HK.T.RT2851V09X
Trouble shooting flow chart

—Power Chart

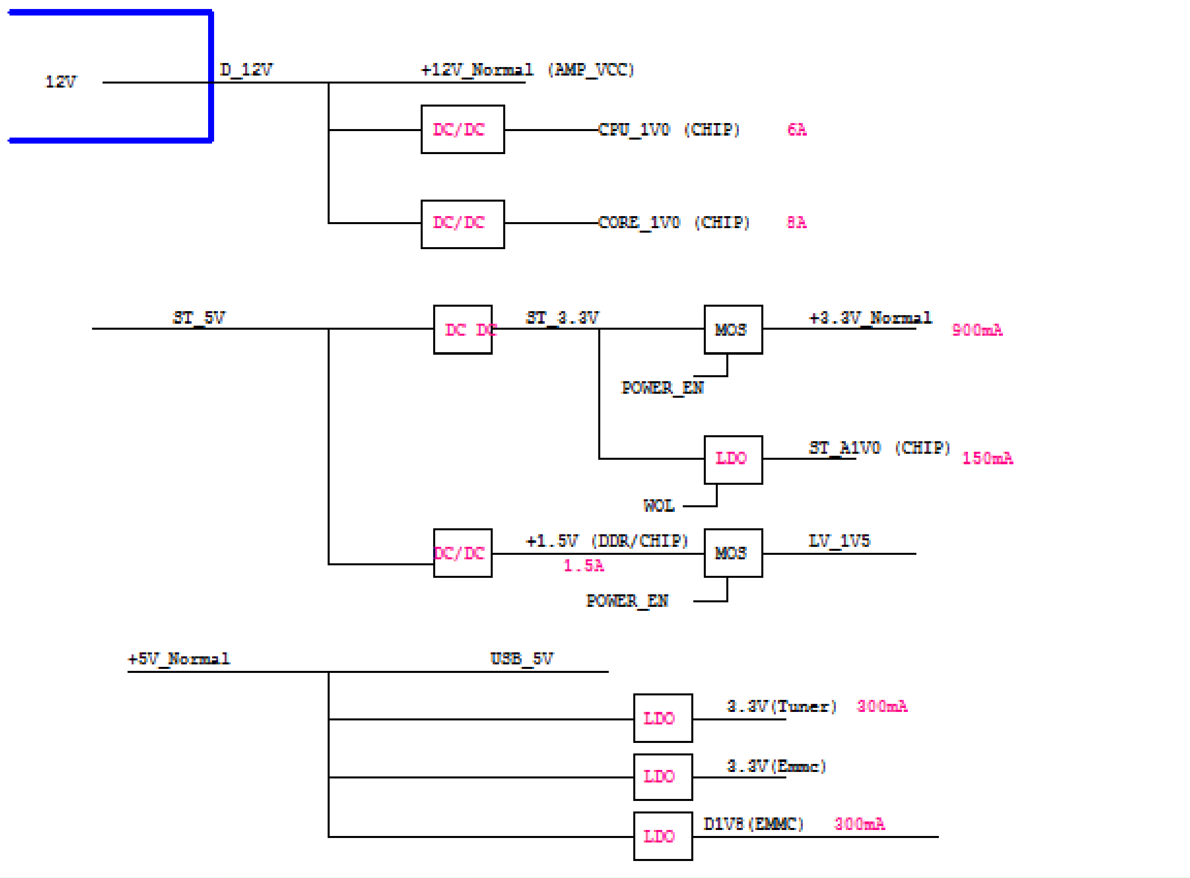
—Power Units Problem Solving

—Display Units Problem Solving

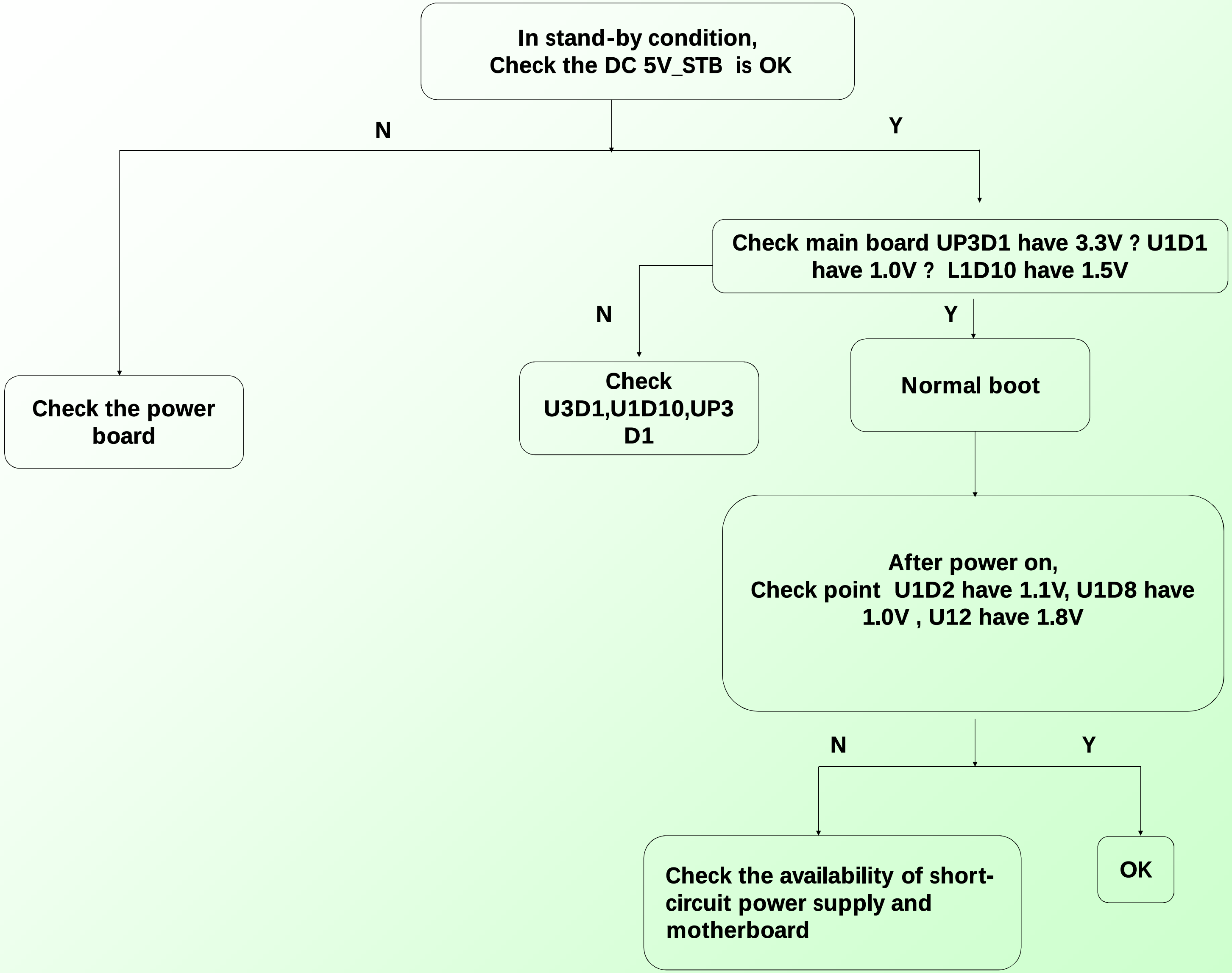
—Audio Units Problem Solving

—Functional Units Problem Solving

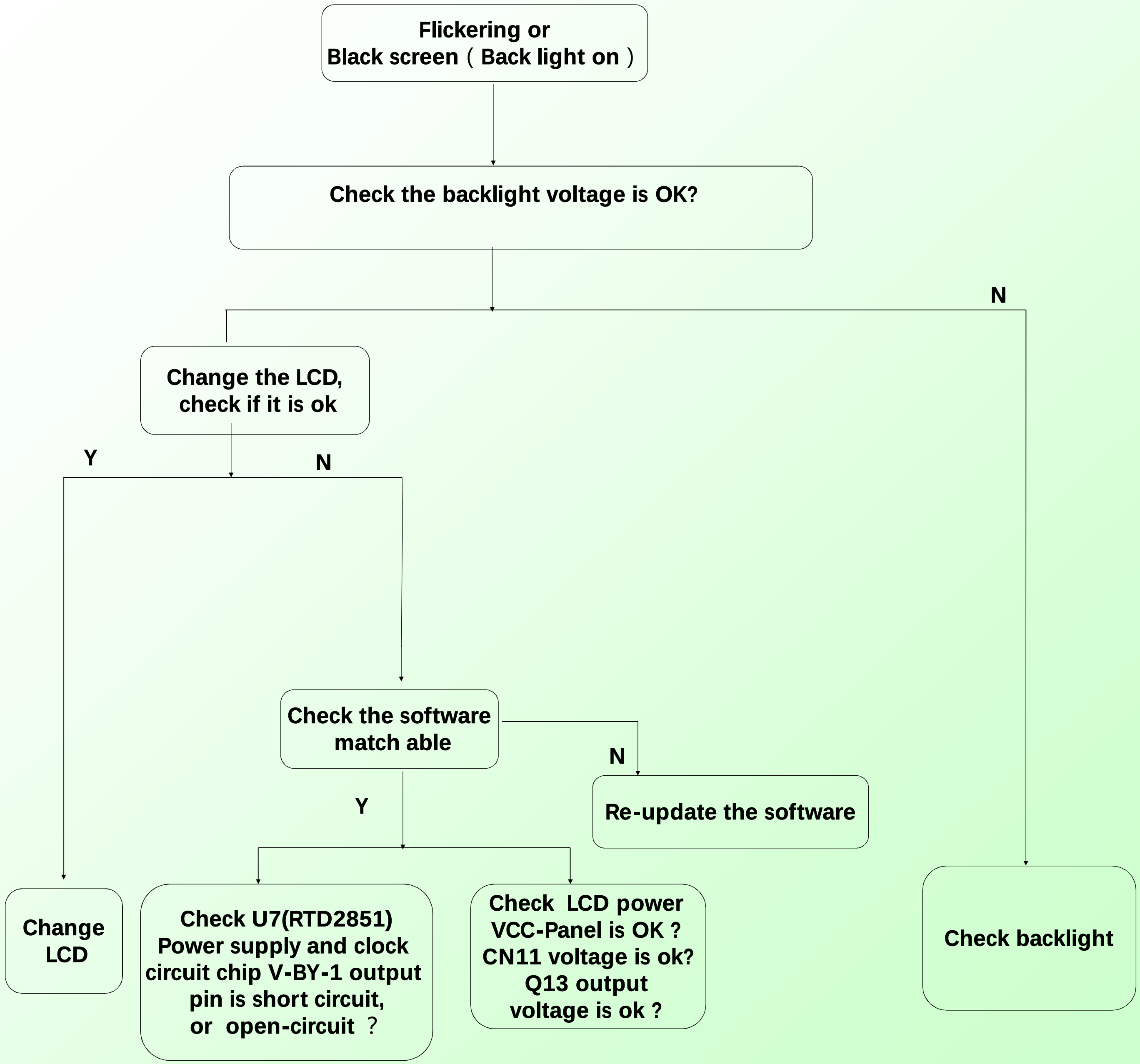
HK.T.RT2851V09X Power Chart



