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To Our Customers

Continuing its rich tradition of partnering with high quality Japanese semiconductor suppliers, CEL is now partnering with THine from May of 2015 onwards.



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

1. General Description

THCV215/216-8LANE Evaluation Kits are designed to evaluate THCV215 and THCV216 for transmission of video data. Each has four THCV215's or four THCV216's.

This kits can transmit video data of "Full-HD / 240 Hz / 30 bit" and "4Kx2K / 60 Hz / 30 bit". The supply voltage range are "3.0V to 3.6V" or "5.0V to 12.0V".

2. Block Diagram

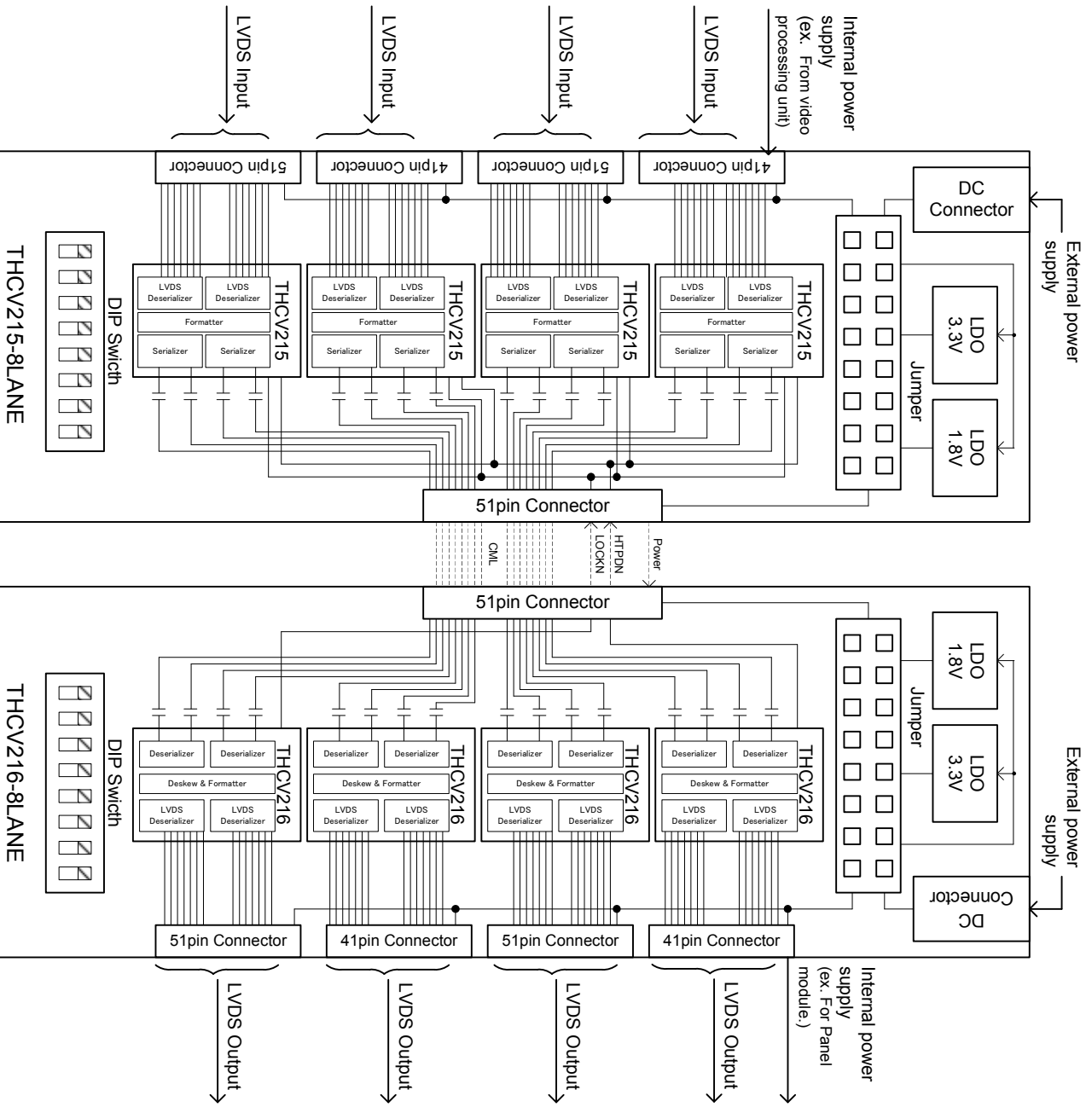


Figure 2-1. Block Diagram



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

3. Connector

This chapter shows the connector to connect the THCV215 and THCV216.

Table 3-1. Pin assignments of LVDS connector (41 pin)

| THCV215 CN101 & CN301 | | Descriptions | THCV216 CN102 & CN104 | |
|--------------------------|---------|---|--------------------------|---------|
| Pin No. | Symbol | | Symbol | Pin No. |
| 1 | Vcc | Supply voltage from video processing unit, And for Panel module (Internal Supply) | Vcc | 41 |
| 2 | | | | 40 |
| 3 | | | | 39 |
| 4 | | | | 38 |
| 5 | | | | 37 |
| 6 | NC | Non Connected | NC | 36 |
| 7 | GND | Ground | GND | 35 |
| 8 | | | | 34 |
| 9 | | | | 33 |
| 10 | TLA0- | LVDS data input/output | RLA0- | 32 |
| 11 | TLA0+ | | RLA0+ | 31 |
| 12 | TLB0- | | RLB0- | 30 |
| 13 | TLB0+ | | RLB0+ | 29 |
| 14 | TLC0- | | RLC0- | 28 |
| 15 | TLC0+ | RLC0+ | 27 | |
| 16 | GND | Ground | GND | 26 |
| 17 | TLCLK0- | LVDS clock input/output | RLCLK0- | 25 |
| 18 | TLCLK0+ | | RLCLK0+ | 24 |
| 19 | GND | Ground | GND | 23 |
| 20 | TLD0- | LVDS data input/output | RLD0- | 22 |
| 21 | TLD0+ | | RLD0+ | 21 |
| 22 | TLE0- | | RLE0- | 20 |
| 23 | TLE0+ | | RLE0+ | 19 |
| 24 | GND | Ground | GND | 18 |
| 25 | TLA1- | LVDS data input/output | RLA1- | 17 |
| 26 | TLA1+ | | RLA1+ | 16 |
| 27 | TLB1- | | RLB1- | 15 |
| 28 | TLB1+ | | RLB1+ | 14 |
| 29 | TLC1- | | RLC1- | 13 |
| 30 | TLC1+ | | RLC1+ | 12 |
| 31 | GND | Ground | GND | 11 |
| 32 | TLCLK1- | LVDS clock input/output | RLCLK1- | 10 |
| 33 | TLCLK1+ | | RLCLK1+ | 9 |
| 34 | GND | Ground | GND | 8 |
| 35 | TLD1- | LVDS data input/output | RLD1- | 7 |
| 36 | TLD1+ | | RLD1+ | 6 |
| 37 | TLE1- | | RLE1- | 5 |
| 38 | TLE1+ | | RLE1+ | 4 |
| 39 | GND | Ground | GND | 3 |
| 40 | NC | Non Connected | NC | 2 |
| 41 | | | | 1 |

