

# MANUAL DE SERVIÇO

## TELEVISORES LED

MODELOS MARCA STI: DL2970(B)W / DL3270(B)W / DL3970(B)F / LE3274(A)W / LE3974(A)F

MODELOS MARCA SEMP: DL2971(B)W / DL3271(B)W / DL3971(B)F

### ESPECIFICAÇÕES

**Tensão de rede:** ..... 110 - 220V ~ (60 Hz) automático.

**Consumo** ----- DL2970(B)W / DL2971(B)W ----- Stand by ----- < 1,0 Watt  
 Médio ----- 38 Watts  
 DL3270(B)W / DL3271(B)W ----- Stand by ----- < 1,0 Watt  
 Médio ----- 54 Watts  
 DL3970(B)F / DL3971(B)F ----- Stand by ----- < 1,0 Watt  
 Médio ----- 63 Watts  
 LE3274(A)W ----- Stand by ----- < 1,0 Watt  
 Médio ----- 45 Watts  
 LE3974(A)F ----- Stand by ----- < 1,0 Watt  
 Médio ----- 69 Watts

#### Sintonizador Analógico / Digital

Impedância de entrada de antena:----- 75 ohm-tipo desbalanceada para VHF/UHF  
 Impedância de entrada de cabo:----- 75 ohm-tipo desbalanceada para CABO  
 Sintonizador:----- Circuito de recepção discreto  
 Sistema de sintonia----- F.S. (Frequency synthesizer)-PLL  
 Sistema de televisão:----- Padrão M -525 linhas  
 Faixa de frequência de recepção:----- 54M Hz a 864 M Hz  
 Frequência intermediária ( sinal digital ):----- 44M Hz  
 Frequências intermediárias ( sinal analógico ):-----Portadora de vídeo----- 45,75 M Hz  
 Portadora de som----- 41,25 M Hz/ 4,5M Hz  
 Portadora de croma----- 42,17 M Hz  
 frequências subportadoras de croma ( sinal analógico ):----- 3,575611M Hz ---- (PALM)  
 3,582056 M Hz ---- (PALN)  
 3,579545 M Hz ---- (NTSC)

**Potência de áudio :** DL2970(B)W / DL2971(B)W ----- 3W + 3W (RMS) / 6 ohms  
 Demais modelos ----- 6W + 6W (RMS) / 6 ohms

#### Painel DL2970(B)W / DL2971(B)W

Código ----- SDL290HY(QD0-00X) - Skyworth  
 Tipo:----- TFT - Direct - LED  
 Resolução ----- 1366 x 768 pixels  
 Cor:----- 16.7M (8bit/color)  
 Angulo de visão:----- H:176°,V:170° (tip.)  
 Tempo de resposta:----- 9.5 mseg  
 Taxa de contraste:----- 3000:1 (min.)  
 Brilho:----- 270 cd/m<sup>2</sup>

#### Painel DL3270(B)W / DL3271(B)W

|                   | Opção 1 ( skyworth )  | Opção 2 ( skyworth )  |
|-------------------|-----------------------|-----------------------|
| Código            | RDL320HY(LD0-109)     | RDL320HY(LD0-10E)     |
| Tipo              | TFT - Direct - LED    | TFT - Direct - LED    |
| Resolução         | 1366 x 768 pixels     | 1366 x 768 pixels     |
| Cor               | 16.7M (8bit/color)    | 16.7M (8bit/color)    |
| Angulo de visão   | H:140°,V:130° (tip.)  | H:176°,V:176° (tip.)  |
| Tempo de resposta | 9 mseg                | 9 mseg                |
| Taxa de contraste | 1000:1 (min.)         | 1200:1 (min.)         |
| Brilho            | 265 cd/m <sup>2</sup> | 245 cd/m <sup>2</sup> |

#### Painel DL3970(B)F / DL3971(B)F

|                   | Opção 1 ( skyworth )  | Opção 2 ( skyworth )  |
|-------------------|-----------------------|-----------------------|
| Código            | RDL390FY(QD0-200)     | RDL390FY(QD0-203)     |
| Tipo              | TFT - Direct - LED    | TFT - Direct - LED    |
| Resolução         | 1920 x 1080 pixels    | 1920 x 1080 pixels    |
| Cor               | 16.7M (8bit/color)    | 16.7M (8bit/color)    |
| Angulo de visão   | H:120°,V:120° (min.)  | H:176°,V:176° (min.)  |
| Tempo de resposta | 8,0 mseg              | 8,0 mseg              |
| Taxa de contraste | 600:1 ( min. )        | 3000:1 ( tip. )       |
| Brilho            | 310 cd/m <sup>2</sup> | 280 cd/m <sup>2</sup> |

#### Painel LE3274(A)W

Código ----- SEL320HY(AD0-130) - Skyworth  
 Tipo:----- TFT - Edge - LED  
 Resolução ----- 1366 x 768 pixels  
 Cor:----- 16.7M (8bit/color)  
 Angulo de visão:----- H:176°,V:176° (typ.)  
 Tempo de resposta:----- 7 mseg  
 Taxa de contraste:----- 5000:1  
 Brilho:----- 350 cd/m<sup>2</sup>

#### Painel LE3974(A)F

Código ----- SEL390FY(QD0-000) - Skyworth  
 Tipo:----- TFT - Edge - LED  
 Resolução ----- 1920 x 1080 pixels  
 Cor:----- 16.7M (8bit/color)  
 Angulo de visão:----- H:178°,V:178° (typ.)  
 Tempo de resposta:----- 8.5 mseg  
 Taxa de contraste:----- 3000:1  
 Brilho:----- 350 cd/m<sup>2</sup>

**Peso/ Dimensões (LxAxP):**----- Vide Página do Índice

# INDÍCE

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|   |      |
|---|------|
| Especificações : .....  | capa |
| Informações / Instruções de Ajustes : .....                           | 3    |
| Vista Explodida DL2970(B)W / DL2971(B)W : .....                       | 4    |
| Vista Explodida DL3270(B)W / DL3271(B)W : .....                       | 5    |
| Vista Explodida LE3970(B)F / DL3971(B)F : .....                       | 6    |
| Vista Explodida LE3274(A)W : .....                                    | 7    |
| Vista Explodida LE3974(A)F : .....                                    | 8    |
| Lista Diferença de Componentes da PCI Principal entre Modelos : ..... | 9    |
| Esquema Elétrico PCI Principal ( Todos Modelos ) : .....              | 11   |
| Esquema Elétrico PCI Auxiliar ( Todos Modelos ) : .....               | 47   |
| Esquema Elétrico Controle Remoto ( Todos Modelos ) : .....            | 48   |

## Adendo Capa

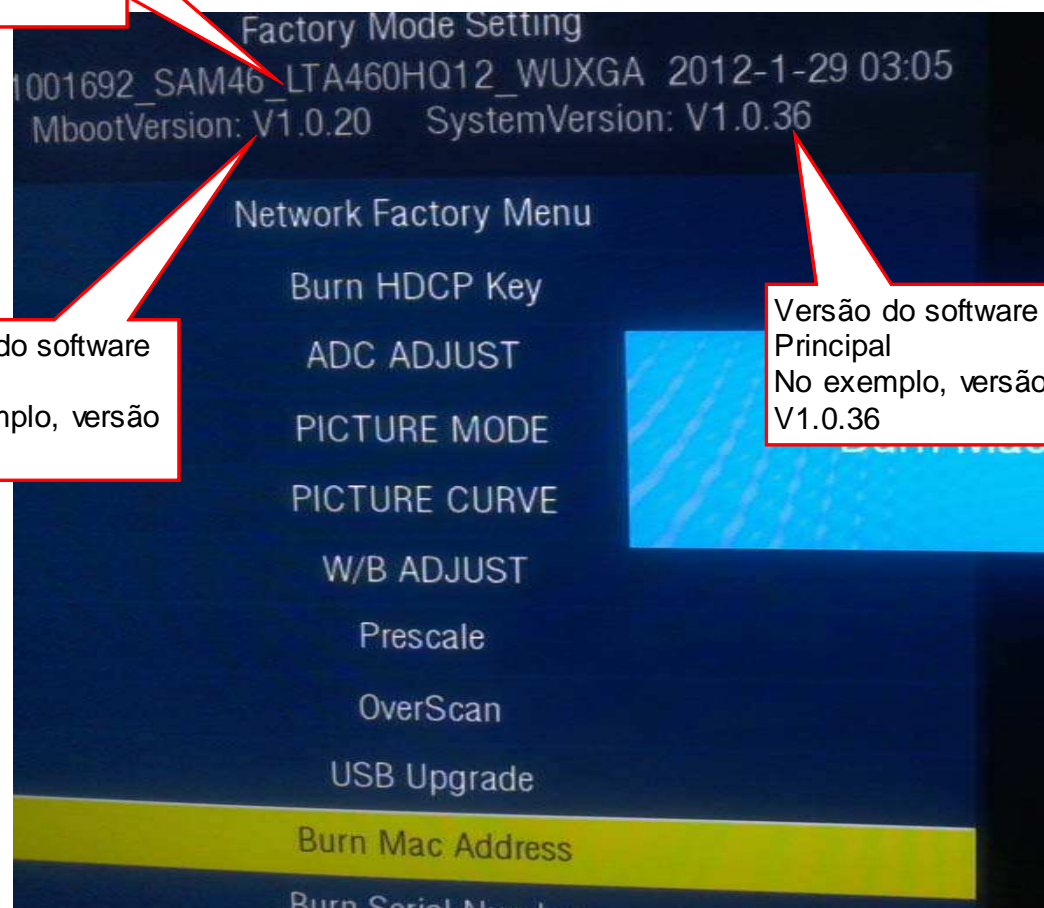
|  |   |
|--|---|
| <b>Peso / Dimensões (LxAxP):</b> ..... DL2970(B)W / DL2971(B)W ..... | 6,7 Kg ( c/ pedestal: 670 x 459 x 200 mm )<br>( s/ pedestal: 670 x 409 x 82 mm )    |
| DL3270(B)W / DL3271(B)W .....  | 8,1 Kg ( c/ pedestal: 742 x 502 x 200 mm )<br>( s/ pedestal: 7742 x 457 x 101 mm )  |
| DL3970(B)F / DL3971(B)F .....  | 11,5 Kg ( c/ pedestal: 894 x 590 x 200 mm )<br>( s/ pedestal: 894 x 542 x 98,5 mm ) |
| LE3374(A)W .....   | 7,6 Kg ( c/ pedestal: 734 x 499 x 200 mm )<br>( s/ pedestal: 734 x 446 x 56,3 mm )  |
| LE3974(A)F .....   | 10,8 Kg ( c/ pedestal: 889 x 587 x 200 mm )<br>( s/ pedestal: 889 x 535 x 58,5 mm ) |

**CHECAGEM**

**VERIFICAÇÃO DA VERSÃO DO SOFTWARE (Menu de Serviço).**

Usando o Controle Remoto no Menu Imagem, digite "2008". Esta opção abre o Menu de Fábrica do aparelho.

Código do painel usado.  
No exemplo:  
LTA460HQ12



Versão do software Mboot  
No exemplo, versão V1.0.20

Versão do software Principal  
No exemplo, versão V1.0.36

**INFORMAÇÕES UTEIS**

**DESBLOQUEIO DO APARELHO**

Caso o cliente esquecer o código de bloqueio das entradas / classificação indicativa, entre com o código "1980" para desbloquear

**TECLAS DE OPERAÇÃO DO MENU DE SERVIÇO**

Utilize a tecla "Enter" para acessar os menus de serviço, tecla "Menu" para voltar 1 menu anterior e teclas ∇, Δ, < e > para selecionar ou ajustar

**ATUALIZAÇÃO DE SOFTWARE PRINCIPAL**

**GRAVAÇÃO DO SOFTWARE PRINCIPAL (Via USB).**

Deverá ser gravado o software "MstarUpgrade.bin" a ser instalado na raiz ( Não colocá - lo em pastas ou subpastas ) de um dispositivo USB.

Conectar o dispositivo em uma das portas USB.

Pode-se utilizar o Menu do usuário para atualizá - lo:

Abrir o Menu e mover até o Menu " Config. ", no submenu escolher a opção " Atualização de Software ", selecione "USB" e confirmar na opção "Sim".

Pode-se utilizar o Menu de fábrica para atualizá - lo:

No Menu digitar "2008" para abrir o Menu de Fábrica e selecionar a opção " USB Upgrade " e selecione a opção Software Upgrade

Pode -se fazer a atualização da seguinte forma:

- Com o TV em stand by e o pen drive conectado, pressione e mantenha pressionado a tecla POWER no painel frontal do TV até que apareça uma tela azul com a barra de percentagem de atualização do SW.

Em todas as atualizações, é necessário esperar a atualização completa do software. Após a atualização deve-se fazer o "Factory Reset" e após isso desligar e ligar o TV da energia elétrica.

**ATUALIZAÇÃO DE SOFTWARE MBOOT**

**GRAVAÇÃO DO SOFTWARE MBOOT (Via USB).**

Deverá ser gravado o software "MBOOT.bin" a ser instalado na raiz ( Não colocá - lo em pastas ou subpastas ) de um dispositivo USB.

Conectar o dispositivo em uma das portas USB.

Utilizar o Menu de fábrica para atualizá - lo:

No Menu digitar "2008" para abrir o Menu de Fábrica e selecionar a opção " USB Upgrade " e selecione a opção MBoot Upgrade

**AJUSTE DO GANHO DE VIDEO (após a troca do painel LCD ou Atualização de Software)**

**AJUSTE DE GANHO ADC (OFFSET) DE VÍDEO COMPONENTE E PC-RGB**

Conecte um sinal de barras coloridas ou escala de cinza na entrada a ser ajustada, Componente (YPbPr) ou PC-RGB.

Selecione a entrada a ser ajustada (Componente ou PC) e depois entre no Modo de Serviço.

Selecione o menu de ajuste "ADC ADJUST".

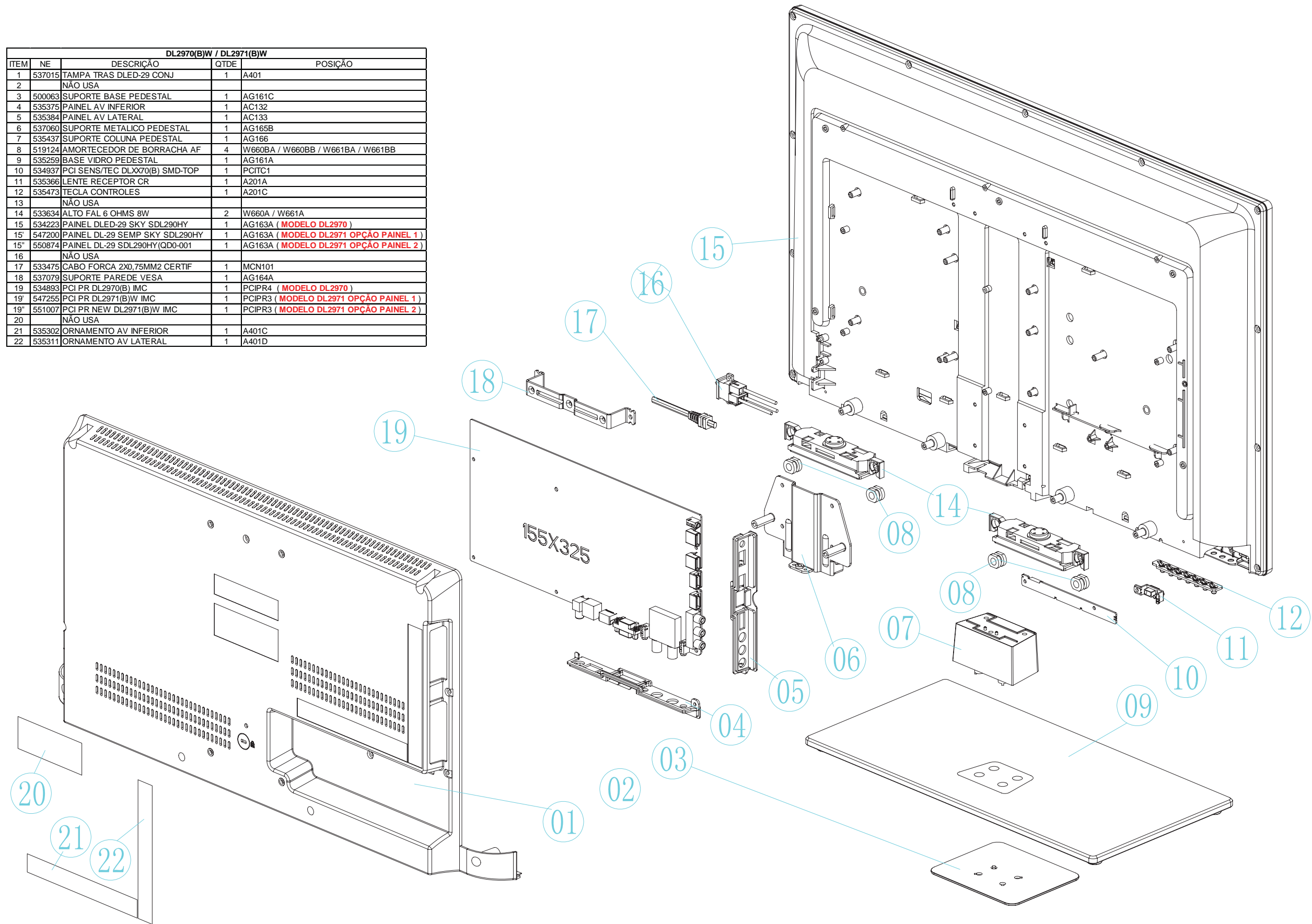
No menu "ADC ADJUST", selecione o item "AUTO ADC" e inicie o auto ajuste através das teclas direcionais "<" ou ">".

Obs: Na entrada Componente (YPbPr) é necessário ajustar em HD (720 ou 1080) e SD (480).

# VISTA EXPLODIDA

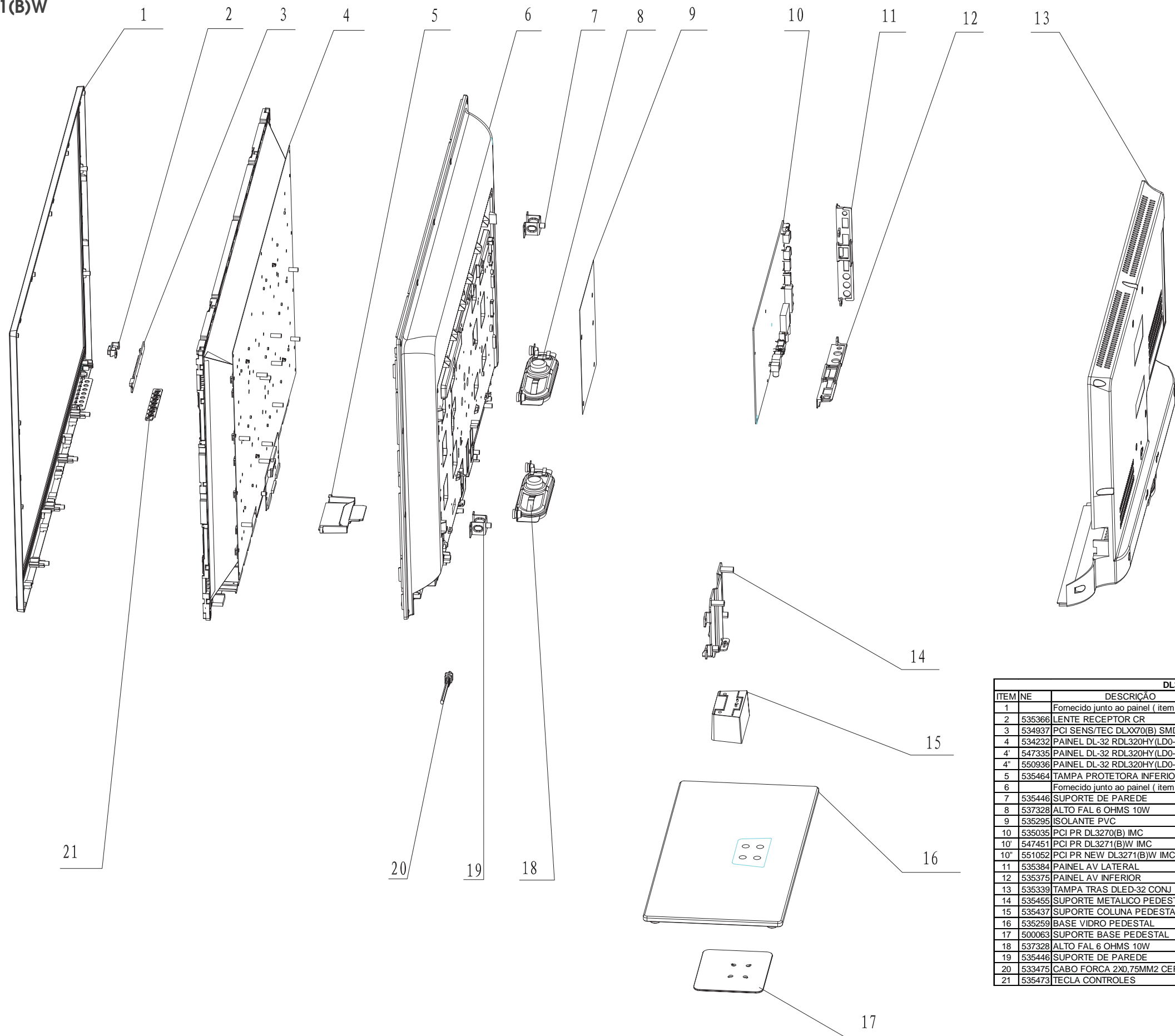
DL2970(B)W DL2971(B)W

| DL2970(B)W / DL2971(B)W |        |                                |      |  |
|-------------------------|--------|--------------------------------|------|--|
| ITEM                    | NE     | DESCRIÇÃO                      | QTDE | POSIÇÃO  |
| 1                       | 537015 | TAMPA TRAS DLED-29 CONJ        | 1    | A401   |
| 2                       |        | NÃO USA                        |      |  |
| 3                       | 500063 | SUPORTE BASE PEDESTAL          | 1    | AG161C   |
| 4                       | 535375 | PAINEL AV INFERIOR             | 1    | AC132  |
| 5                       | 535384 | PAINEL AV LATERAL              | 1    | AC133  |
| 6                       | 537060 | SUPORTE METALICO PEDESTAL      | 1    | AG165B   |
| 7                       | 535437 | SUPORTE COLUNA PEDESTAL        | 1    | AG166  |
| 8                       | 519124 | AMORTECEDOR DE BORRACHA AF     | 4    | W660BA / W660BB / W661BA / W661BB              |
| 9                       | 535259 | BASE VIDRO PEDESTAL            | 1    | AG161A   |
| 10                      | 534937 | PCI SENS/TEC DLX70(B) SMD-TOP  | 1    | PCITC1   |
| 11                      | 535366 | LENTE RECEPTOR CR              | 1    | A201A  |
| 12                      | 535473 | TECLA CONTROLES                | 1    | A201C  |
| 13                      |        | NÃO USA                        |      |  |
| 14                      | 533634 | ALTO FAL 6 OHMS 8W             | 2    | W660A / W661A                                  |
| 15                      | 534223 | PAINEL DLED-29 SKY SDL290HY    | 1    | AG163A ( <b>MODELO DL2970</b> )                |
| 15'                     | 547200 | PAINEL DL-29 SEMP SKY SDL290HY | 1    | AG163A ( <b>MODELO DL2971 OPÇÃO PAINEL 1</b> ) |
| 15"                     | 550874 | PAINEL DL-29 SDL290HY(QD0-001  | 1    | AG163A ( <b>MODELO DL2971 OPÇÃO PAINEL 2</b> ) |
| 16                      |        | NÃO USA                        |      |  |
| 17                      | 533475 | CABO FORCA 2X0,75MM2 CERTIF    | 1    | MCN101   |
| 18                      | 537079 | SUPORTE PAREDE VESA            | 1    | AG164A   |
| 19                      | 534893 | PCI PR DL2970(B) IMC           | 1    | PCIPR4 ( <b>MODELO DL2970</b> )                |
| 19'                     | 547255 | PCI PR DL2971(B)W IMC          | 1    | PCIPR3 ( <b>MODELO DL2971 OPÇÃO PAINEL 1</b> ) |
| 19"                     | 551007 | PCI PR NEW DL2971(B)W IMC      | 1    | PCIPR3 ( <b>MODELO DL2971 OPÇÃO PAINEL 2</b> ) |
| 20                      |        | NÃO USA                        |      |  |
| 21                      | 535302 | ORNAMENTO AV INFERIOR          | 1    | A401C  |
| 22                      | 535311 | ORNAMENTO AV LATERAL           | 1    | A401D  |



# VISTA EXPLODIDA

DL3270(B)W DL3271(B)W

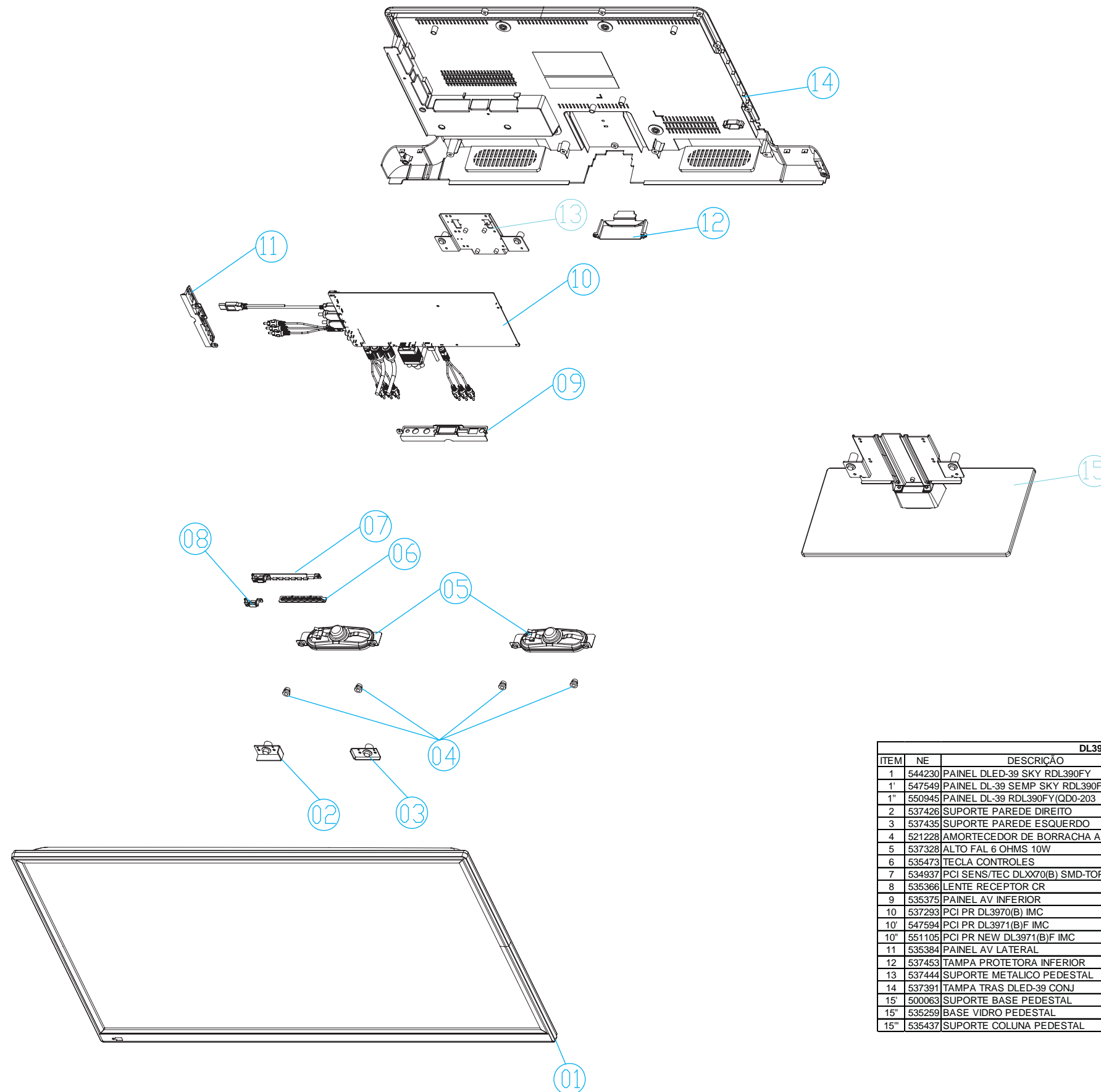


| DL3270(B)W / DL3271(B)W |        |                                      |  |
|-------------------------|--------|--------------------------------------|--|
| ITEM                    | NE     | DESCRIÇÃO                            | POSICÃO  |
| 1                       |        | Fornecido junto ao painel ( item 4 ) |  |
| 2                       | 535366 | LENTE RECEPTOR CR                    | A201A  |
| 3                       | 534937 | PCI SENS/TEC DLX070(B) SMD-TOP       | PCITC1   |
| 4                       | 534232 | PAINEL DL-32 RDL320HY (LD0-109)      | AG163A ( <b>MODELO DL3270</b> )                |
| 4'                      | 547335 | PAINEL DL-32 RDL320HY (LD0-109)      | AG163A ( <b>MODELO DL3271 OPÇÃO PAINEL 1</b> ) |
| 4*                      | 550936 | PAINEL DL-32 RDL320HY (LD0-10E)      | AG163A ( <b>MODELO DL3271 OPÇÃO PAINEL 2</b> ) |
| 5                       | 535464 | TAMPA PROTETORA INFERIOR             | A402   |
| 6                       |        | Fornecido junto ao painel ( item 4 ) |  |
| 7                       | 535446 | SUPORTE DE PAREDE                    | AG164A   |
| 8                       | 537328 | ALTO FAL 6 OHMS 10W                  | W660A  |
| 9                       | 535295 | ISOLANTE PVC                         | PCIPRB   |
| 10                      | 535035 | PCI PR DL3270(B) IMC                 | PCIPR4 ( <b>MODELO DL3270</b> )                |
| 10'                     | 547451 | PCI PR DL3271(B)W IMC                | PCIPR3 ( <b>MODELO DL3271 OPÇÃO PAINEL 1</b> ) |
| 10*                     | 551052 | PCI PR NEW DL3271(B)W IMC            | PCIPR3 ( <b>MODELO DL3271 OPÇÃO PAINEL 2</b> ) |
| 11                      | 535384 | PAINEL AV LATERAL                    | AC133  |
| 12                      | 535375 | PAINEL AV INFERIOR                   | AC132  |
| 13                      | 535339 | TAMPA TRAS DLED-32 CONJ              | A401   |
| 14                      | 535455 | SUPORTE METALICO PEDESTAL            | AG165B   |
| 15                      | 535437 | SUPORTE COLUNA PEDESTAL              | AG166  |
| 16                      | 535259 | BASE VIDRO PEDESTAL                  | AG161A   |
| 17                      | 500063 | SUPORTE BASE PEDESTAL                | AG161C   |
| 18                      | 537328 | ALTO FAL 6 OHMS 10W                  | W661A  |
| 19                      | 535446 | SUPORTE DE PAREDE                    | AG164B   |
| 20                      | 533475 | CABO FORCA 2X0,75MM2 CERTIF          | MCN101   |
| 21                      | 535473 | TECLA CONTROLES                      | A201C  |