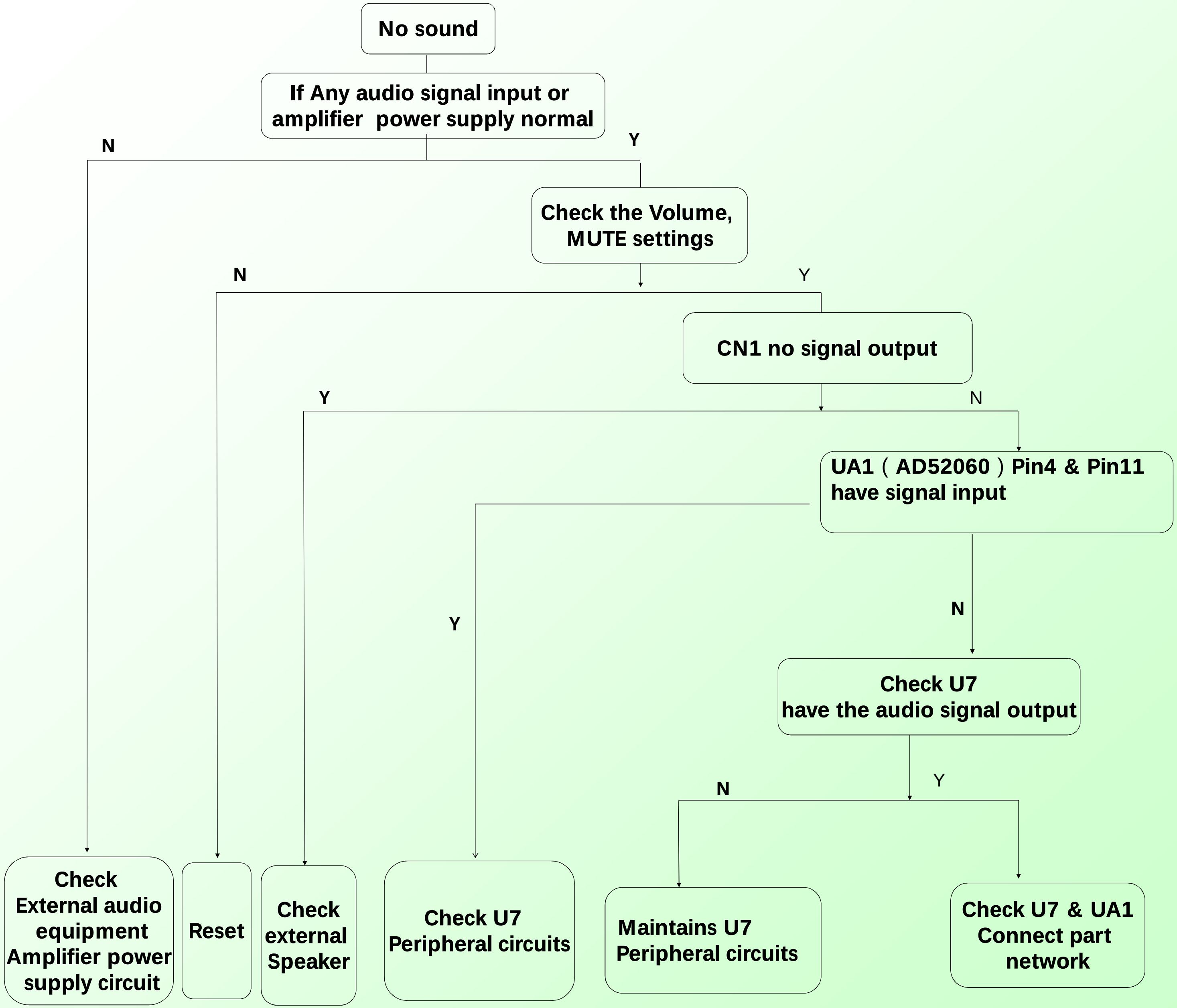
2.1 Power Units Problem Solving (Mainboard can not boot.)



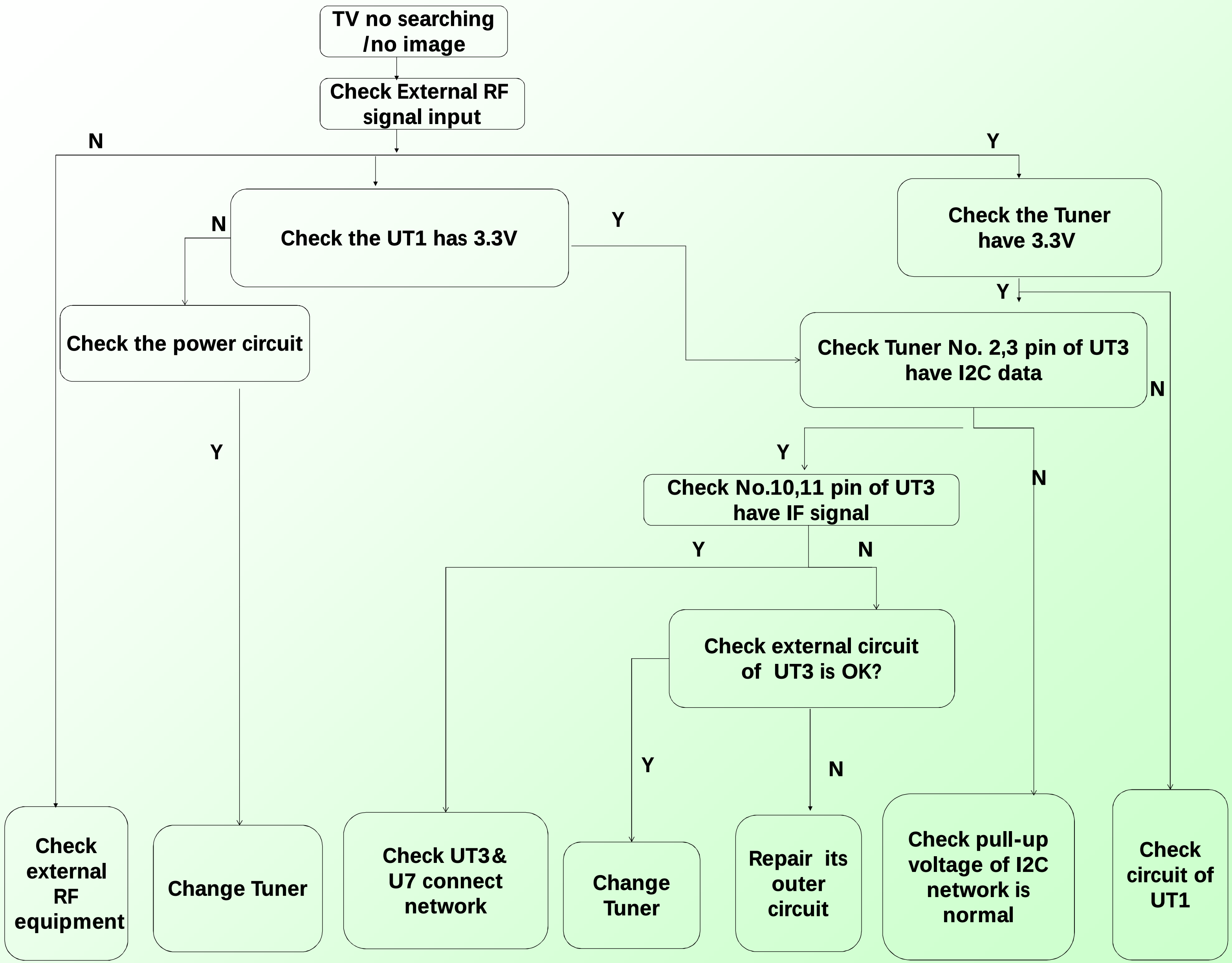
2.2 Display Unit (black screen)



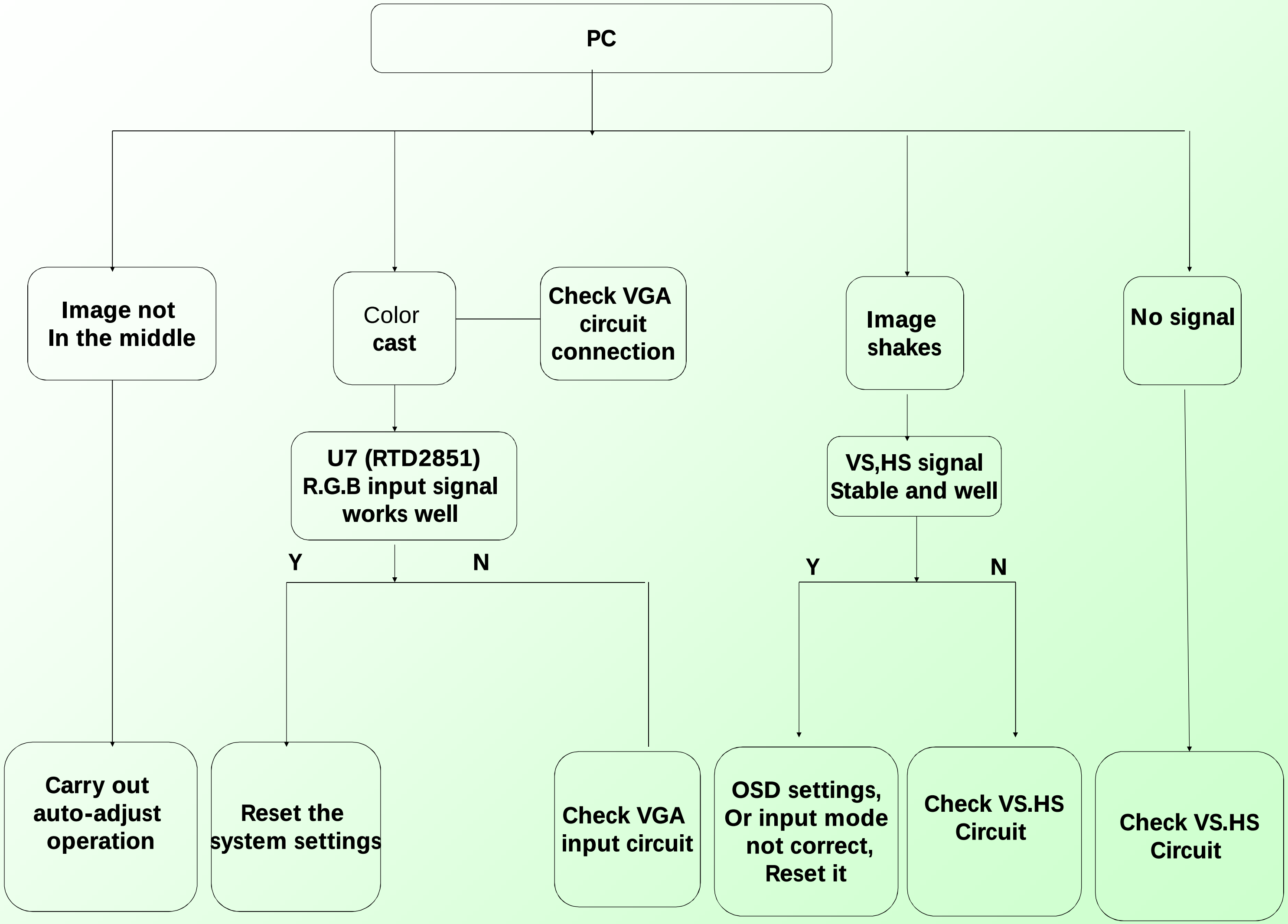
2.3 Audio Unit (no sound)



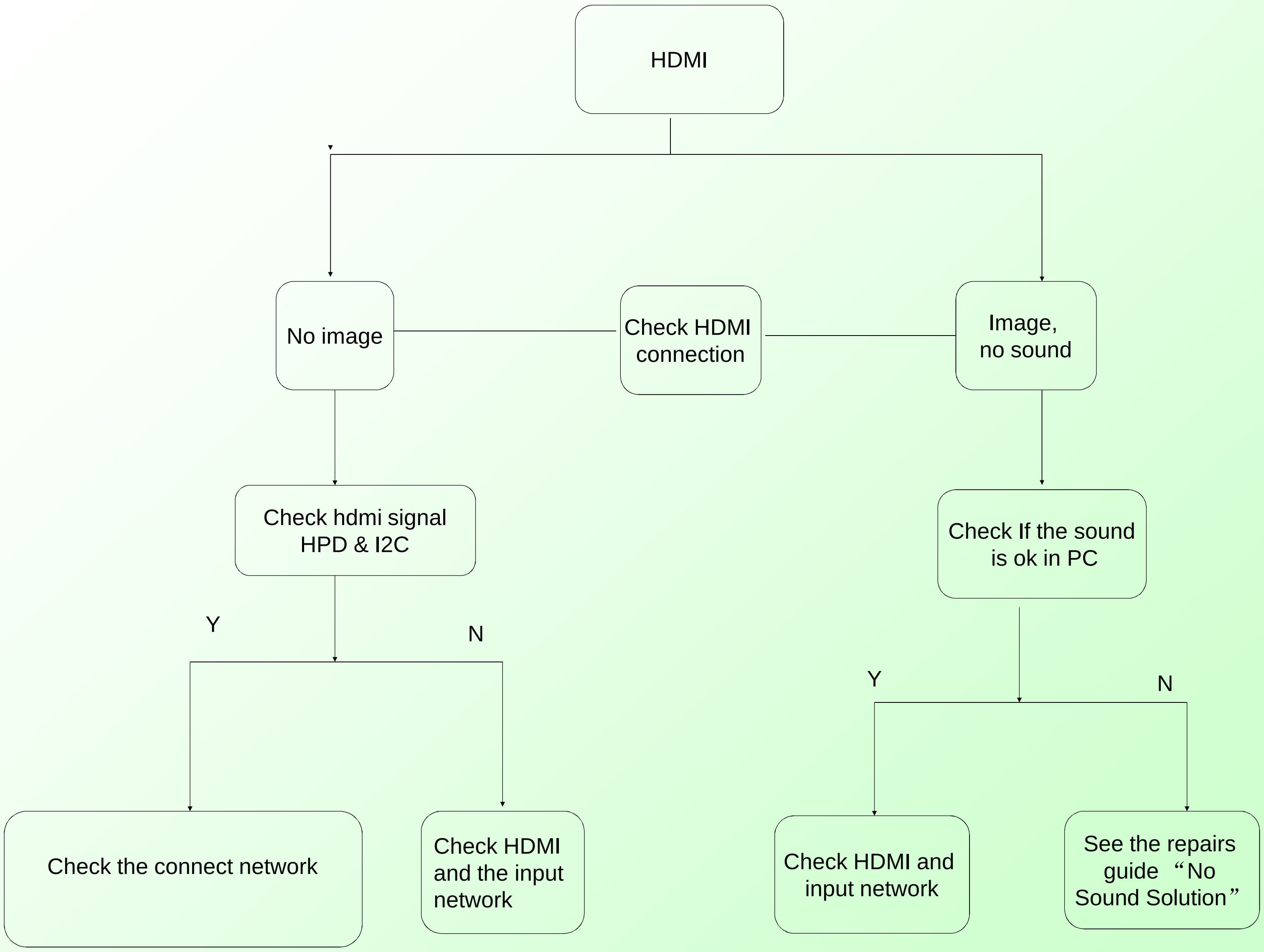
2.4 Function Unit (TV broke down)