Table 3-2. Pin assignments of LVDS connector (51 pin)

| THCV215 CN201 & CN401 | | Descriptions | THCV216 CN103 & CN105 | |
|--------------------------|---------|---|--------------------------|---------|
| Pin No. | Symbol | | Symbol | Pin No. |
| 1 | Vcc | Supply voltage from video processing unit, And for Panel module (Internal Supply) | Vcc | 51 |
| 2 | | | | 50 |
| 3 | | | | 49 |
| 4 | | | | 48 |
| 5 | | | | 47 |
| 6 | NC | Non Connected | NC | 46 |
| 7 | GND | Ground | GND | 45 |
| 8 | | | | 44 |
| 9 | | | | 43 |
| 10 | TLA0- | LVDS data input/output | RLA0- | 42 |
| 11 | TLA0+ | | RLA0+ | 41 |
| 12 | TLB0- | | RLB0- | 40 |
| 13 | TLB0+ | | RLB0+ | 39 |
| 14 | TLC0- | | RLC0- | 38 |
| 15 | TLC0+ | RLC0+ | 37 | |
| 16 | GND | Ground | GND | 36 |
| 17 | TLCLK0- | LVDS clock input/output | RLCLK0- | 35 |
| 18 | TLCLK0+ | | RLCLK0+ | 34 |
| 19 | GND | Ground | GND | 33 |
| 20 | TLD0- | LVDS data input/output | RLD0- | 32 |
| 21 | TLD0+ | | RLD0+ | 31 |
| 22 | TLE0- | | RLE0- | 30 |
| 23 | TLE0+ | | RLE0+ | 29 |
| 24 | GND | Ground | GND | 28 |
| 25 | TLA1- | LVDS data input/output | RLA1- | 27 |
| 26 | TLA1+ | | RLA1+ | 26 |
| 27 | TLB1- | | RLB1- | 25 |
| 28 | TLB1+ | | RLB1+ | 24 |
| 29 | TLC1- | | RLC1- | 23 |
| 30 | TLC1+ | | RLC1+ | 22 |
| 31 | GND | Ground | GND | 21 |
| 32 | TLCLK1- | LVDS clock input/output | RLCLK1- | 20 |
| 33 | TLCLK1+ | | RLCLK1+ | 19 |
| 34 | GND | Ground | GND | 18 |
| 35 | TLD1- | LVDS data input/output | RLD1- | 17 |
| 36 | TLD1+ | | RLD1+ | 16 |
| 37 | TLE1- | | RLE1- | 15 |
| 38 | TLE1+ | | RLE1+ | 14 |
| 39 | GND | Ground | GND | 13 |
| 40 | NC | Non Connected | NC | 12 |
| 41 | | | | 11 |
| 42 | | | | 10 |
| 43 | | | | 9 |
| 44 | | | | 8 |
| 45 | | | | 7 |
| 46 | | | | 6 |
| 47 | | | | 5 |
| 48 | | | | 4 |
| 49 | | | | 3 |
| 50 | | | | 2 |
| 51 | 1 | | | |



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

3. Connector and Cable (Continued)

Table 3-3. Pin assignments of CML connector
(51 pin)

| THCV215_CN501 | | Descriptions | THCV216_CN101 | |
|---------------|--------|--------------------------------------|---------------|---------|
| Pin No. | Symbol | | Symbol | Pin No. |
| 51 | Vcc | Supply voltage from THC215 to THC216 | Vcc | 1 |
| 50 | | | | 2 |
| 49 | | | | 3 |
| 48 | | | | 4 |
| 47 | | | | 5 |
| 46 | | | | 6 |
| 45 | | | | 7 |
| 44 | | | | 8 |
| 43 | | | | 9 |
| 42 | | | | 10 |
| 41 | GND | Ground | GND | 11 |
| 40 | | | | 12 |
| 39 | | | | 13 |
| 38 | | | | 14 |
| 37 | | | | 15 |
| 36 | | | | HTPDN |
| 35 | LOCKN | Lock detect | LOCKN | 17 |
| 34 | GND | Ground | GND | 18 |
| 33 | Tx0n | V-by-One® HS Channel 0 (CML) | Rx0n | 19 |
| 32 | Tx0p | | Rx0p | 20 |
| 31 | GND | Ground | GND | 21 |
| 30 | GND | | GND | 22 |
| 29 | Tx1n | V-by-One® HS Channel 1 (CML) | Rx1n | 23 |
| 28 | Tx1p | | Rx1p | 24 |
| 27 | GND | Ground | GND | 25 |
| 26 | GND | | GND | 26 |
| 25 | Tx2n | V-by-One® HS Channel 2 (CML) | Rx2n | 27 |
| 24 | Tx2p | | Rx2p | 28 |
| 23 | GND | Ground | GND | 29 |
| 22 | GND | | GND | 30 |
| 21 | Tx3n | V-by-One® HS Channel 3 (CML) | Rx3n | 31 |
| 20 | Tx3p | | Rx3p | 32 |
| 19 | GND | Ground | GND | 33 |
| 18 | GND | | GND | 34 |
| 17 | Tx4n | V-by-One® HS Channel 4 (CML) | Rx4n | 35 |
| 16 | Tx4p | | Rx4p | 36 |
| 15 | GND | Ground | GND | 37 |
| 14 | GND | | GND | 38 |
| 13 | Tx5n | V-by-One® HS Channel 5 (CML) | Rx5n | 39 |
| 12 | Tx5p | | Rx5p | 40 |
| 11 | GND | Ground | GND | 41 |
| 10 | GND | | GND | 42 |
| 9 | Tx6n | V-by-One® HS Channel 6 (CML) | Rx6n | 43 |
| 8 | Tx6p | | Rx6p | 44 |
| 7 | GND | Ground | GND | 45 |
| 6 | GND | | GND | 46 |
| 5 | Tx7n | V-by-One® HS Channel 7 (CML) | Rx7n | 47 |
| 4 | Tx7p | | Rx7p | 48 |
| 3 | GND | Ground | GND | 49 |
| 2 | NC | | Non Connected | NC |
| 1 | | 51 | | |



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

4. Power supply setting

This chapter shows the power supply setting with the jumper.