# VISTA EXPLODIDA

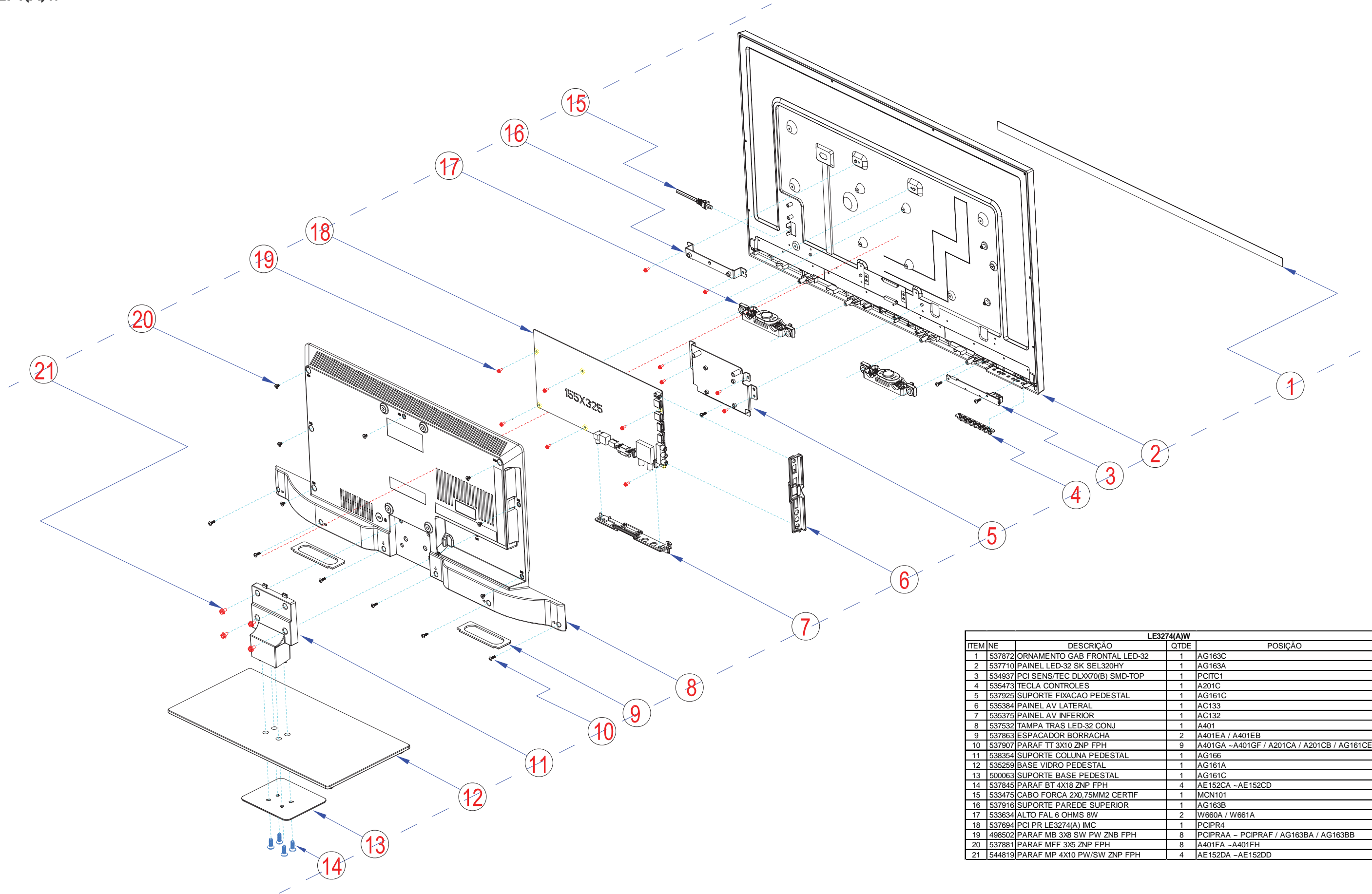
DL3970(B)F DL3971(B)F



| DL3970(B)F / DL3971(B)F |        |                                |      |                                   |                                  |
|-------------------------|--------|--------------------------------|------|-----------------------------------|----------------------------------|
| ITEM                    | NE     | DESCRIÇÃO                      | QTDE | POSIÇÃO                           |                                  |
| 1                       | 544230 | PAINEL DLED-39 SKY RDL390FY    | 1    | AG163A                            | ( MODELO DL3970 )                |
| 1'                      | 547549 | PAINEL DL-39 SEMP SKY RDL390FY | 1    | AG163A                            | ( MODELO DL3971 OPÇÃO PAINEL 1 ) |
| 1"                      | 550945 | PAINEL DL-39 RDL390FY(QD0-203  | 1    | AG163A                            | ( MODELO DL3971 OPÇÃO PAINEL 2 ) |
| 2                       | 537426 | SUPORTE PAREDE DIREITO         | 1    | AG164B                            |                                  |
| 3                       | 537435 | SUPORTE PAREDE ESQUERDO        | 1    | AG164A                            |                                  |
| 4                       | 521228 | AMORTECEDOR DE BORRACHA AF     | 4    | W660BA / W660BB / W661BA / W661BB |                                  |
| 5                       | 537328 | ALTO FAL 6 OHMS 10W            | 2    | W660A / W661A                     |                                  |
| 6                       | 535473 | TECLA CONTROLES                | 1    | A201C                             |                                  |
| 7                       | 534937 | PCI SENS/TEC DLX70(B) SMD-TOP  | 1    | PCITC1                            |                                  |
| 8                       | 535366 | LENTE RECEPTOR CR              | 1    | A201A                             |                                  |
| 9                       | 535375 | PAINEL AV INFERIOR             | 1    | AC132                             |                                  |
| 10                      | 537293 | PCI PR DL3970(B) IMC           | 1    | PCIPR4                            | ( MODELO DL3970 )                |
| 10'                     | 547594 | PCI PR DL3971(B)F IMC          | 1    | PCIPR3                            | ( MODELO DL3971 OPÇÃO PAINEL 1 ) |
| 10"                     | 551105 | PCI PR NEW DL3971(B)F IMC      | 1    | PCIPR3                            | ( MODELO DL3971 OPÇÃO PAINEL 2 ) |
| 11                      | 535384 | PAINEL AV LATERAL              | 1    | AC133                             |                                  |
| 12                      | 537453 | TAMPA PROTETORA INFERIOR       | 1    | A402                              |                                  |
| 13                      | 537444 | SUPORTE METALICO PEDESTAL      | 1    | AG165                             |                                  |
| 14                      | 537391 | TAMPA TRAS DLED-39 CONJ        | 1    | A401                              |                                  |
| 15'                     | 500063 | SUPORTE BASE PEDESTAL          | 1    | AG161C                            |                                  |
| 15"                     | 535259 | BASE VIDRO PEDESTAL            | 1    | AG161A                            |                                  |
| 15"                     | 535437 | SUPORTE COLUNA PEDESTAL        | 1    | AG166                             |                                  |

# VISTA EXPLODIDA

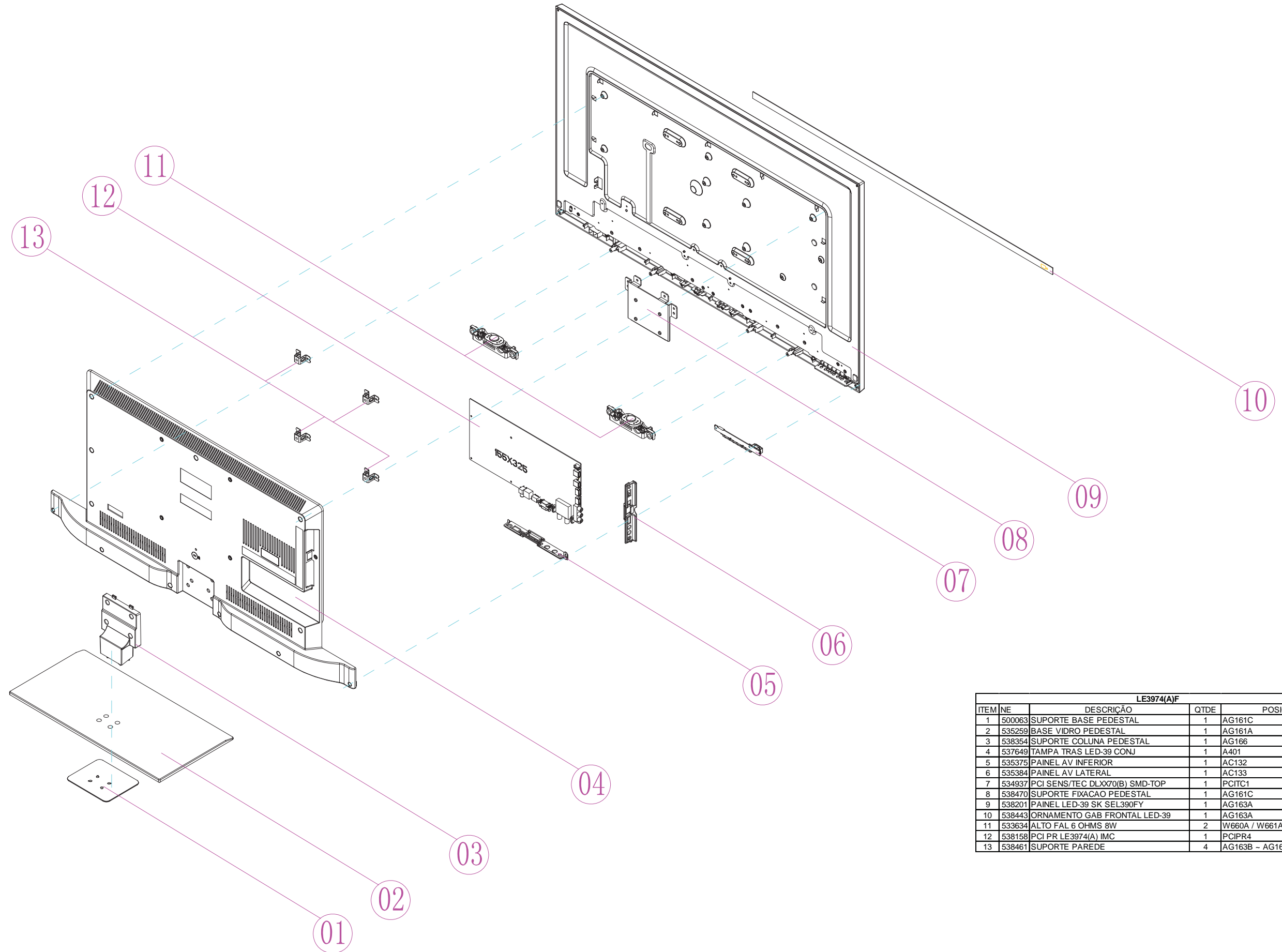
LE3274(A)W



| LE3274(A)W |        |                               |      |  |  |
|------------|--------|-------------------------------|------|--|--|
| ITEM       | NE     | DESCRIÇÃO                     | QTDE | POSIÇÃO                                    |  |
| 1          | 537872 | ORNAMENTO GAB FRONTAL LED-32  | 1    | AG163C                                     |  |
| 2          | 537710 | PAINEL LED-32 SK SEL320HY     | 1    | AG163A                                     |  |
| 3          | 534937 | PCI SENS/TEC DLX70(B) SMD-TOP | 1    | PCITC1                                     |  |
| 4          | 535473 | TECLA CONTROLES               | 1    | A201C                                      |  |
| 5          | 537925 | SUPORTE FIXACAO PEDESTAL      | 1    | AG161C                                     |  |
| 6          | 535384 | PAINEL AV LATERAL             | 1    | AC133                                      |  |
| 7          | 535375 | PAINEL AV INFERIOR            | 1    | AC132                                      |  |
| 8          | 537532 | TAMPA TRAS LED-32 CONJ        | 1    | A401                                       |  |
| 9          | 537863 | ESPACADOR BORRACHA            | 2    | A401EA / A401EB                            |  |
| 10         | 537907 | PARAF TT 3X10 ZNP FPH         | 9    | A401GA -A401GF / A201CA / A201CB / AG161CE |  |
| 11         | 538354 | SUPORTE COLUNA PEDESTAL       | 1    | AG166                                      |  |
| 12         | 535259 | BASE VIDRO PEDESTAL           | 1    | AG161A                                     |  |
| 13         | 500063 | SUPORTE BASE PEDESTAL         | 1    | AG161C                                     |  |
| 14         | 537845 | PARAF BT 4X18 ZNP FPH         | 4    | AE152CA -AE152CD                           |  |
| 15         | 533475 | CABO FORCA 2X0,75MM2 CERTIF   | 1    | MCN101                                     |  |
| 16         | 537916 | SUPORTE PAREDE SUPERIOR       | 1    | AG163B                                     |  |
| 17         | 533634 | ALTO FAL 6 OHMS 8W            | 2    | W660A / W661A                              |  |
| 18         | 537694 | PCI PR LE3274(A) IMC          | 1    | PCIPR4                                     |  |
| 19         | 498502 | PARAF MB 3X8 SW PW ZNB FPH    | 8    | PCIPRAA - PCIPRAF / AG163BA / AG163BB      |  |
| 20         | 537881 | PARAF MFF 3X5 ZNP FPH         | 8    | A401FA -A401FH                             |  |
| 21         | 544819 | PARAF MP 4X10 PW/SW ZNP FPH   | 4    | AE152DA -AE152DD                           |  |

# VISTA EXPLODIDA

LE3974(A)F



| LE3974(A)F |        |                                |      |                 |
|------------|--------|--------------------------------|------|-----------------|
| ITEM       | NE     | DESCRIÇÃO                      | QTDE | POSIÇÃO         |
| 1          | 500063 | SUPORTE BASE PEDESTAL          | 1    | AG161C          |
| 2          | 535259 | BASE VIDRO PEDESTAL            | 1    | AG161A          |
| 3          | 538354 | SUPORTE COLUNA PEDESTAL        | 1    | AG166           |
| 4          | 537649 | TAMPA TRAS LED-39 CONJ         | 1    | A401            |
| 5          | 535375 | PAINEL AV INFERIOR             | 1    | AC132           |
| 6          | 535384 | PAINEL AV LATERAL              | 1    | AC133           |
| 7          | 534937 | PCI SENS/TEC DLX070(B) SMD-TOP | 1    | PCITC1          |
| 8          | 538470 | SUPORTE FIXACAO PEDESTAL       | 1    | AG161C          |
| 9          | 538201 | PAINEL LED-39 SK SEL390FY      | 1    | AG163A          |
| 10         | 538443 | ORNAMENTO GAB FRONTAL LED-39   | 1    | AG163A          |
| 11         | 533634 | ALTO FAL 6 OHMS 8W             | 2    | W660A / W661A   |
| 12         | 538158 | PCI PR LE3974(A) IMC           | 1    | PCIPR4          |
| 13         | 538461 | SUPORTE PAREDE                 | 4    | AG163B - AG163E |



## LISTA DIFERENÇA DE COMPONENTES

PCI principal entre todos modelos

| Posição | NE     | Descrição                     | Modelo                  |
|---------|--------|-------------------------------|-------------------------|
| CN5     | 512684 | PLUG 28P 90G                  | DL2970(B)W / DL2971(B)W |
| CN5     | 512684 | PLUG 28P 90G                  | DL3270(B)W / DL3271(B)W |
| CN5     | 512684 | PLUG 28P 90G                  | LE3274(A)W              |
| CN5     | 537257 | PLUG LVDS 40P PTH             | DL3970(B)F / DL3971(B)F |
| CN5     | 537257 | PLUG LVDS 40P PTH             | LE3974(A)F              |
| QP10    | 496899 | TRANS 2SA1013 RT              | DL2970(B)W / DL2971(B)W |
| QP10    | 496899 | TRANS 2SA1013 RT              | DL3270(B)W / DL3271(B)W |
| QP10    | 496899 | TRANS 2SA1013 RT              | DL3970(B)F / DL3971(B)F |
| QP10    | 496899 | TRANS 2SA1013 RT              | LE3974(A)F              |
| QP11    | 496899 | TRANS 2SA1013 RT              | DL3970(B)F / DL3971(B)F |
| QP11    | 496899 | TRANS 2SA1013 RT              | LE3974(A)F              |
| QP12    | 496899 | TRANS 2SA1013 RT              | DL3970(B)F / DL3971(B)F |
| QP12    | 496899 | TRANS 2SA1013 RT              | LE3274(A)W              |
| QP12    | 496899 | TRANS 2SA1013 RT              | LE3974(A)F              |
| QP13    | 496899 | TRANS 2SA1013 RT              | DL3970(B)F / DL3971(B)F |
| QP13    | 496899 | TRANS 2SA1013 RT              | LE3274(A)W              |
| QP13    | 496899 | TRANS 2SA1013 RT              | LE3974(A)F              |
| QPB7    | 534697 | TRANSISTOR AOD256 SMD         | DL3270(B)W / DL3271(B)W |
| QPB7    | 534697 | TRANSISTOR AOD256 SMD         | DL3970(B)F / DL3971(B)F |
| QPB7    | 534697 | TRANSISTOR AOD256 SMD         | LE3974(A)F              |
| R23     | 495916 | RES META 103 J 1/16W 1005TSMD | DL2970(B)W / DL2971(B)W |
| R23     | 495916 | RES META 103 J 1/16W 1005TSMD | DL3270(B)W / DL3271(B)W |
| RP100   | 495943 | RES META 104 J 1/8W 2012TSMD  | DL2970(B)W / DL2971(B)W |
| RP100   | 495943 | RES META 104 J 1/8W 2012TSMD  | DL3270(B)W / DL3271(B)W |
| RP101   | 495943 | RES META 104 J 1/8W 2012TSMD  | DL2970(B)W / DL2971(B)W |
| RP101   | 495943 | RES META 104 J 1/8W 2012TSMD  | DL3270(B)W / DL3271(B)W |
| RP102   | 495943 | RES META 104 J 1/8W 2012TSMD  | DL2970(B)W / DL2971(B)W |
| RP102   | 495943 | RES META 104 J 1/8W 2012TSMD  | DL3270(B)W / DL3271(B)W |
| RP102   | 495943 | RES META 104 J 1/8W 2012TSMD  | LE3274(A)W              |
| RP103   | 495943 | RES META 104 J 1/8W 2012TSMD  | LE3274(A)W              |
| RP68    | 534438 | RES META 27R J 1/8W 2012TSMD  | DL2970(B)W / DL2971(B)W |
| RP68    | 534438 | RES META 27R J 1/8W 2012TSMD  | LE3274(A)W              |
| RP68    | 537220 | RES META 5R1 J 1/8W 2012TSMD  | DL3270(B)W / DL3271(B)W |
| RP68    | 537220 | RES META 5R1 J 1/8W 2012TSMD  | DL3970(B)F / DL3971(B)F |
| RP68    | 537220 | RES META 5R1 J 1/8W 2012TSMD  | LE3974(A)F              |

| Posição | NE     | Descrição                    | Modelo                  |
|---------|--------|------------------------------|-------------------------|
| RP71    | 534429 | RES META 243 J 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP71    | 534483 | RES META 433 J 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP71    | 534483 | RES META 433 J 1/8W 2012TSMD | LE3274(A)W              |
| RP71    | 537239 | RES META 333 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP71    | 537239 | RES META 333 F 1/8W 2012TSMD | LE3974(A)F              |
| RP73    | 534553 | RES META 512 F 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP73    | 534553 | RES META 512 F 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP73    | 534553 | RES META 512 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP73    | 534553 | RES META 512 F 1/8W 2012TSMD | LE3974(A)F              |
| RP74    | 496443 | RES META 512 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP74    | 496443 | RES META 512 J 1/8W 2012TSMD | LE3974(A)F              |
| RP75    | 496443 | RES META 512 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP75    | 496443 | RES META 512 J 1/8W 2012TSMD | LE3274(A)W              |
| RP75    | 496443 | RES META 512 J 1/8W 2012TSMD | LE3974(A)F              |
| RP76    | 496443 | RES META 512 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP76    | 496443 | RES META 512 J 1/8W 2012TSMD | LE3274(A)W              |
| RP76    | 496443 | RES META 512 J 1/8W 2012TSMD | LE3974(A)F              |
| RP79    | 495890 | RES META 102 J 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP79    | 495890 | RES META 102 J 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP79    | 495890 | RES META 102 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP79    | 495890 | RES META 102 J 1/8W 2012TSMD | LE3974(A)F              |
| RP80    | 495890 | RES META 102 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP80    | 495890 | RES META 102 J 1/8W 2012TSMD | LE3974(A)F              |
| RP81    | 495890 | RES META 102 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP81    | 495890 | RES META 102 J 1/8W 2012TSMD | LE3274(A)W              |
| RP81    | 495890 | RES META 102 J 1/8W 2012TSMD | LE3974(A)F              |
| RP82    | 495890 | RES META 102 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP82    | 495890 | RES META 102 J 1/8W 2012TSMD | LE3274(A)W              |
| RP82    | 495890 | RES META 102 J 1/8W 2012TSMD | LE3974(A)F              |
| RP83    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP83    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP83    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP83    | 537248 | RES META 5R1 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP83    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |

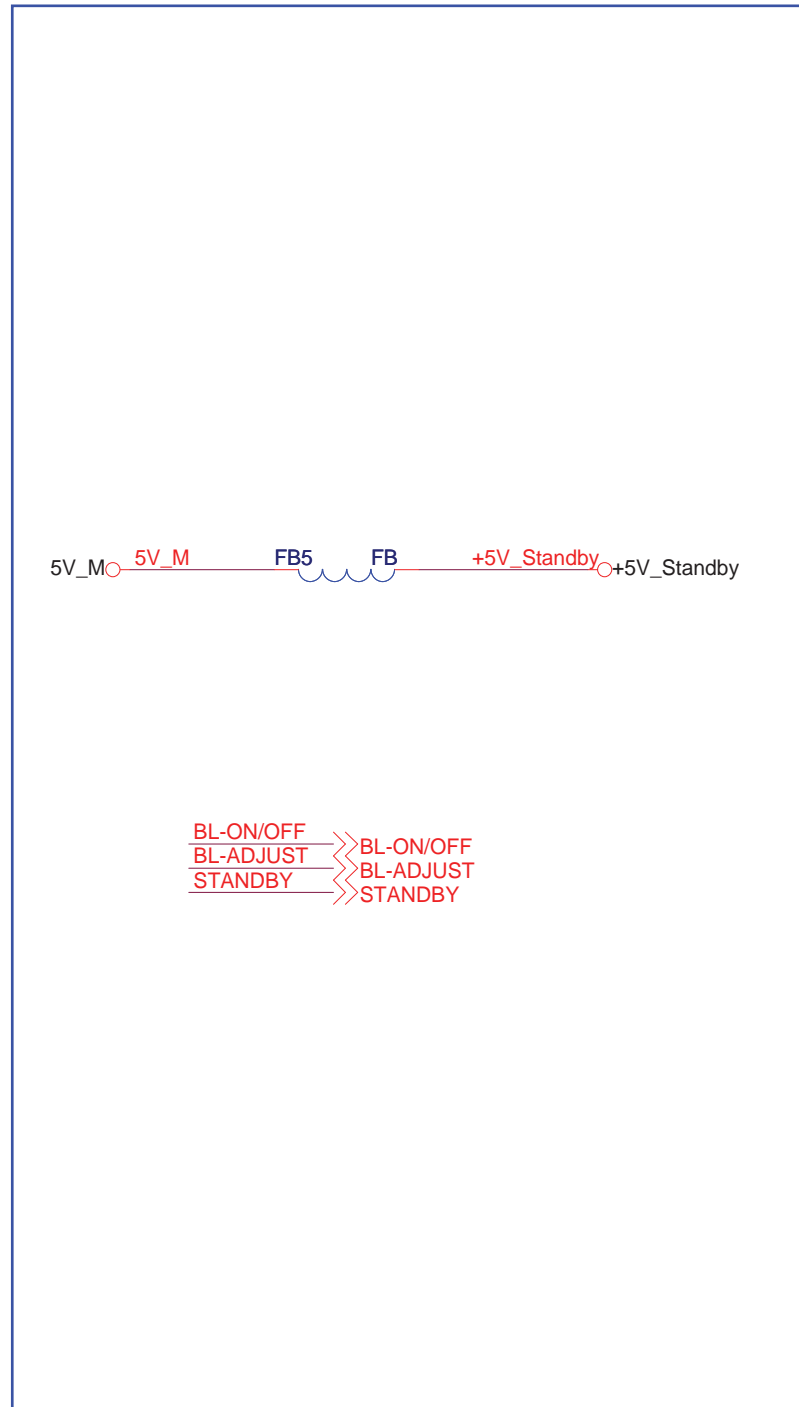
## LISTA DIFERENÇA DE COMPONENTES

PCI principal entre todos modelos

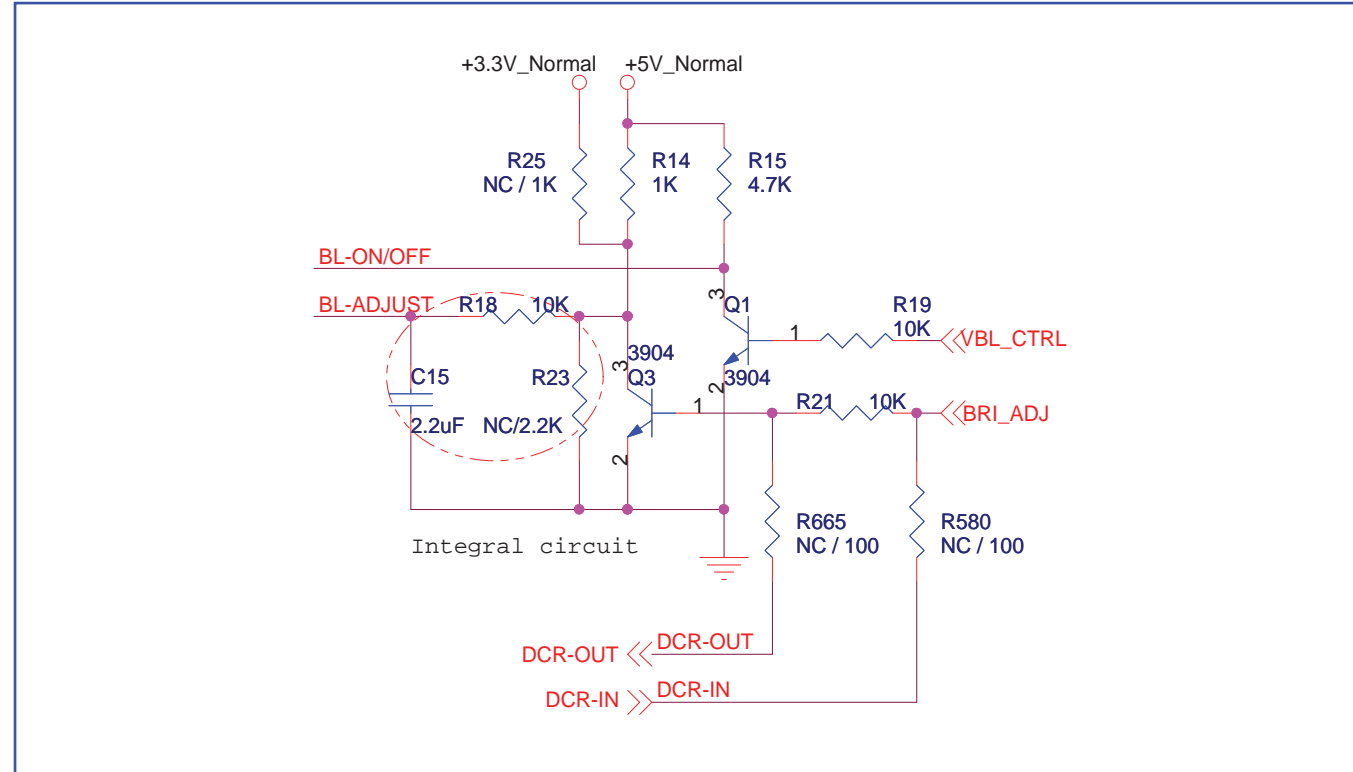
| Posição | NE     | Descrição                    | Modelo                  |
|---------|--------|------------------------------|-------------------------|
| RP84    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP84    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP84    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP84    | 537211 | RES META 5R6 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP84    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |
| RP85    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP85    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP85    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP85    | 537248 | RES META 5R1 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP85    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |
| RP86    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP86    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP86    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP86    | 537211 | RES META 5R6 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP86    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |
| RP87    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP87    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP87    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP87    | 537248 | RES META 5R1 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP88    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP88    | 534544 | RES META 4R7 F 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP88    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP88    | 537211 | RES META 5R6 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP89    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP89    | 537248 | RES META 5R1 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP90    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP90    | 537211 | RES META 5R6 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP91    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP91    | 537248 | RES META 5R1 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP91    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |
| RP92    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP92    | 537211 | RES META 5R6 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP92    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |
| RP93    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP93    | 537248 | RES META 5R1 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP93    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |

| Posição | NE     | Descrição                    | Modelo                  |
|---------|--------|------------------------------|-------------------------|
| RP94    | 534544 | RES META 4R7 F 1/8W 2012TSMD | LE3974(A)F              |
| RP94    | 537211 | RES META 5R6 F 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP94    | 537658 | RES META 4R3 F 1/8W 2012TSMD | LE3274(A)W              |
| RP96    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP96    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP96    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP97    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL2970(B)W / DL2971(B)W |
| RP97    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL3270(B)W / DL3271(B)W |
| RP97    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP98    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |
| RP99    | 495827 | RES META 0R0 J 1/8W 2012TSMD | DL3970(B)F / DL3971(B)F |