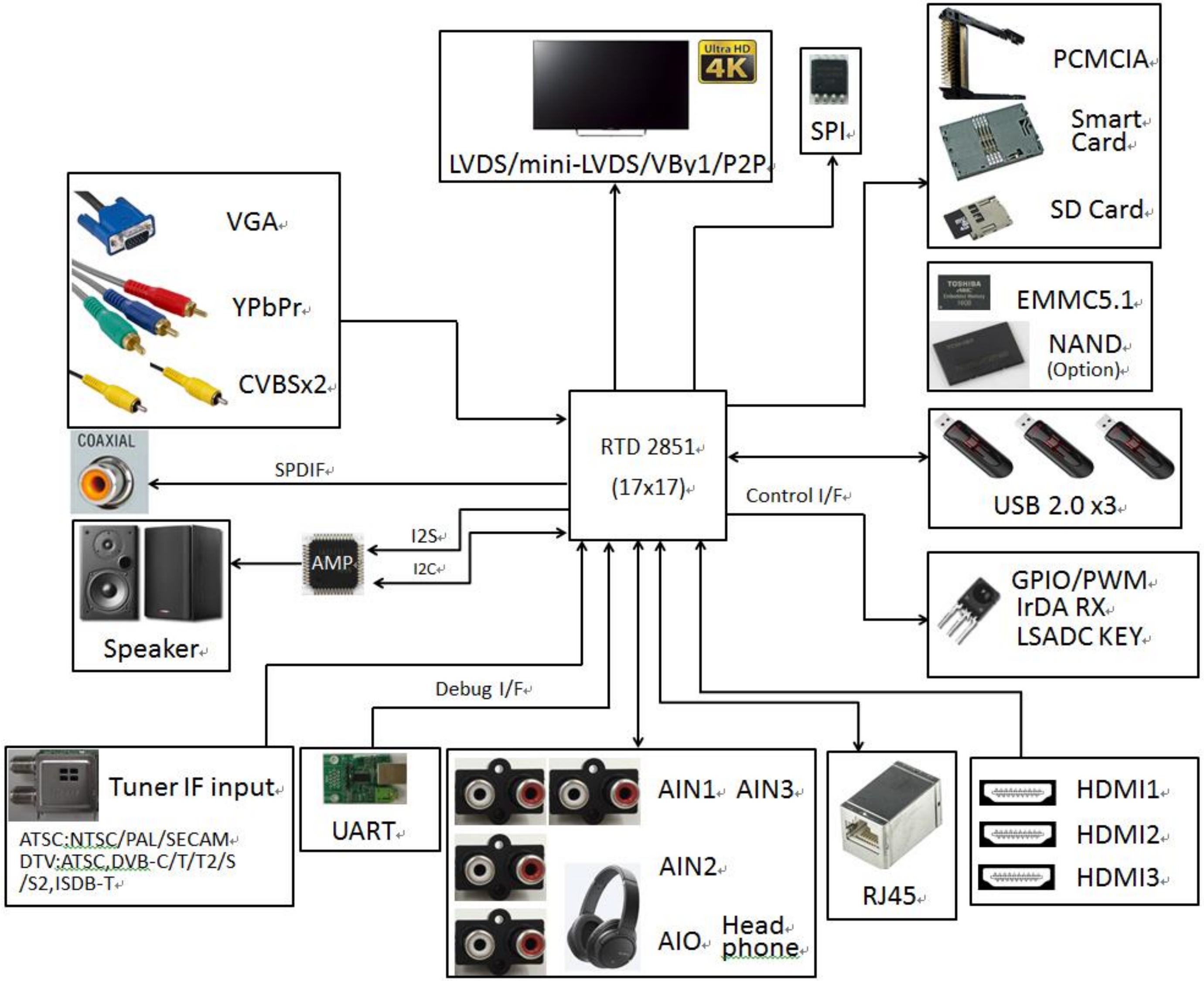


2.5 Function Unit (PC)

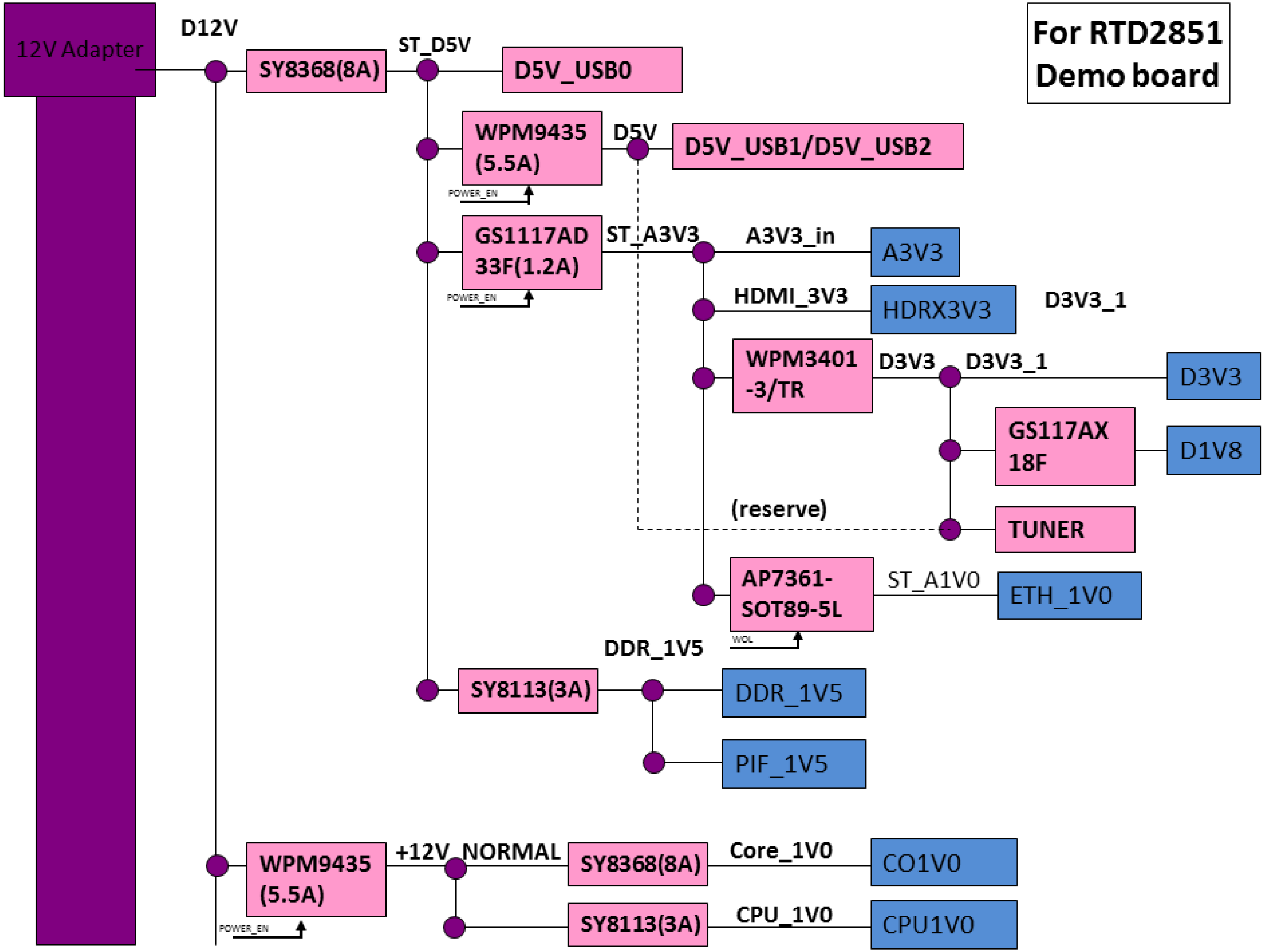


2.6 Function Unit （HDMI）

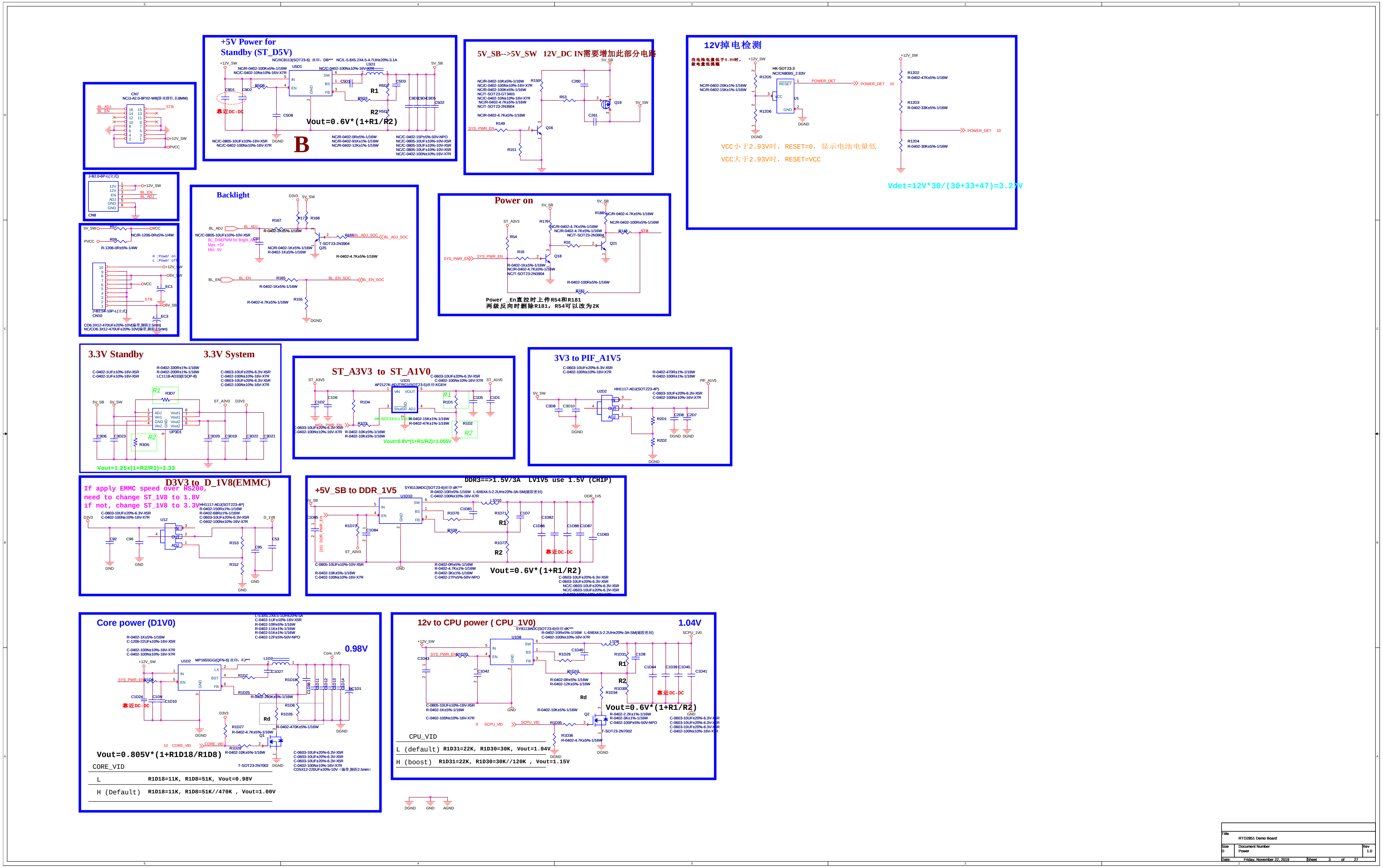


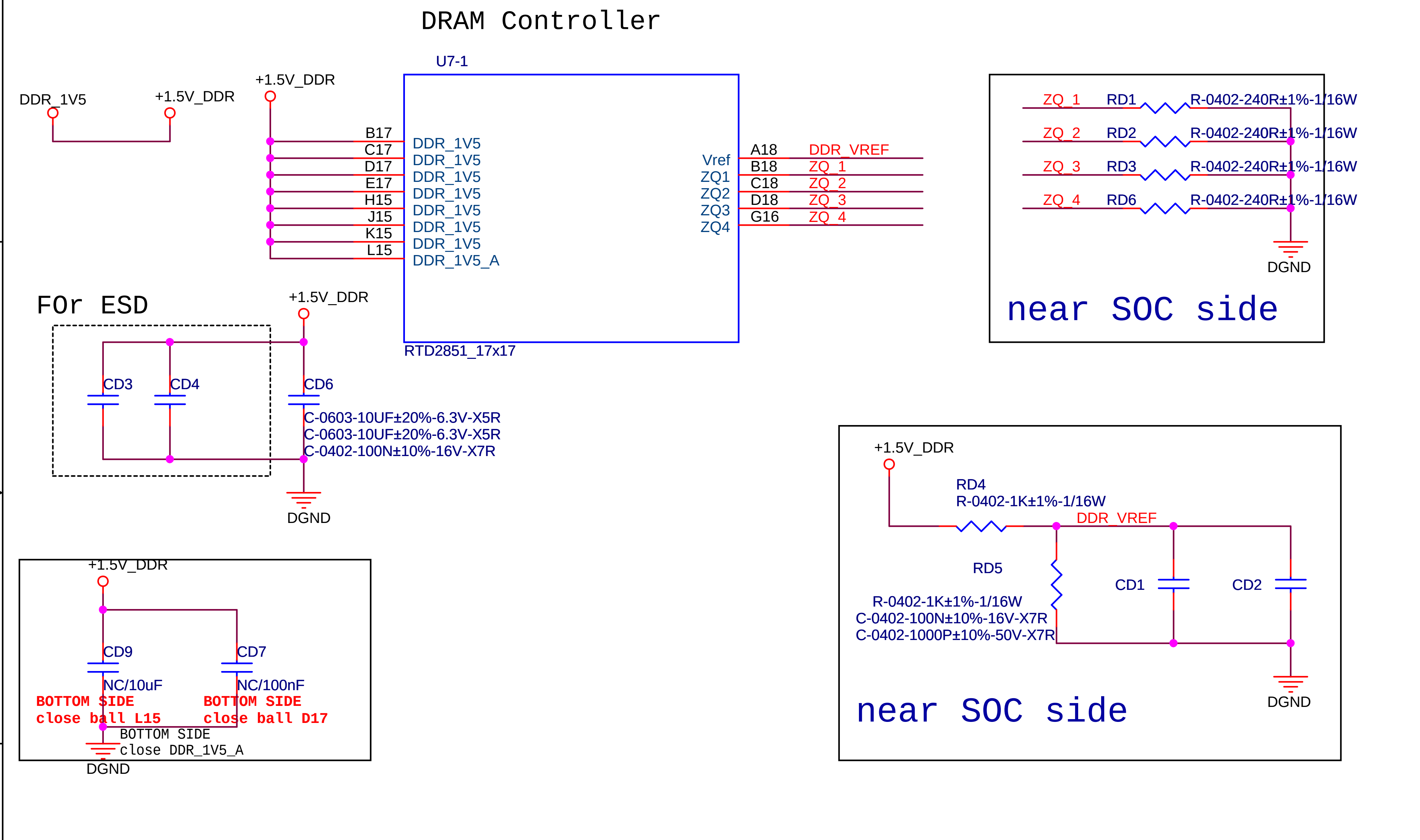


Title	RTD2851 Demo Board	
Size B	Document Number Block Diagram	Rev <RevCode