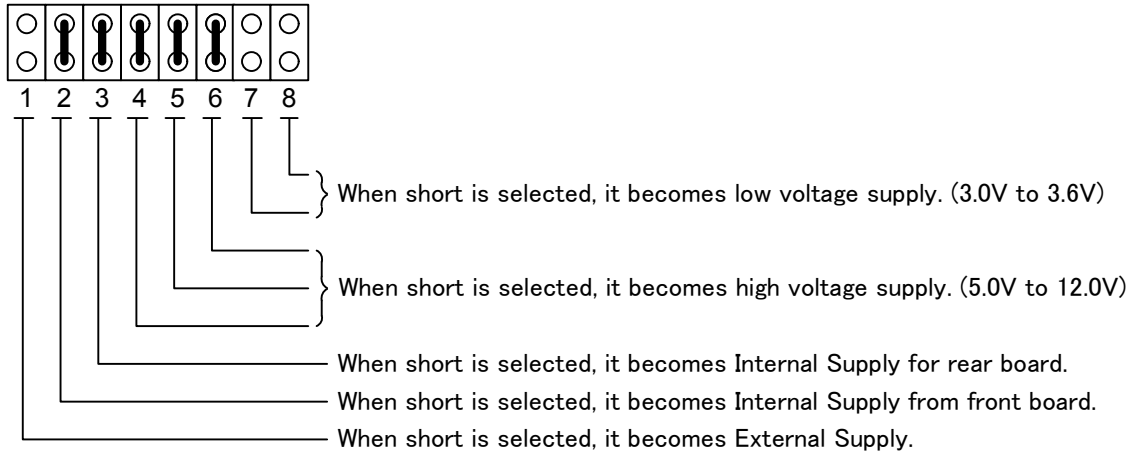


Figure 4. power supply setting with the jumper

Example4-1 : Internal Supply 5.0 V to 12.0V (Default Setting)