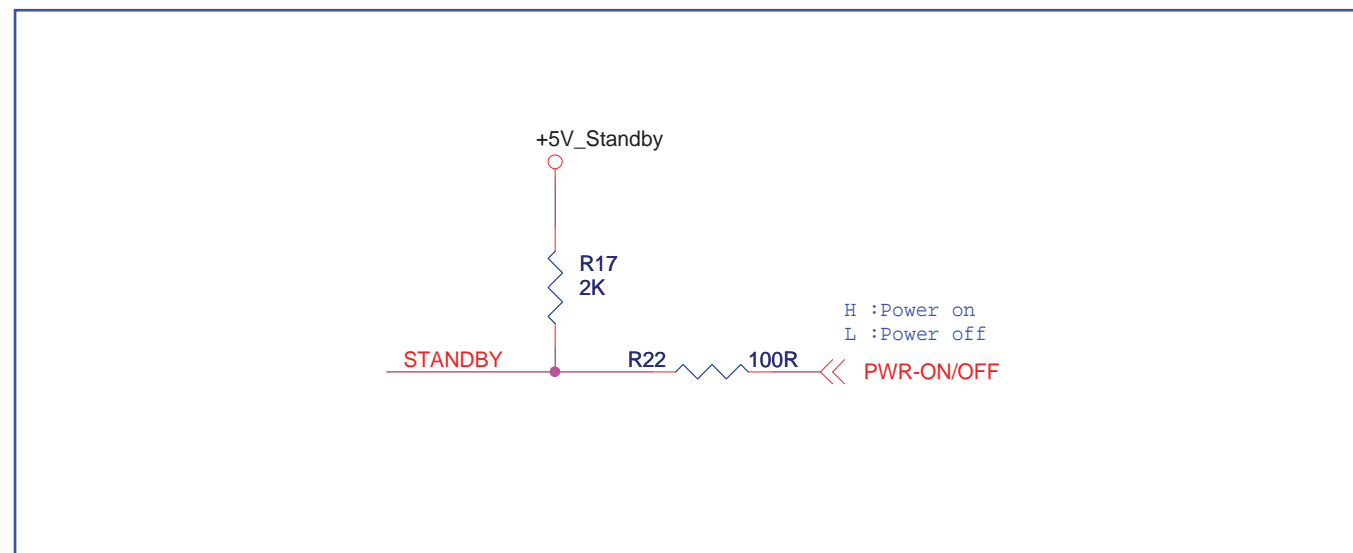
Fitting Jumpers



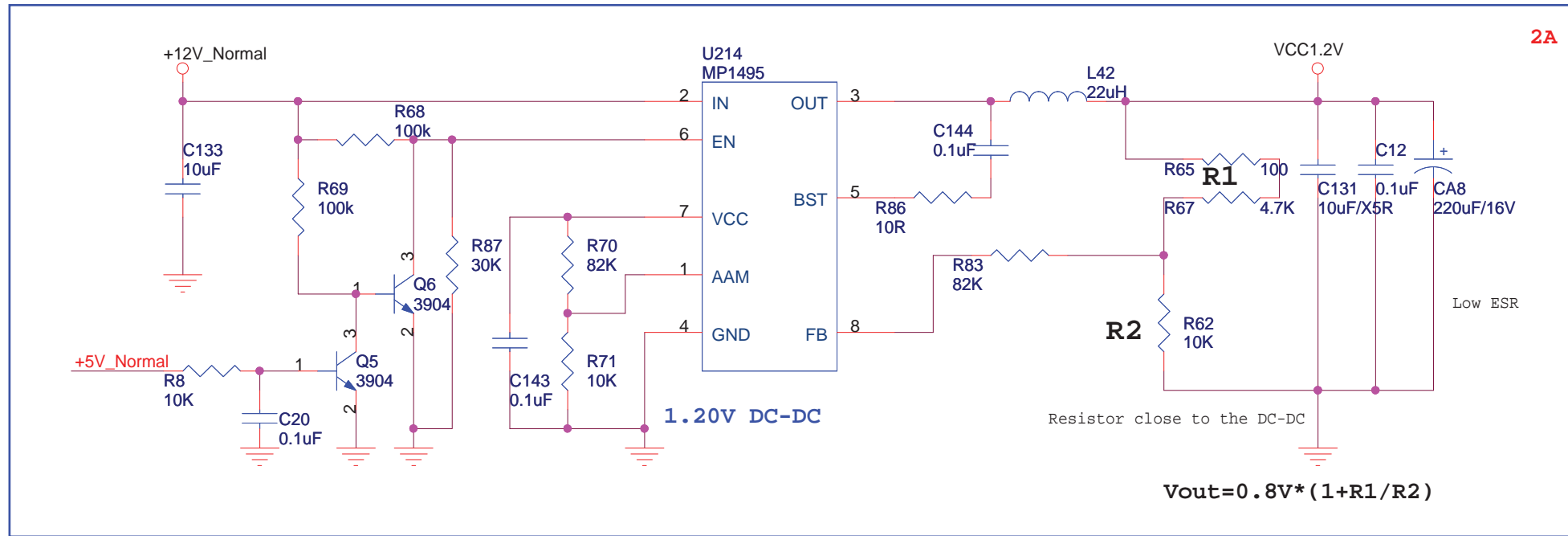
Inverter controler



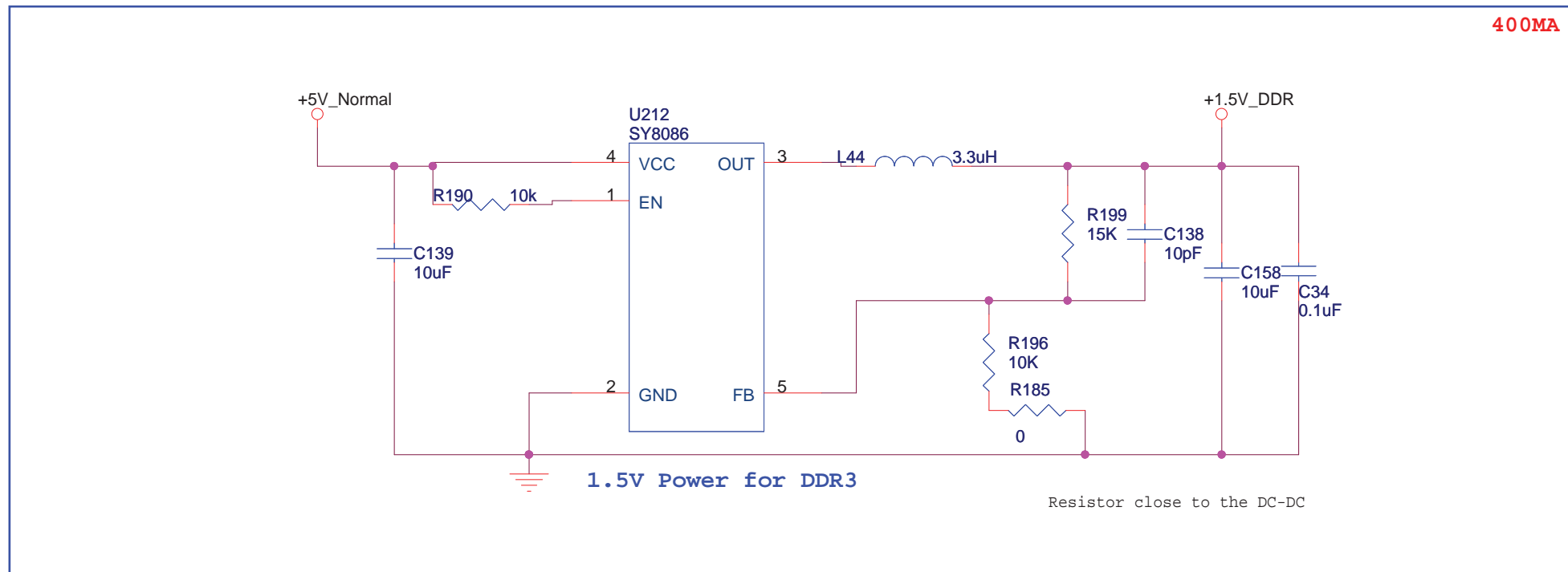
STANDBY CIRCUIT



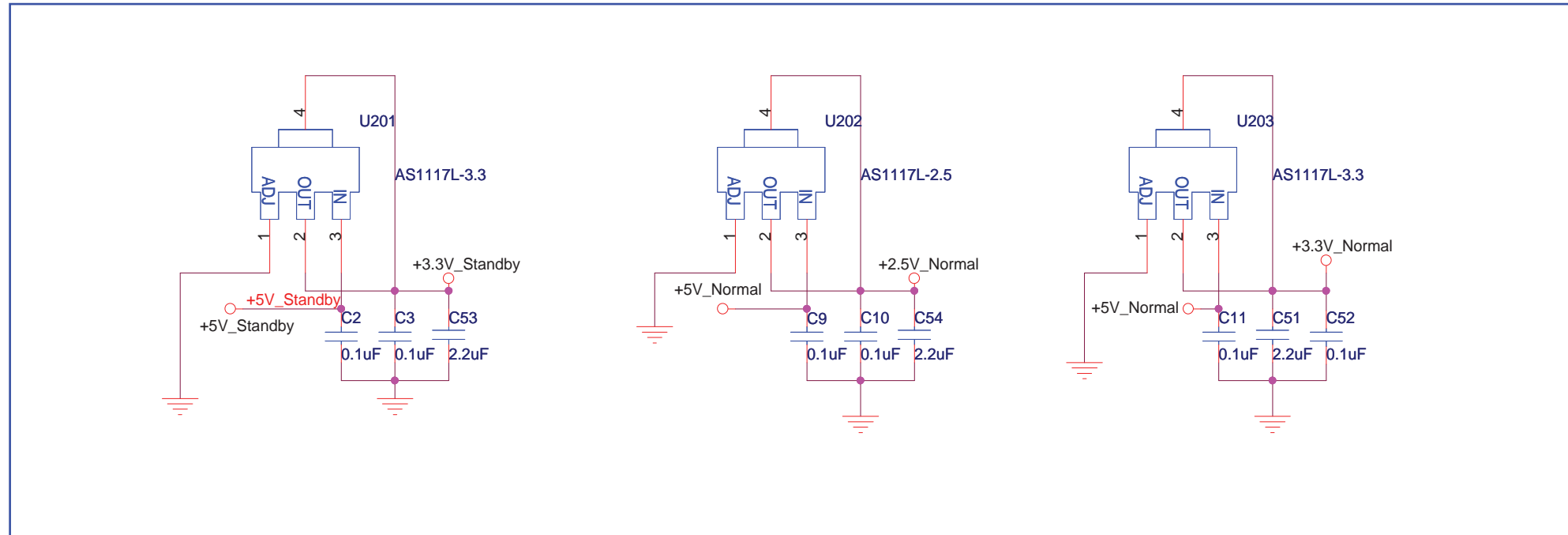
CORE POWER



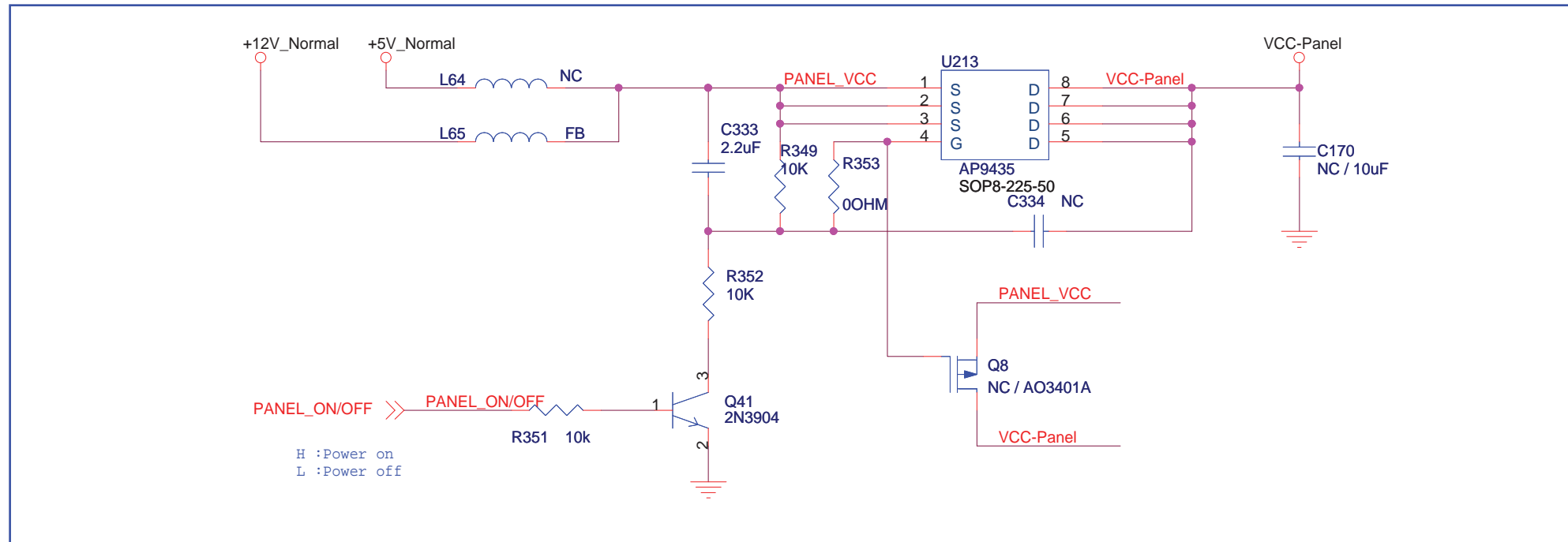
DDR POWER



LDO

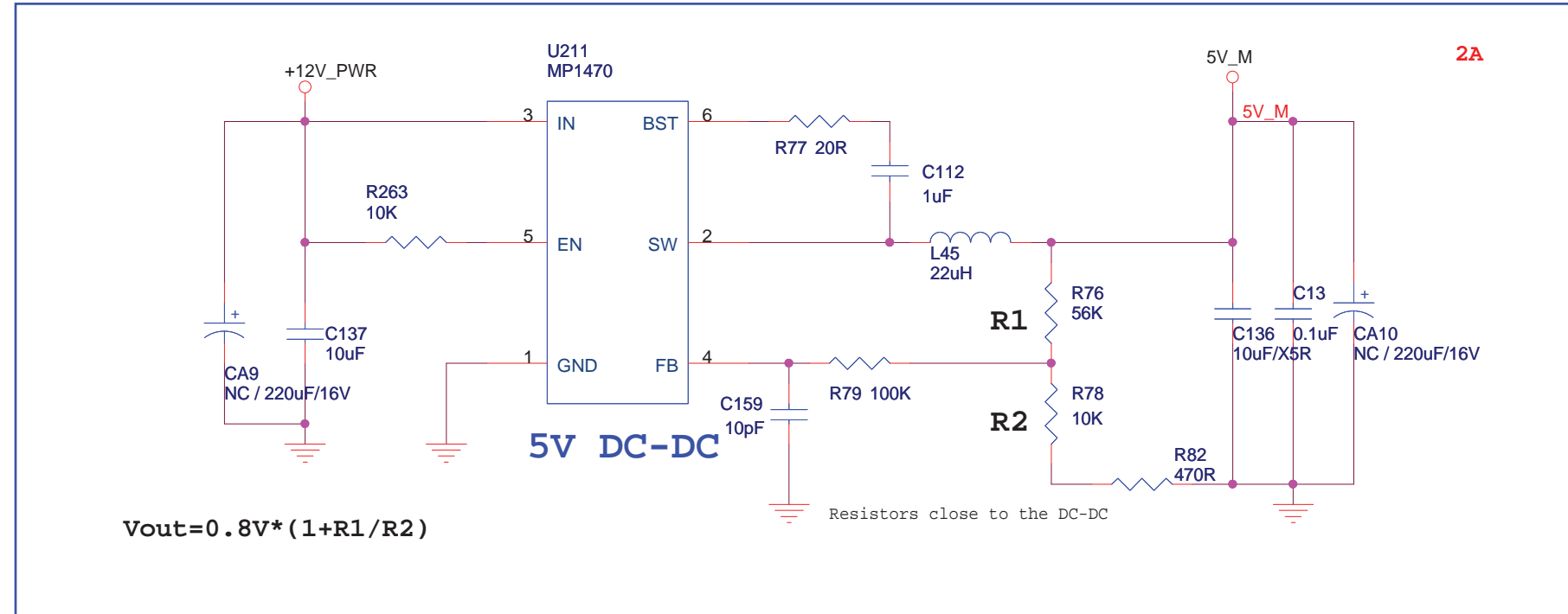


SINGLE CHANNEL P-MOS FOR LVDS POWER SWITCHING

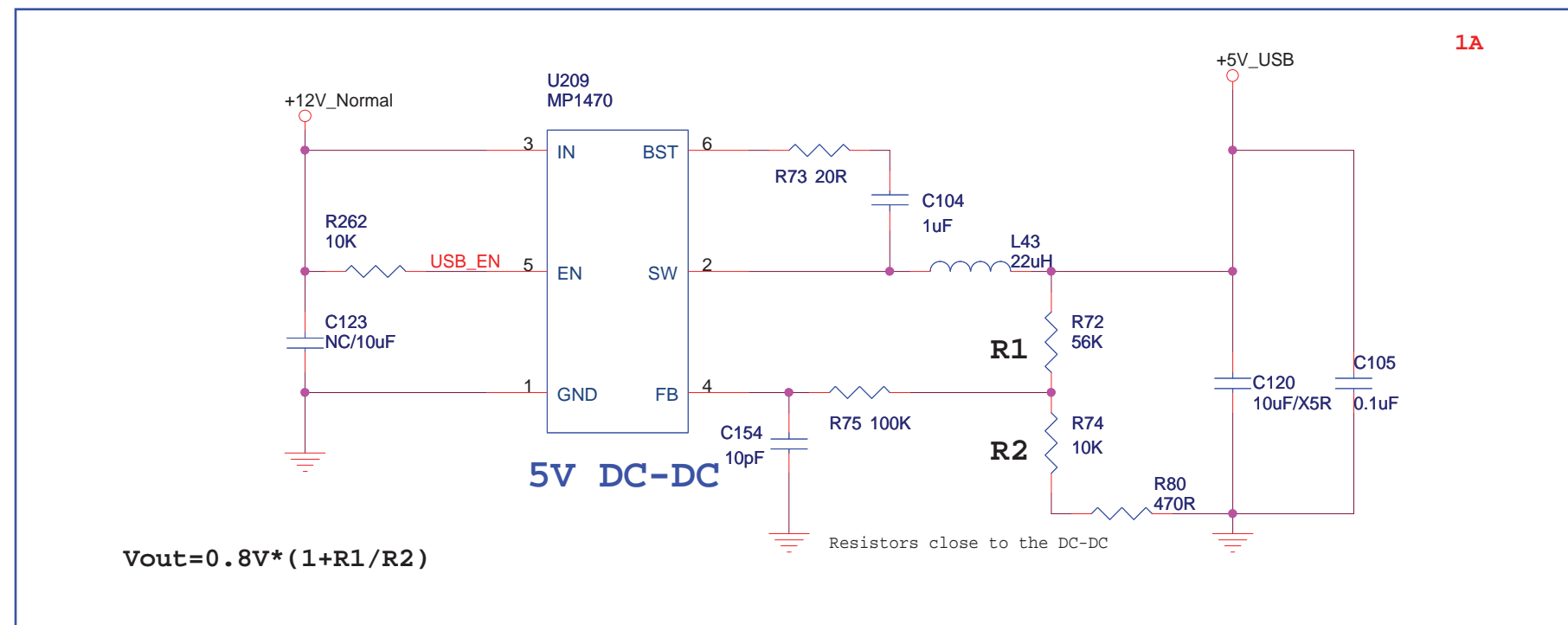




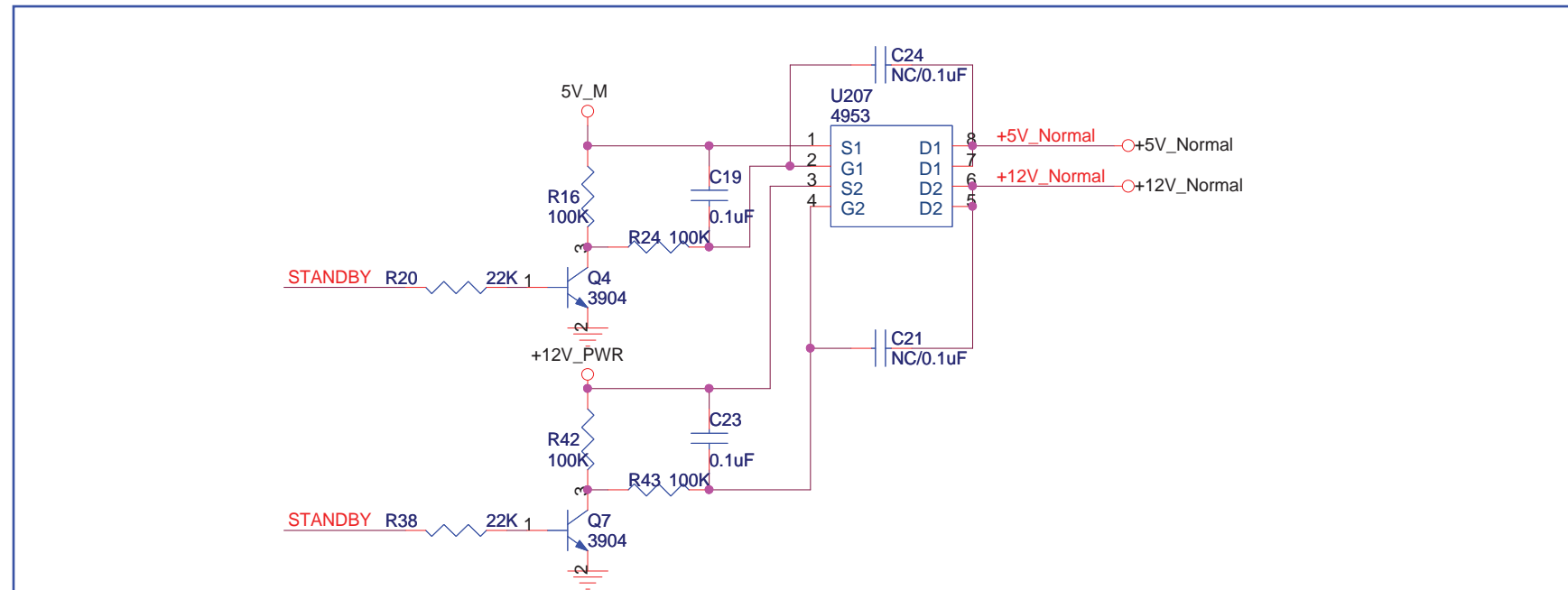
5V MAIN



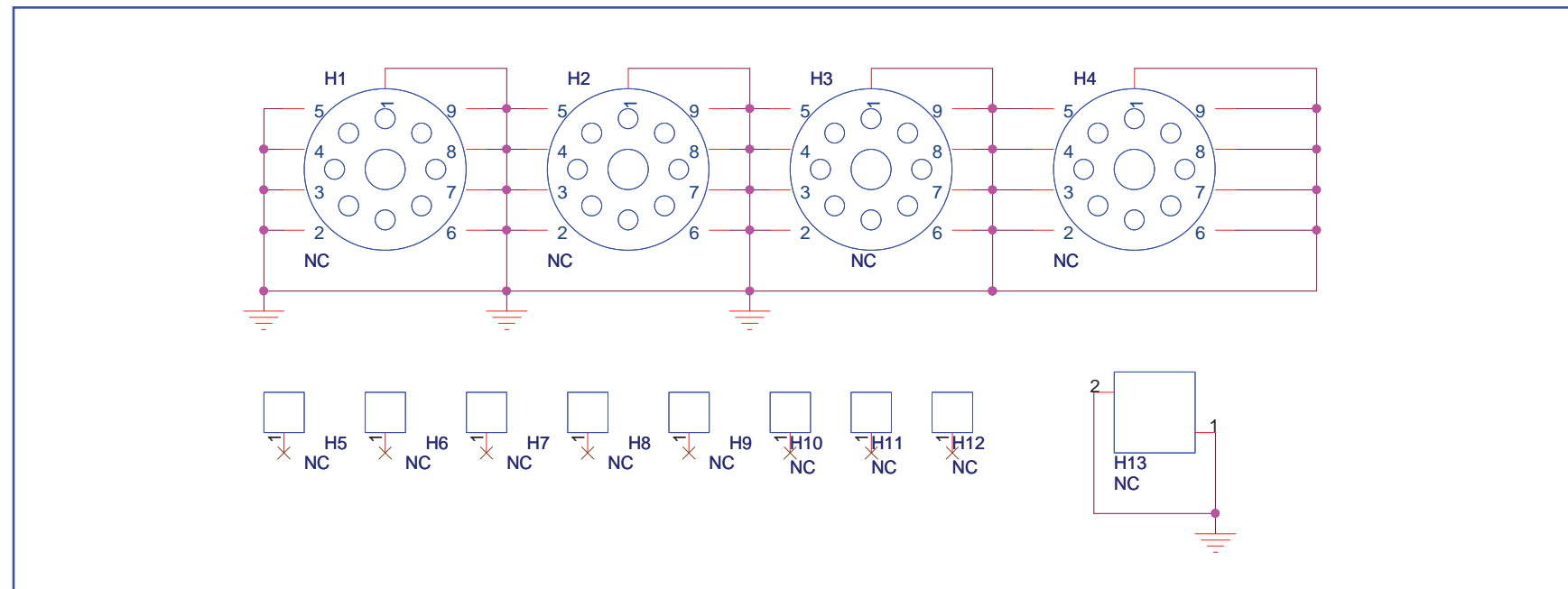
USB POWER



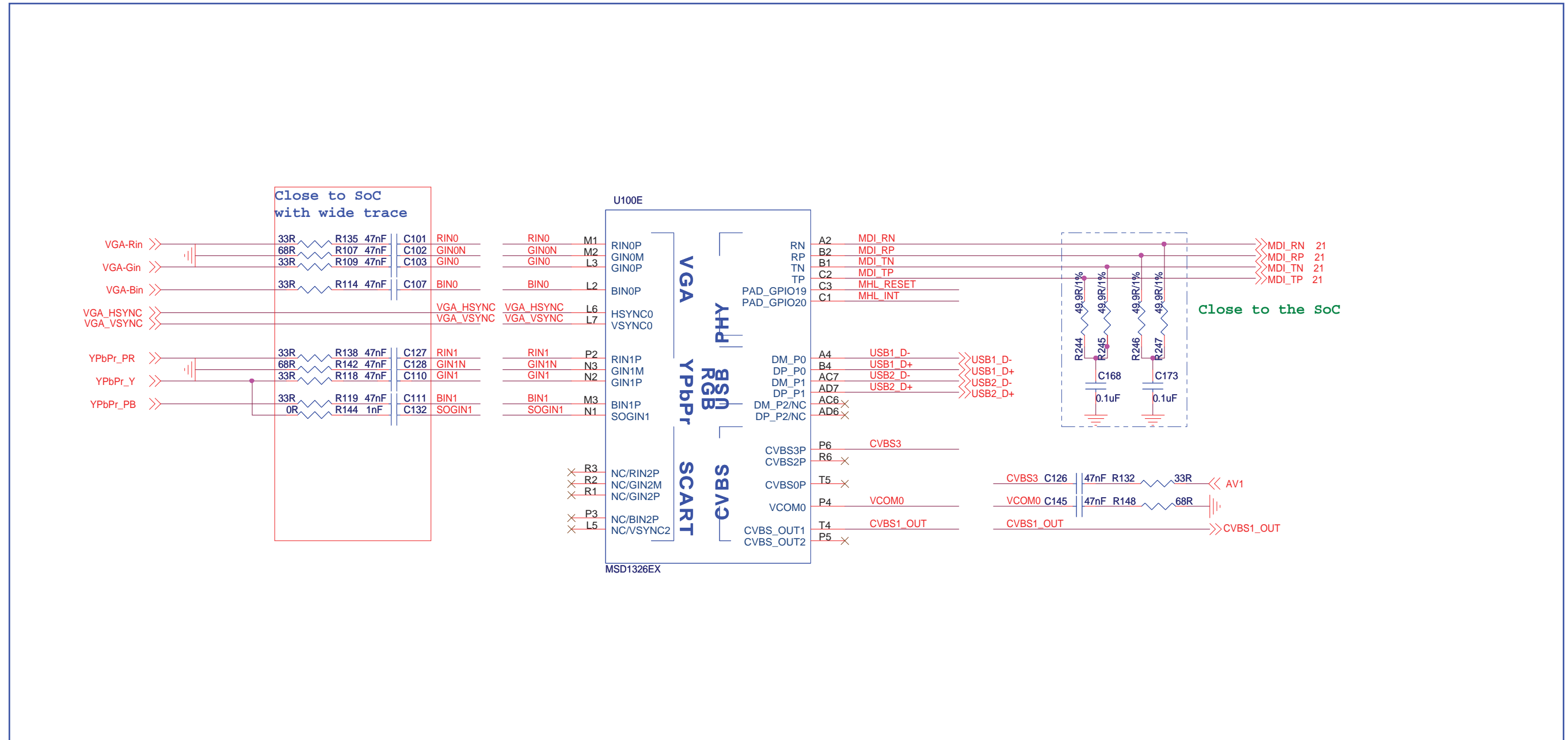
### 2 CHANNEL P-MOS FOR POWER SWITCHING



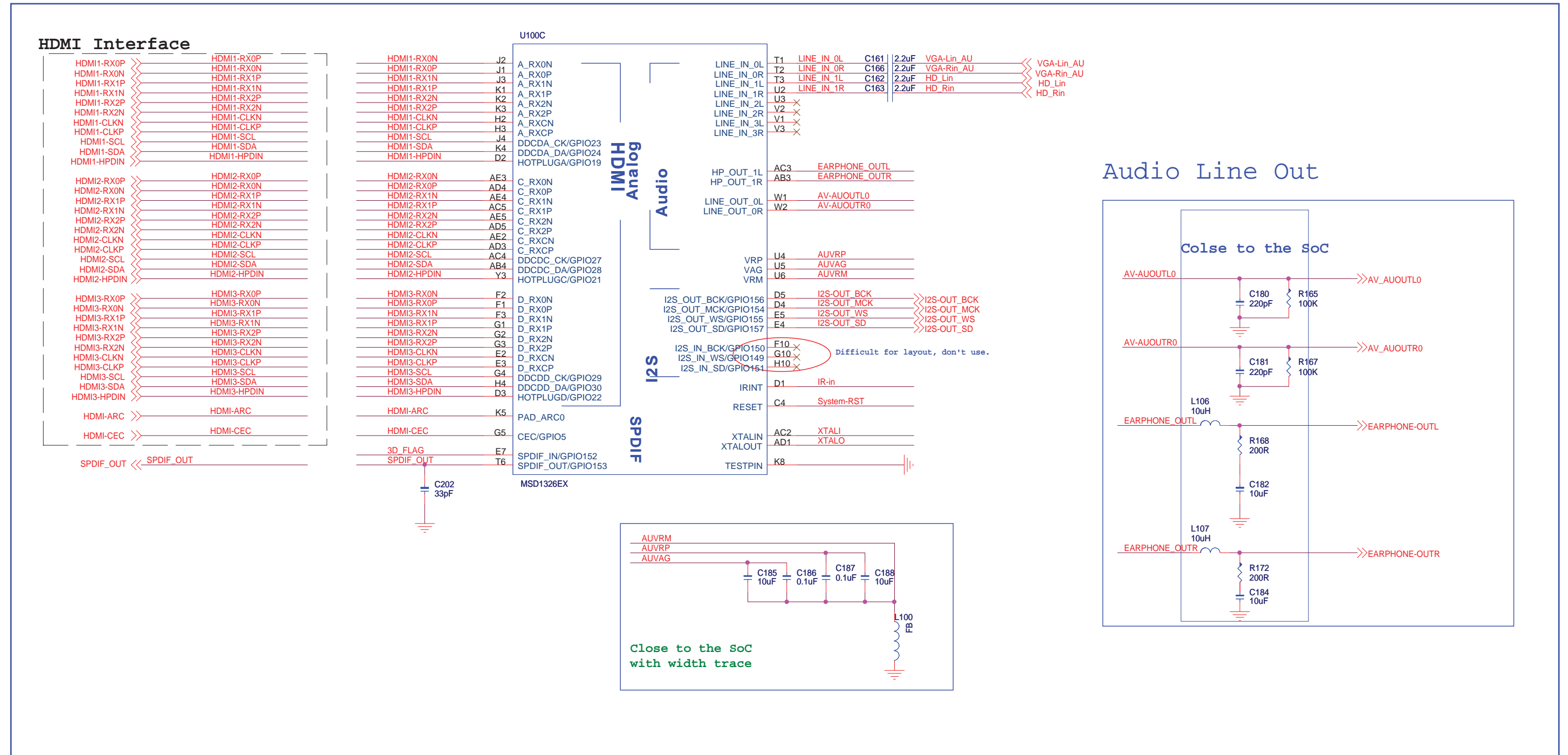
### LOCATION HOLE & MARK



### video



### HDMI & Audio

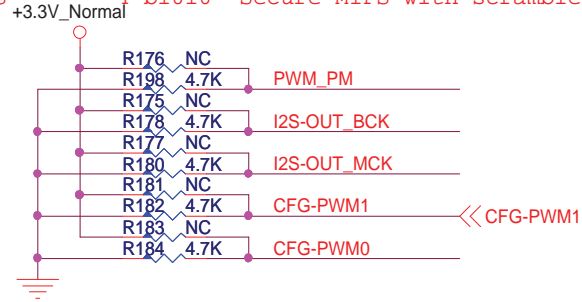


### Mode Selection

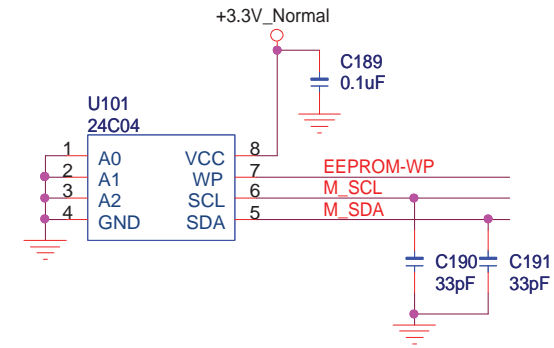
```
// CHIP Config {I2S_OUT_BCK, I2S_OUT_MCK, PAD_PWM1, PAD_PWM0}
B51_NO_EJ 4'b0000 Boot from 8051 with SPI flash
SB51_WOS 4'b0001 Secure B51 without scramble
SB51_WS 4'b0010 Secure B51 with scramble
```

```
MIPS_SPI_NO_EJ 4'b0100 Boot from MIPS with SPI flash
MIPS_SPI_EJ_1 4'b0101 Boot from MIPS with SPI flash
MIPS_SPI_EJ_2 4'b0110 Boot from MIPS with SPI flash
```

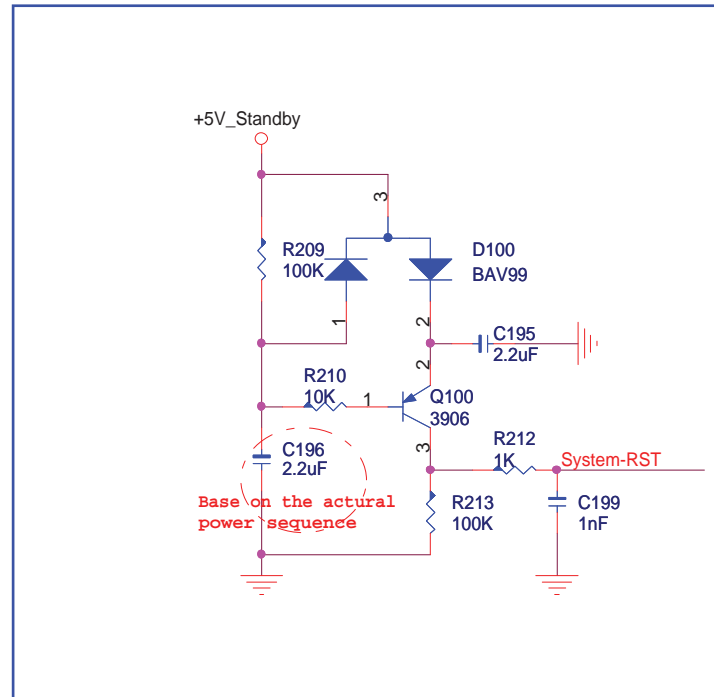
```
MIPS_WOS 4'b1001 Secure MIPS without scramble
MIPS_WS 4'b1010 Secure MIPS with scramble
```