Date: Friday, November 22, 2019	Sheet 1 of 27	

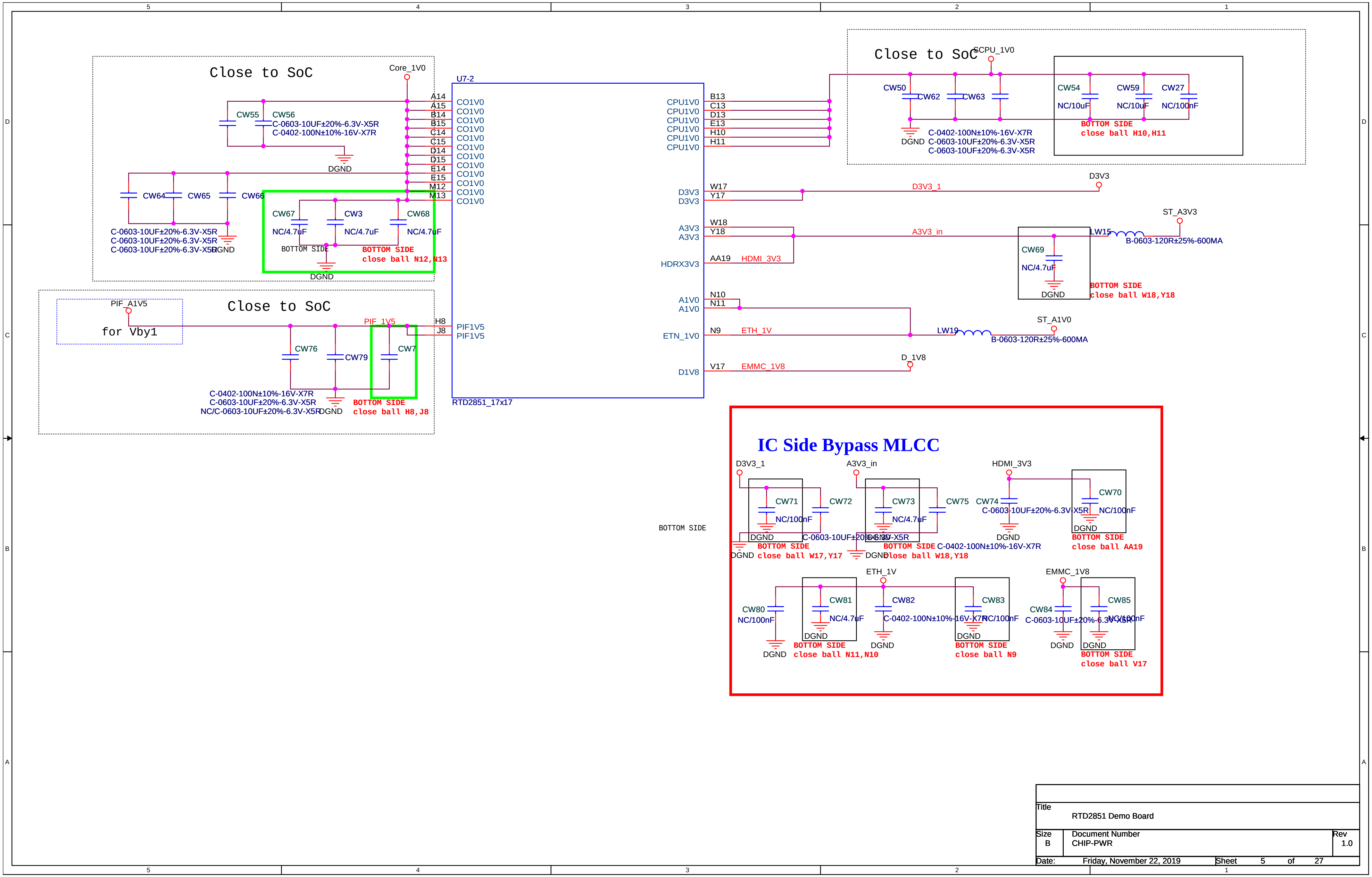


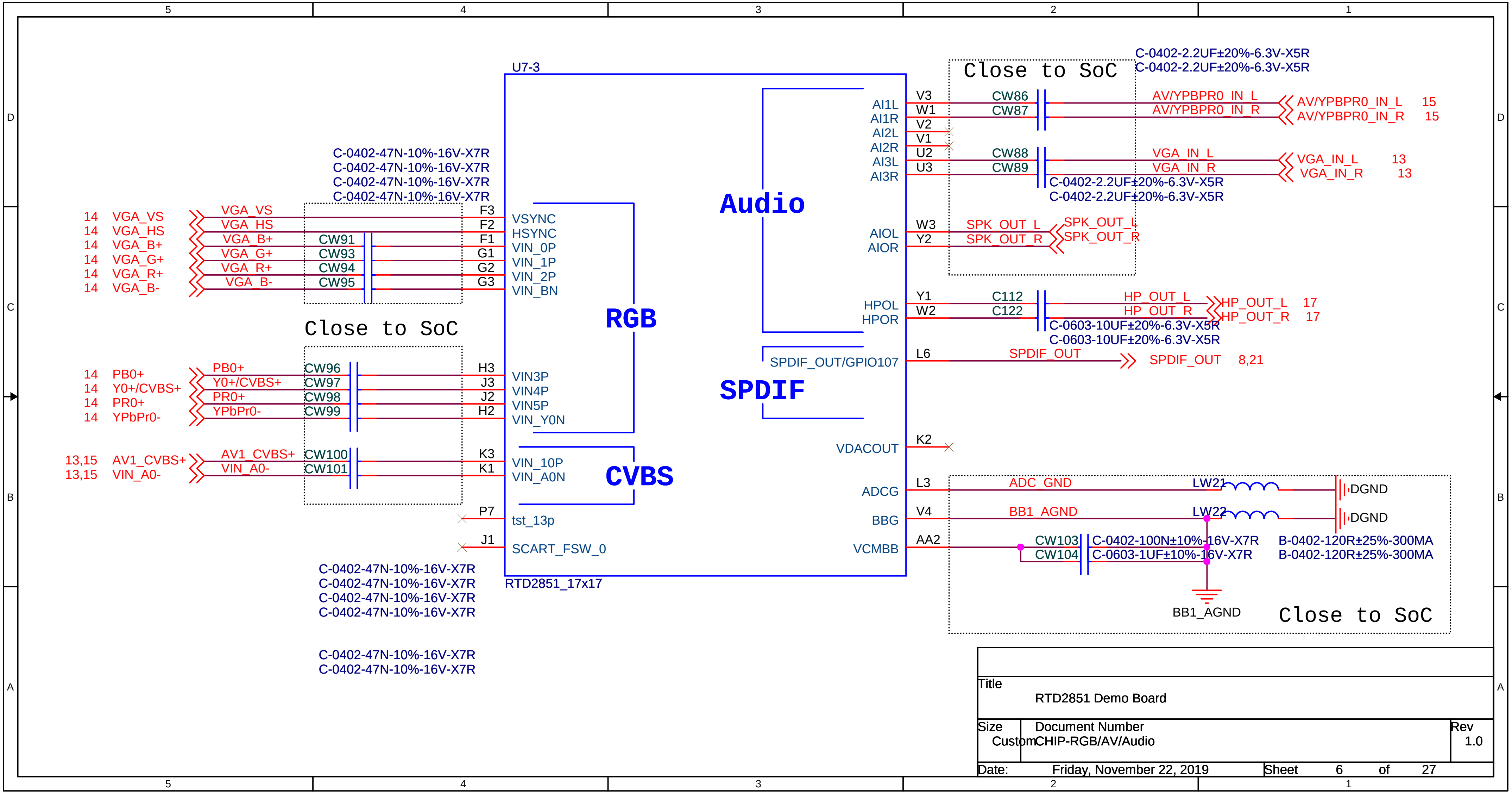
Title	RTD2851 Demo Board		
Size Custom	Document Number POWER_TREE		Rev <RevCo
Date:	Friday, November 22, 2019	Sheet 2 of 27	