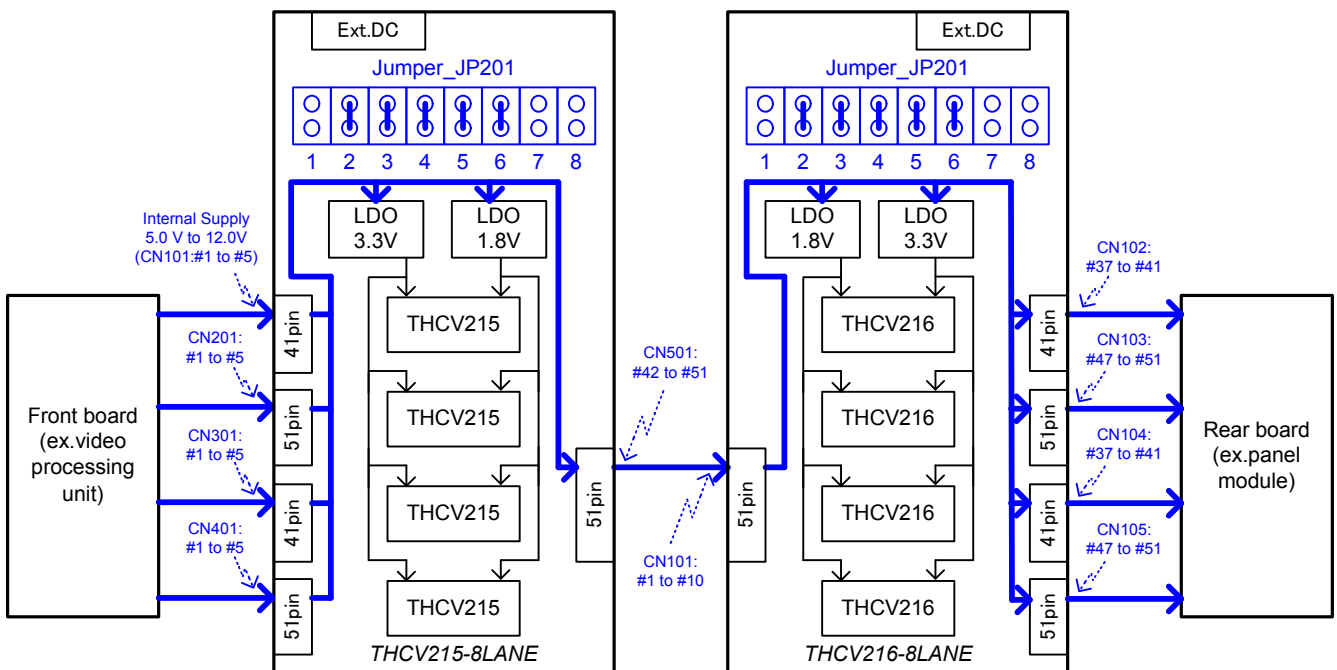


Figure 4-1. Internal Supply 5.0V to 12.0V



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

4. Power supply setting (Continued)

Example4-2 : External Supply 5.0V to 12.0V

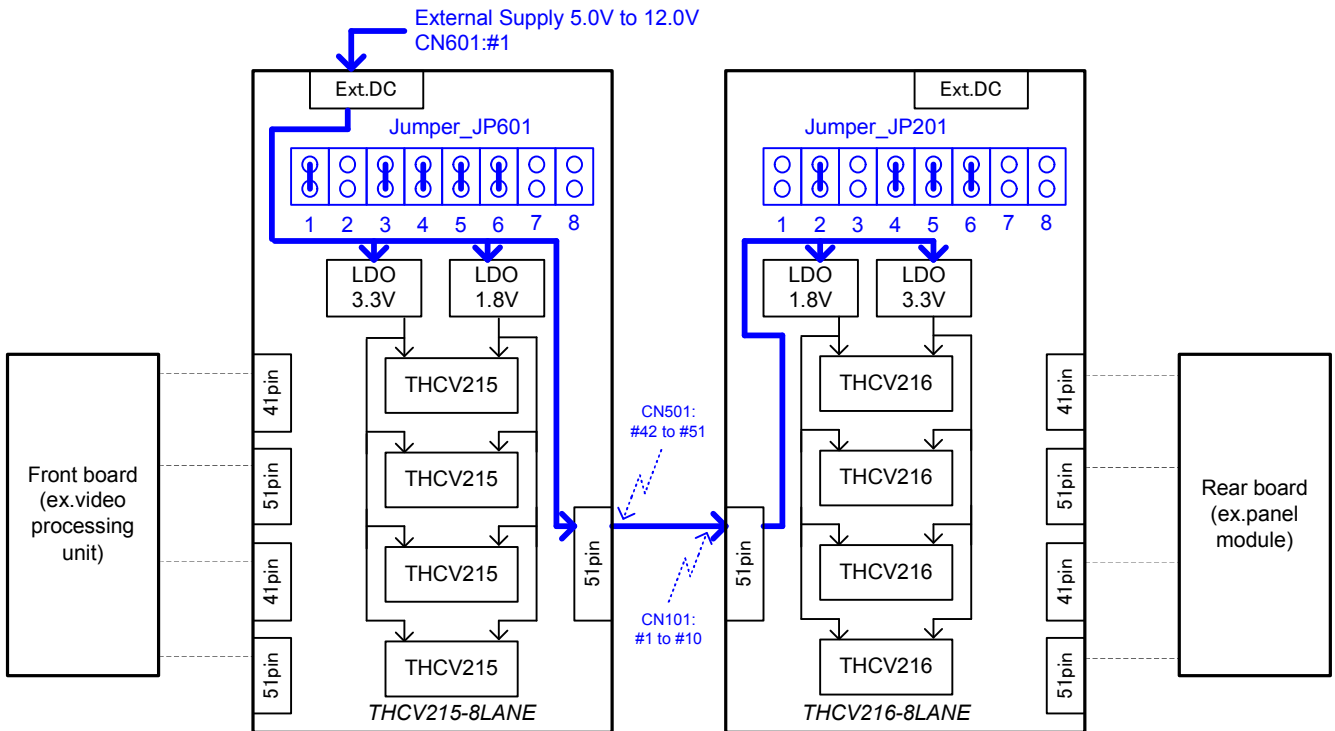


Figure 4-2. External Supply 5.0V to 12.0V

Example4-3 : External Supply 3.0V to 3.6V

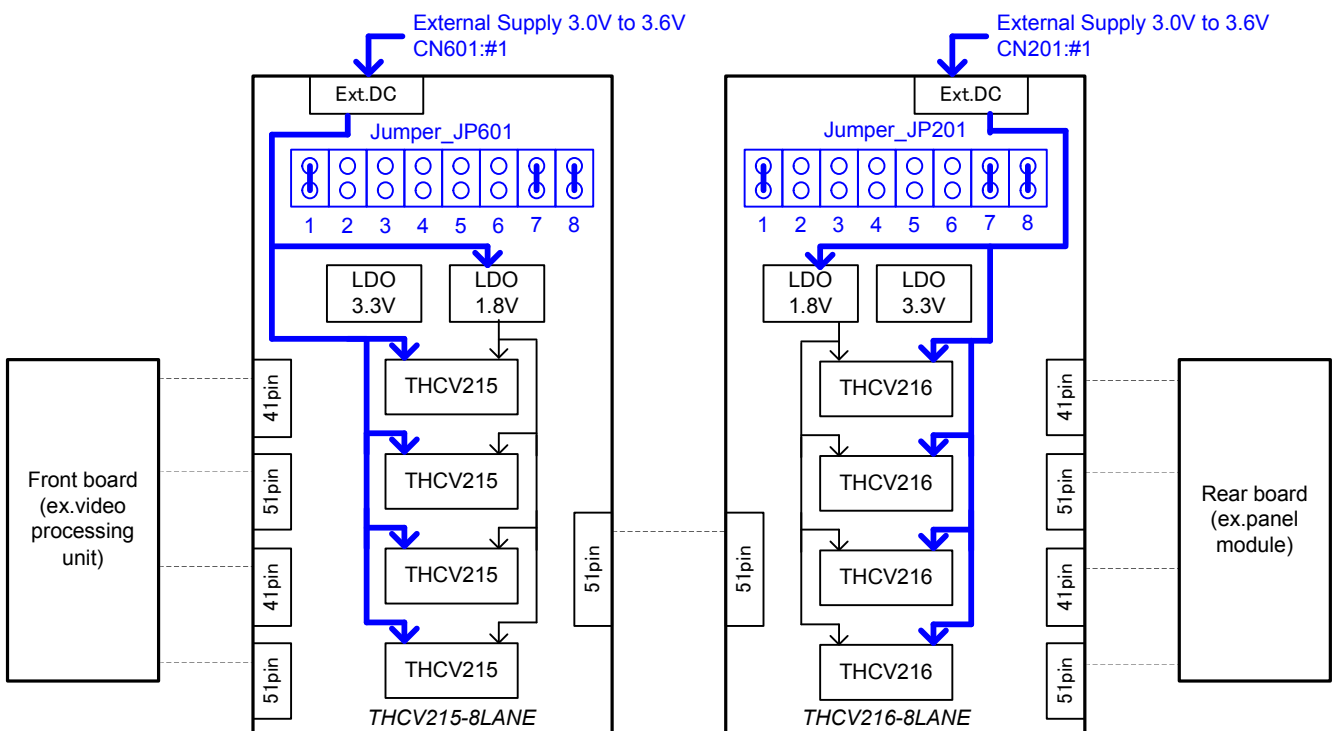


Figure 4-3. External Supply 3.0V to 3.6V



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

5. Function setting

This chapter shows the DIP switches of the control settings.

Table 5-1. DIP switches on the THCV215-8LANE Board

| SW# | Symbol | Default Setting | Function | | | | | | | | | | | | | | | |
|------|--------|-----------------|--|------|------|----------|-----|-----|------------|------|-----|------------|-----|------|-------------|------|------|---------------|
| 1 | SDSEL | High (8 lane) | Selects the Lanes. Low : Not available High : 8 lane | | | | | | | | | | | | | | | |
| 2 | COL0 | Low | Selects the color depth. <table border="1"> <thead> <tr> <th>COL0</th> <th>COL1</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Low</td> <td>Low</td> <td>6 bit mode</td> </tr> <tr> <td>High</td> <td>Low</td> <td>8 bit mode</td> </tr> <tr> <td>Low</td> <td>High</td> <td>10 bit mode</td> </tr> <tr> <td>High</td> <td>High</td> <td>Not available</td> </tr> </tbody> </table> | COL0 | COL1 | Function | Low | Low | 6 bit mode | High | Low | 8 bit mode | Low | High | 10 bit mode | High | High | Not available |
| COL0 | COL1 | Function | | | | | | | | | | | | | | | | |
| Low | Low | 6 bit mode | | | | | | | | | | | | | | | | |
| High | Low | 8 bit mode | | | | | | | | | | | | | | | | |
| Low | High | 10 bit mode | | | | | | | | | | | | | | | | |
| High | High | Not available | | | | | | | | | | | | | | | | |
| 3 | COL1 | High | | | | | | | | | | | | | | | | |
| 4 | PDN | High (Normal) | Selects the power down. Low : Power down (CML output High Fix, other Hi-Z) High : Normal operation | | | | | | | | | | | | | | | |
| 5 | DRV1 | Low | Selects the drive strength. Must be set to DRV1=Low and to DRV0=High | | | | | | | | | | | | | | | |
| 6 | DRV0 | High | | | | | | | | | | | | | | | | |
| 7 | PRE1 | Low (0%) | Selects the pre-emphasis level. Low : 0% High : 100% | | | | | | | | | | | | | | | |
| 8 | RES1 | Low (Normal) | Selects the Field BET Mode. * Low : Normal operation (default) High : Field BET Mode enable | | | | | | | | | | | | | | | |

* Please see the datasheet for details. (THCV215-THCV216_Rev.x.xx_E.pdf)

