 |
| 10k | R404 | Resistance | SMT1608 | | 1 |
| 1000ohm | R405, R406, R407, R408, R411, R420, R428, R436, R438, R439, R440, R441 | Resistor | SMT1005 | | 12 |
| 00ohm | R409, R410, R412, R413, R414, R415, R416, R418, R419, R421, R422, R423, R424, R425, R426, R427, R429, R430, R431, R432, R433, R434, R435, R437 | Resistor | SMT1005 | | 24 |
| R_CLK | R417 | Resistor 33ohm | SMT1005 | | 1 |
| R_CLK_00ohm | R442, R443 | Resistor | SMT1005 | | 2 |
| 3.3kohm | R444, R446, R447, R451 | Resistance | SMT1608 | | 4 |
| R_VREF_N/C | R445, R450 | Resistance | SMT1608 | | 2 |
| R_OPEN_00ohm | R448 | Resistance | SMT1608 | | 1 |
| R_N/C | R449 | Resistance | SMT1608 | | 1 |
| RES_ARRAY4_00ohm | RES401, RES402, RES403, RES404, RES405, RES406, RES414, RES415, RES416, RES418, RES420, RES422, RES424, RES426, RES428, RES429, RES430, RES442 | Resistor Array | SMT 2010 | | 18 |
| RES_ARRAY4 | RES407, RES408, RES409, RES410, RES411, RES412, RES413, RES417, RES419, RES421, RES423, RES425, RES427, RES431, RES432, RES433, RES434, RES435 | Resistor Array 33ohm | SMT 2010 | | 18 |
| RES_ARRAY4_SW_3.3k | RES436, RES437, RES438, RES439, RES440, RES441 | Resistor Array | SMT 2010 | | 6 |
| DIP-SW-8 | SW401, SW402, SW403, SW404 | A6S-8104 | A6S-8104 | omron | 4 |
| uPC29M33AT | U401, U402 | uPC2933AT-AZ | SC-63 | NEC | 2 |

Notices and Requests

1. The product specifications described in this material are subject to change without prior notice.
2. The circuit diagrams described in this material are examples of the application which may not always apply to the customer's design. We are not responsible for possible errors and omissions in this material. Please note if errors or omissions should be found in this material, we may not be able to correct them.
3. This material contains our copy right, know-how or other proprietary. Copying or disclosing to third parties the contents of this material without our prior permission is prohibited.
4. Note that if infringement of any third party's industrial ownership should occur by using this product, we will be exempted from the responsibility unless it directly relates to the production process or functions of the product.
5. This product is presumed to be used for general electric equipment, not for the applications which require very high reliability (including medical equipment directly concerning people's life, aerospace equipment, or nuclear control equipment). Also, when using this product for the equipment concerned with the control and safety of the transportation means, the traffic signal equipment, or various Types of safety equipment, please do it after applying appropriate measures to the product.
6. Despite our utmost efforts to improve the quality and reliability of the product, faults will occur with a certain small probability, which is inevitable to a semi-conductor product. Therefore, you are encouraged to have sufficient redundant or error preventive design applied to the use of the product so as not to have our product cause any social or public damage.
7. Please note that this product is not designed to be radiation-proof.
8. Customers are asked, if required, to judge by themselves if this product falls under the category of strategic goods under the Foreign Exchange and Foreign Trade Control Law.

THine Electronics, Inc.

sales@thine.co.jp