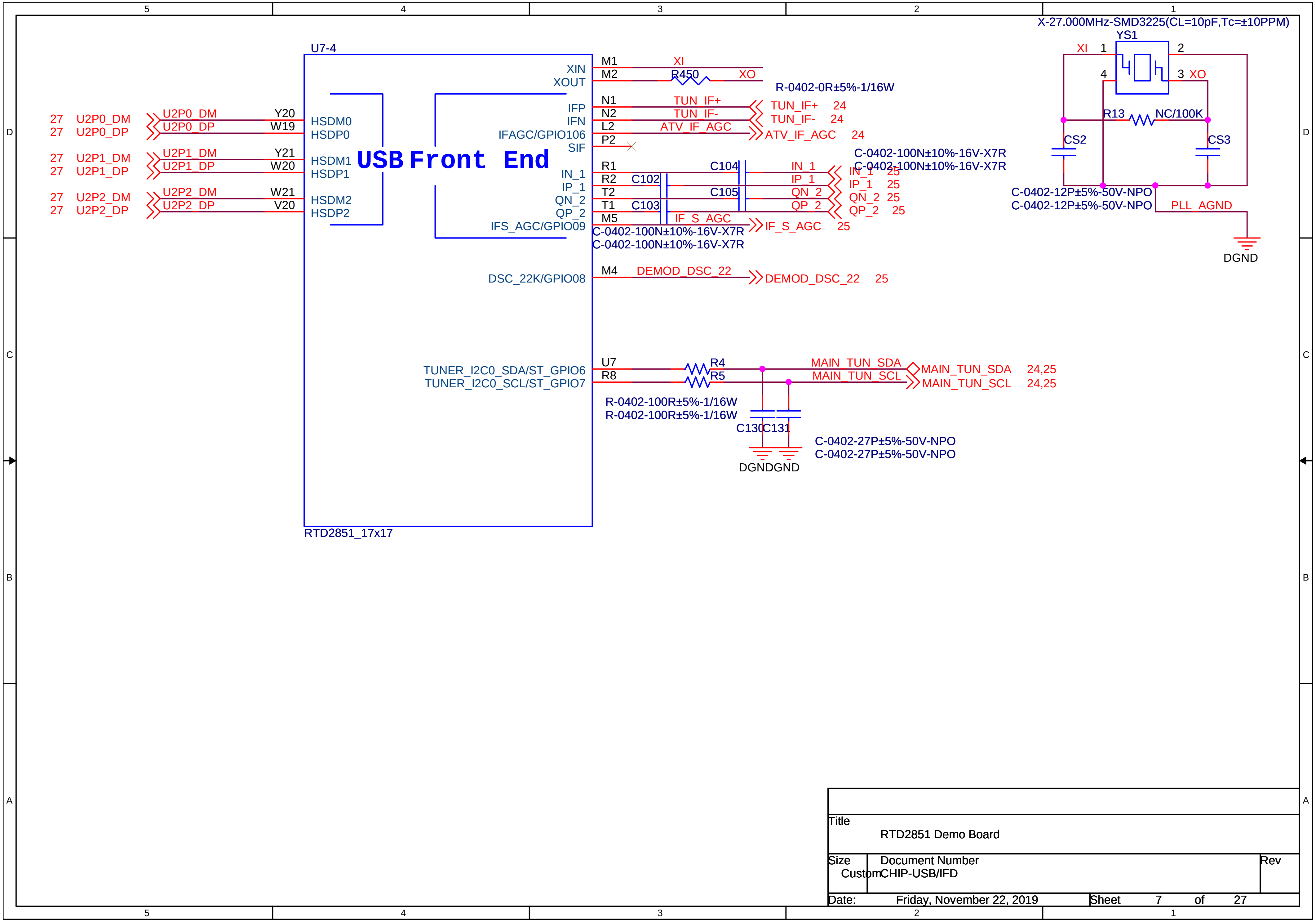

+5V Power for Standby (ST_D5V)
Vout=0.6V*(1+R1/R2)
5V_SB-->5V_SW 12V_DC IN需要增加此部分电路
12V掉电检测
VCC小于2.93V时, RESET=0, 显示电池电量低
VCC大于2.93V时, RESET=VCC
Vdet=12V*30/(30+33+47)=3.27V
Backlight
Power on
3.3V Standby
3.3V System
Vout=1.25x(1+R2/R1)=3.33
ST_A3V3 to ST_A1V0
3V3 to PIF_A1V5
D3V3 to D_1V8(EMMC)
If apply EMMC speed over HS200, need to change ST_1V8 to 1.8V
if not, change ST_1V8 to 3.3V
+5V_SB to DDR_1V5
DDR3==>1.5V/3A LV1V5 use 1.5V (CHIP)
Core power (D1V0)
0.98V
Vout=0.805V*(1+R1D18/R1D8)
12v to CPU power (CPU_1V0)
1.04V
Vout=0.6V*(1+R1/R2)
RTD2851 Demo Board
Power
Friday, November 22, 2019

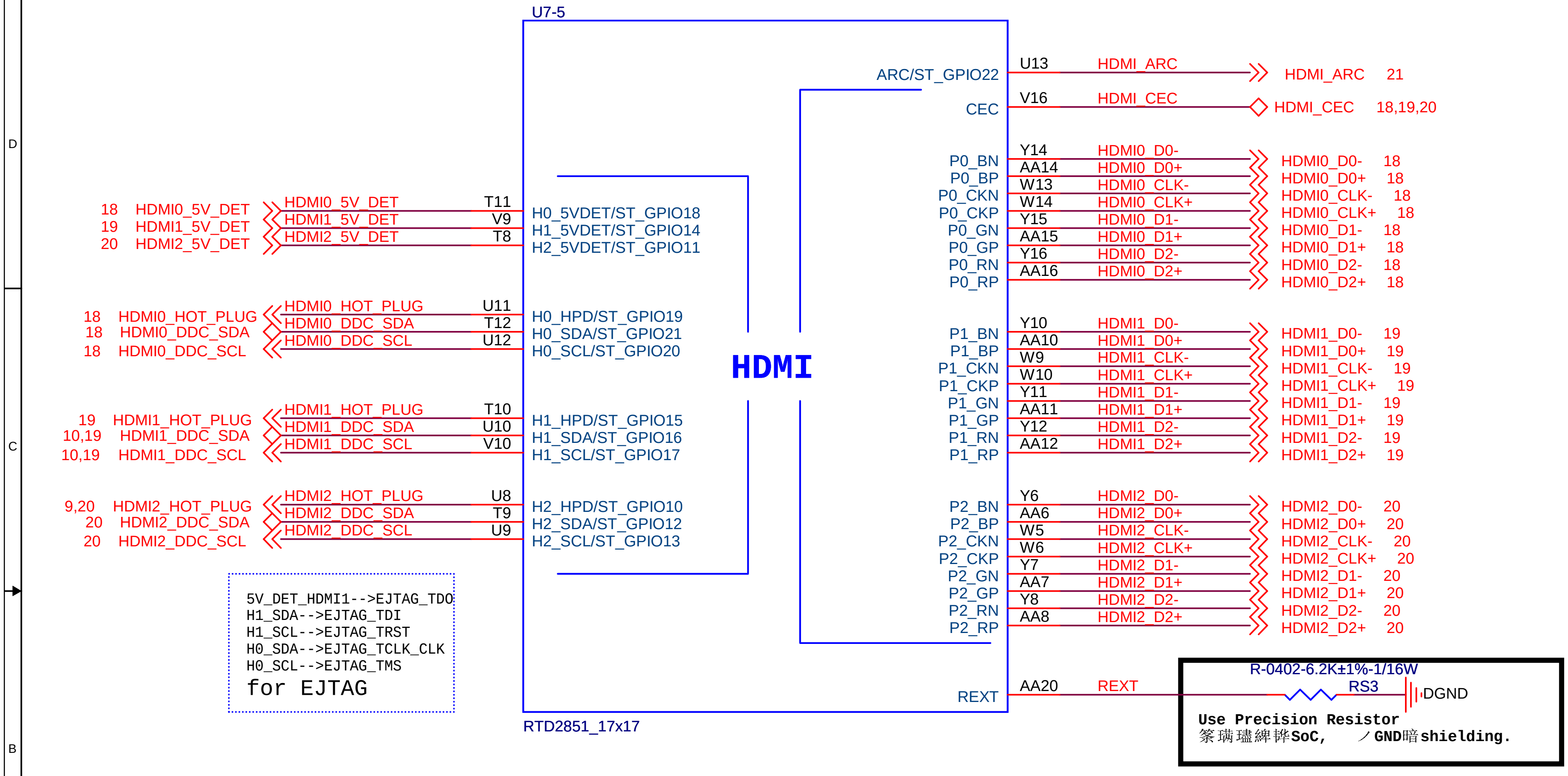


Title	RTD2851 Demo Board		
Size Custom	Document Number CHIP-DDR		Rev 1.0
Date:	Friday, November 22, 2019	Sheet 4	of 27