Table 5-2. DIP switches on the THCV216-8LANE Board

| SW# | Symbol | Default Setting | Function | | | | | | | | | | | | | | | |
|------|--------|-----------------|--|------|------|----------|-----|-----|------------|-----|------|------------|------|-----|-------------|------|------|---------------|
| 1 | SDSEL | High (8 lane) | Selects the Lanes. Low : Not available High : 8 lane | | | | | | | | | | | | | | | |
| 2 | COL1 | High | Selects the color depth. <table border="1"> <thead> <tr> <th>COL1</th> <th>COL0</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Low</td> <td>Low</td> <td>6 bit mode</td> </tr> <tr> <td>Low</td> <td>High</td> <td>8 bit mode</td> </tr> <tr> <td>High</td> <td>Low</td> <td>10 bit mode</td> </tr> <tr> <td>High</td> <td>High</td> <td>Not available</td> </tr> </tbody> </table> | COL1 | COL0 | Function | Low | Low | 6 bit mode | Low | High | 8 bit mode | High | Low | 10 bit mode | High | High | Not available |
| COL1 | COL0 | Function | | | | | | | | | | | | | | | | |
| Low | Low | 6 bit mode | | | | | | | | | | | | | | | | |
| Low | High | 8 bit mode | | | | | | | | | | | | | | | | |
| High | Low | 10 bit mode | | | | | | | | | | | | | | | | |
| High | High | Not available | | | | | | | | | | | | | | | | |
| 3 | COL0 | Low | | | | | | | | | | | | | | | | |
| 4 | PDN | High (Normal) | Selects the power down. Low : Power down High : Normal operation | | | | | | | | | | | | | | | |
| 5 | RES3 | Low (Normal) | Selects the Field BET Mode. * Low : Normal operation (default) High : Field BET Mode enable | | | | | | | | | | | | | | | |
| 6 | NC | Low | Not connected | | | | | | | | | | | | | | | |
| 7 | NC | Low | | | | | | | | | | | | | | | | |
| 8 | RS | Low (Normal) | Direction of RS pin depends on RES3. Selects the LVDS swing range when RES3=Low High : Normal swing (350 mV typ.) Low : Reduced swing (200mV typ.) Field BET output when RES3=High * | | | | | | | | | | | | | | | |

* Please see the datasheet for details. (THCV215-216_Rev.x.xx_E.pdf)



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

6. Other functional Descriptions

This chapter shows other function.

6-1. About LED on the board.

| Board | Power On detect. | Lock detect. |
|---------------|------------------|--------------|
| THCV215-8LANE | D601 | D701 |
| THCV216-8LANE | D201 | - |

6-2. THCV215 Link Ready function (RDY)

This is a CMOS output for indicating the link status. If link is ready RDY = High.

6-3. THCV216 Field BET mode settings.

Please detach Jumper (JP101 to JP104) for Field BET mode.