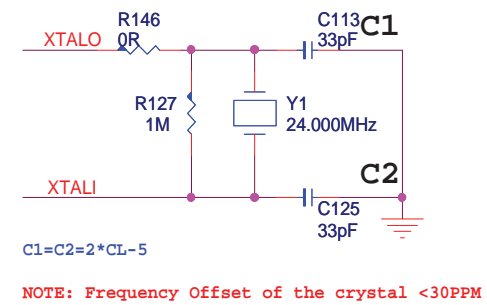
### EEPROM



### RESET

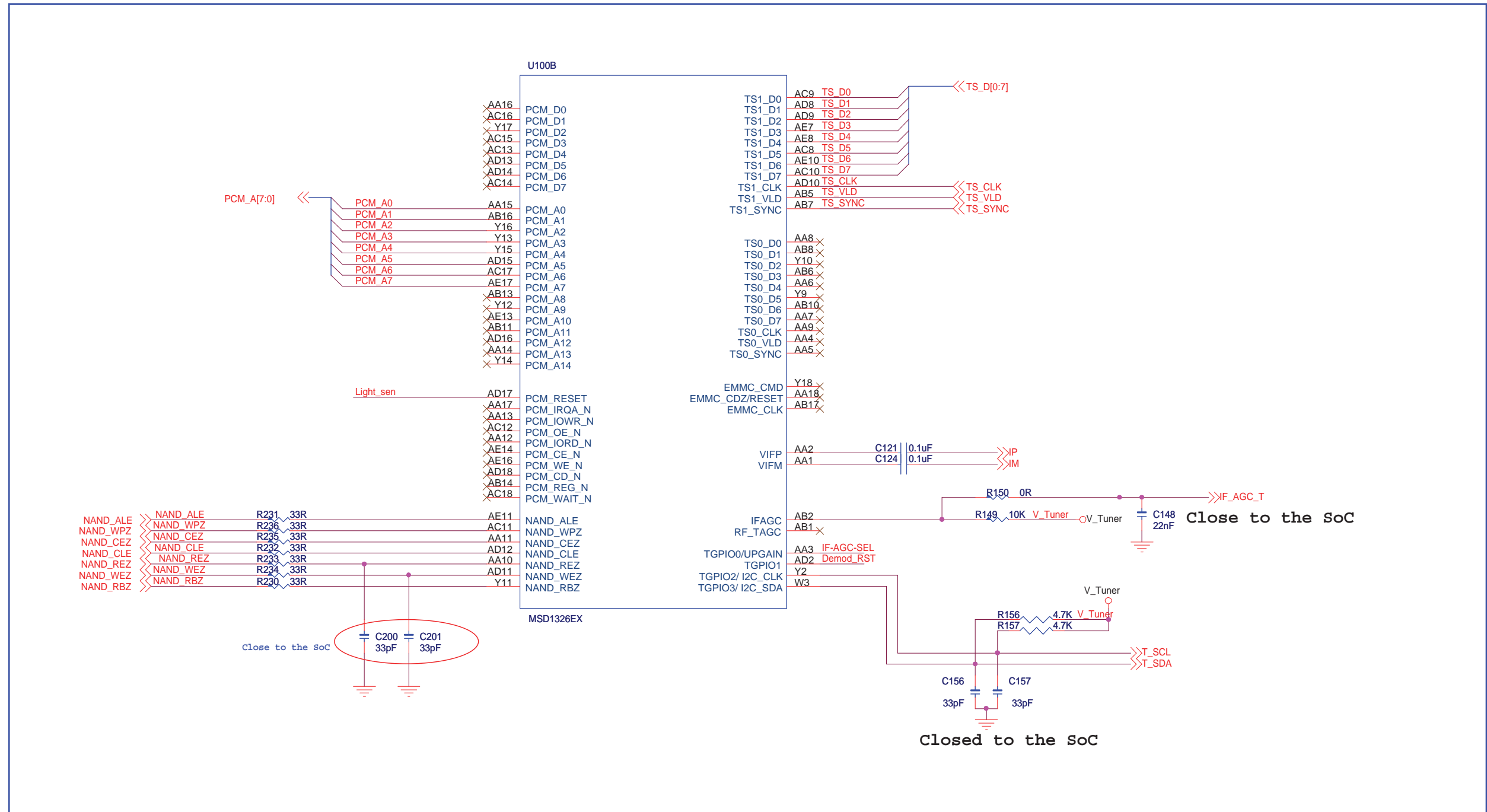


### Crystal

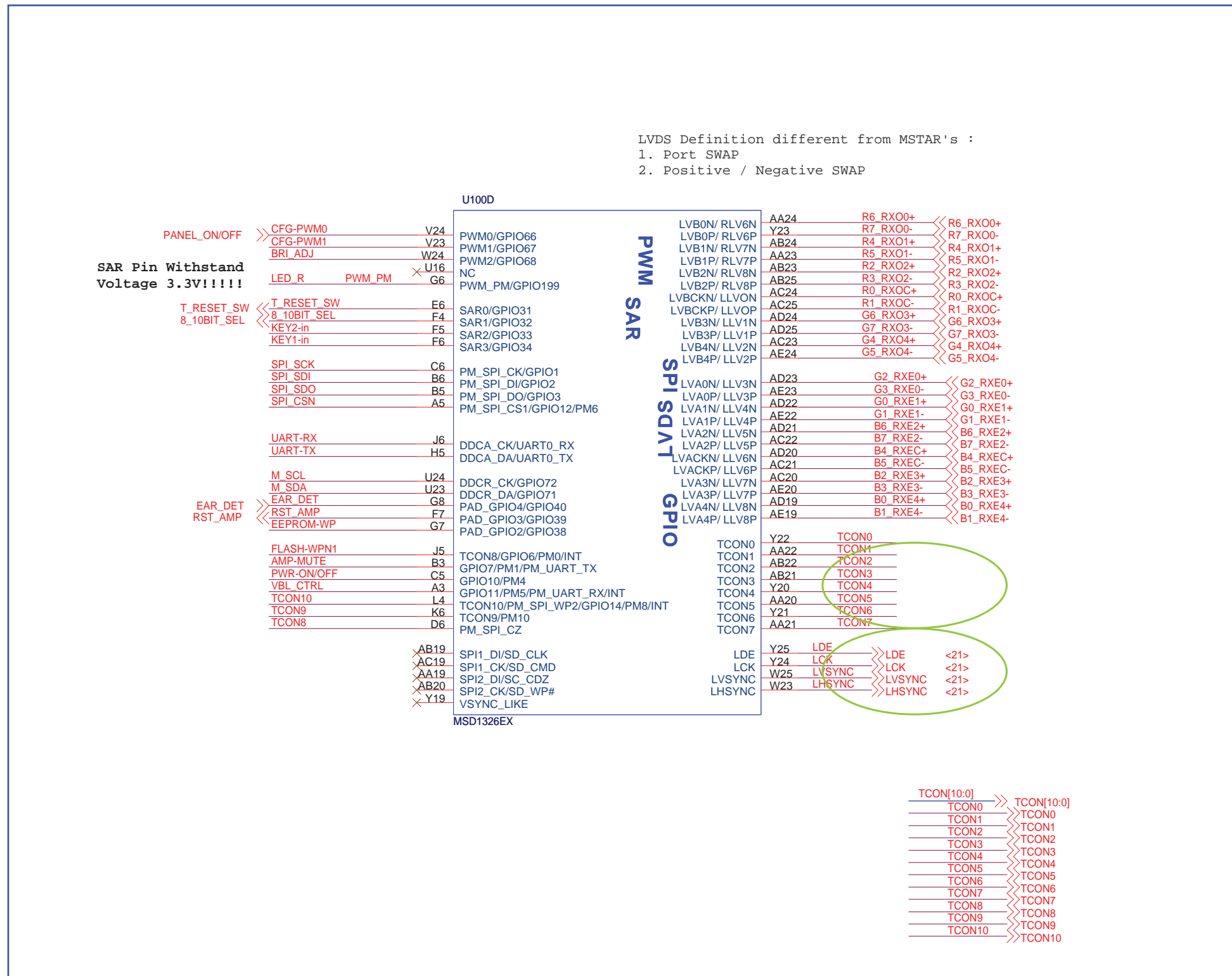




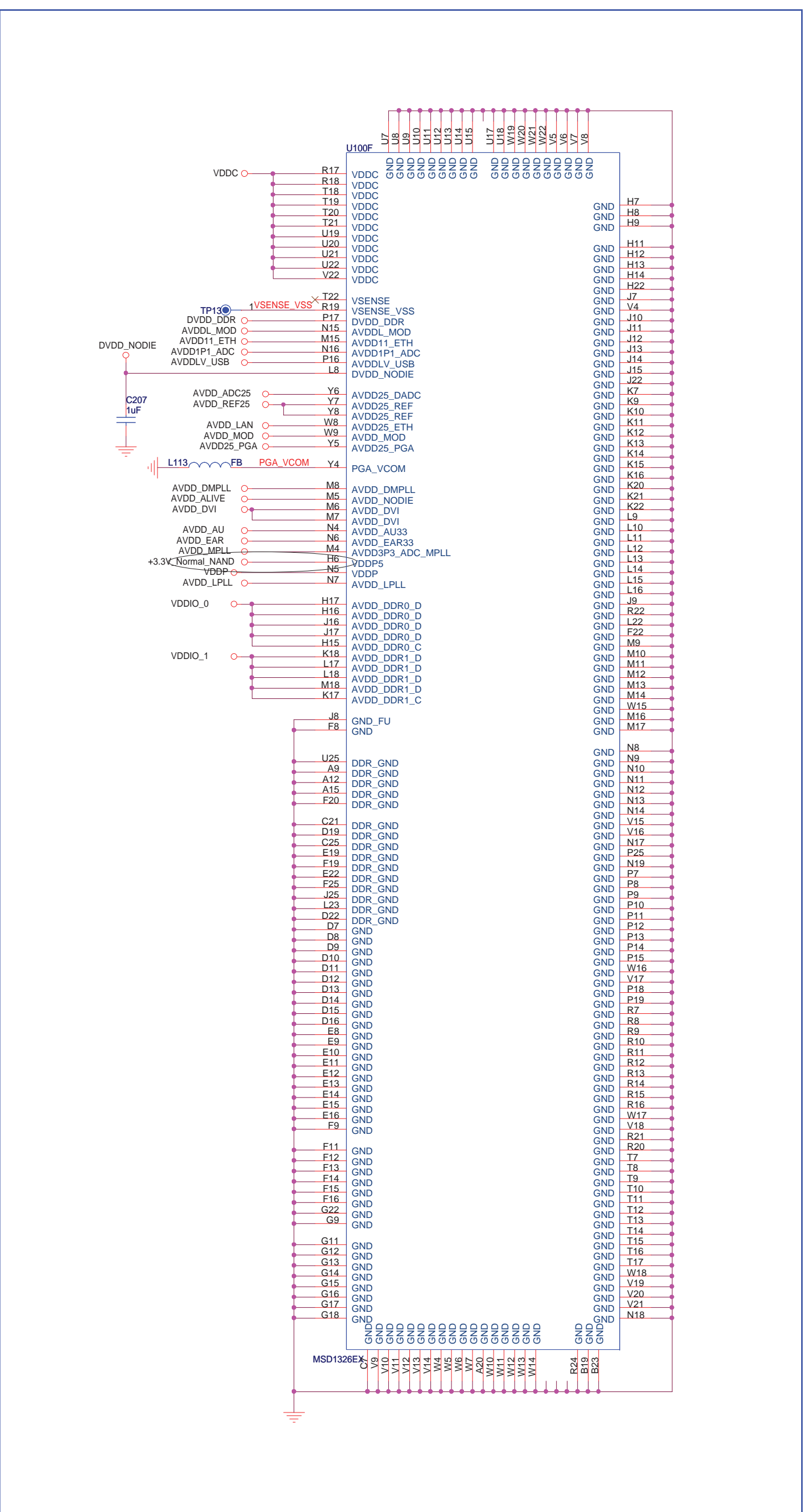
NAND & TS & Front End



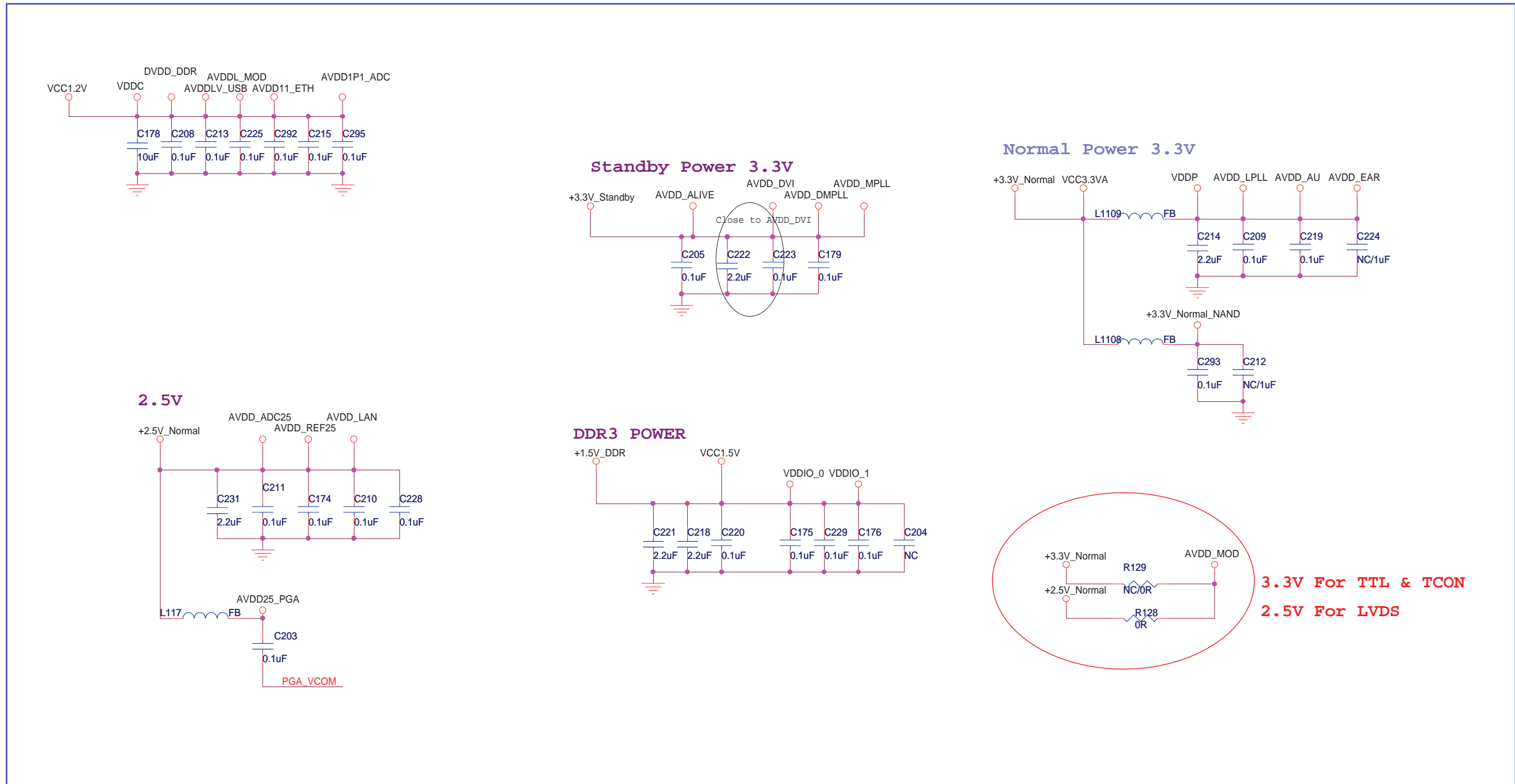
GPIO & LVDS



Power interface

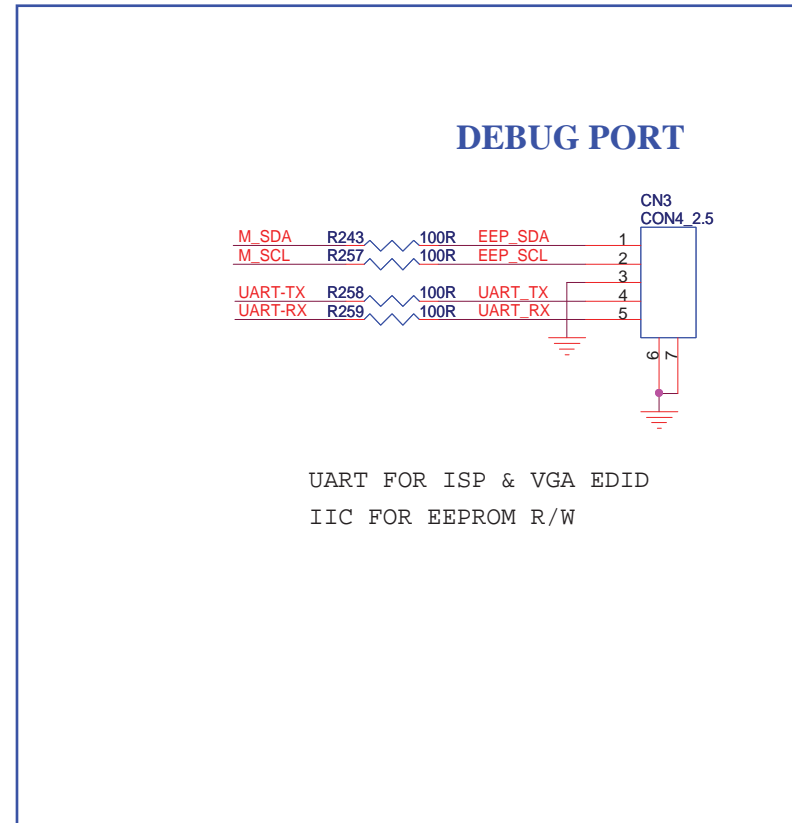


Power interface

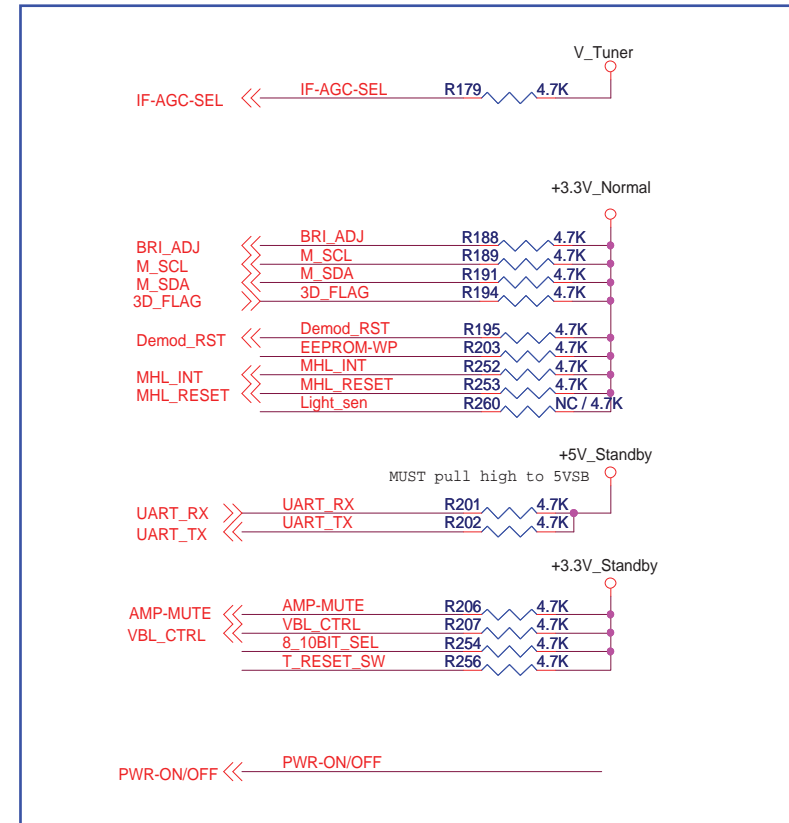


3.3V For TTL & TCON  
2.5V For LVDS

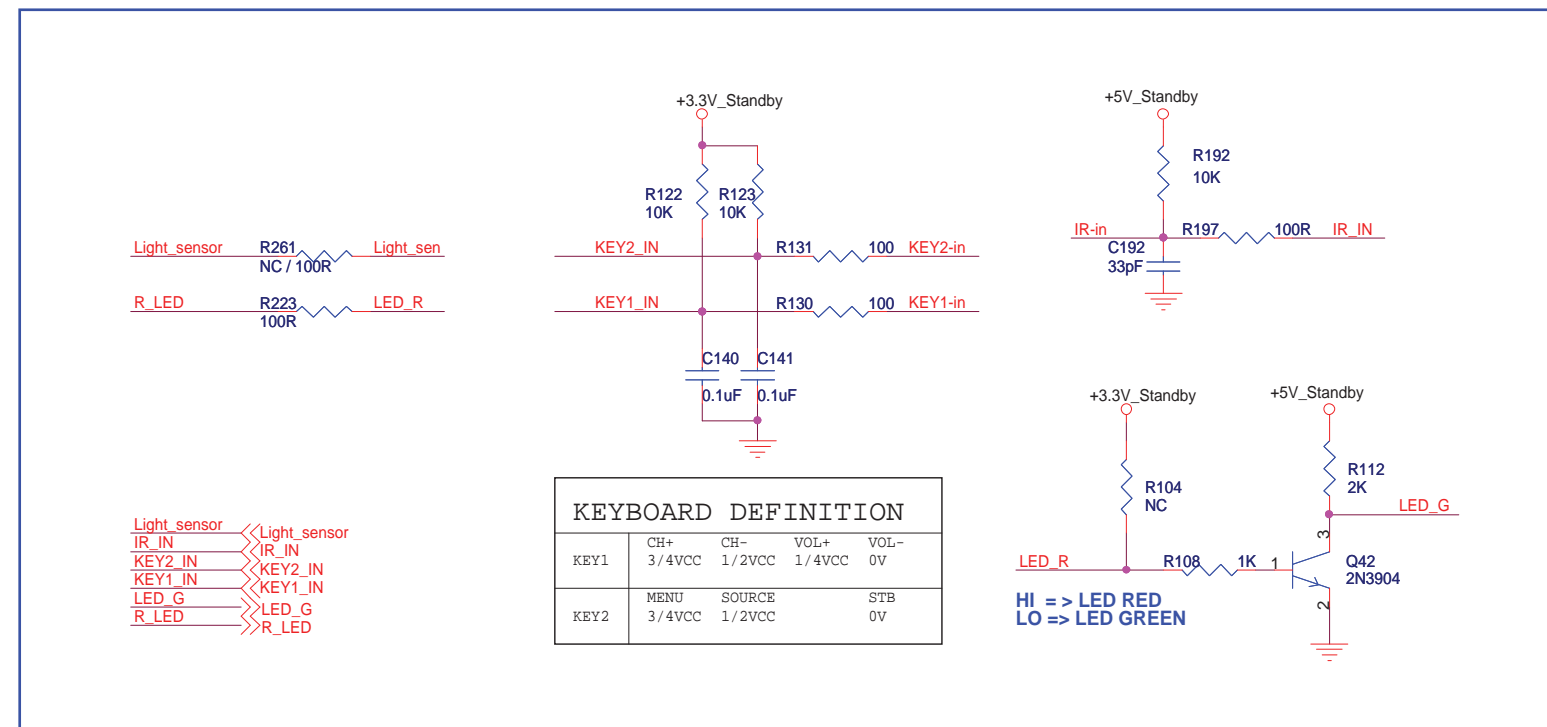
### DEBUG



### GPIO LEVEL



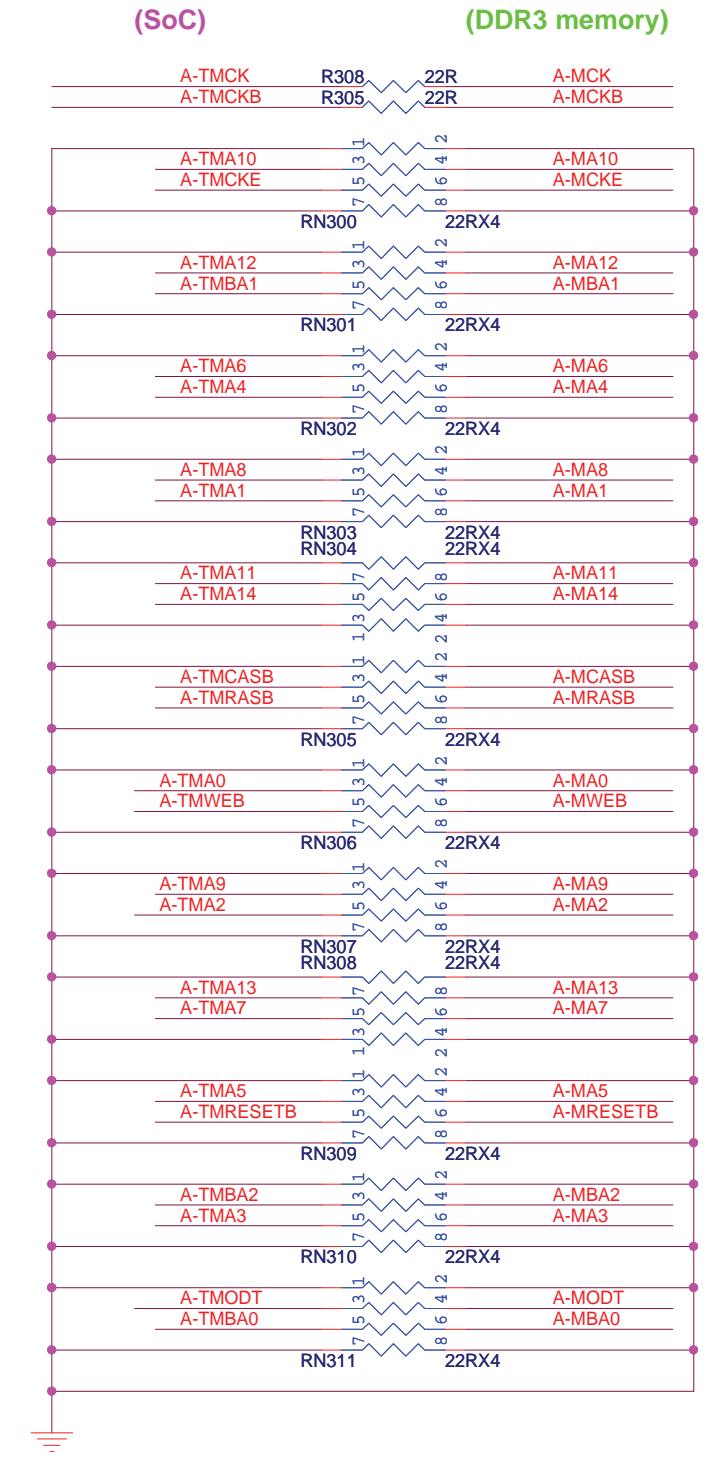
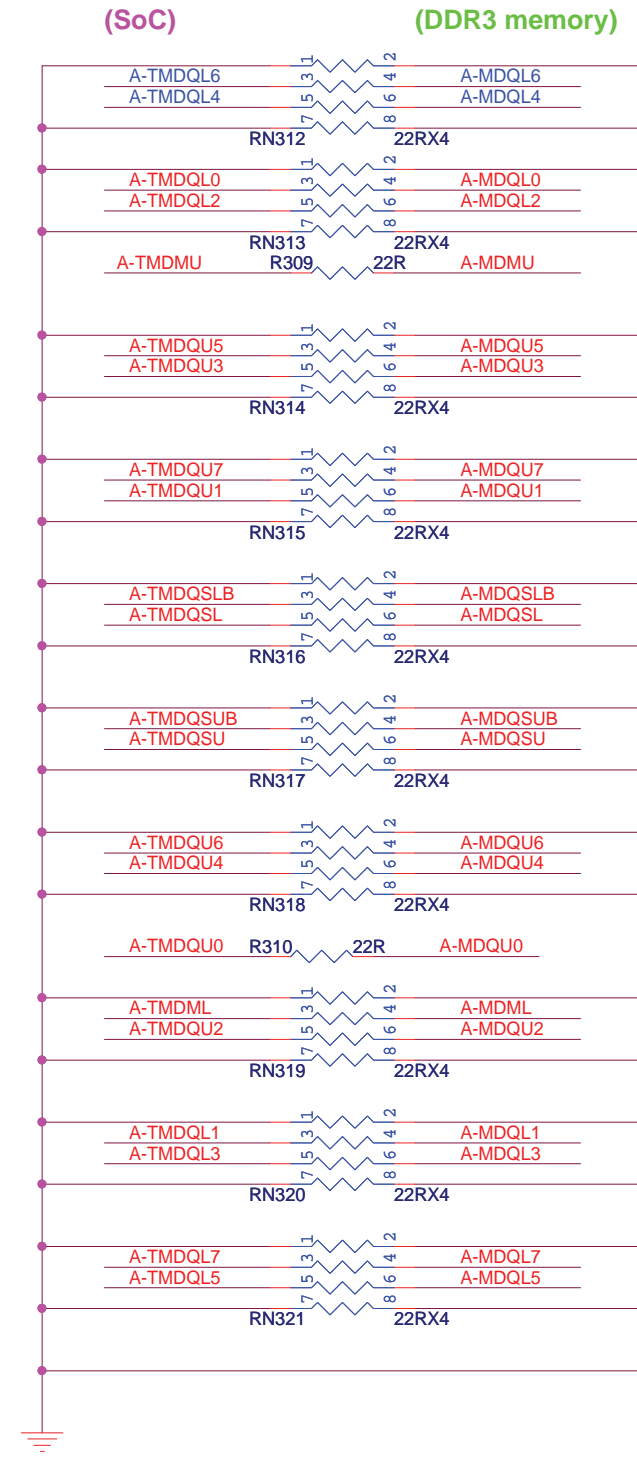
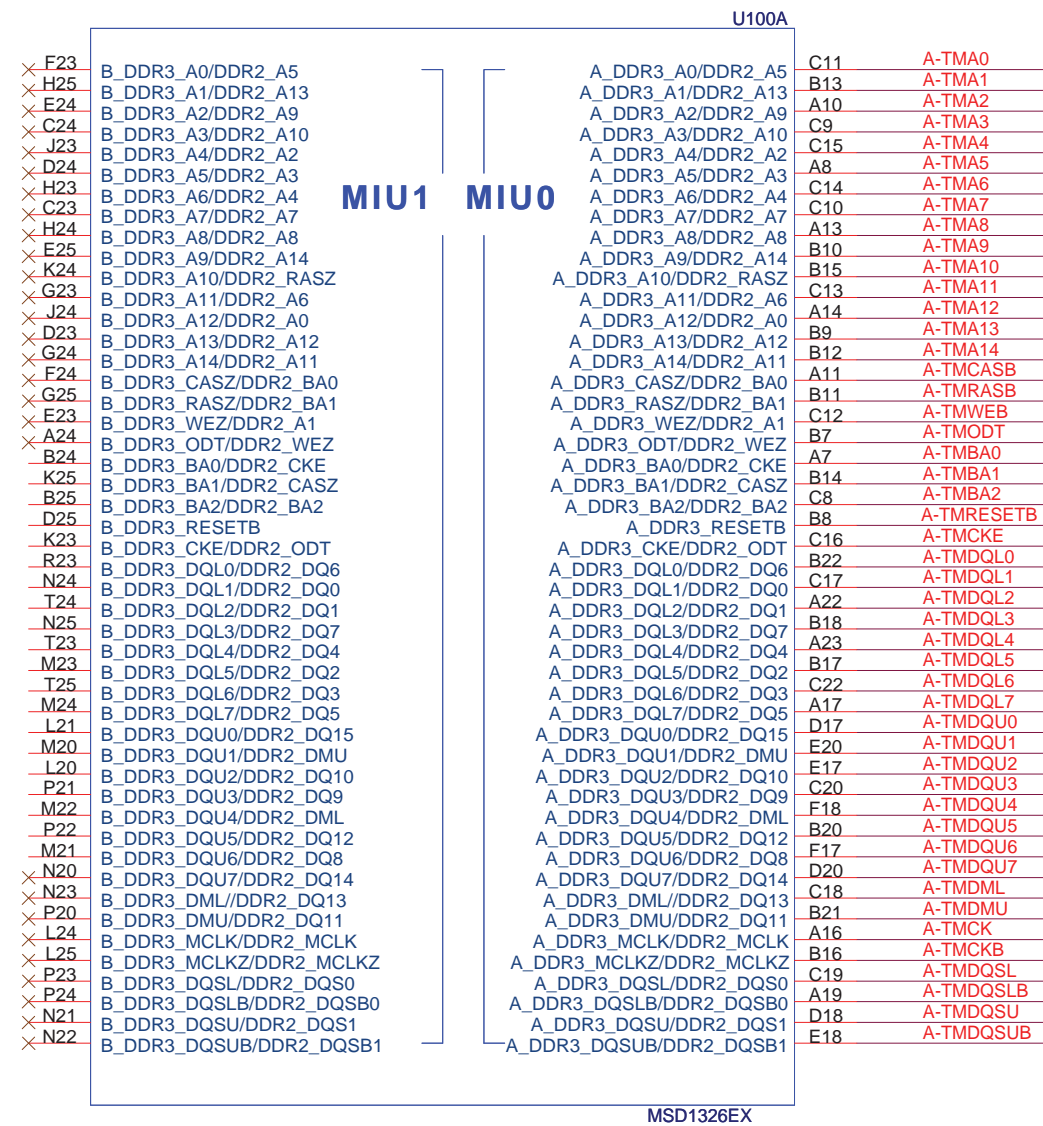
### IR & KEY