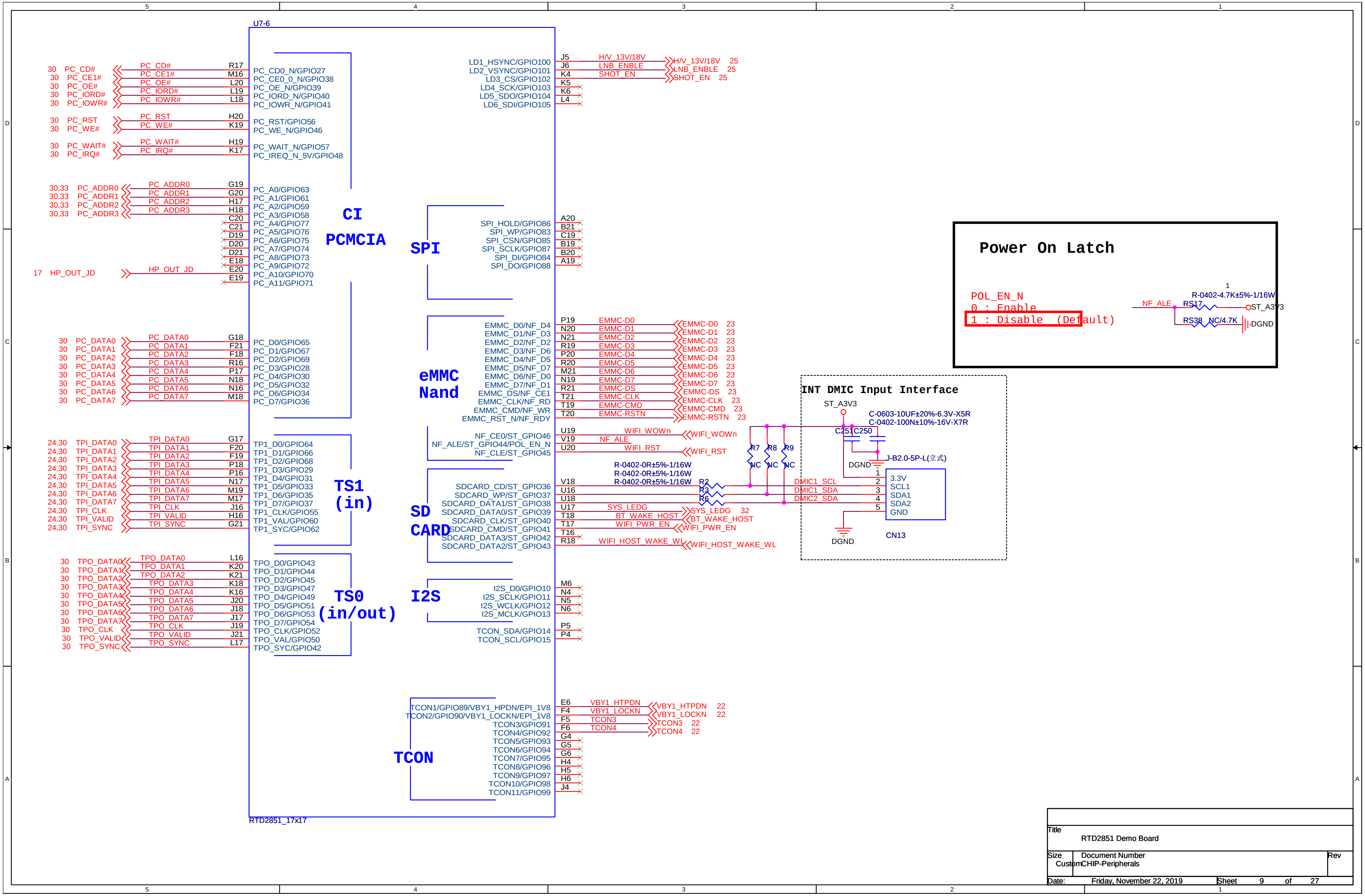

Close to SoC
Core_1V0
U7-2
CW55
CW56
C-0603-10UF±20%-6.3V-X5R
C-0402-100N±10%-16V-X7R
DGND
CW64
CW65
CW66
C-0603-10UF±20%-6.3V-X5R
C-0603-10UF±20%-6.3V-X5R
C-0603-10UF±20%-6.3V-X5R
CW67
CW3
CW68
NC/4.7uF
NC/4.7uF
NC/4.7uF
BOTTOM SIDE
close ball N12,N13
A14 A15 B14 B15 C14 C15 D14 D15 E14 E15 M12 M13
CO1V0
Close to SoC
PIF_A1V5
for Vby1
PIF_1V5
H8
J8
PIF1V5
PIF1V5
CW76
CW79
CW7
C-0402-100N±10%-16V-X7R
C-0603-10UF±20%-6.3V-X5R
NC/C-0603-10UF±20%-6.3V-X5R
BOTTOM SIDE
close ball H8,J8
RTD2851_17x17
CPU1V0
B13 C13 D13 E13 H10 H11
Close to SoC
CPU_1V0
CW50
CW62
CW63
CW54
CW59
CW27
NC/10uF
NC/10uF
NC/100nF
C-0402-100N±10%-16V-X7R
C-0603-10UF±20%-6.3V-X5R
C-0603-10UF±20%-6.3V-X5R
BOTTOM SIDE
close ball H10,H11
D3V3
W17
Y17
D3V3_1
A3V3
W18
Y18
A3V3_in
ST_A3V3
LW15
B-0603-120R±25%-600MA
CW69
NC/4.7uF
BOTTOM SIDE
close ball W18,Y18
HDRX3V3
AA19
HDMI_3V3
A1V0
N10
N11
ETN_1V0
N9
ETH_1V
ST_A1V0
LW19
B-0603-120R±25%-600MA
D1V8
V17
EMMC_1V8
D_1V8
IC Side Bypass MLCC
D3V3_1
A3V3_in
HDMI_3V3
CW71
CW72
CW73
CW75
CW74
CW70
NC/100nF
NC/4.7uF
C-0603-10UF±20%-6.3V-X5R
NC/100nF
C-0402-100N±10%-16V-X7R
BOTTOM SIDE
close ball W17,Y17
BOTTOM SIDE
close ball W18,Y18
BOTTOM SIDE
close ball AA19
ETH_1V
EMMC_1V8
CW80
CW81
CW82
CW83
CW84
CW85
NC/100nF
NC/4.7uF
C-0402-100N±10%-16V-X7R
NC/100nF
C-0603-10UF±20%-6.3V-X5R
NC/100nF
BOTTOM SIDE
close ball N11,N10
BOTTOM SIDE
close ball N9
BOTTOM SIDE
close ball V17
BOTTOM SIDE
Title
RTD2851 Demo Board
Size B
Document Number
CHIP-PWR
Rev 1.0
Date: Friday, November 22, 2019
Sheet 5 of 27

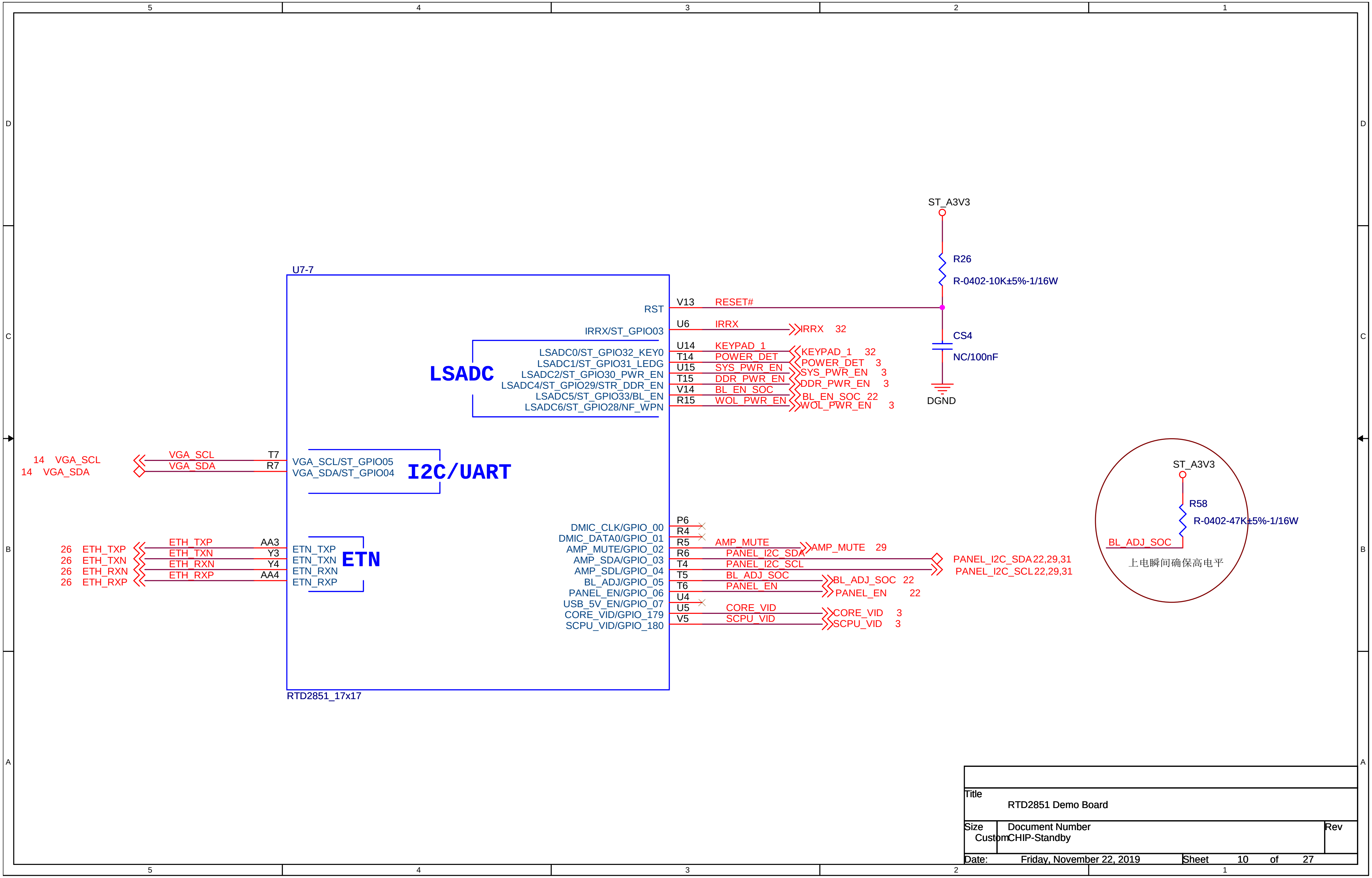

U7-3
RTD2851_17x17
Audio
RGB
SPDIF
CVBS
Close to SoC
C-0402-2.2UF±20%-6.3V-X5R
C-0402-47N-10%-16V-X7R
14 VGA_VS
14 VGA_HS
14 VGA_B+
14 VGA_G+
14 VGA_R+
14 VGA_B-
CW91
CW93
CW94
CW95
F3 VSYNC
F2 HSYNC
F1 VIN_0P
G1 VIN_1P
G2 VIN_2P
G3 VIN_BN
14 PB0+
14 Y0+/CVBS+
14 PR0+
14 YPbPr0-
CW96
CW97
CW98
CW99
H3 VIN3P
J3 VIN4P
J2 VIN5P
H2 VIN_Y0N
13,15 AV1_CVBS+
13,15 VIN_A0-
CW100
CW101
K3 VIN_10P
K1 VIN_A0N
P7 tst_13p
J1 SCART_FSW_0
AI1L V3
AI1R W1
AI2L V2
AI2R V1
AI3L U2
AI3R U3
CW86
CW87
CW88
CW89
AV/YPBPR0_IN_L 15
AV/YPBPR0_IN_R 15
VGA_IN_L 13
VGA_IN_R 13
AIOL W3
AIOR Y2
SPK_OUT_L
SPK_OUT_R
HPOL Y1
HPOR W2
C112
C122
C-0603-10UF±20%-6.3V-X5R
HP_OUT_L 17
HP_OUT_R 17
SPDIF_OUT/GPIO107 L6
SPDIF_OUT 8,21
VDACOUT K2
ADCG L3
BBG V4
VCMBB AA2
ADC_GND
BB1_AGND
LW21
LW22
DGND
CW103
CW104
C-0402-100N±10%-16V-X7R
C-0603-1UF±10%-16V-X7R
B-0402-120R±25%-300MA
BB1_AGND
Title
RTD2851 Demo Board
Size
Custom
Document Number
CHIP-RGB/AV/Audio
Rev
1.0
Date: Friday, November 22, 2019
Sheet 6 of 27

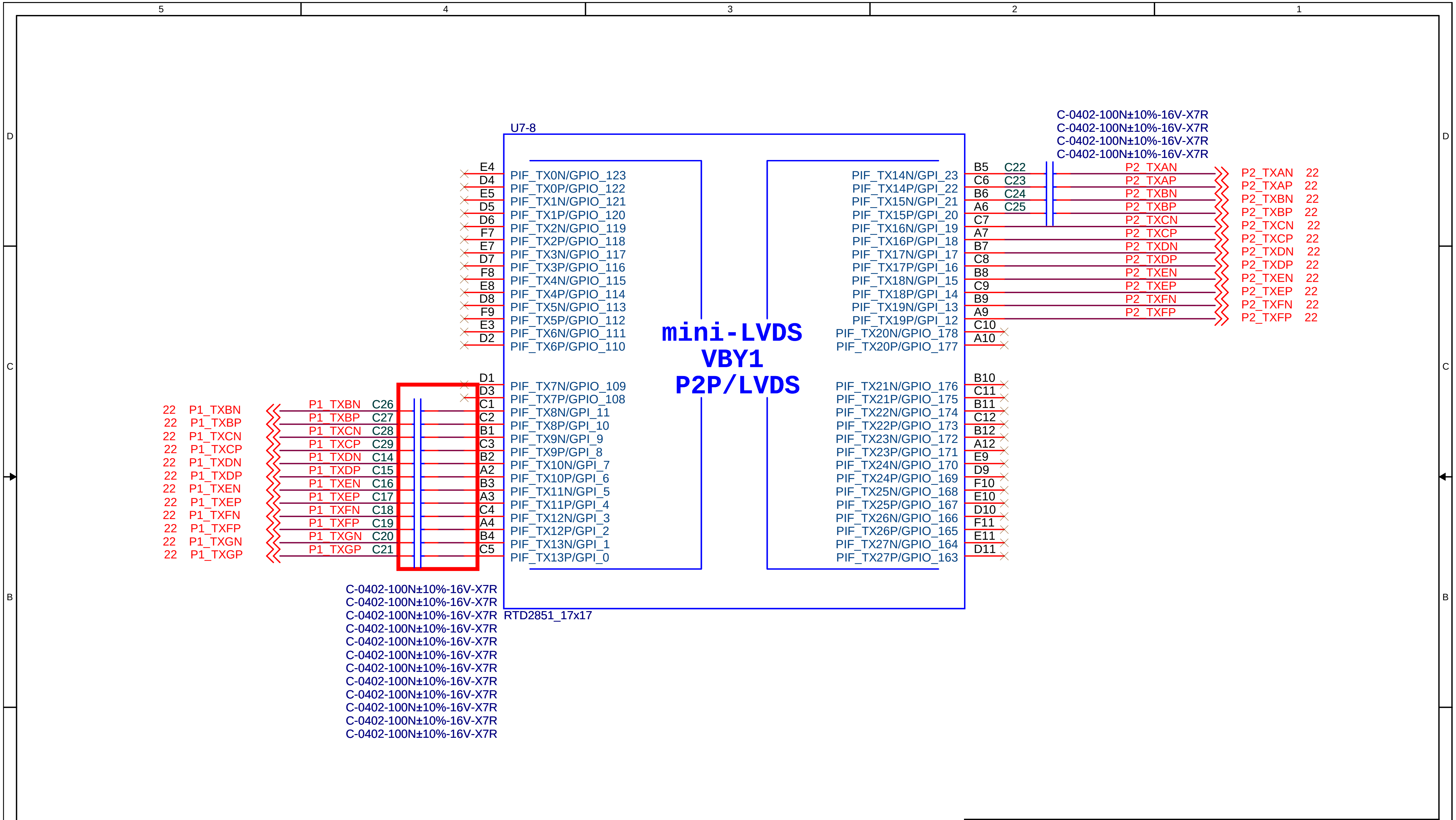

X-27.000MHz-SMD3225(CL=10pF,Tc=±10PPM)
YS1
XI 1
2
4
3 XO
R13
NC/100K
CS2
CS3
C-0402-12P±5%-50V-NPO
C-0402-12P±5%-50V-NPO
PLL_AGND
DGND
U7-4
XIN
XOUT
M1
M2
XI
R450
XO
R-0402-0R±5%-1/16W
IFP
IFN
IFAGC/GPIO106
SIF
N1
N2
L2
P2
TUN_IF+
TUN_IF-
ATV_IF_AGC
TUN_IF+ 24
TUN_IF- 24
ATV_IF_AGC 24
27 U2P0_DM
27 U2P0_DP
27 U2P1_DM
27 U2P1_DP
27 U2P2_DM
27 U2P2_DP
U2P0_DM
U2P0_DP
U2P1_DM
U2P1_DP
U2P2_DM
U2P2_DP
Y20
W19
Y21
W20
W21
V20
HSDM0
HSDP0
HSDM1
HSDP1
HSDM2
HSDP2
USB Front End
IN_1
IP_1
QN_2
QP_2
IFS_AGC/GPIO09
R1
R2
T2
T1
M5
C102
C103
C104
C105
IN_1
IP_1
QN_2
QP_2
IF_S_AGC
C-0402-100N±10%-16V-X7R
C-0402-100N±10%-16V-X7R
IN_1 25
IP_1 25
QN_2 25
QP_2 25
IF_S_AGC 25
C-0402-100N±10%-16V-X7R
C-0402-100N±10%-16V-X7R
DSC_22K/GPIO08
M4
DEMOD_DSC_22
DEMOD_DSC_22 25
TUNER_I2C0_SDA/ST_GPIO6
TUNER_I2C0_SCL/ST_GPIO7
U7
R8
R4
R5
MAIN_TUN_SDA
MAIN_TUN_SCL
MAIN_TUN_SDA 24,25
MAIN_TUN_SCL 24,25
R-0402-100R±5%-1/16W
R-0402-100R±5%-1/16W
C130
C131
C-0402-27P±5%-50V-NPO
C-0402-27P±5%-50V-NPO
DGNDDGND
RTD2851_17x17
Title
RTD2851 Demo Board
Size
Custom
Document Number
CHIP-USB/IFD
Rev
Date: Friday, November 22, 2019
Sheet 7 of 27
5
4
3
2
1
D
C
B
A