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

7. Schematic

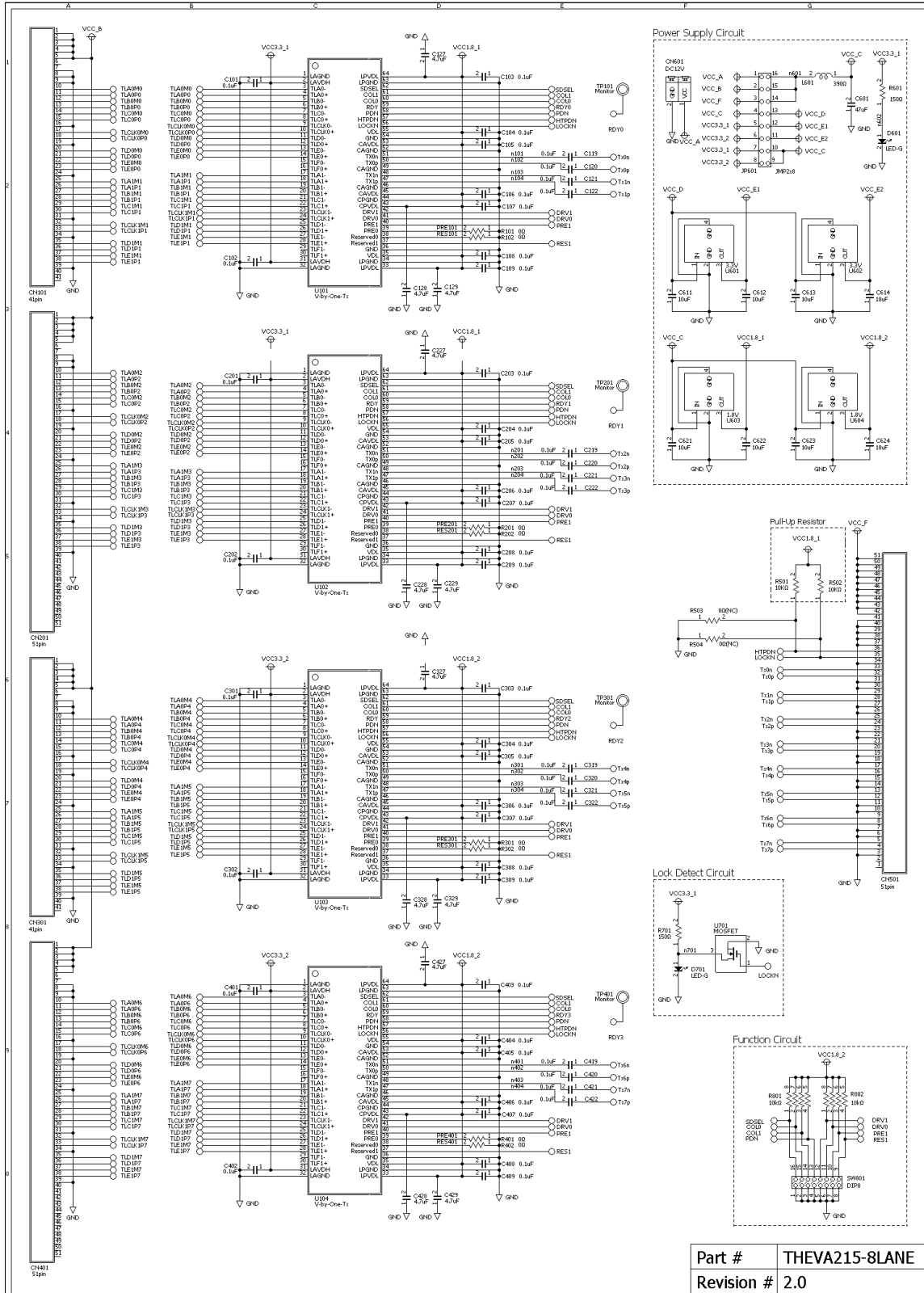


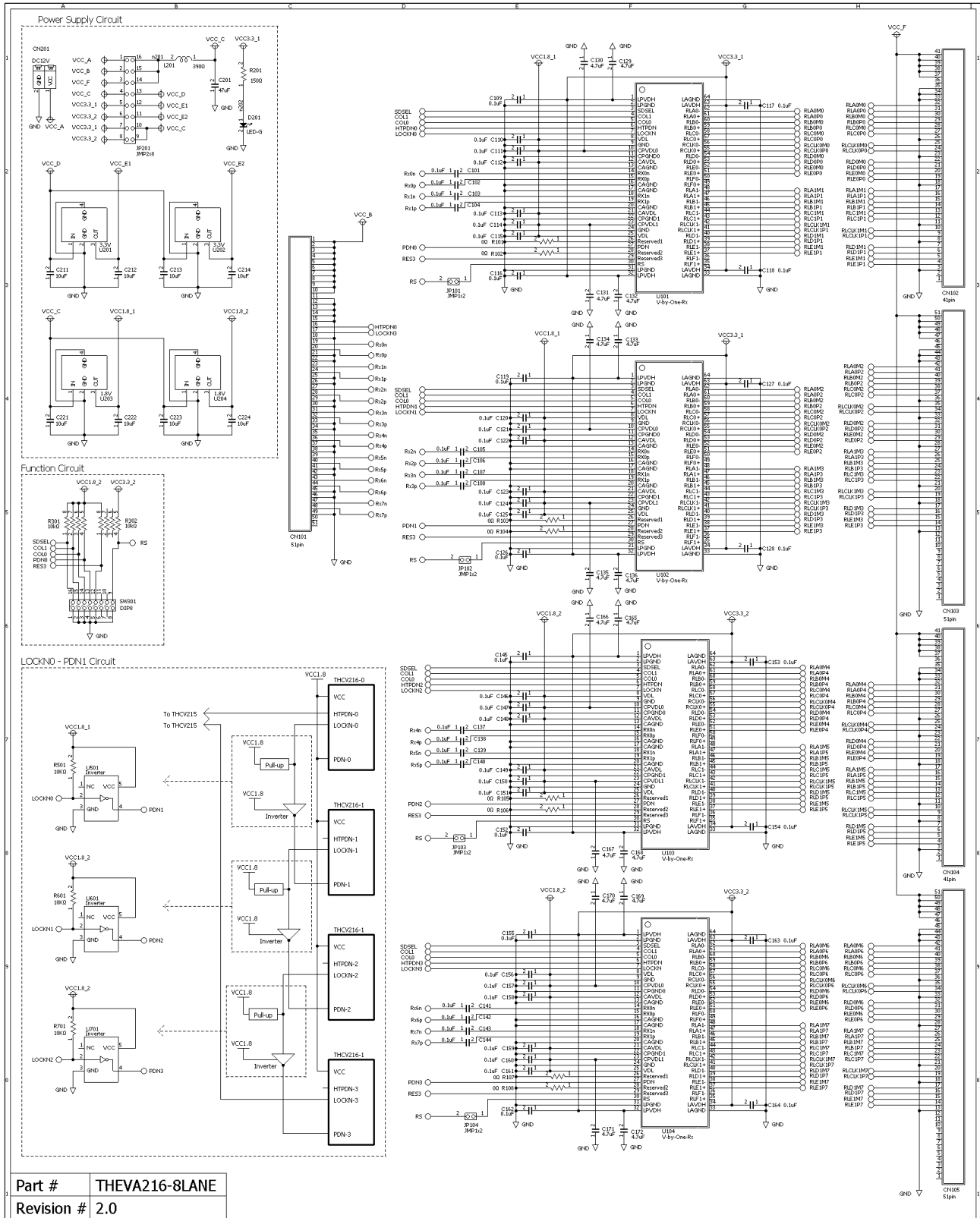
Figure 7-1. THCV215-8LANE schematic



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

7. Schematic



| | |
|------------|----------------|
| Part # | THEVA216-8LANE |
| Revision # | 2.0 |

Figure 7-2. THCV216-8LANE schematic



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

8. Bill of Materials (BOM)

Table 8-1. BOM for THCV215-8LANE

| Designator | Description | PKG | Part Number | Manufacturer |
|------------|-------------|---------|--------------------|--------------|
| C101 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C102 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C103 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C104 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C105 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C106 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C107 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C108 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C109 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C110 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C111 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C112 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C113 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C114 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C115 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C116 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C117 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C118 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C119 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C120 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C121 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C122 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C123 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C124 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C125 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C126 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C127 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C128 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C129 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C130 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C131 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C132 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C133 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C134 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C135 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C136 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C137 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C138 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C139 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C140 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C141 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C142 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C143 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C144 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C145 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C146 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C147 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C148 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C149 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C150 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C151 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C152 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C153 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C154 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C155 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C156 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C157 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C158 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C159 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C160 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C161 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C162 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C163 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C164 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C165 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C166 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C167 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C168 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C169 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C170 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C171 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C172 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C201 | 47uF | 3225 | GRM32EB31A47ME20L | Murata |
| C211 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C212 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C213 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C214 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C215 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C216 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C217 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C218 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C219 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C220 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C221 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C222 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C223 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| C224 | 10uF | 2012 | GRM21BB31C106KE15 | Murata |
| CN101 | 51pin | 3804 | FX155C-51S-0.5SH | HRS |
| CN102 | 41pin | 3404 | FX155C-41S-0.5SH | HRS |
| CN401 | 51pin | 3804 | FX155C-51S-0.5SH | HRS |
| CN501 | 51pin | 3804 | FX16-51S-0.5SH | HRS |
| D12V | DC12V | 1105 | ML-800-S1H-2P | Sato-parts |
| D601 | LED-G | 1608 | SML-310MT | ROHM |
| D701 | LED-G | 1608 | SML-310MT | ROHM |
| JP601 | JMP2x8 | 2.54mm | 2x8-PinHeaders | - |
| L101 | 390Ω | 1608 | MPZ160R391A | TDK |
| R101 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R102 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R103 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R104 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R201 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R202 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R203 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R204 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R301 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R302 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R303 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R304 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R401 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R402 | 0Ω | 1005 | MCR01M2PJ000 | ROHM |
| R403 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R404 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R501 | 10K Ω | 1005 | MCR01M2PF103 | ROHM |
| R502 | 10K Ω | 1005 | MCR01M2PF103 | ROHM |
| R503 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R504 | 0Ω (NC) | 1005 | MCR01M2PJ000 | ROHM |
| R801 | 150 Ω | 1608 | MCR09EZPFX151 | ROHM |
| R701 | 150 Ω | 1608 | MCR09EZPFX151 | ROHM |
| R801 | 10k Ω | 2010 | EXB-28V103JX | Panasonic |
| R802 | 10k Ω | 2010 | EXB-28V103JX | Panasonic |
| SW801 | DIP8 | 2206 | AGS-8104-H | Omron |
| U101 | V-by-One-Tx | TSSOP64 | THCV215 | THine |
| U102 | V-by-One-Tx | TSSOP64 | THCV215 | THine |
| U103 | V-by-One-Tx | TSSOP64 | THCV215 | THine |
| U104 | V-by-One-Tx | TSSOP64 | THCV215 | THine |
| U601 | 3.3V | SC-63 | uPC2938BT-AZ | NEC |
| U602 | 3.3V | SC-63 | uPC2938BT-AZ | NEC |
| U603 | 1.8V | SC-63 | uPC2918BT-AZ | NEC |
| U604 | 1.8V | SC-63 | uPC2918BT-AZ | NEC |
| U204 | 1.8V | SC-63 | uPC2918BT-AZ | NEC |
| U501 | Inverter | SON5 | TC7SG04FU | Toshiba |
| U601 | Inverter | SON5 | TC7SG04FU | Toshiba |
| U701 | Inverter | SON5 | TC7SG04FU | Toshiba |

Table 8-2. BOM for THCV216-8LANE

| Designator | Description | PKG | Part Number | Manufacturer |
|------------|-------------|------|--------------------|--------------|
| C101 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C102 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C103 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C104 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C105 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C106 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C107 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C108 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C109 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C110 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C111 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C112 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C113 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C114 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C115 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C116 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C117 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C118 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C119 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C120 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C121 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C122 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C123 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C124 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C125 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C126 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C127 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C128 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C129 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C130 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C131 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C132 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C133 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C134 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C135 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C136 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C137 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C138 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C139 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C140 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C141 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C142 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C143 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C144 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C145 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C146 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C147 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C148 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C149 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C150 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C151 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C152 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C153 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C154 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C155 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C156 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C157 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C158 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C159 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C160 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C161 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C162 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C163 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C164 | 0.1uF | 1005 | GRM155B31C104KA87 | Murata |
| C165 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C166 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C167 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C168 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C169 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C170 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C171 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C172 | 4.7uF | 1608 | GRM188R60J475KE19D | Murata |
| C201 | 47uF | 3225 | GRM32EB31A47ME20L | Murata |
| C211 | 10uF</ | | | |