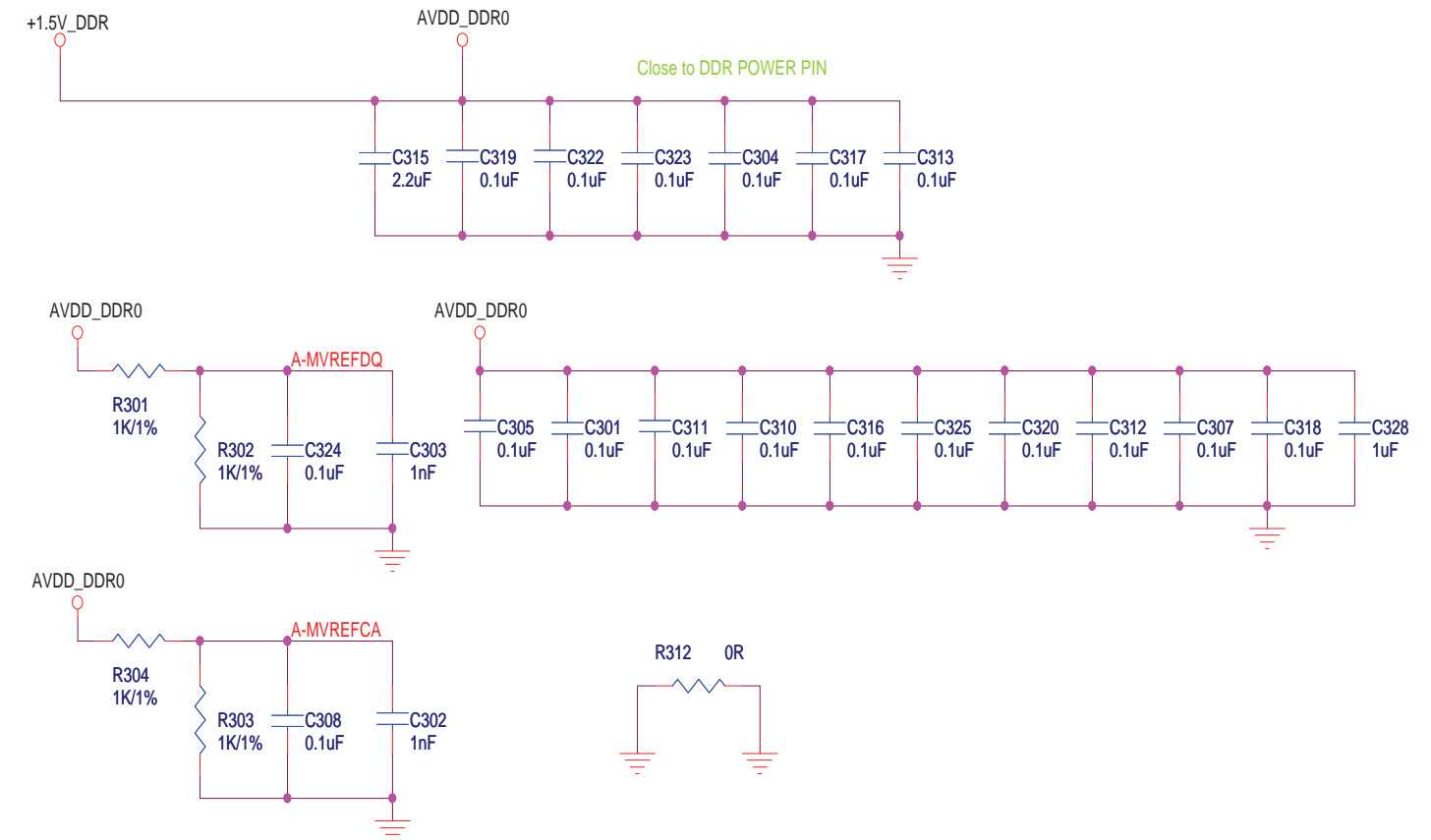
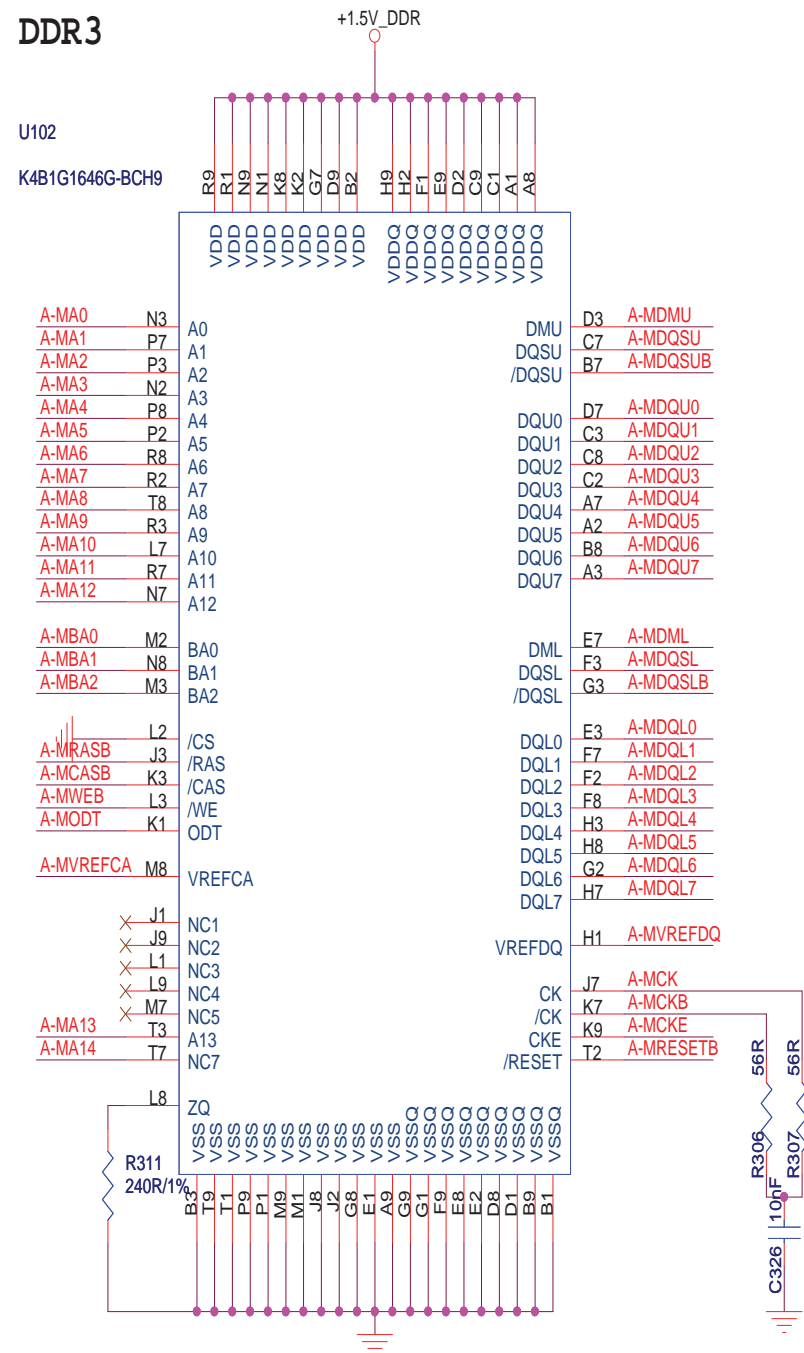
# ESQUEMAS ELÉTRICOS

## PCI principal (todos modelos)

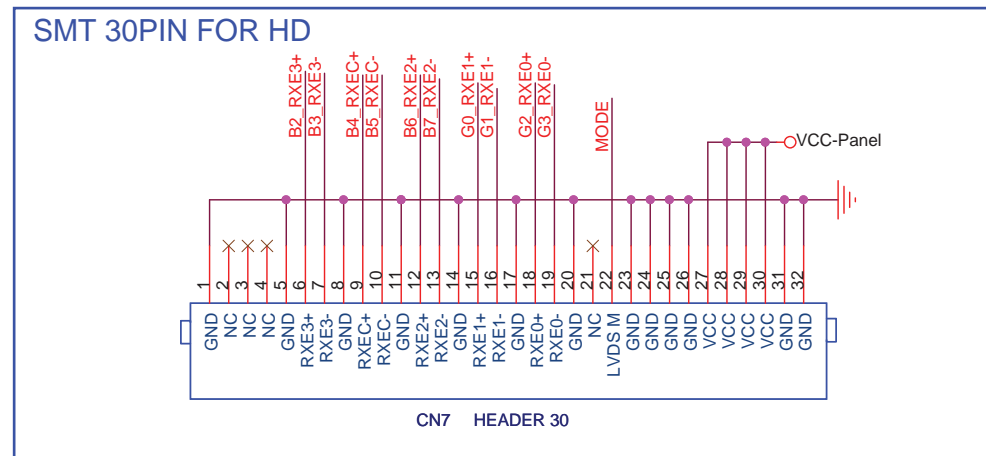
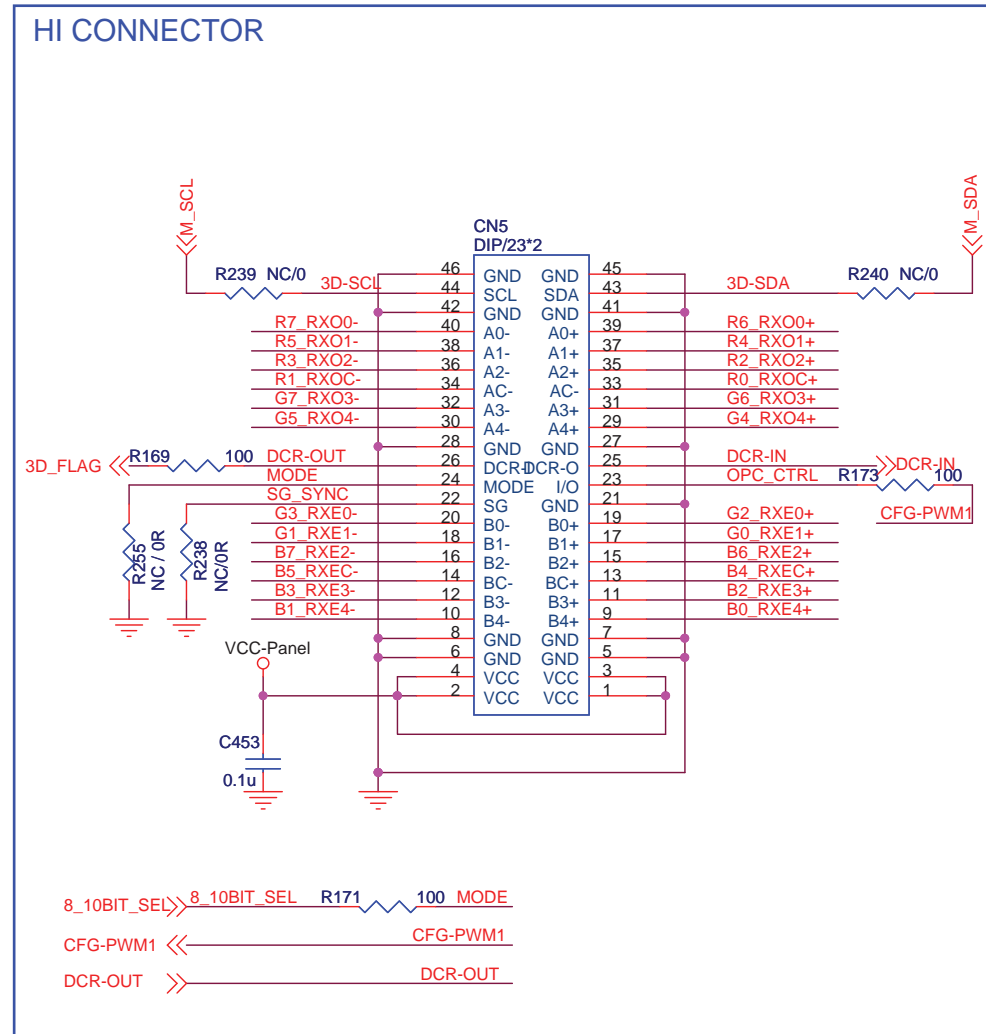


# ESQUEMAS ELÉTRICOS

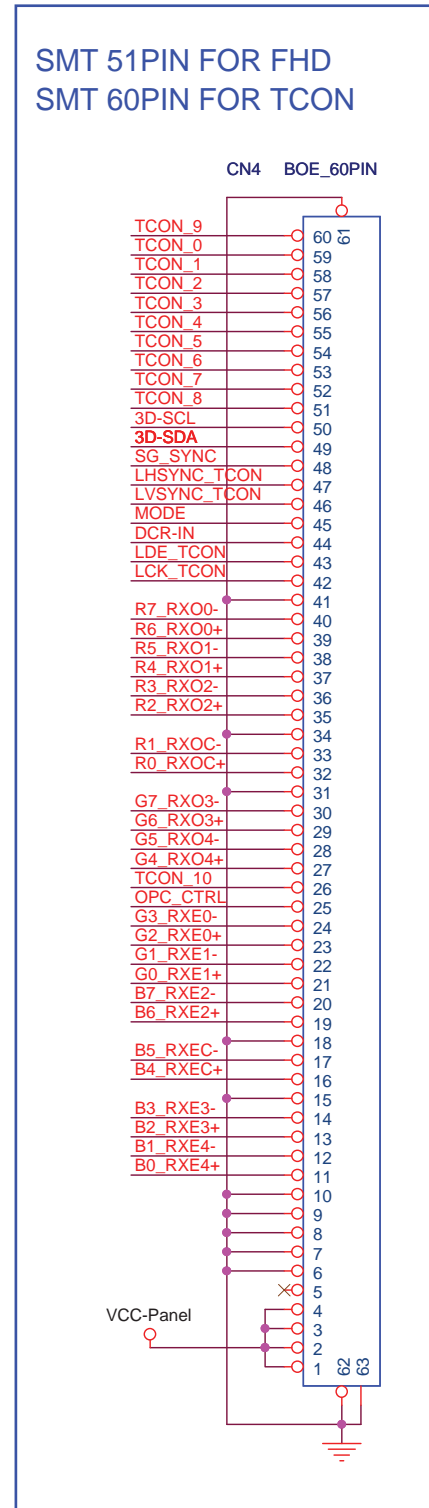
## PCI principal (todos modelos)



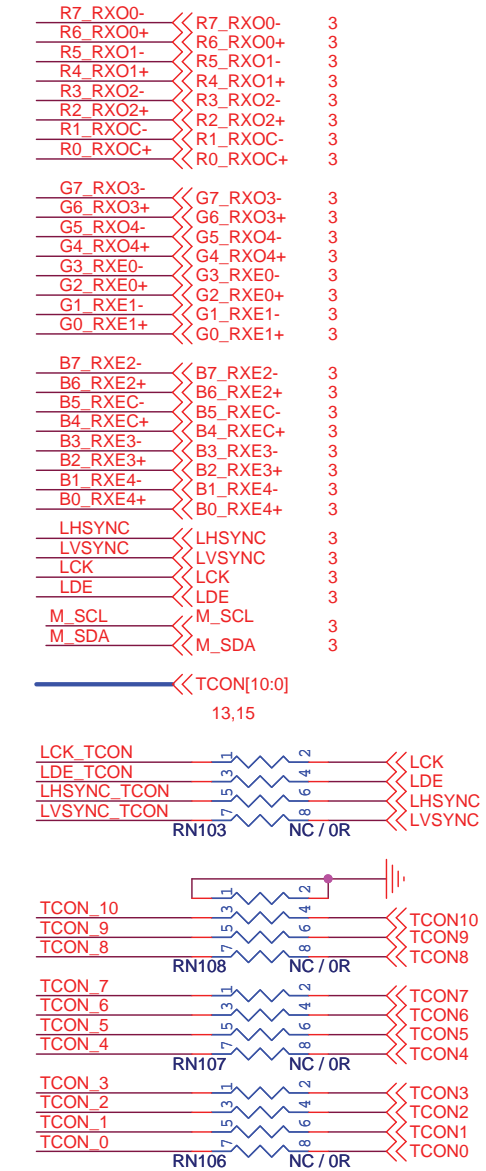
### LVDS CONNECTOR ( 1 DIP + 2 SMT OPTIONAL )