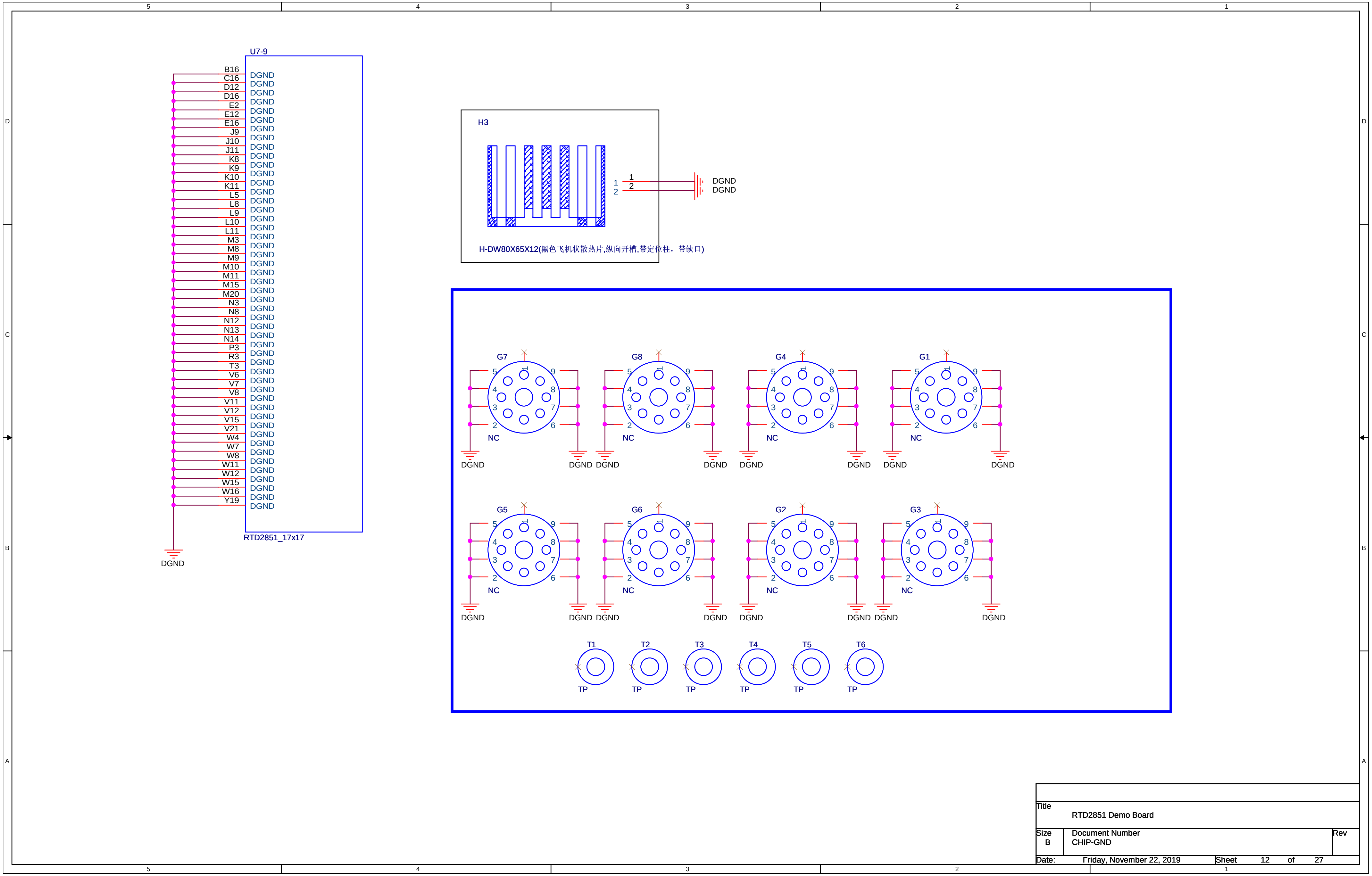
Title	RTD2851 Demo Board	
Size A	Document Number CHIP-HDMI	Rev
Date: Friday, November 22, 2019	Sheet 8 of 27	

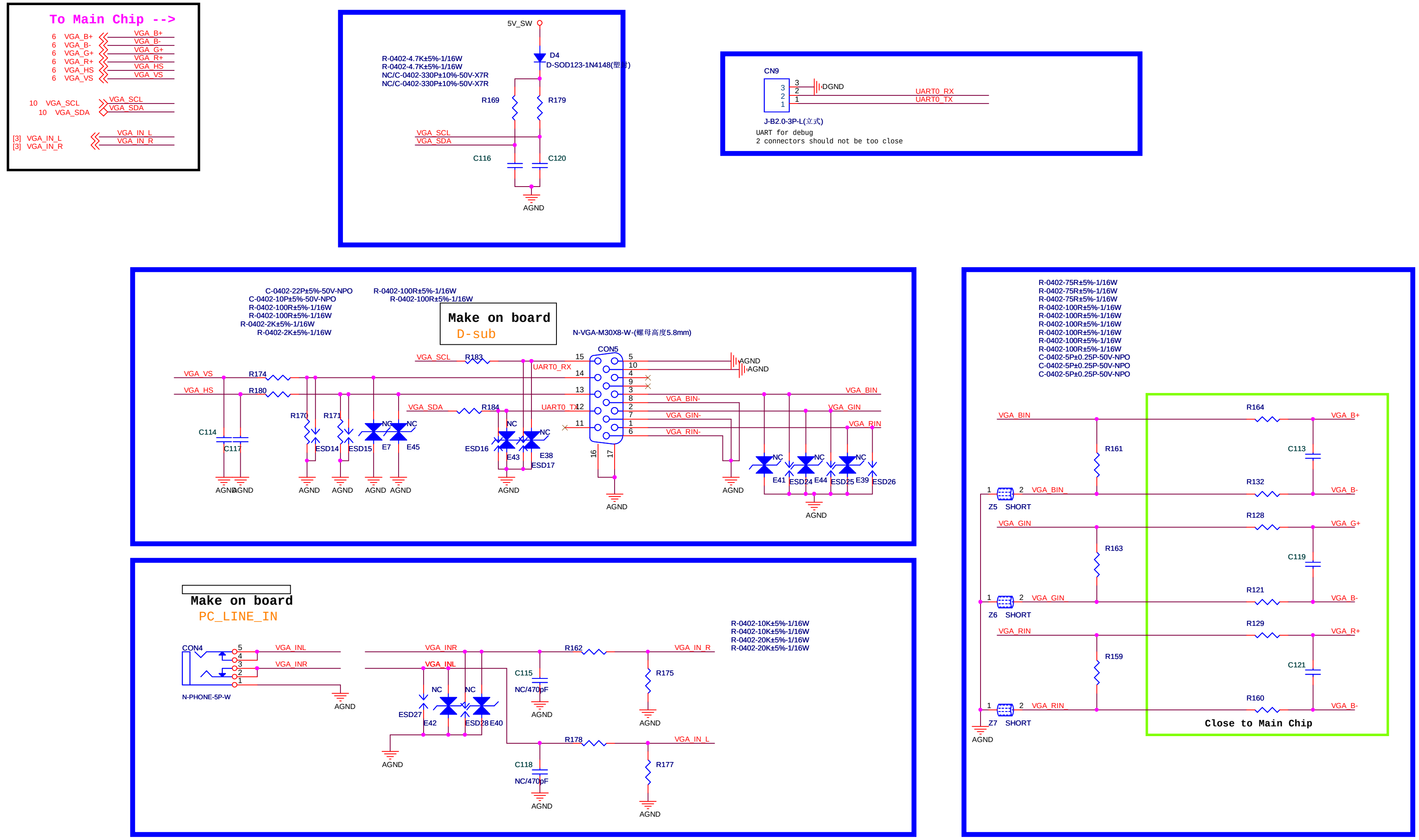

U7-6
CI
PCMCIA
SPI
eMMC
Nand
TS1
(in)
TS0
(in/out)
SD
CARD
I2S
TCON
RTD2851_17x17
Power On Latch
POL_EN_N
0 : Enable
1 : Disable (Default)
NF_ALE
R-0402-4.7K±5%-1/16W
RS17
ST_A3V3
RS38 NC/4.7K
DGND
INT DMIC Input Interface
ST_A3V3
C-0603-10UF±20%-6.3V-X5R
C-0402-100N±10%-16V-X7R
C251
C250
J-B2.0-5P-L(立式)
3.3V
SCL1
SDA1
SDA2
GND
CN13
DMIC1_SCL
DMIC1_SDA
DMIC2_SDA
R-0402-0R±5%-1/16W
R2
R3
R6
R7
R8
R9
NC
Title
RTD2851 Demo Board
Size
Custom
Document Number
CHIP-Peripherals
Rev
Date:
Friday, November 22, 2019
Sheet 9 of 27


U7-7
RTD2851_17x17
RST
V13 RESET#
ST_A3V3
R26
R-0402-10K±5%-1/16W
CS4
NC/100nF
DGND
IRRX/ST_GPIO03
U6 IRRX
IRRX 32
LSADC
LSADC0/ST_GPIO32_KEY0
LSADC1/ST_GPIO31_LEDG
LSADC2/ST_GPIO30_PWR_EN
LSADC4/ST_GPIO29/STR_DDR_EN
LSADC5/ST_GPIO33/BL_EN
LSADC6/ST_GPIO28/NF_WPN
U14 KEYPAD_1
T14 POWER_DET
U15 SYS_PWR_EN
T15 DDR_PWR_EN
V14 BL_EN_SOC
R15 WOL_PWR_EN
KEYPAD_1 32
POWER_DET 3
SYS_PWR_EN 3
DDR_PWR_EN 3
BL_EN_SOC 22
WOL_PWR_EN 3
I2C/UART
VGA_SCL/ST_GPIO05
VGA_SDA/ST_GPIO04
T7 VGA_SCL
R7 VGA_SDA
14 VGA_SCL
14 VGA_SDA
ETN
ETN_TXP
ETN_TXN
ETN_RXN
ETN_RXP
AA3 ETH_TXP
Y3 ETH_TXN
Y4 ETH_RXN
AA4 ETH_RXP
26 ETH_TXP
26 ETH_TXN
26 ETH_RXN
26 ETH_RXP
DMIC_CLK/GPIO_00
DMIC_DATA0/GPIO_01
AMP_MUTE/GPIO_02
AMP_SDA/GPIO_03
AMP_SDL/GPIO_04
BL_ADJ/GPIO_05
PANEL_EN/GPIO_06
USB_5V_EN/GPIO_07
CORE_VID/GPIO_179
SCPU_VID/GPIO_180
P6
R4
R5 AMP_MUTE
R6 PANEL_I2C_SDA
T4 PANEL_I2C_SCL
T5 BL_ADJ_SOC
T6 PANEL_EN
U4
U5 CORE_VID
V5 SCPU_VID
AMP_MUTE 29
PANEL_I2C_SDA 22,29,31
PANEL_I2C_SCL 22,29,31
BL_ADJ_SOC 22
PANEL_EN 22
CORE_VID 3
SCPU_VID 3
ST_A3V3
R58
R-0402-47K±5%-1/16W
BL_ADJ_SOC
上电瞬间确保高电平
Title
RTD2851 Demo Board
Size
Custom
Document Number
CHIP-Standby
Rev
Date: Friday, November 22, 2019
Sheet 10 of 27