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

9. Layout

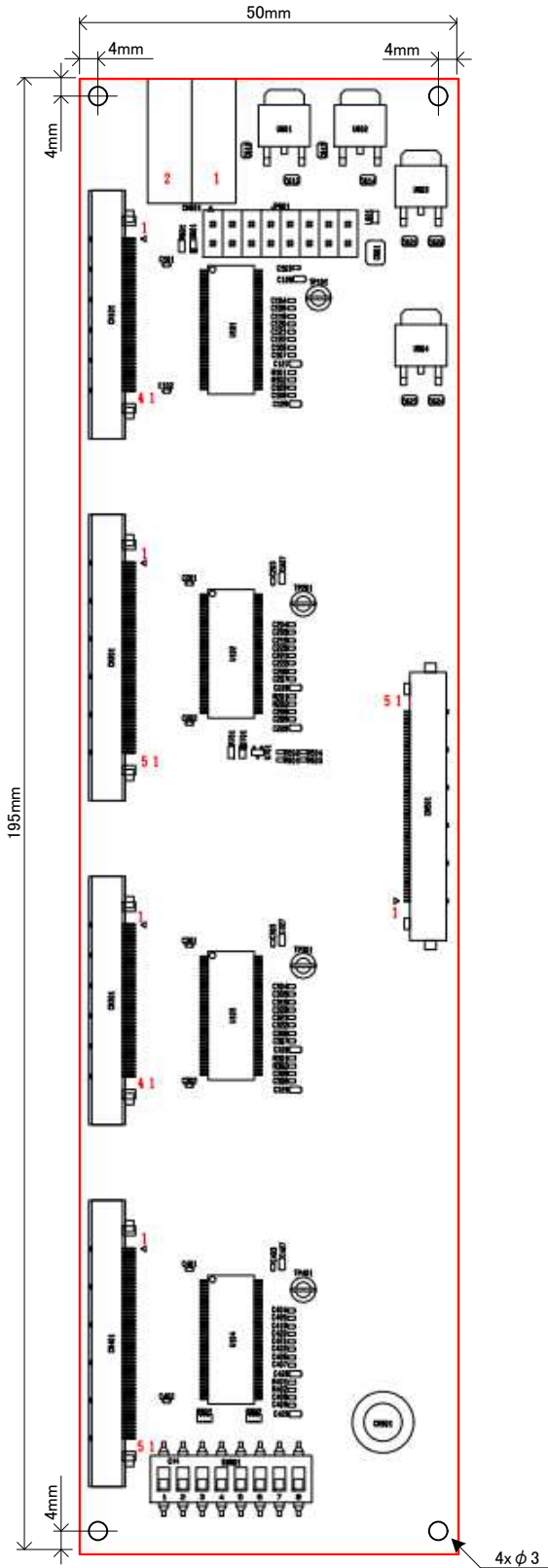


Figure 9-1. Component Placement Guide of THCV215-8LANE

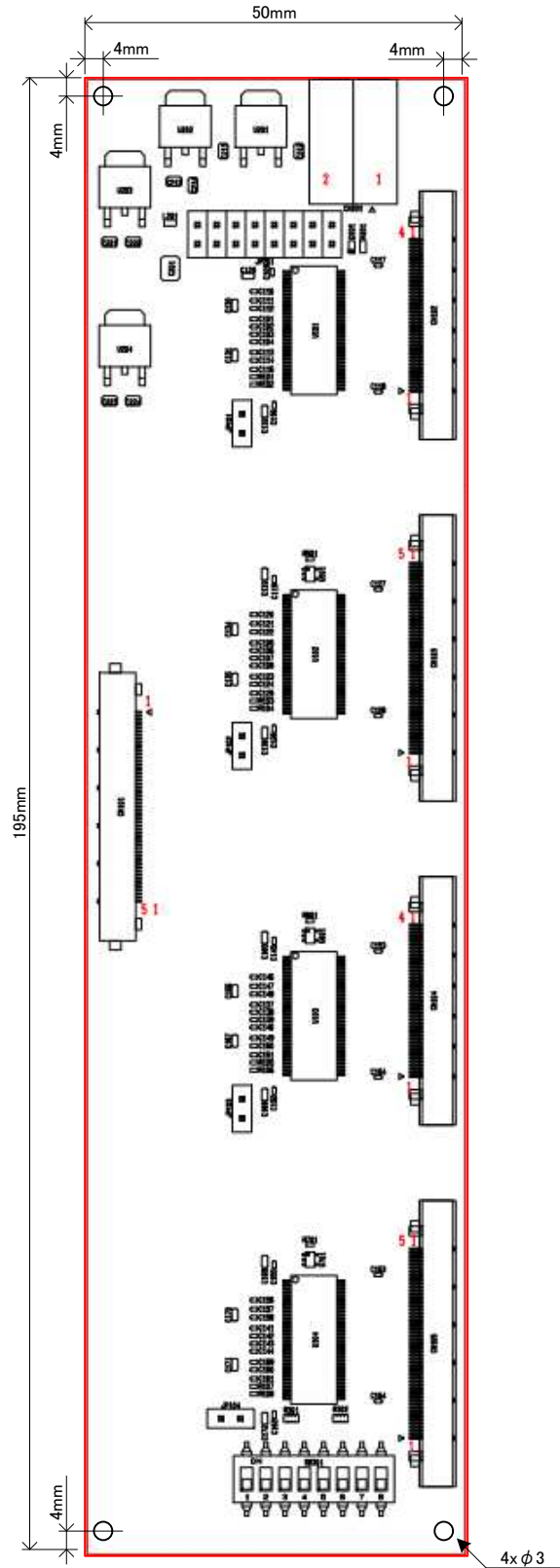


Figure 9-2. Component Placement Guide of THCV216-8LANE



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

10. Cable

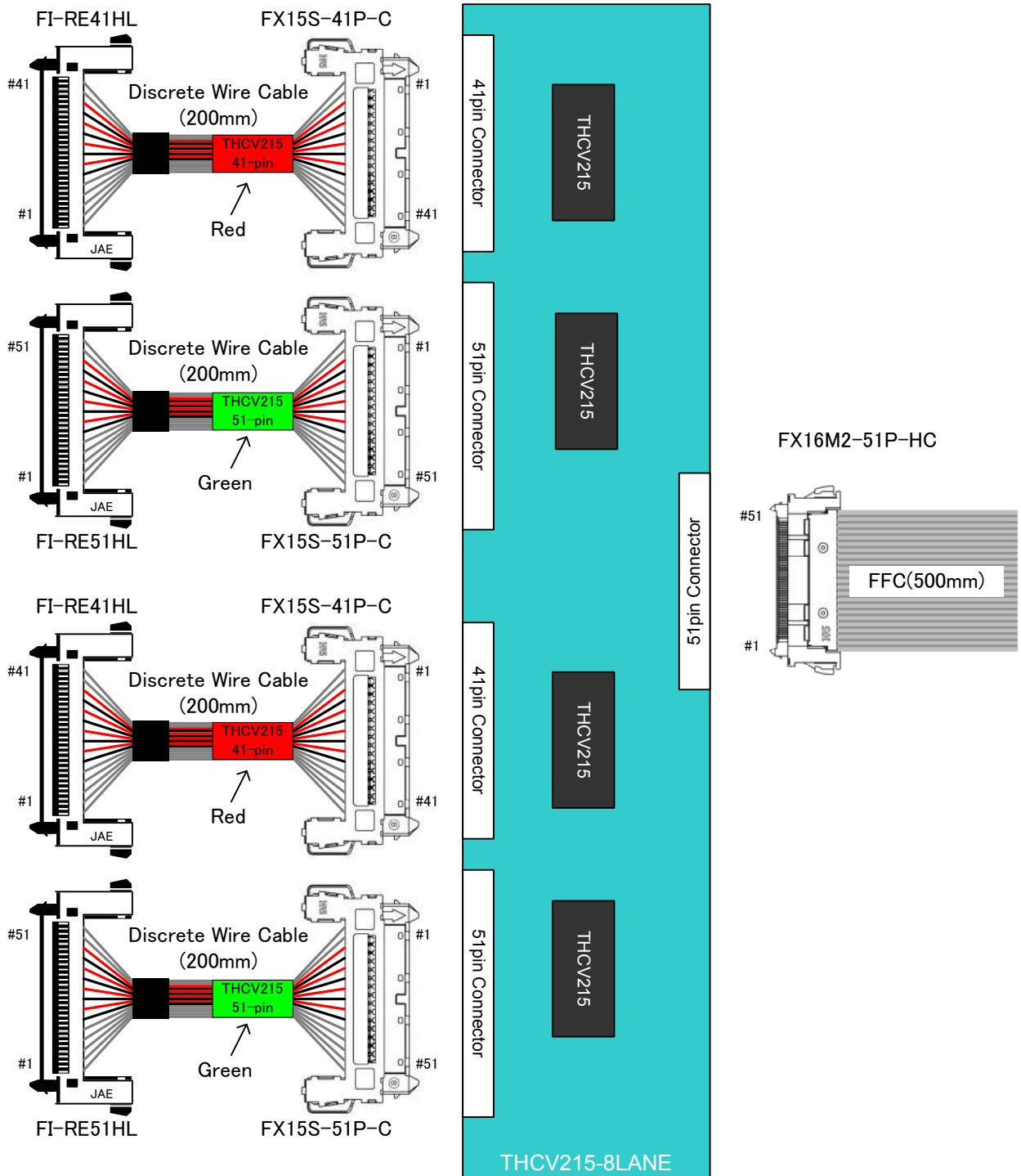


Figure 10-1. Cable of THCv215-8LANE



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