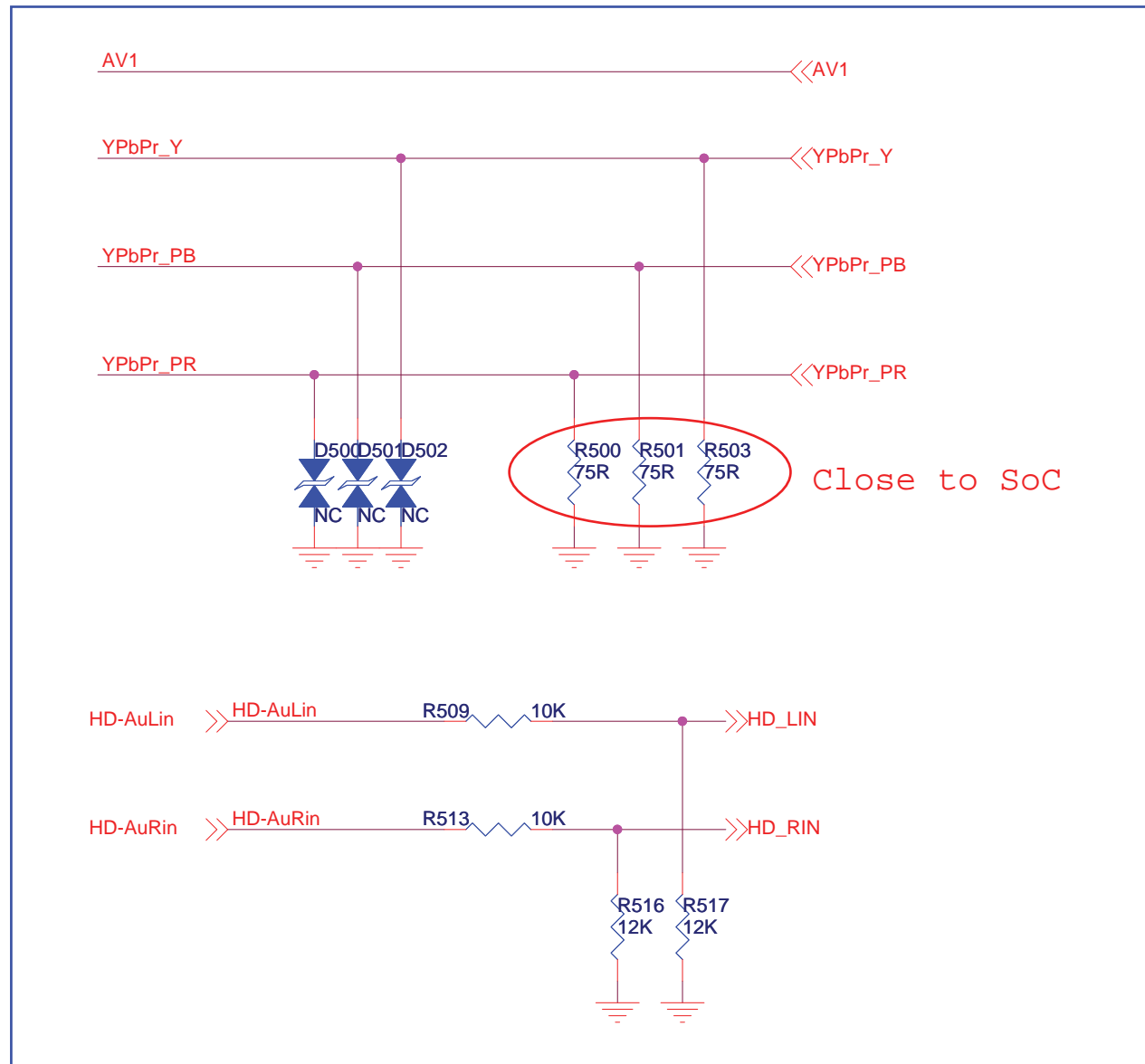
### TCON TERMINAL RESERVED



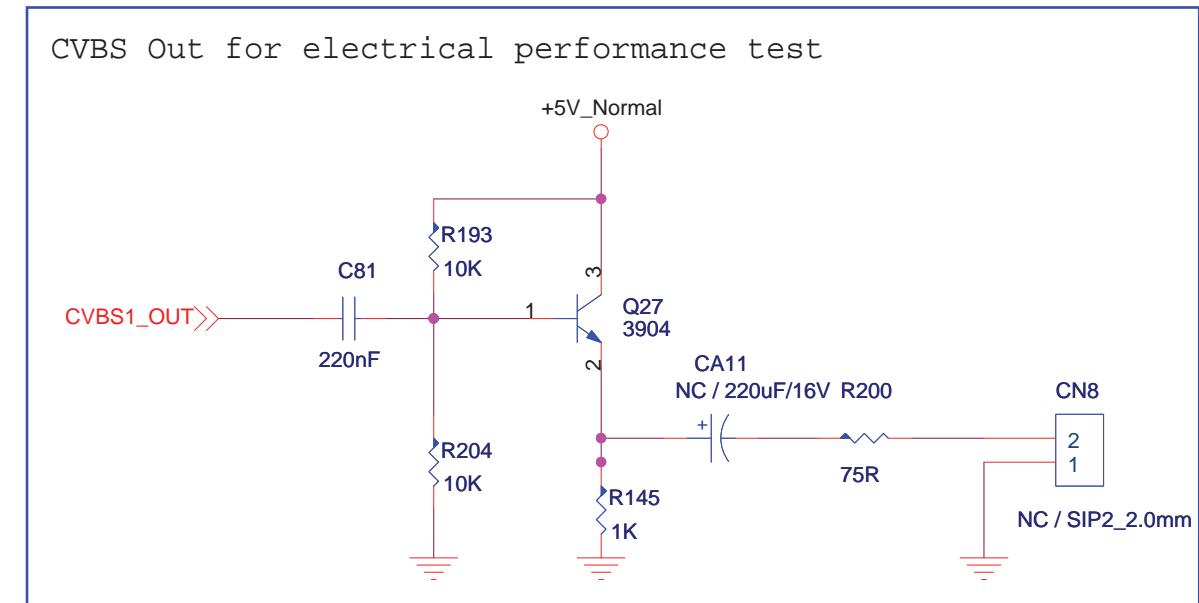
### NET TO OTHER PAGES



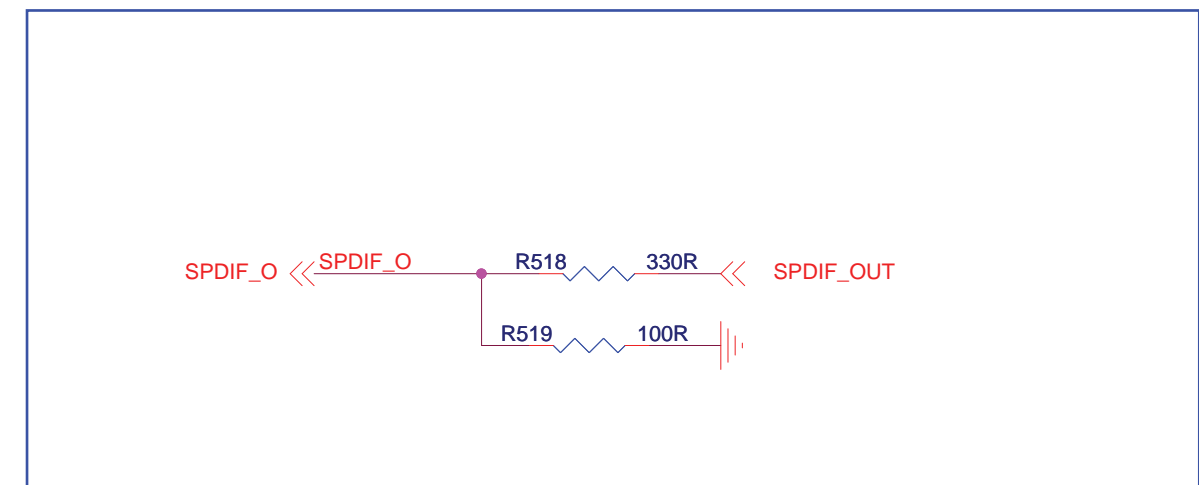
### YPBPR & CVBS



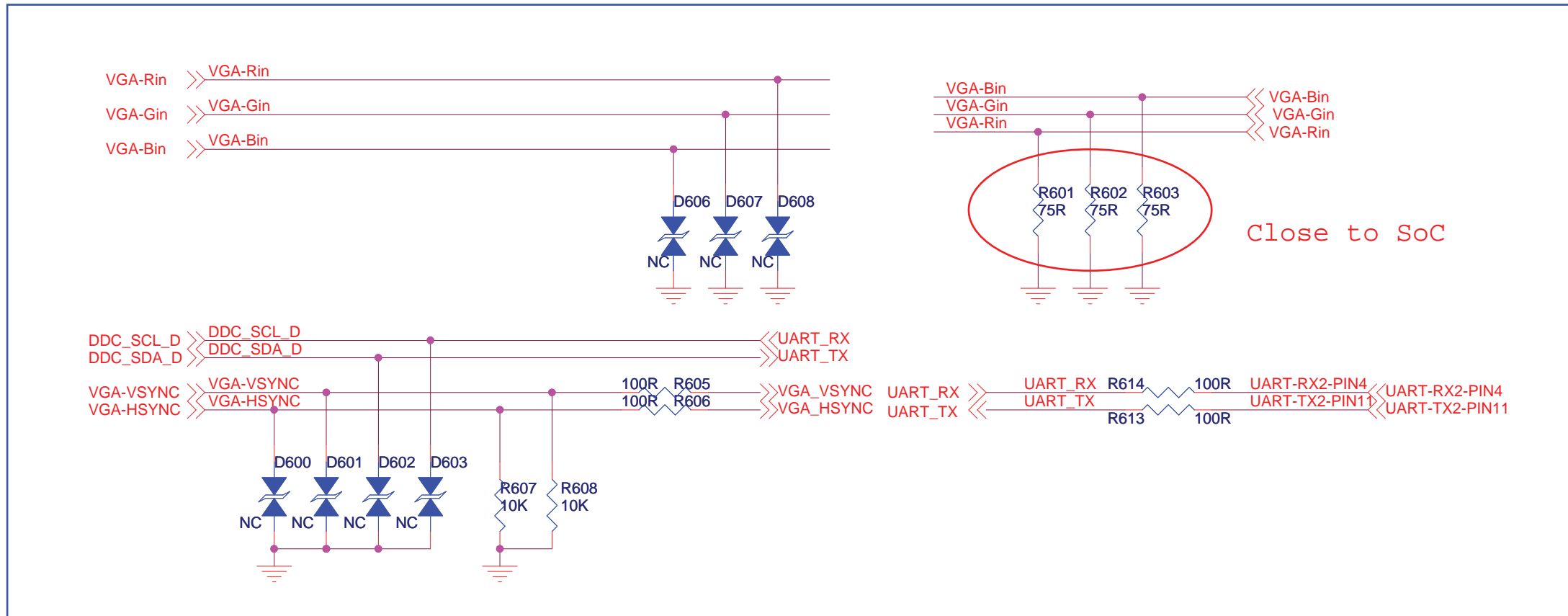
### VIDEO OUT OP



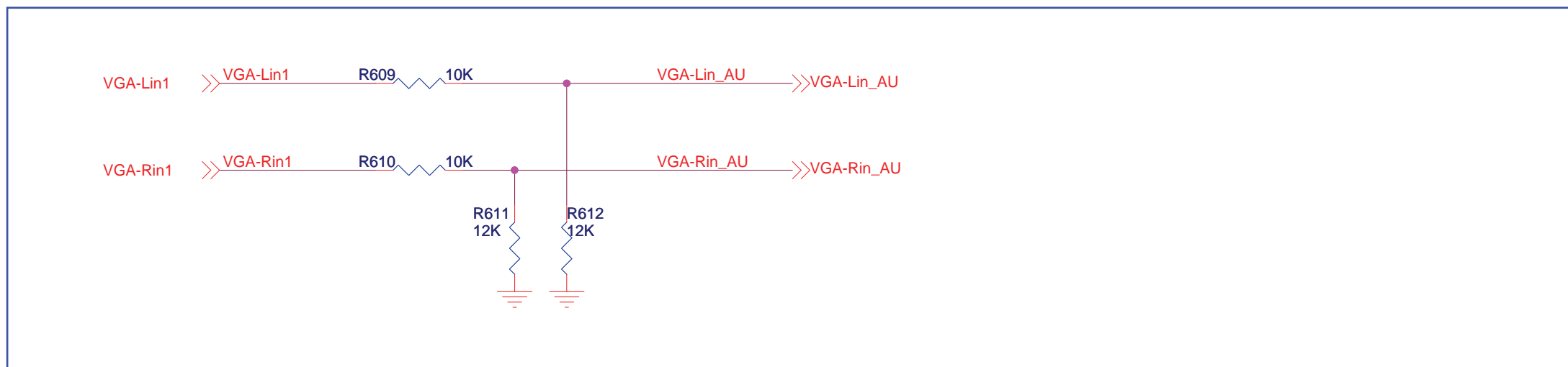
### DIGITAL AUDIO OUT



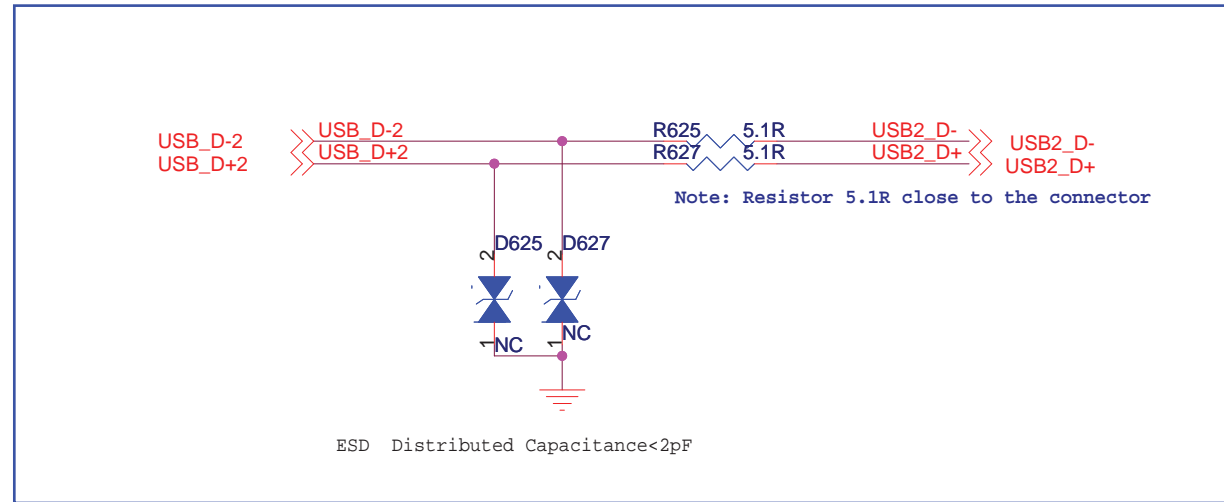
### Video



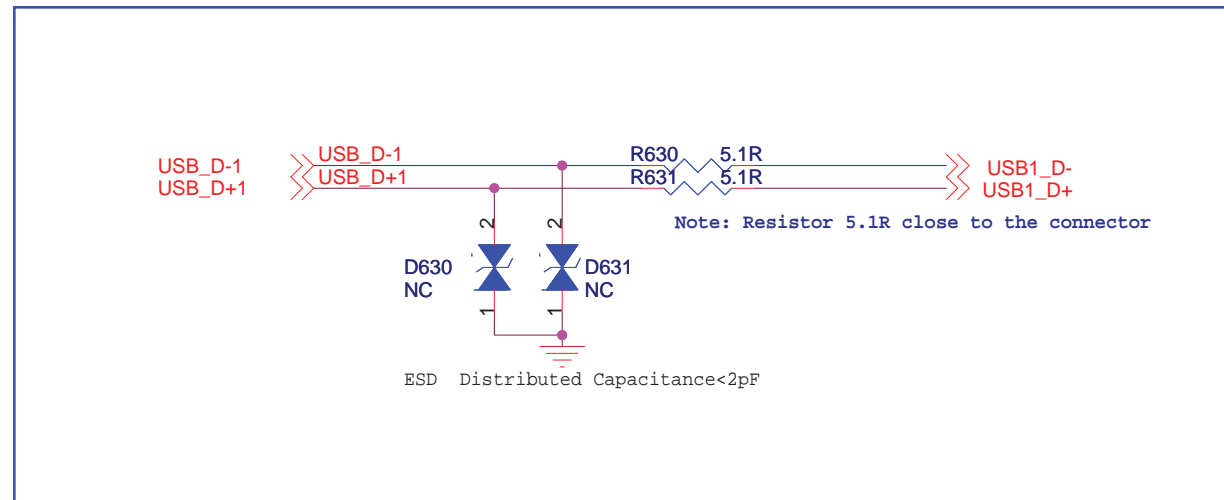
### Audio



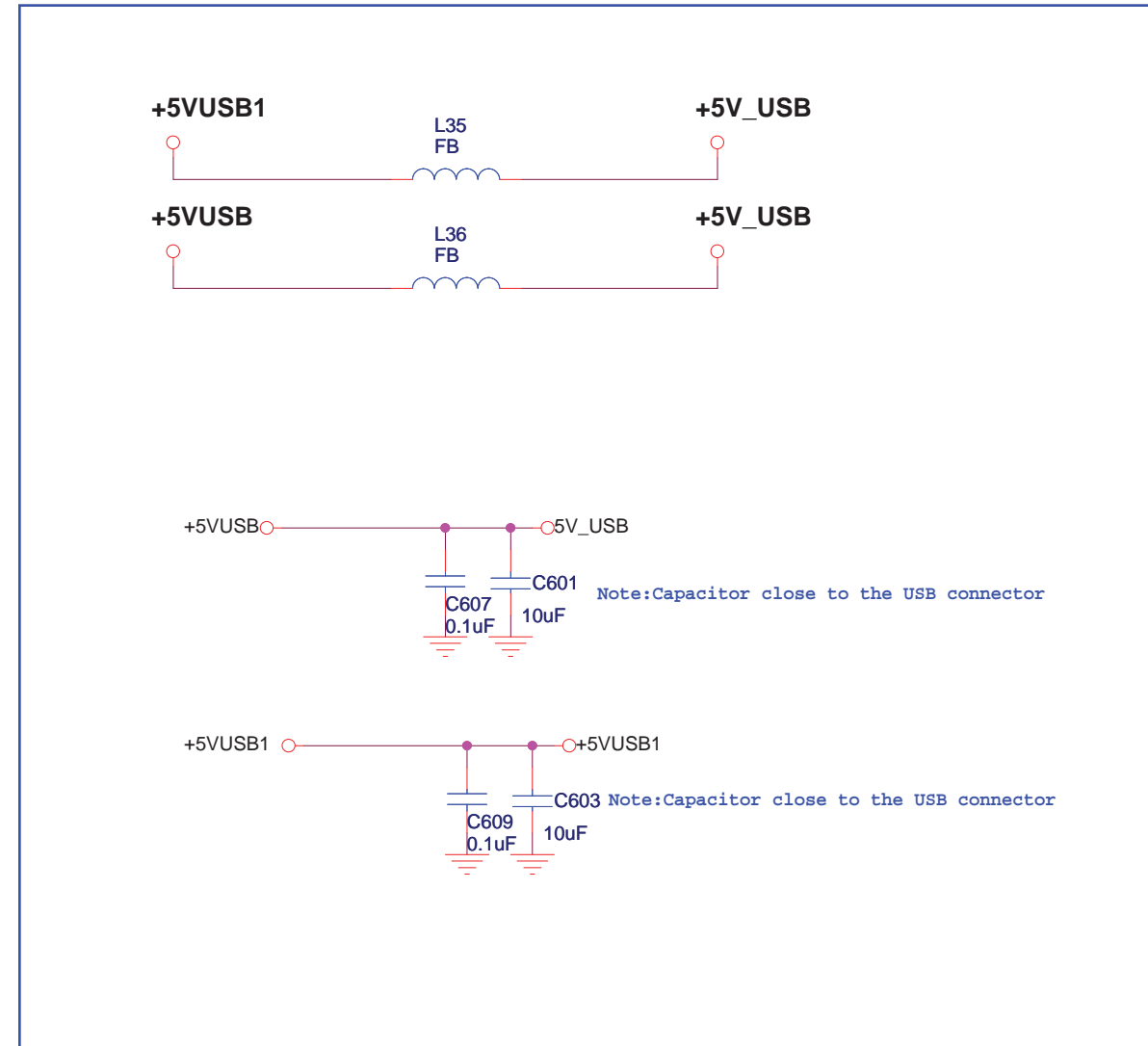
## USB PORT 1



## USB PORT 2

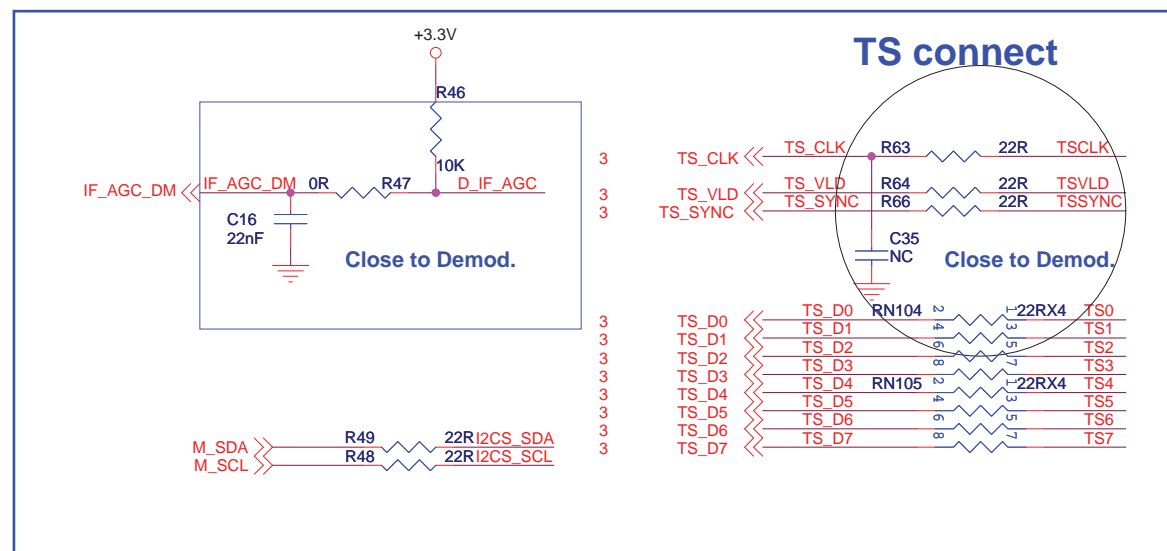
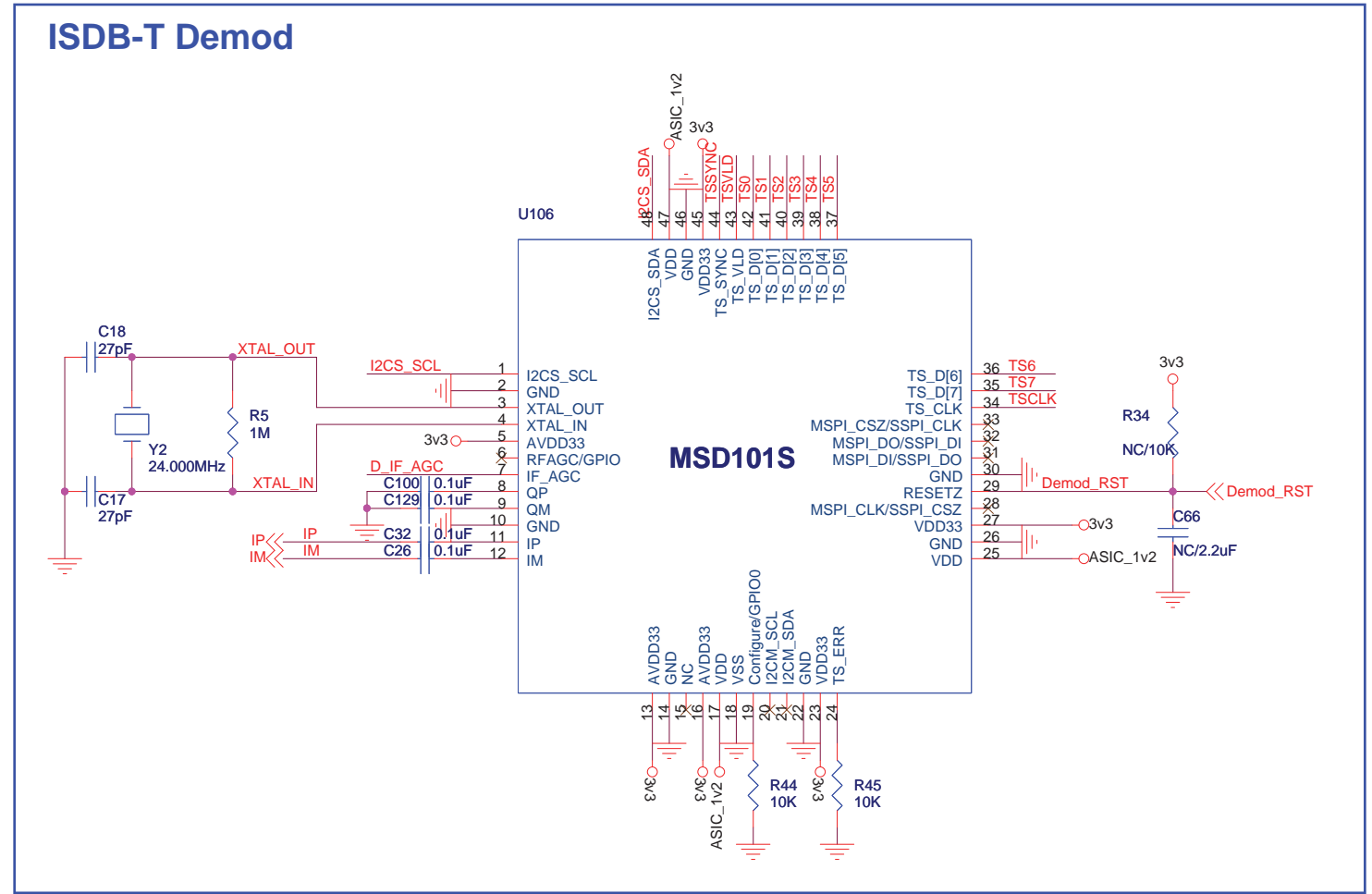
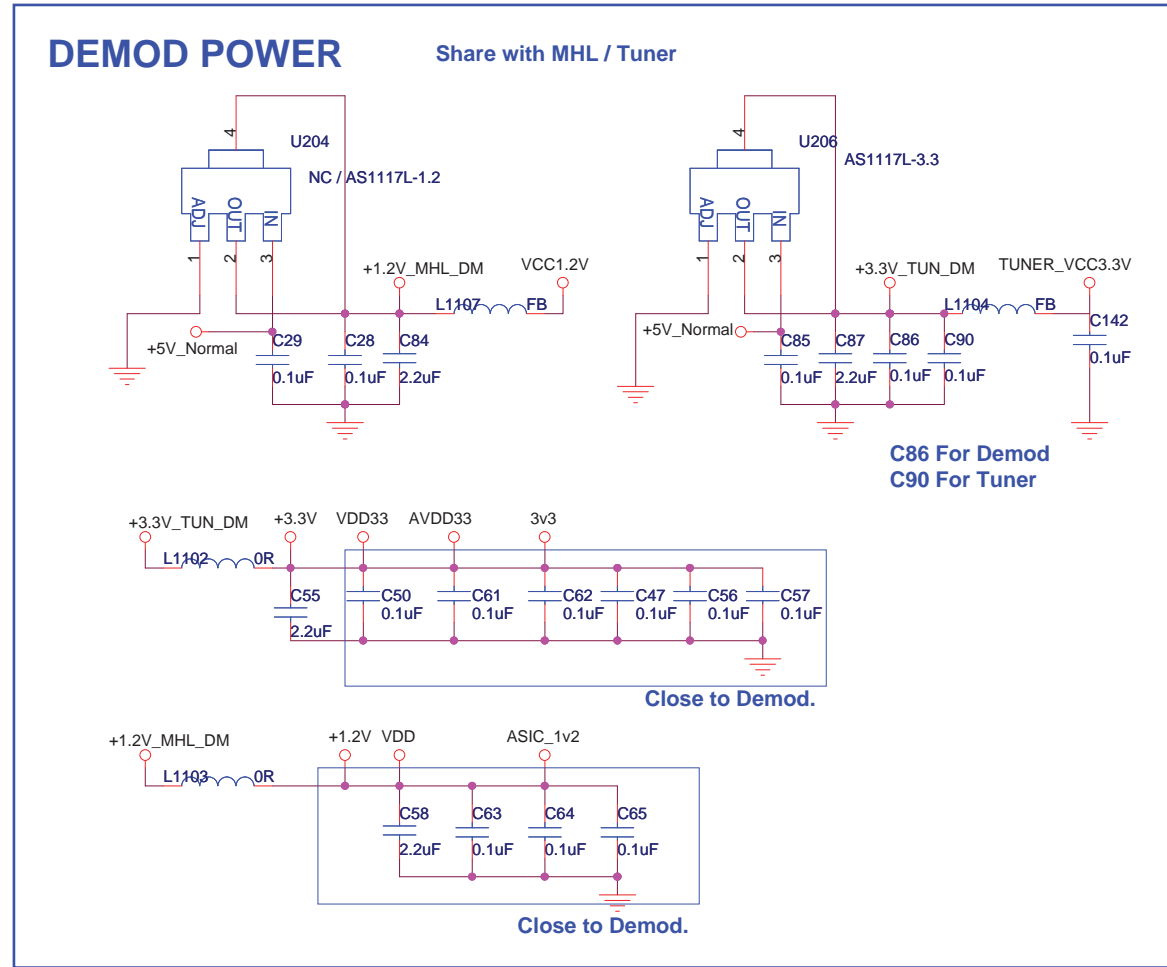


## USB POWER



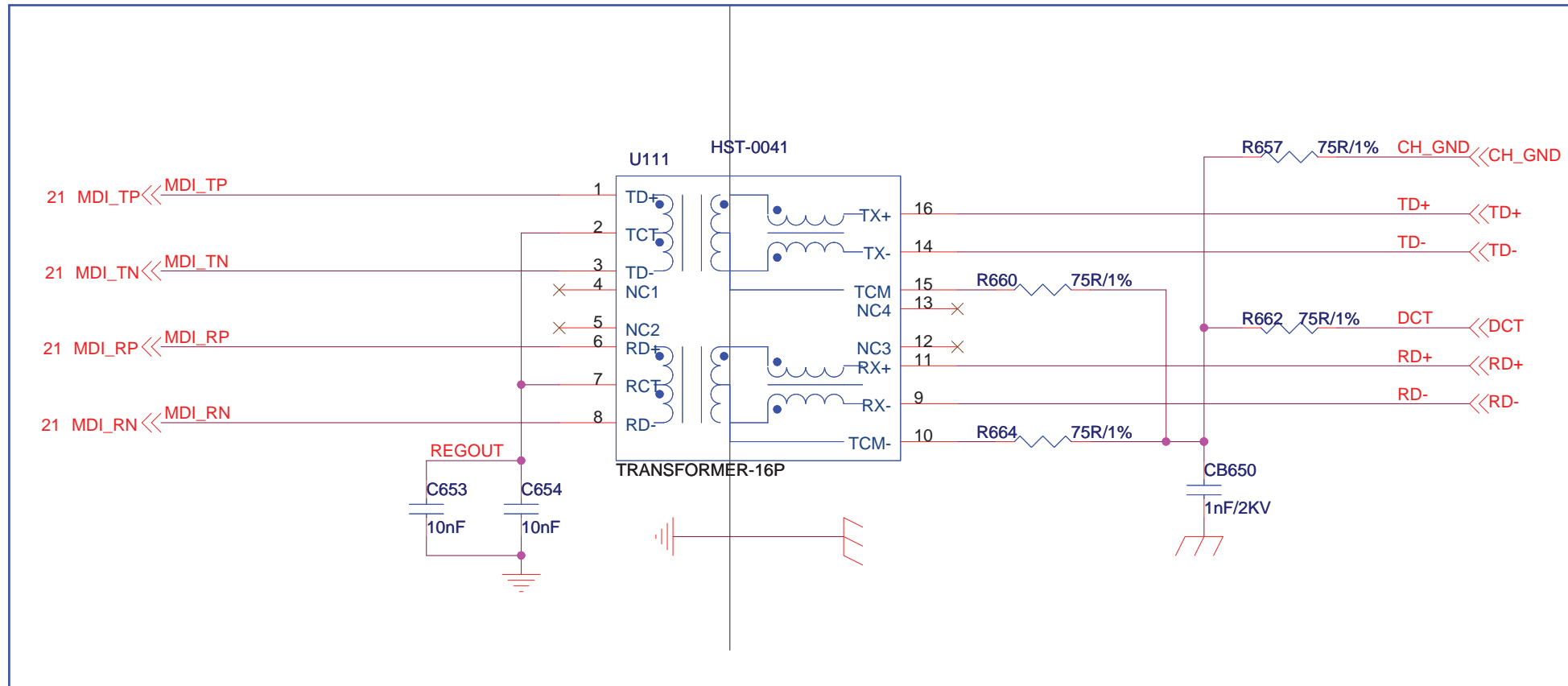
# ESQUEMAS ELÉTRICOS

## PCI principal (todos modelos)

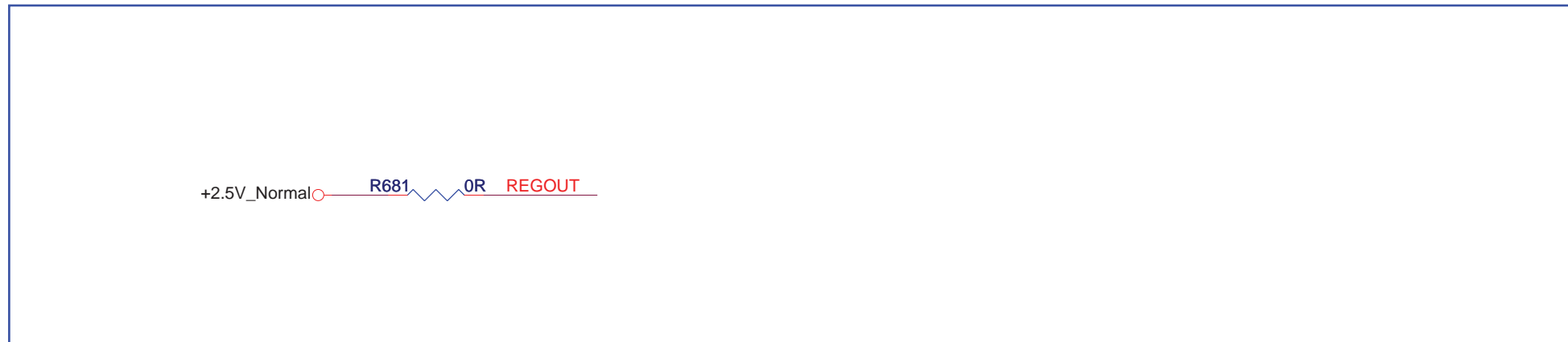




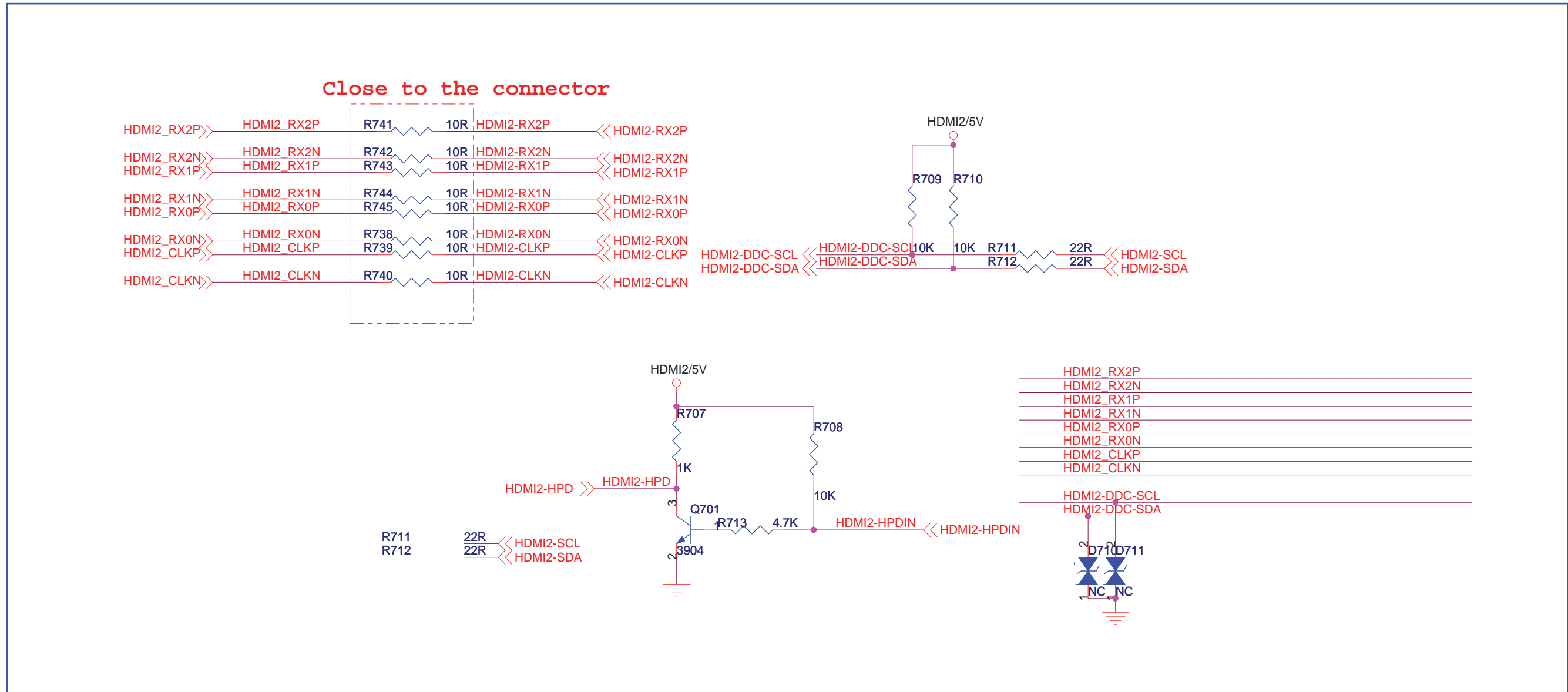
Connector



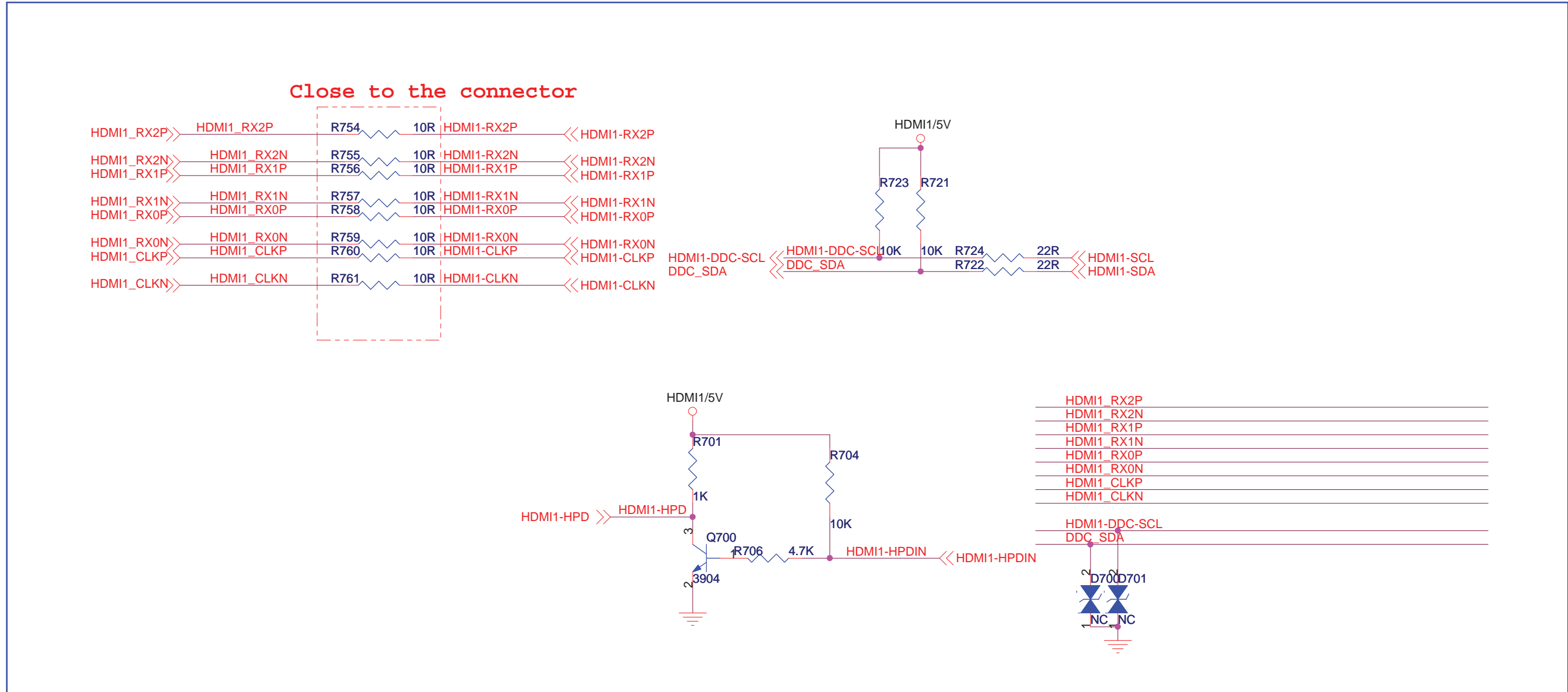
Internal PHY



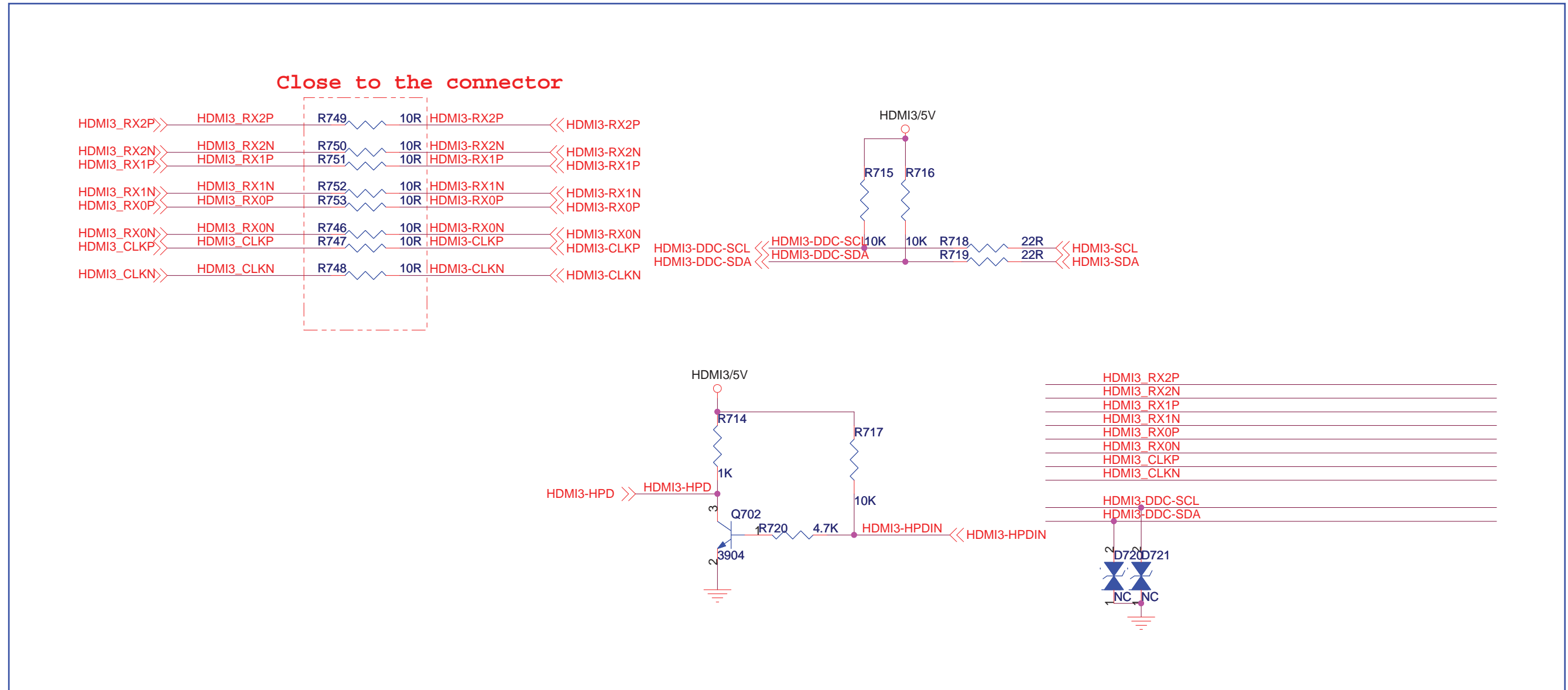
HDMI 1



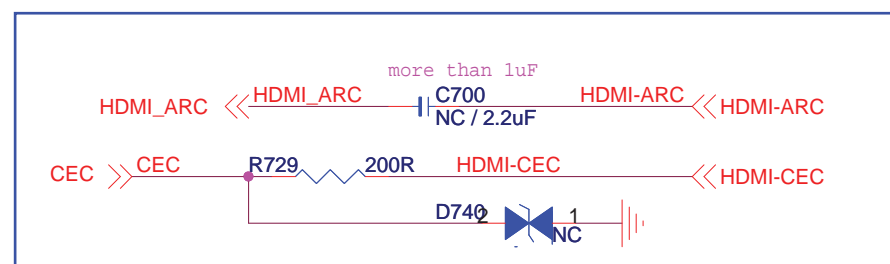
HDMI 2



### HDMI 3



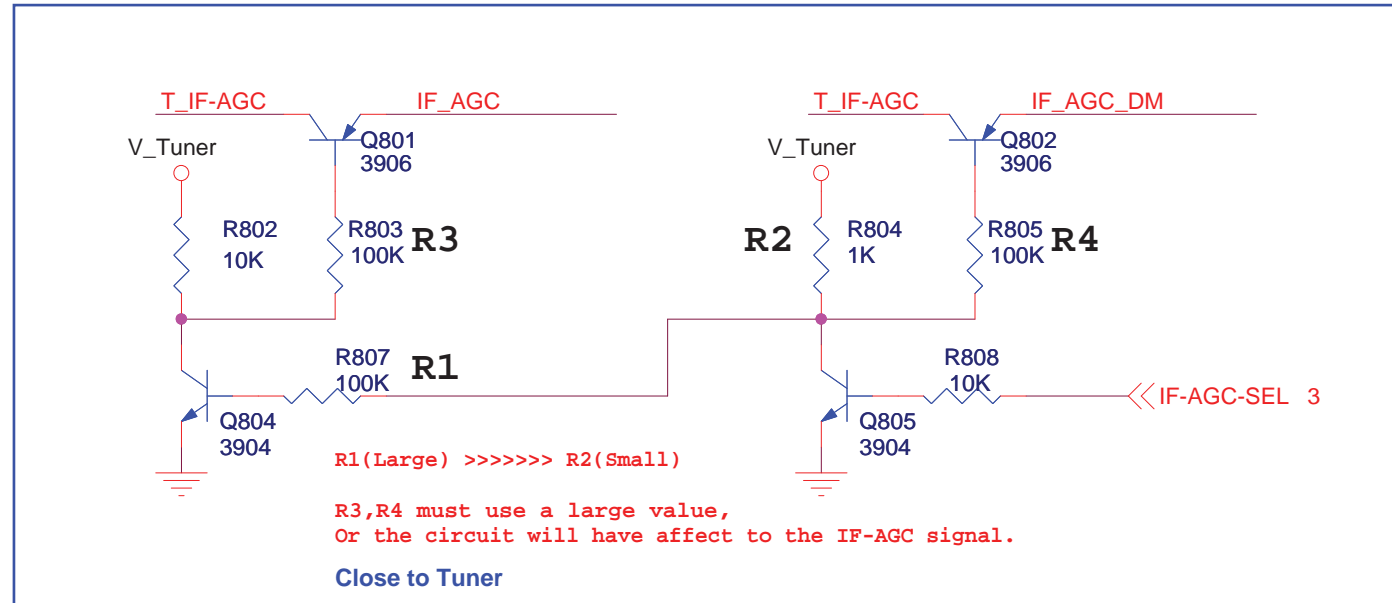
### CEC & ARC



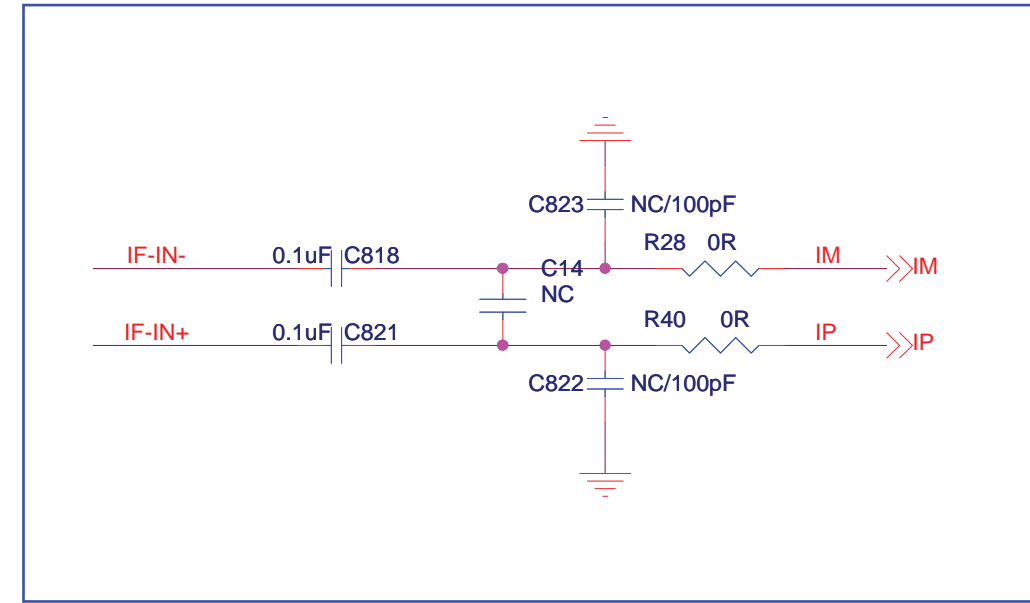
DIFFERENCE BETWEEN SKW STD PCB & SEMP PCB

|             | SKW<br>(Net definition) | SEMP<br>(Net definition) |
|-------------|-------------------------|--------------------------|
| OSD Display |                         |                          |
| HDMI1       | O (HDMI1)               | O (HDMI2)                |
| HDMI2       | O (HDMI3)               | O (HDMI1)                |
| HDMI3       | X                       | O (HDMI3)                |

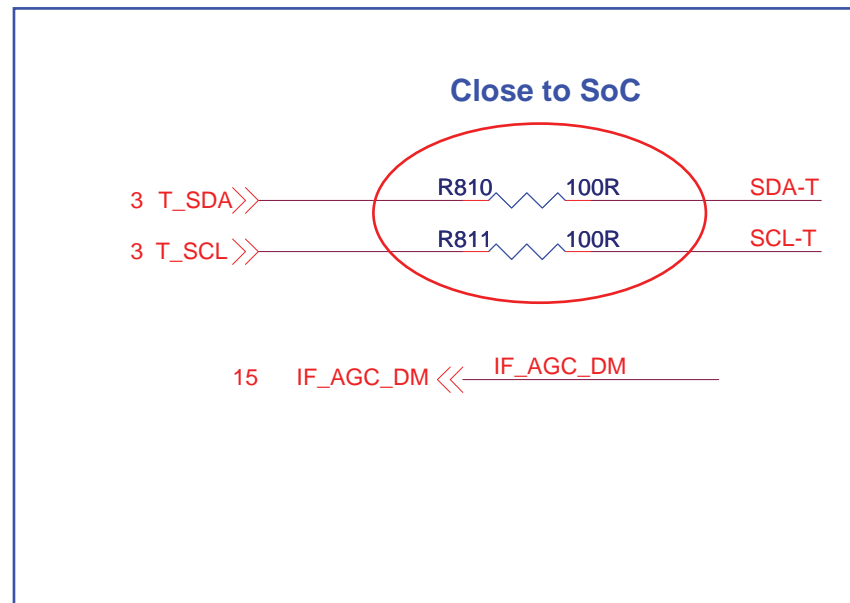
IF AGC Switch



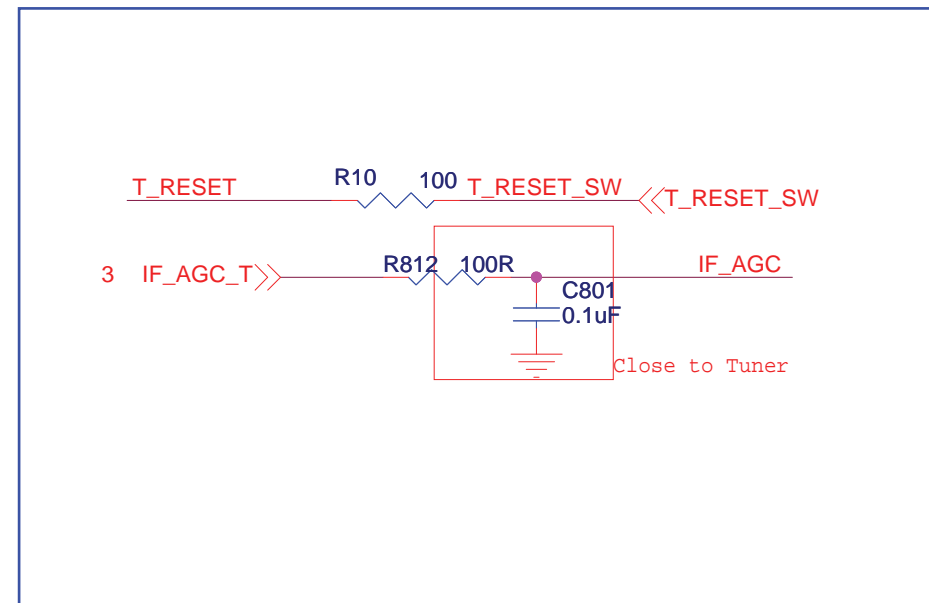
LOW IF BPF



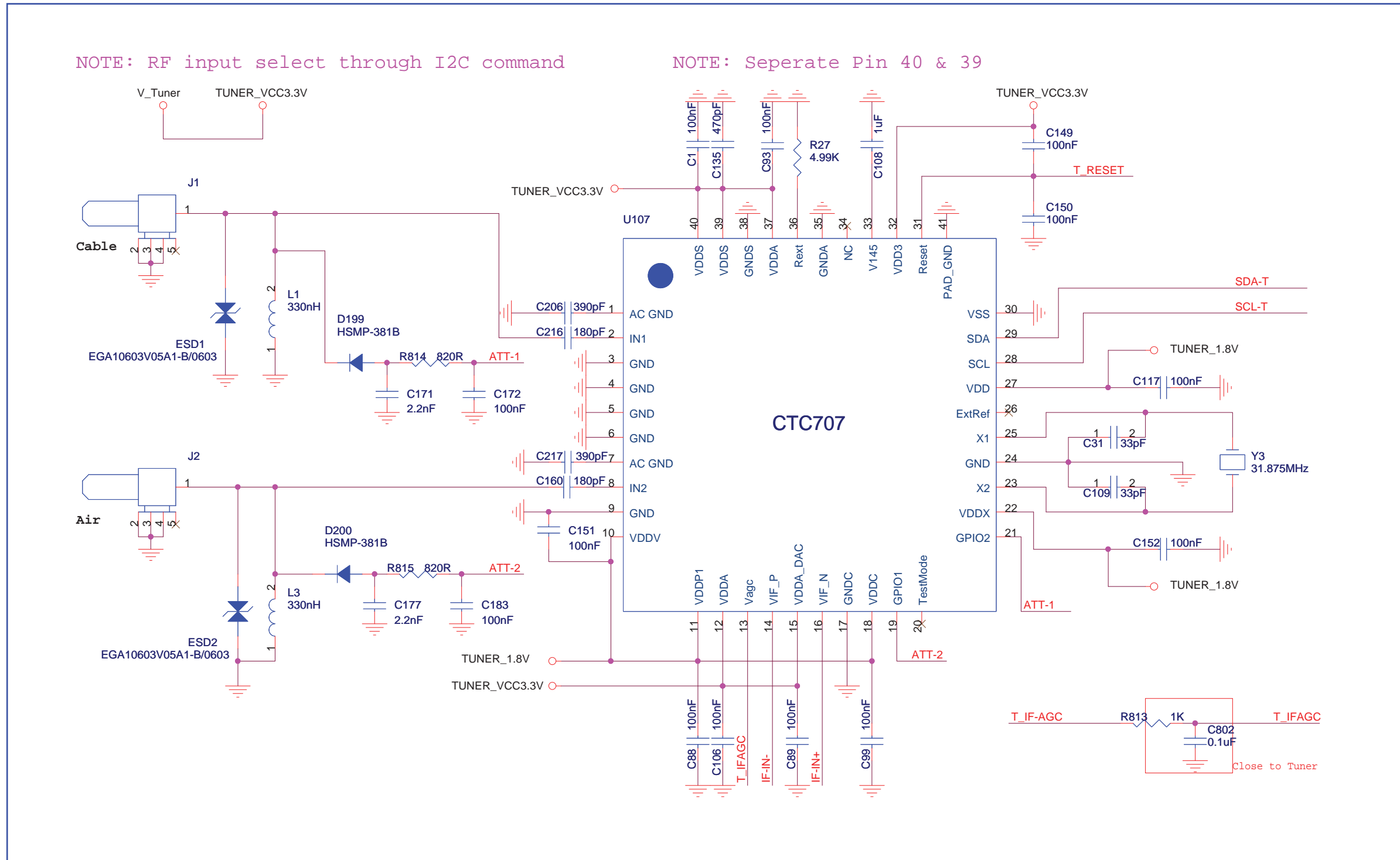
I2C INTERFACE FOR TUNER



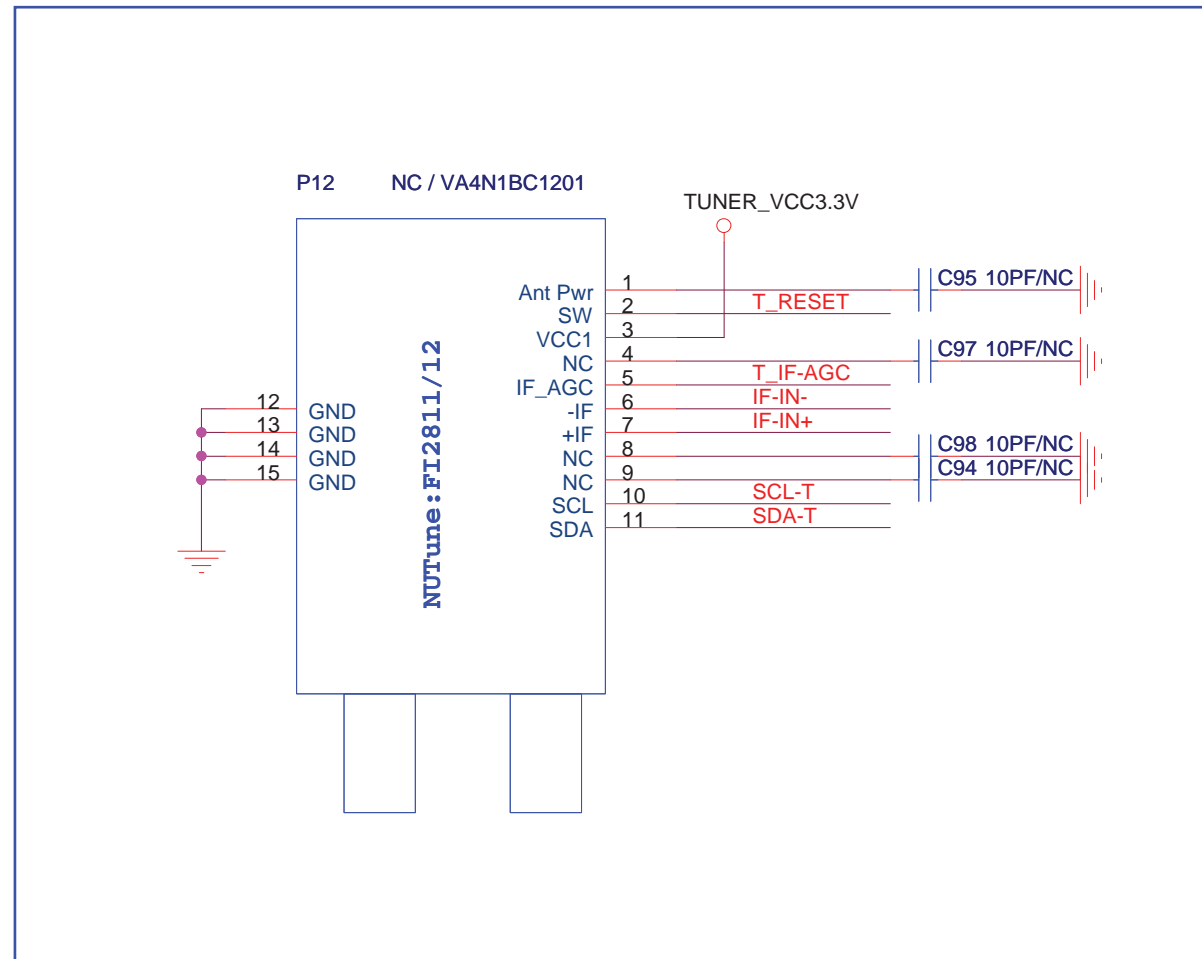
AGC RC Filter



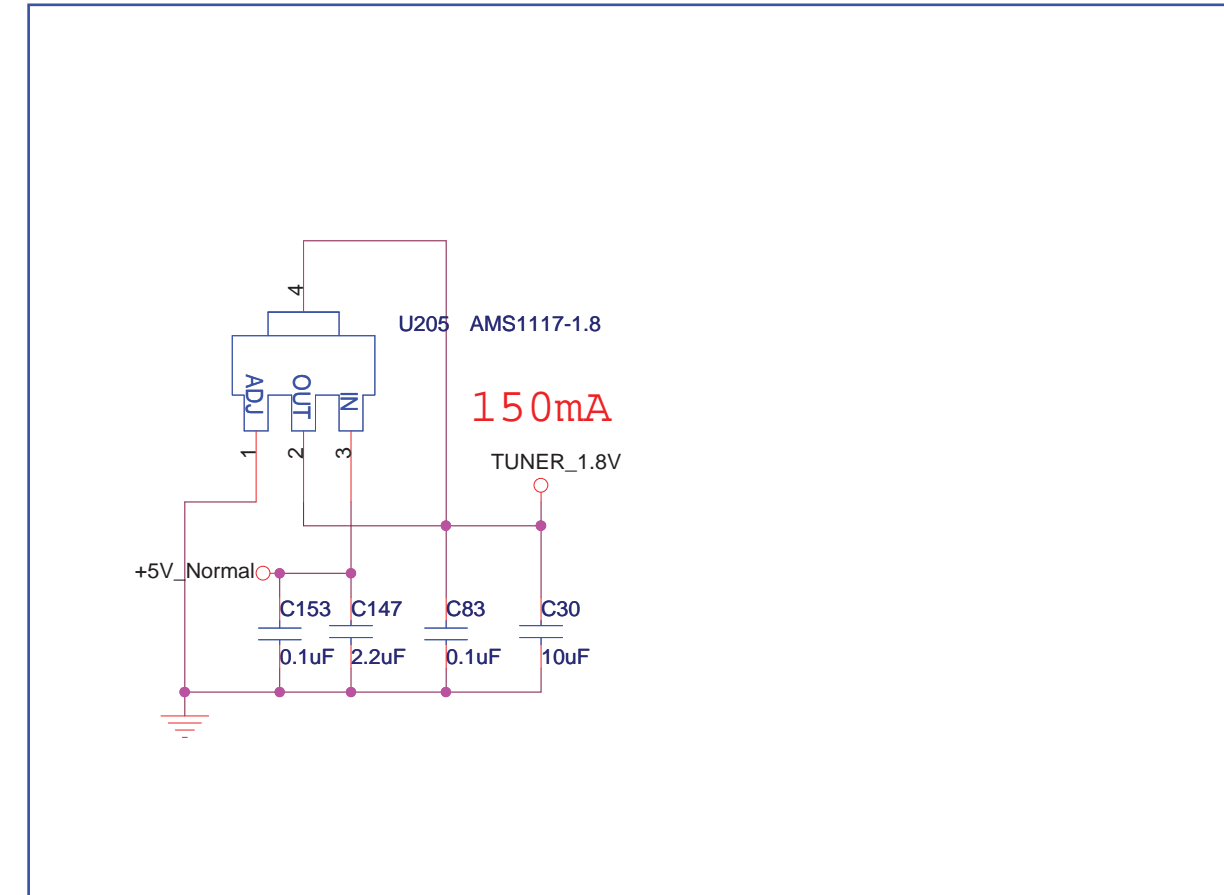
### ONBOARD SILICON TUNER



SILICON (IN-CAN) TUNER

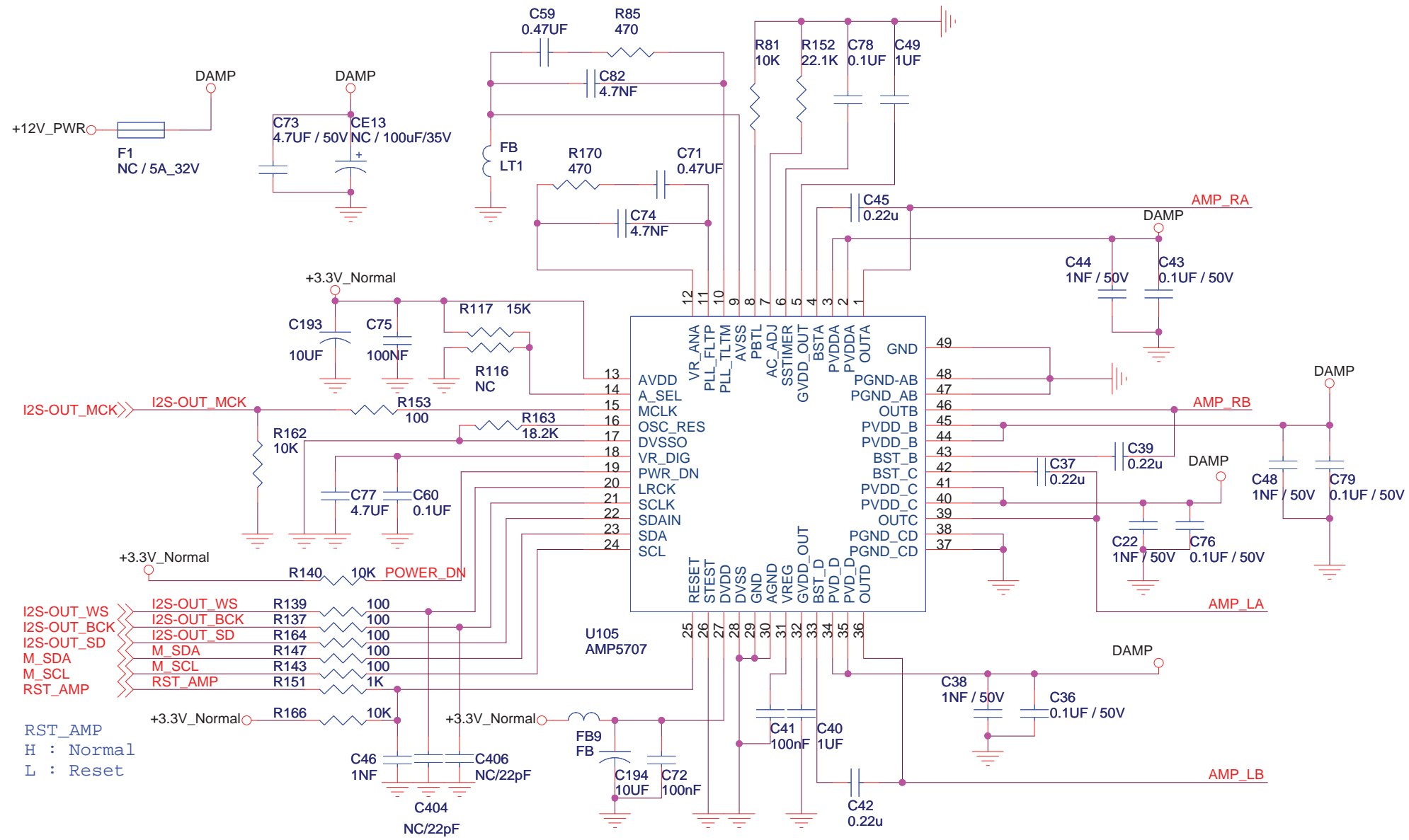


TUNER POWER

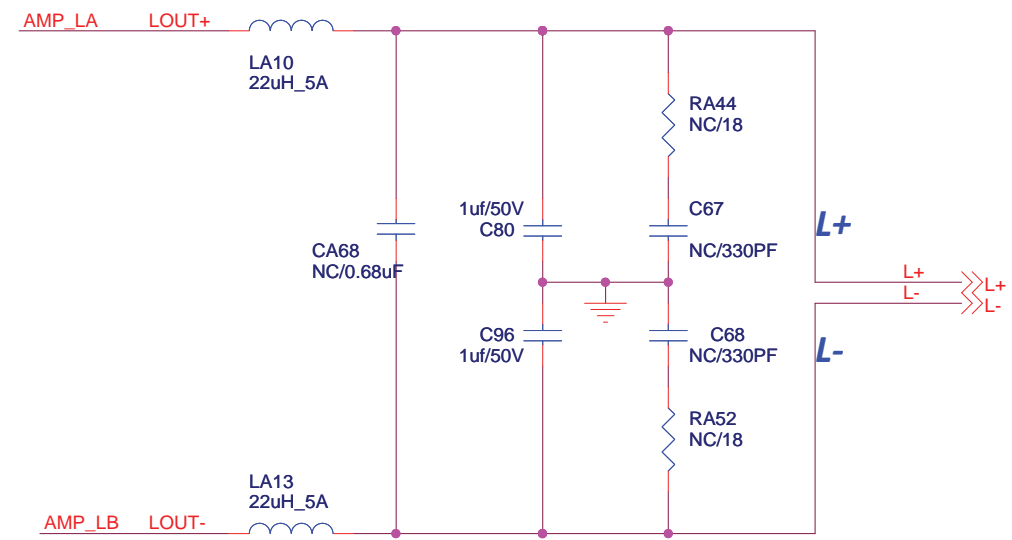
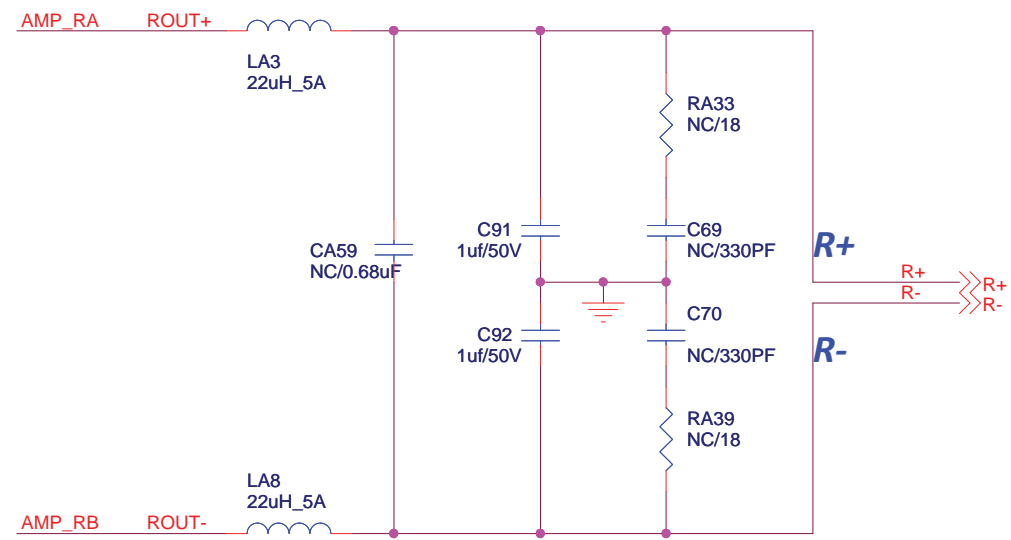


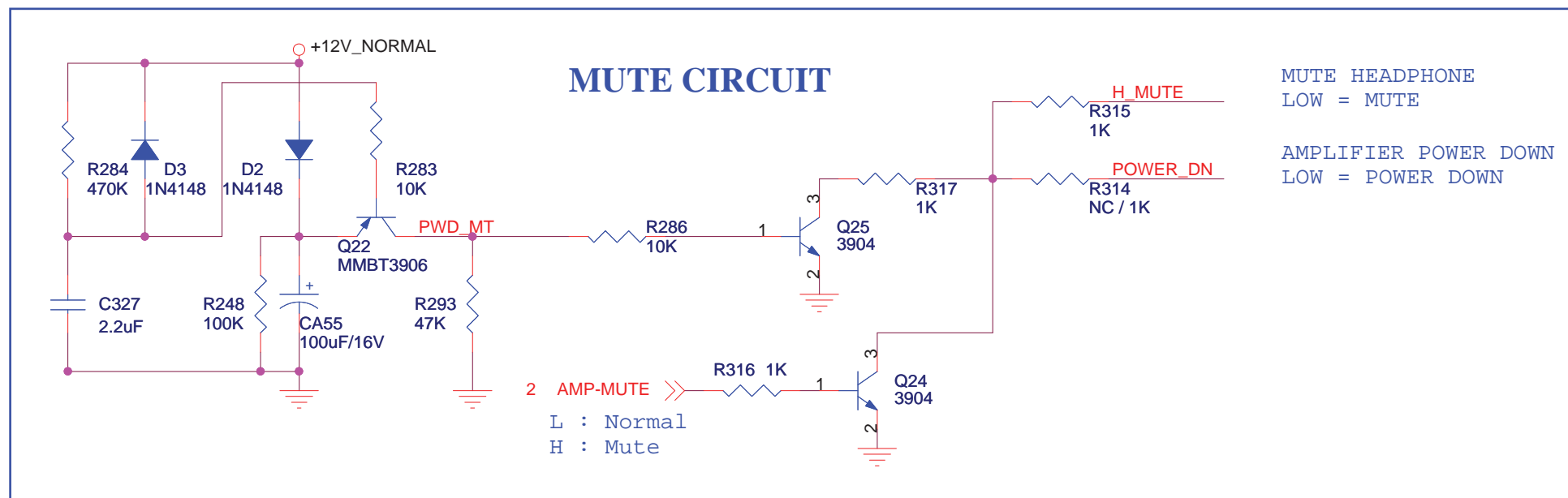
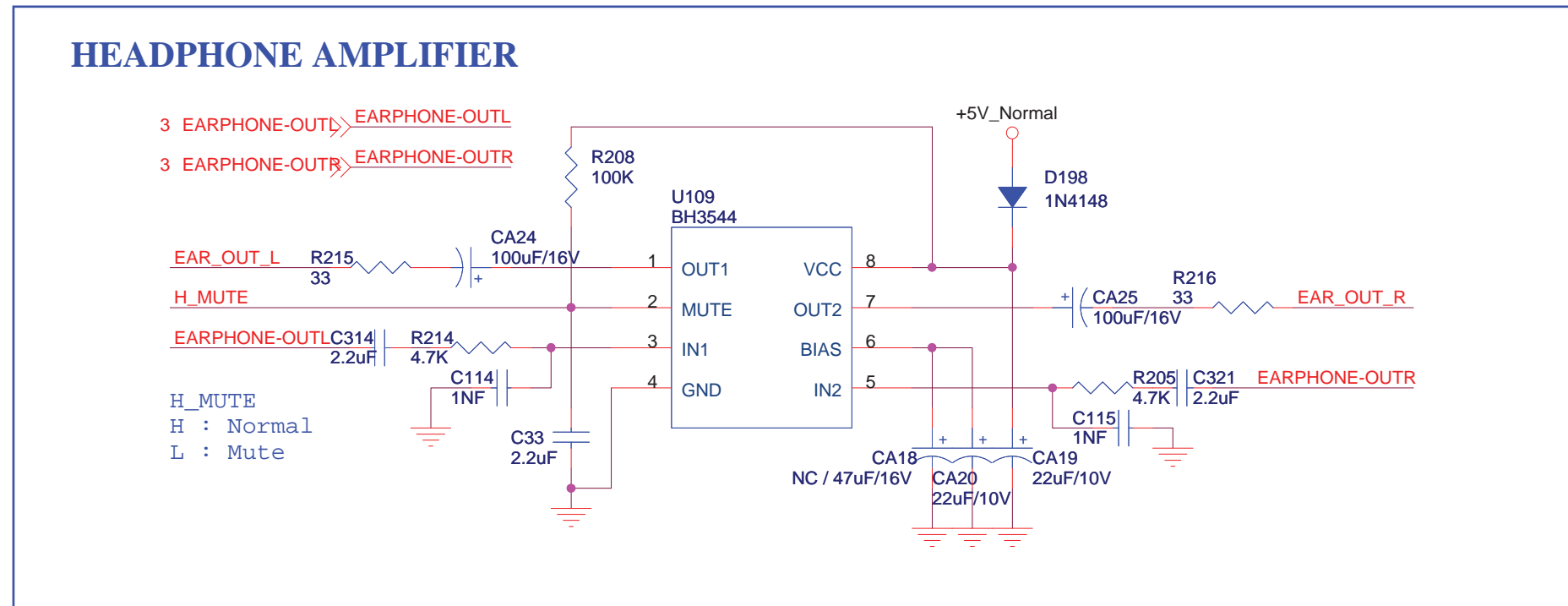


### AUDIO AMPLIFIER

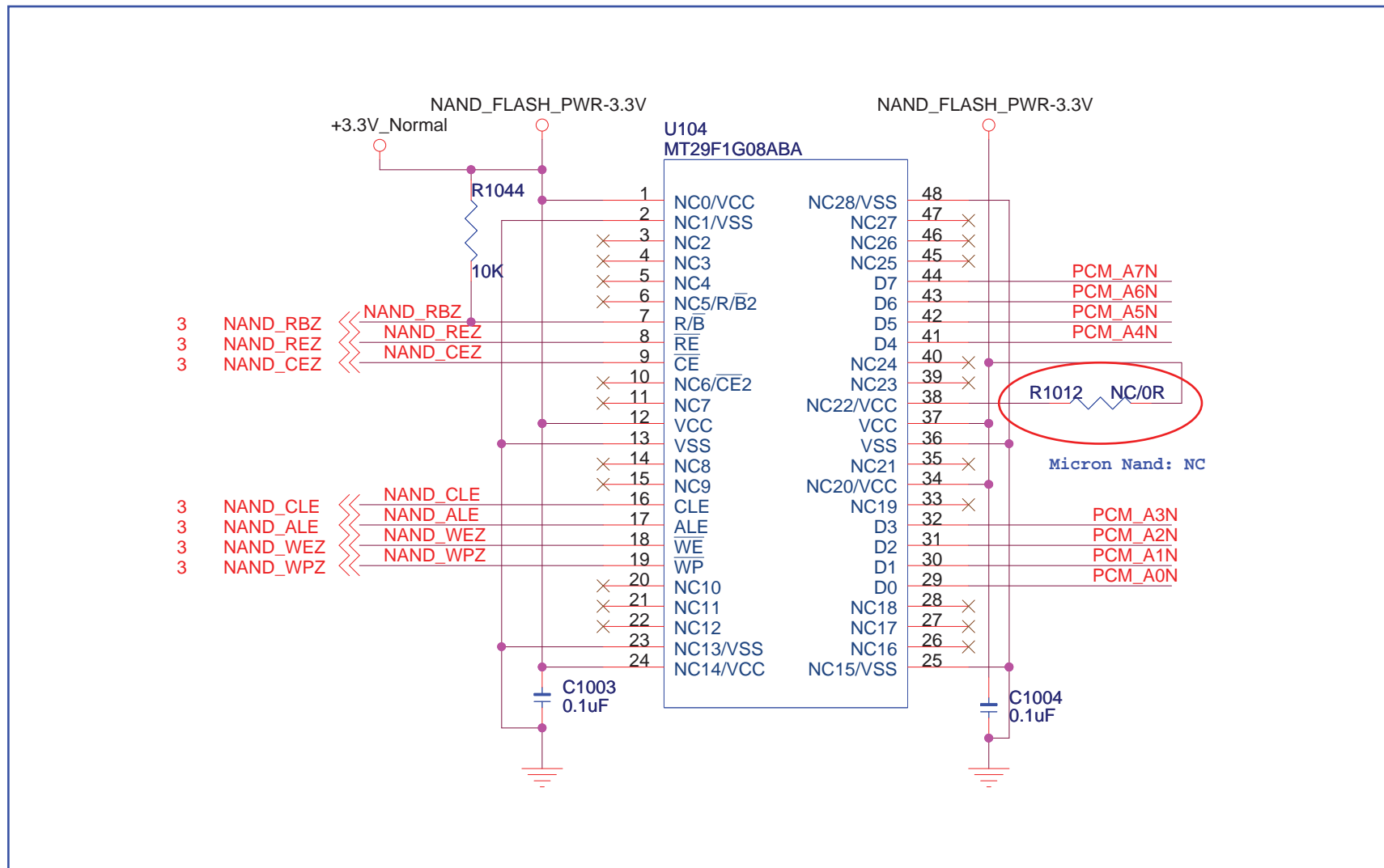


### AUDIO AMPLIFIER





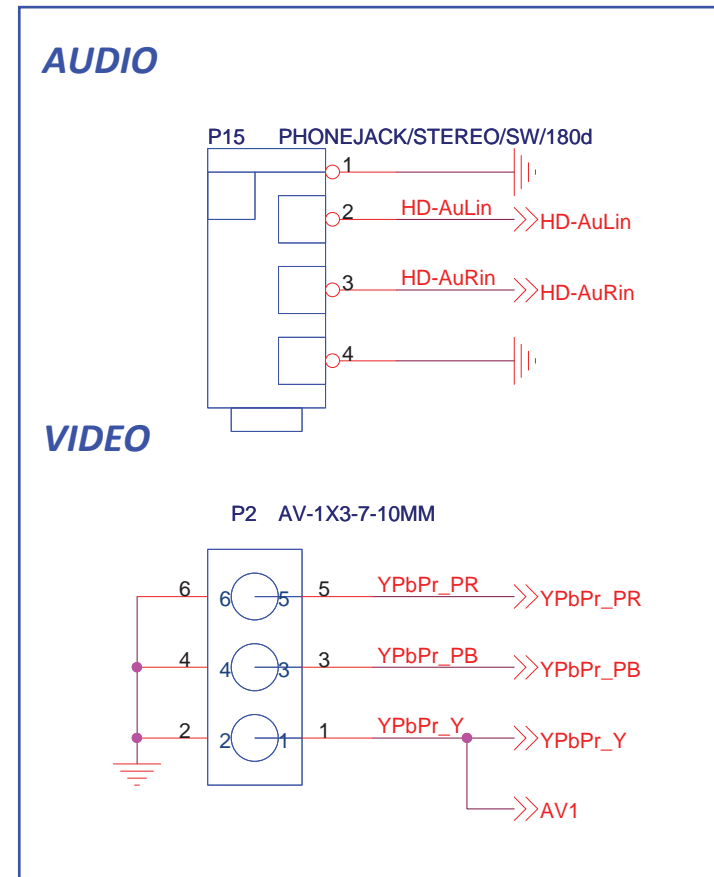
NAND FLASH



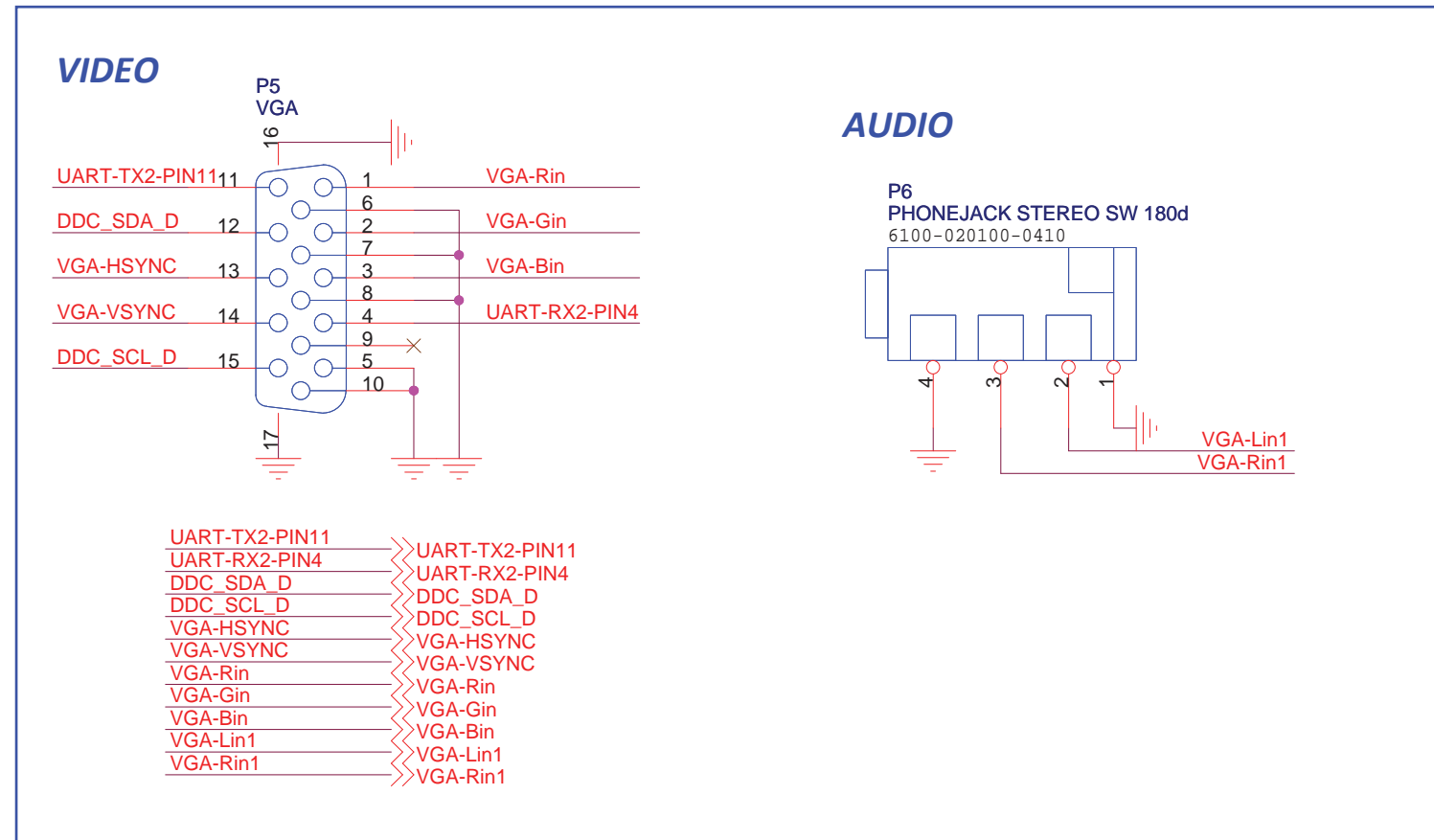
- PCM\_A7N PCM\_A7
- PCM\_A6N PCM\_A6
- PCM\_A5N PCM\_A5
- PCM\_A4N PCM\_A4
- PCM\_A3N PCM\_A3
- PCM\_A2N PCM\_A2
- PCM\_A1N PCM\_A1
- PCM\_A0N PCM\_A0