10. Cable

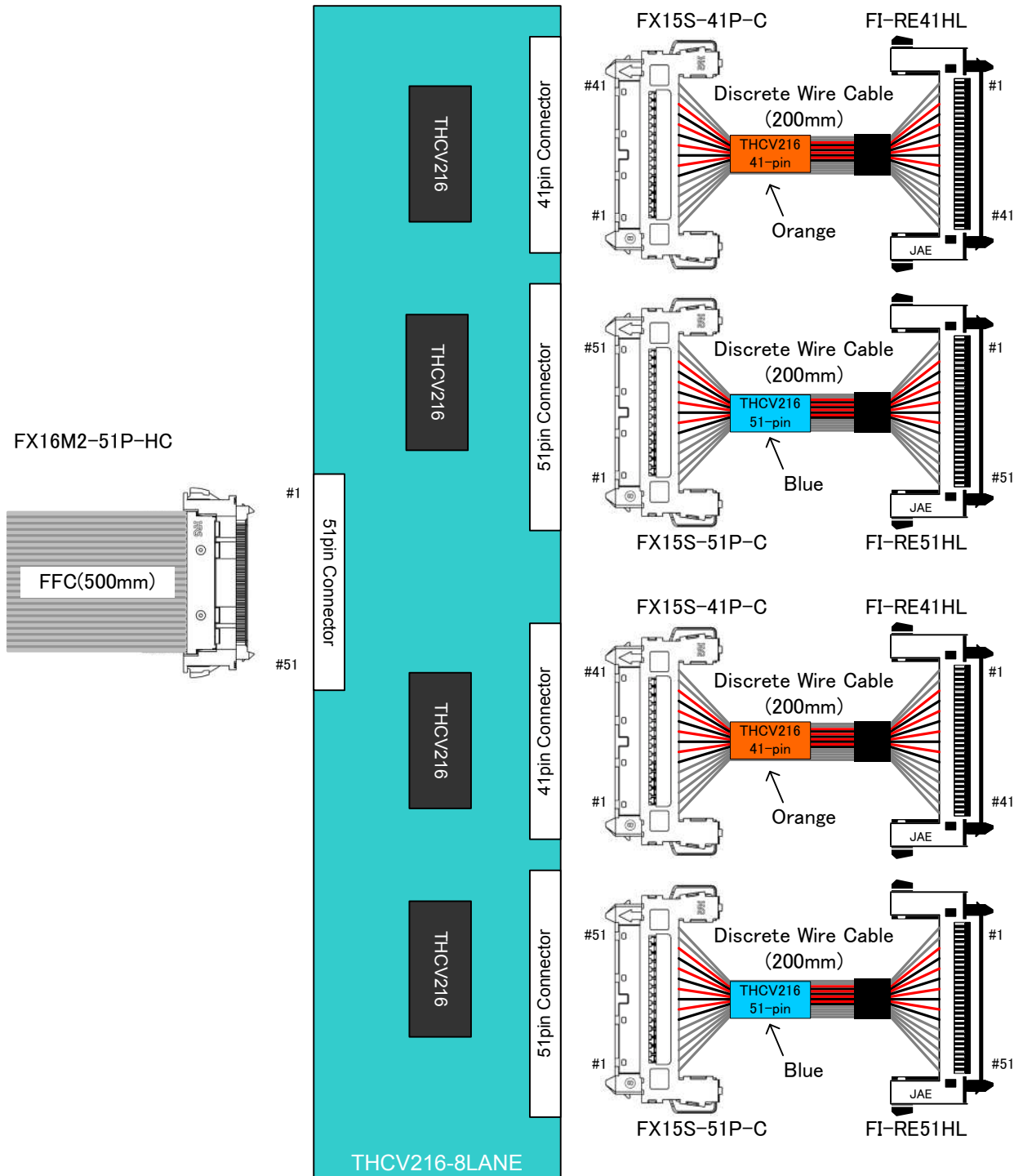


Figure 10-2. Cable of THCV216-8LANE



THCV215/216-8LANE Evaluation Kits

SerDes transmitter and receiver evaluation board

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 immediately.
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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 sufficiently 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.

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