PCM\_A[7:0] >> PCM\_A[7:0]

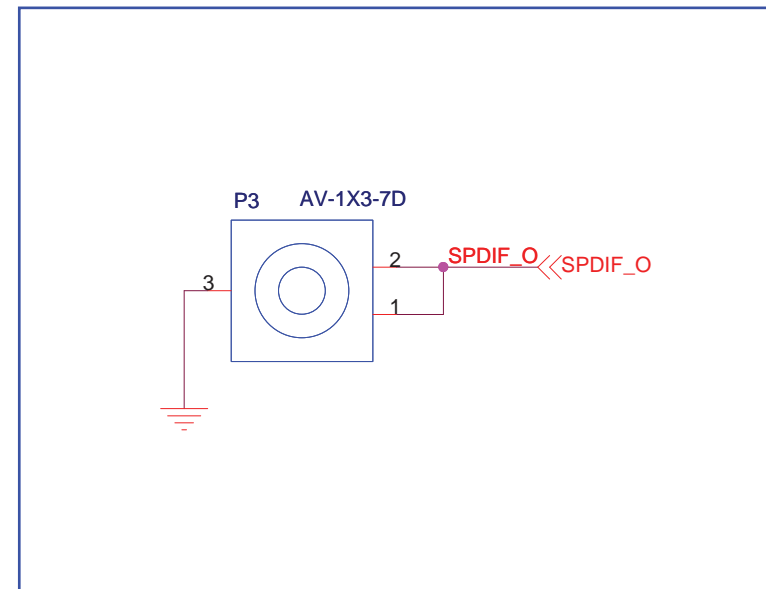
### COMPONENT + AV & AUDIO



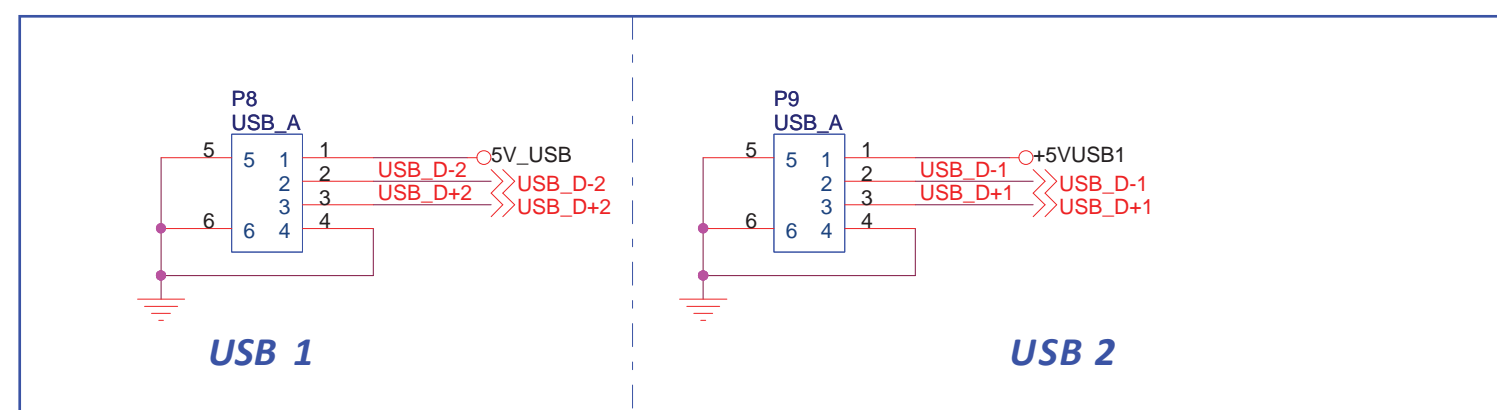
### PC & PC AUDIO



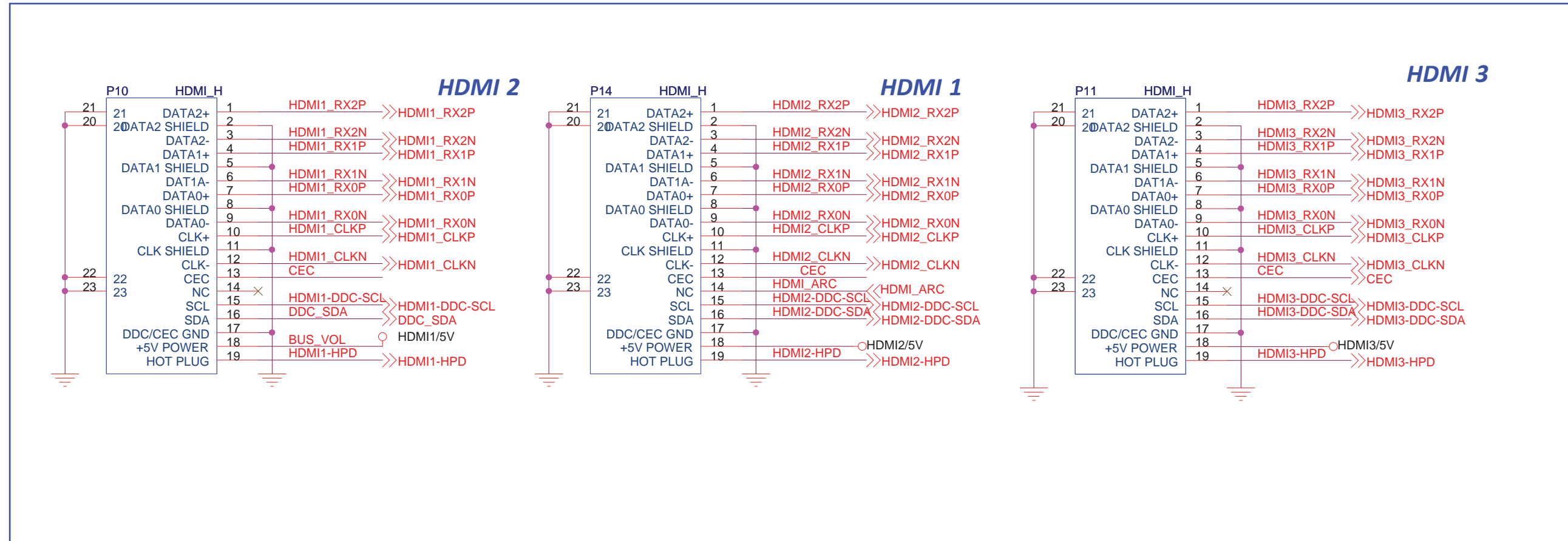
### DIGITAL AUDIO OUT (SPDIF)



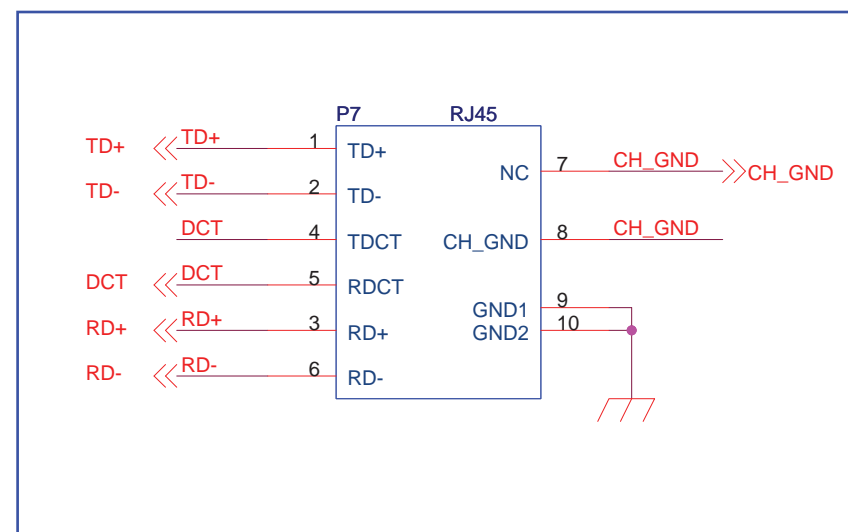
### USB TERMINALS



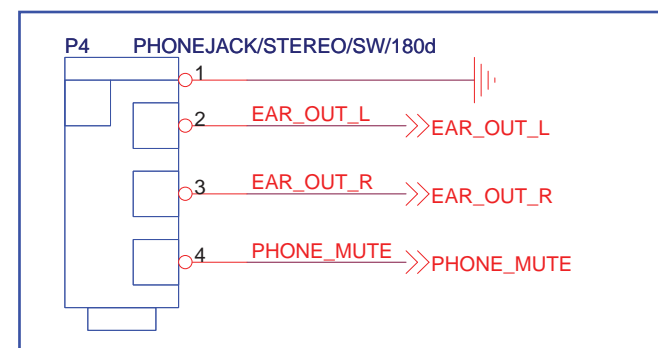
### HDMI



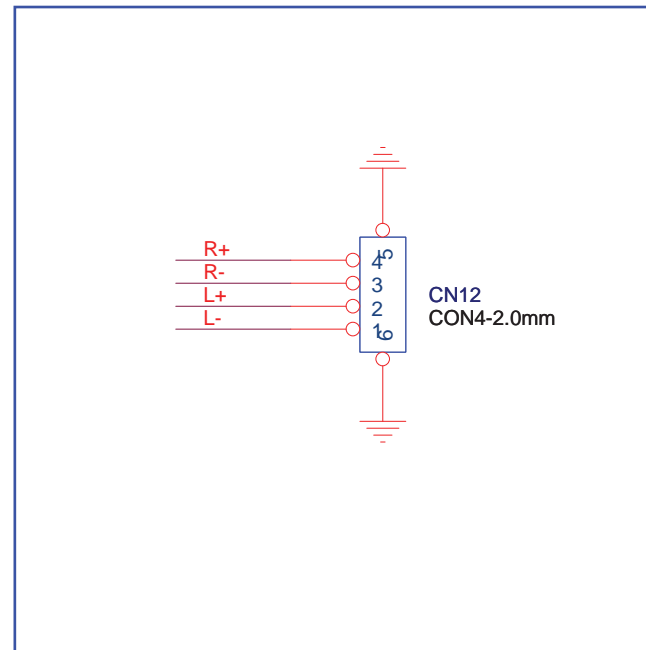
### ETHERNET TERMINAL



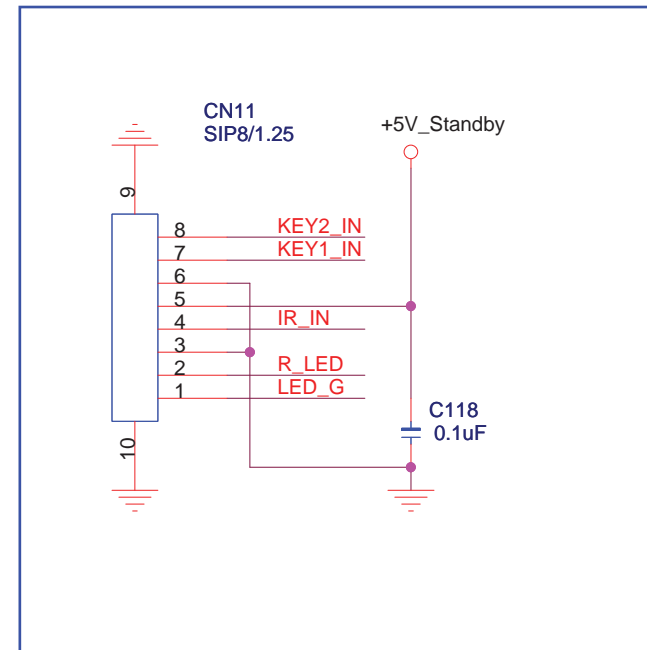
### HEADPHONE TERMINAL



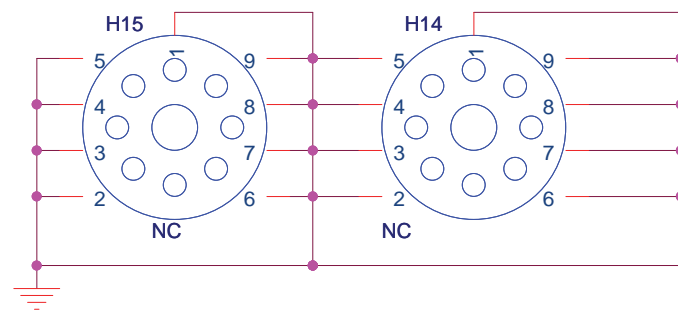
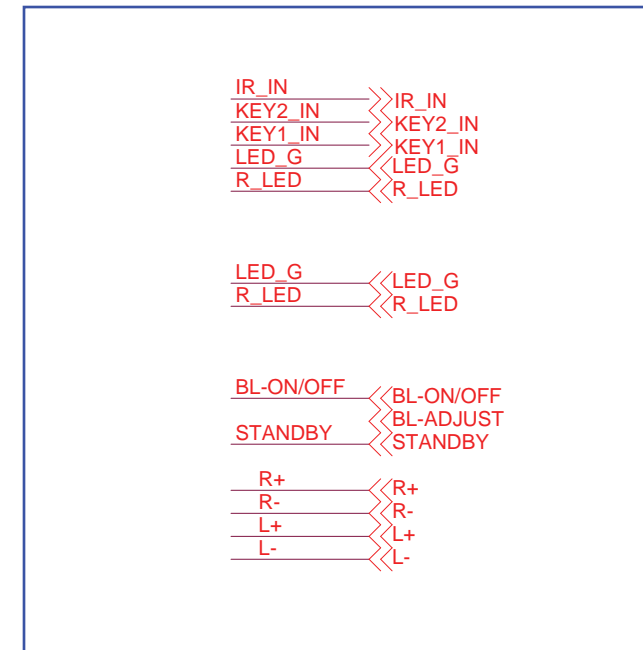
## SPEAKERS CONNECTOR



## FOR IR & KEYPAD



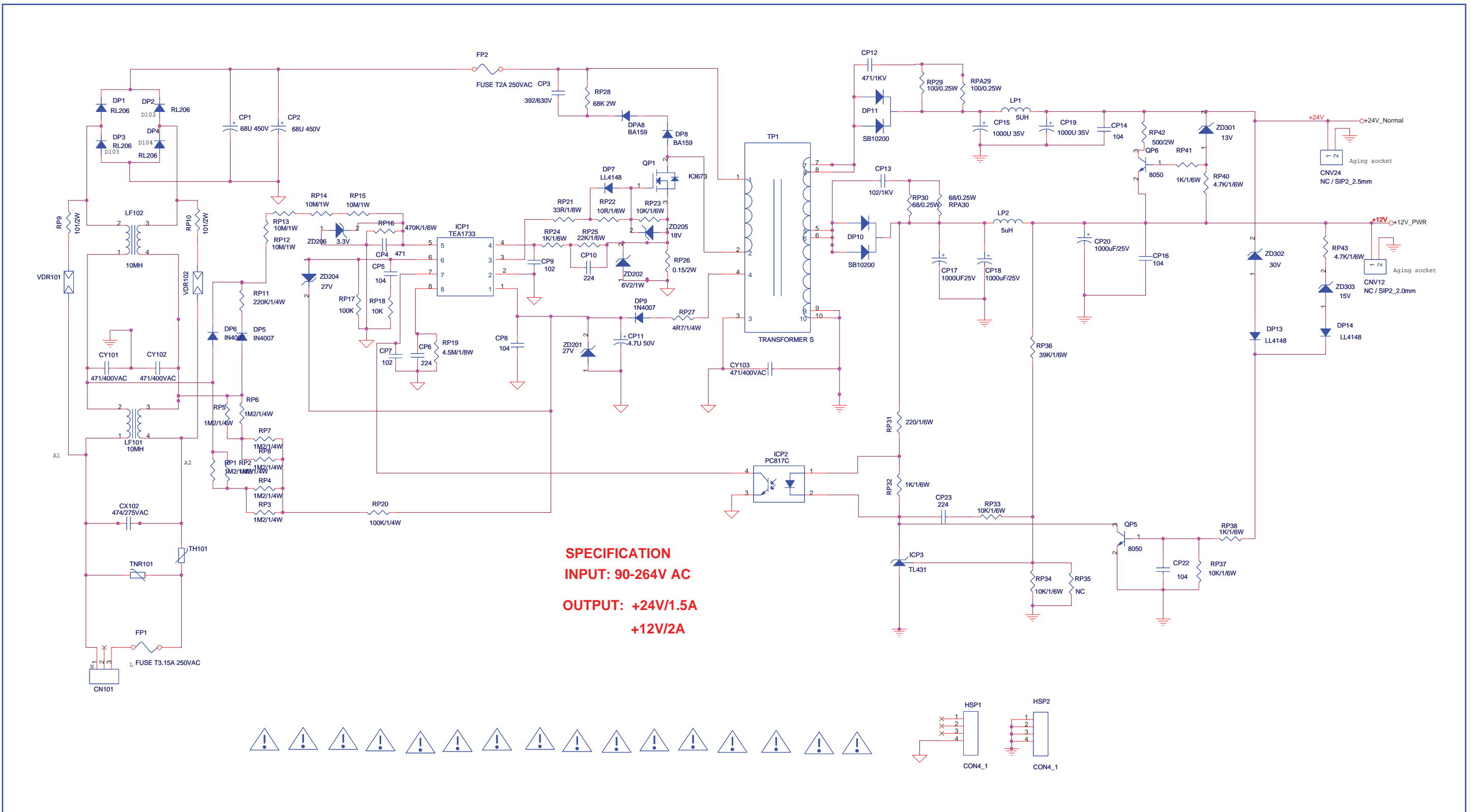
## NET TO OTHER PAGES



| KEYBOARD DEFINITION |        |        |        |      |
|---------------------|--------|--------|--------|------|
| KEY1                | CH+    | CH-    | VOL+   | VOL- |
|                     | 3/4VCC | 1/2VCC | 1/4VCC | 0V   |
| KEY2                | MENU   | SOURCE | STB    |      |
|                     | 3/4VCC | 1/2VCC | 0V     |      |

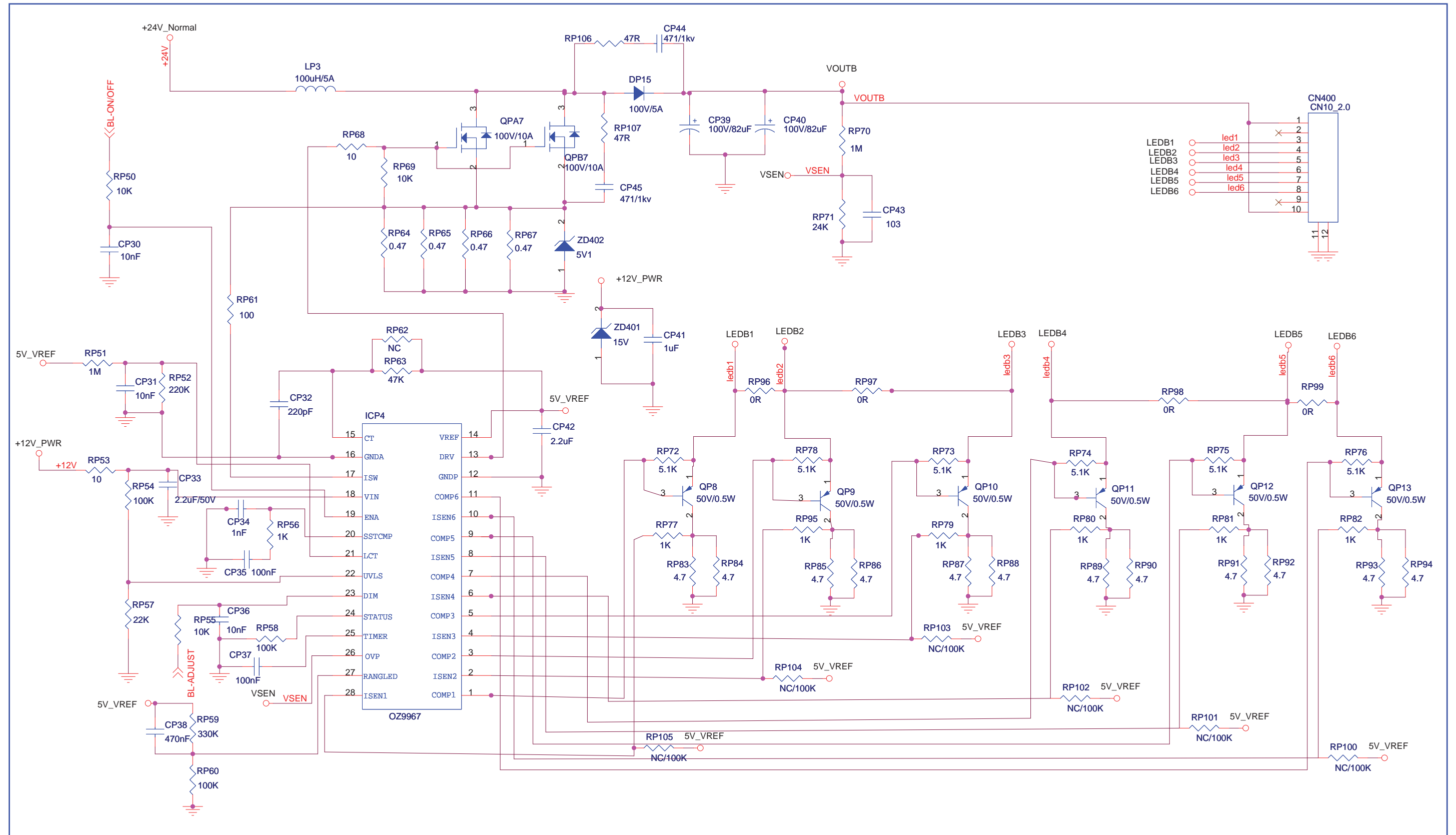


## PCI principal (todos modelos)



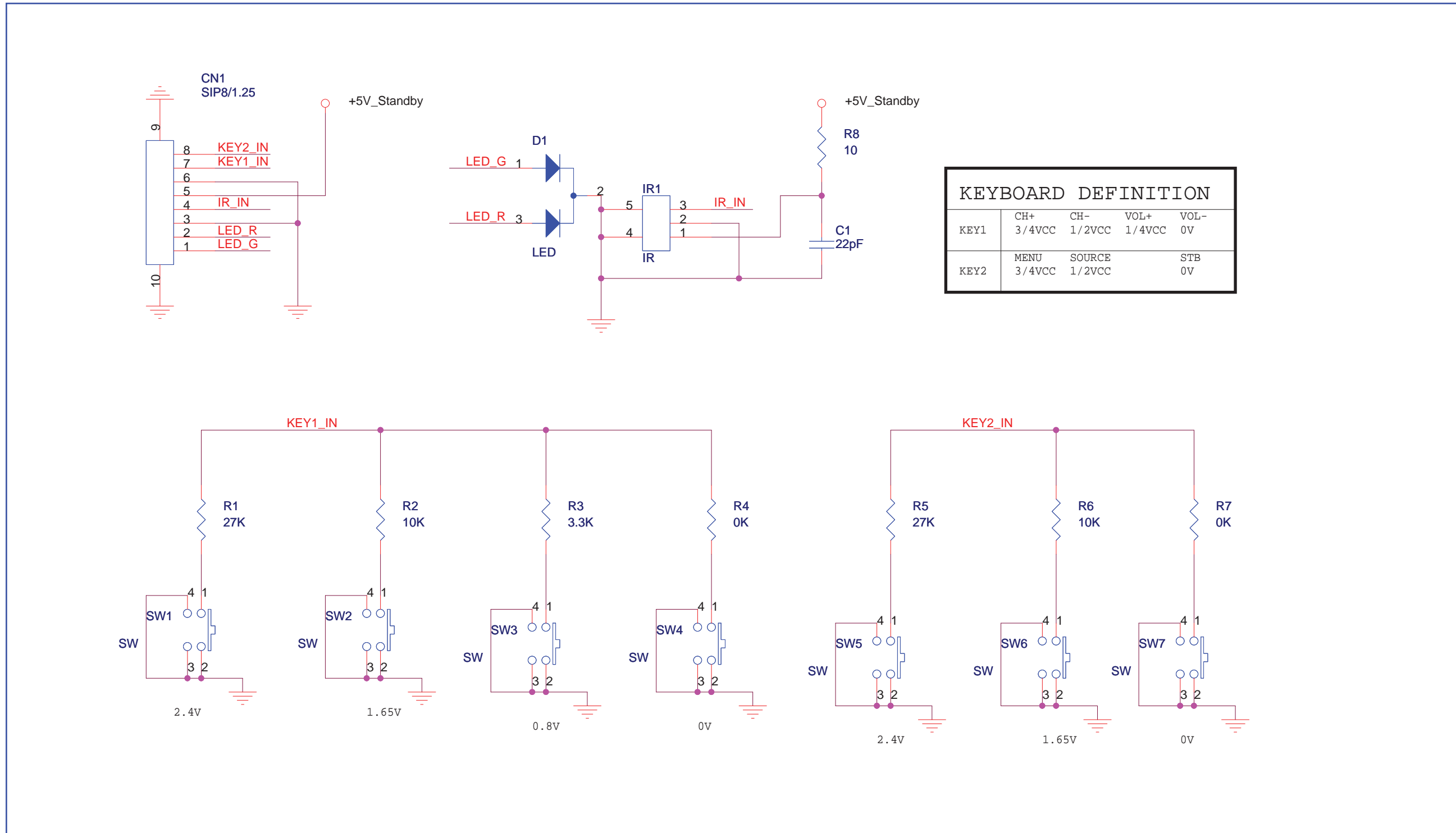
# ESQUEMAS ELÉTRICOS

## PCI principal (todos modelos)

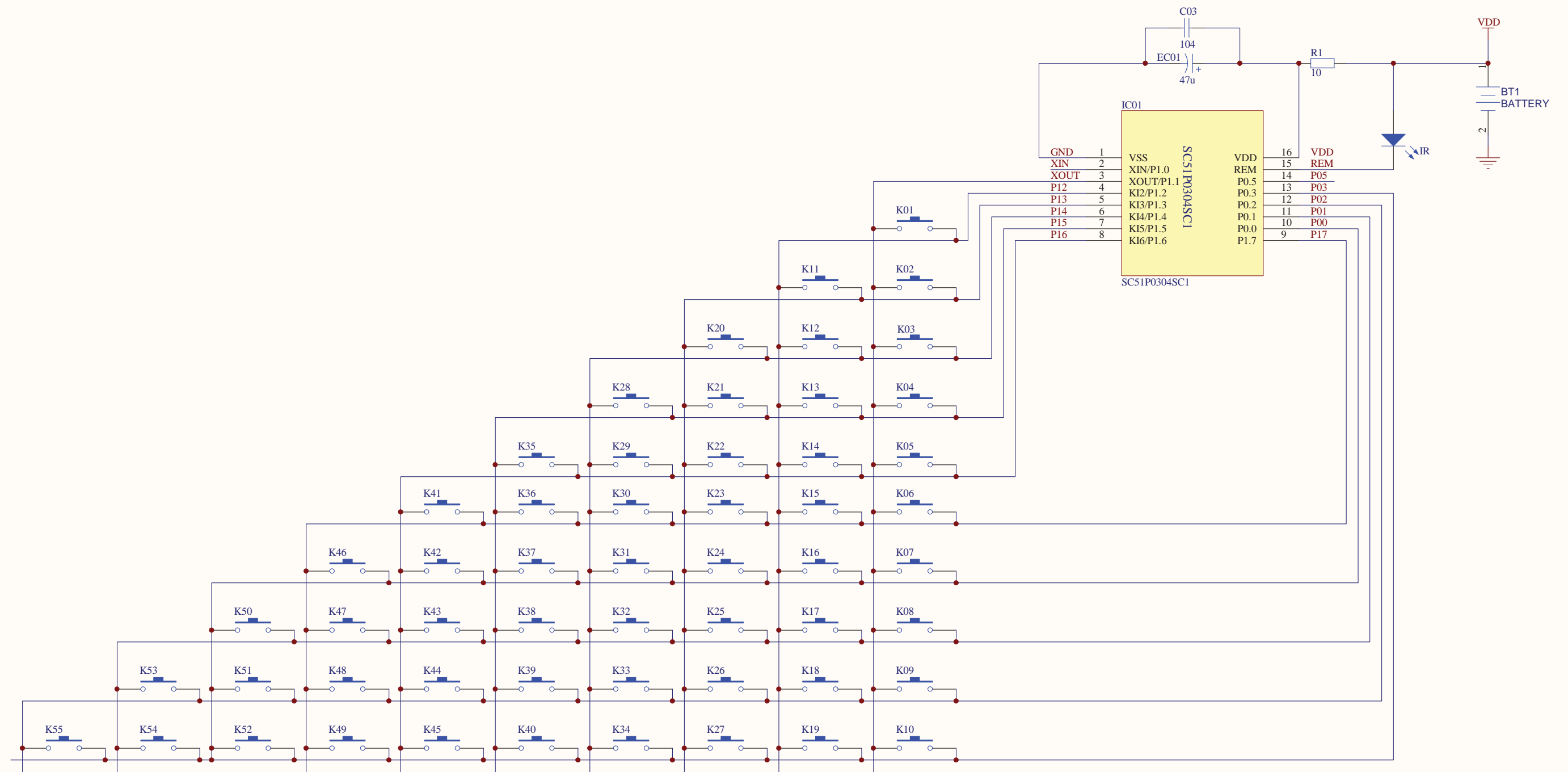


# ESQUEMAS ELÉTRICOS

PCI auxiliar (todos modelos)



SL



Rod. Anhanguera, Km 39,5 - Jordanésia - Cajamar - tel. pabx (11) 3232 2200

**SEMP TOSHIBA**