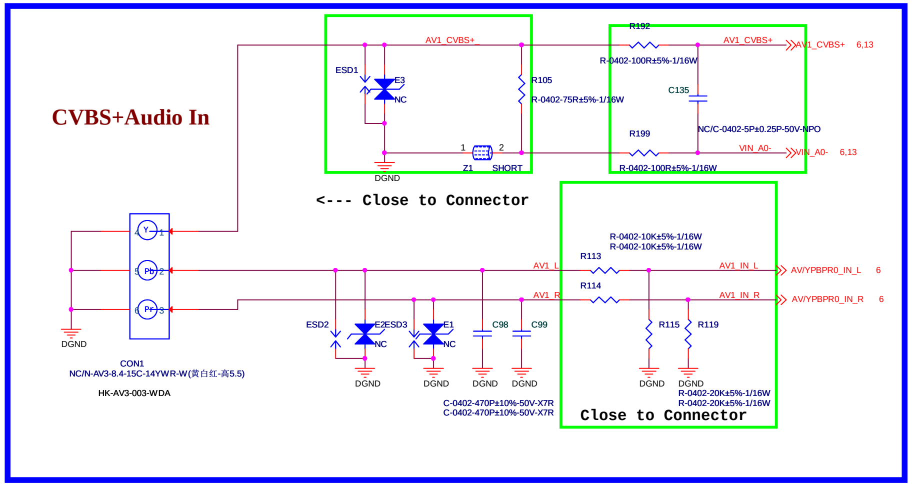


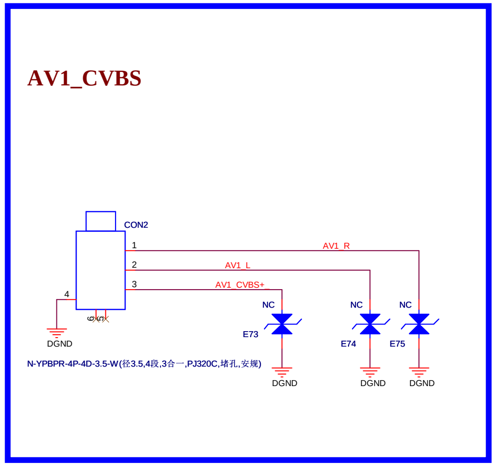
Title	RTD2851 Demo Board	
Size Custom	Document Number CHIP-DISPLAY	Rev
Date: Friday, November 22, 2019	Sheet 11 of 27	

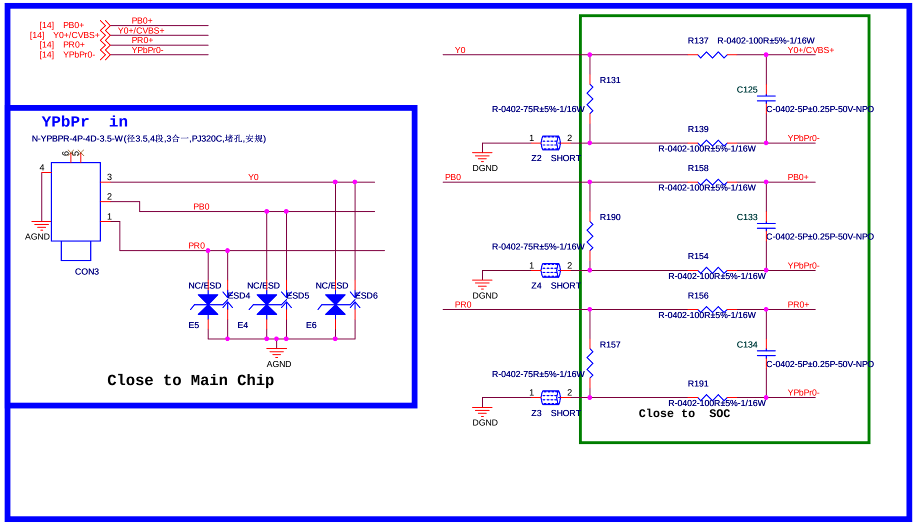

U7-9
B16 C16 D12 D16 E2 E12 E16 J9 J10 J11 K8 K9 K10 K11 L5 L8 L9 L10 L11 M3 M8 M9 M10 M11 M15 M20 N3 N8 N12 N13 N14 P3 R3 T3 V6 V7 V8 V11 V12 V15 V21 W4 W7 W8 W11 W12 W15 W16 Y19
DGND
RTD2851_17x17
H3
H-DW80X65X12(黑色飞机状散热片,纵向开槽,带定位柱，带缺口)
G7
G8
G4
G1
G5
G6
G2
G3
NC
T1
T2
T3
T4
T5
T6
TP
Title
RTD2851 Demo Board
Size
B
Document Number
CHIP-GND
Rev
Date: Friday, November 22, 2019
Sheet 12 of 27



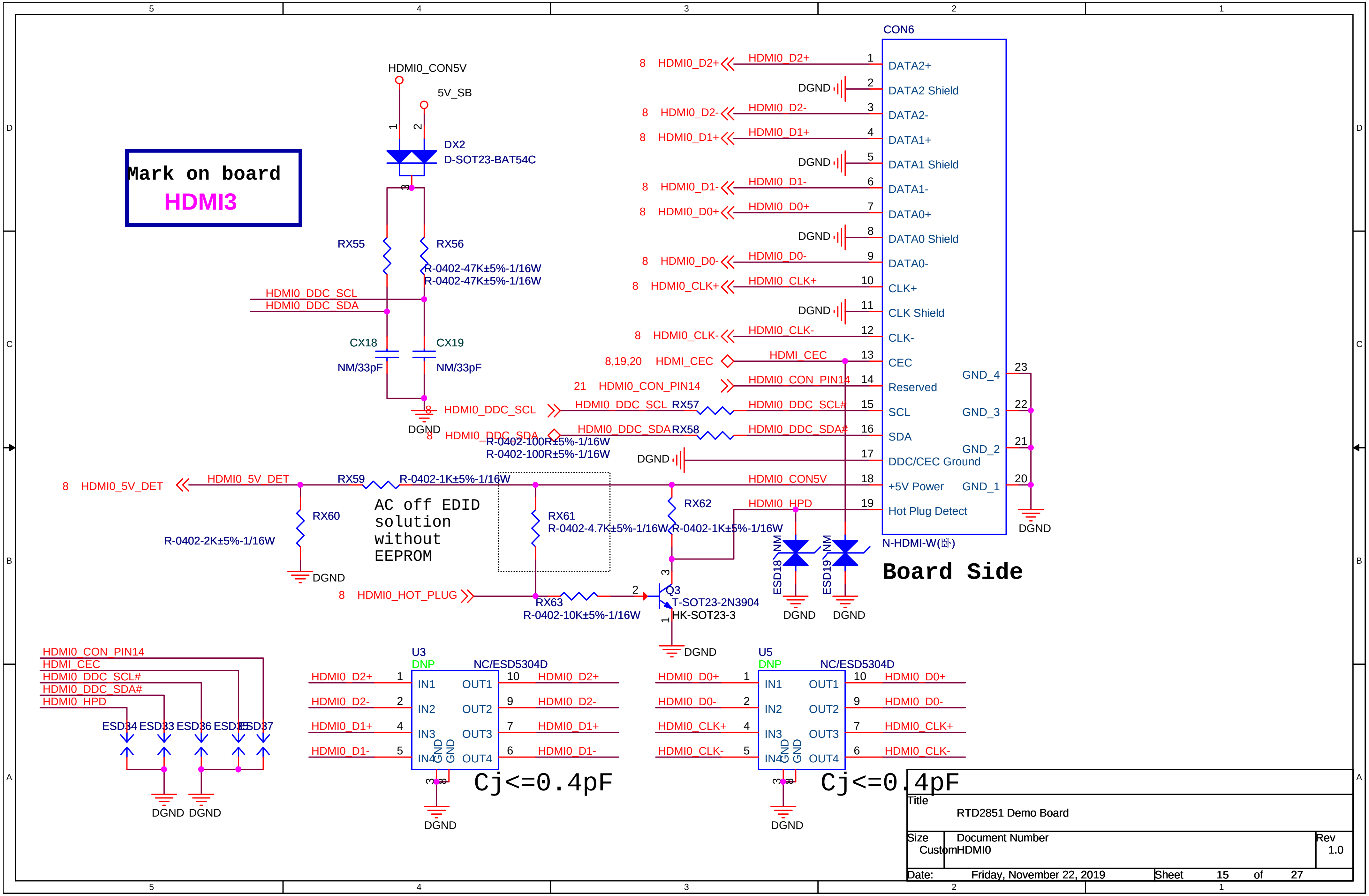
Title	RTD2851 Demo Board
Size C	Document Number VGA/YPP
Rev	<RevCode>
Date:	Friday, November 22, 2019
Sheet	13 of 27



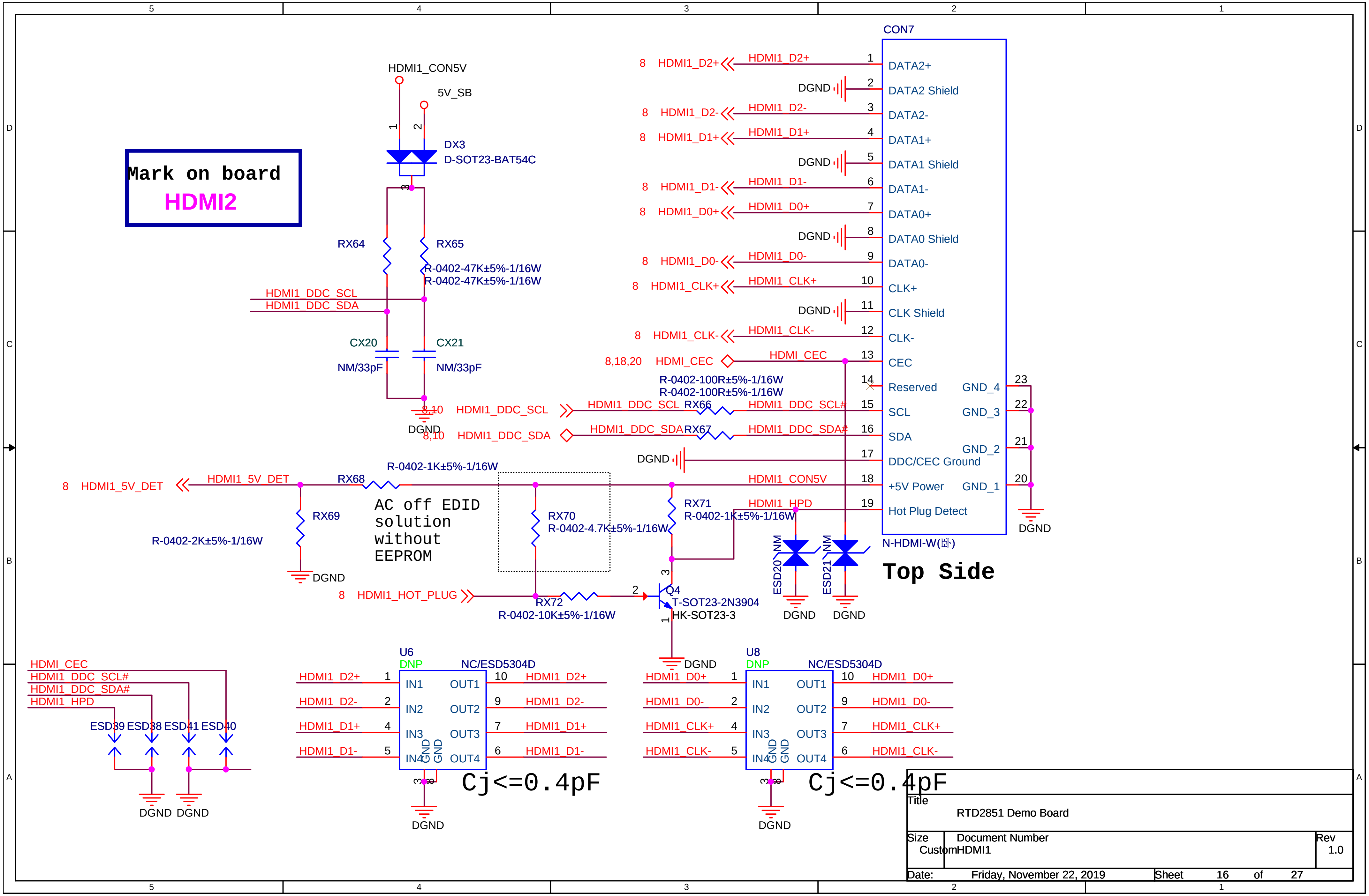




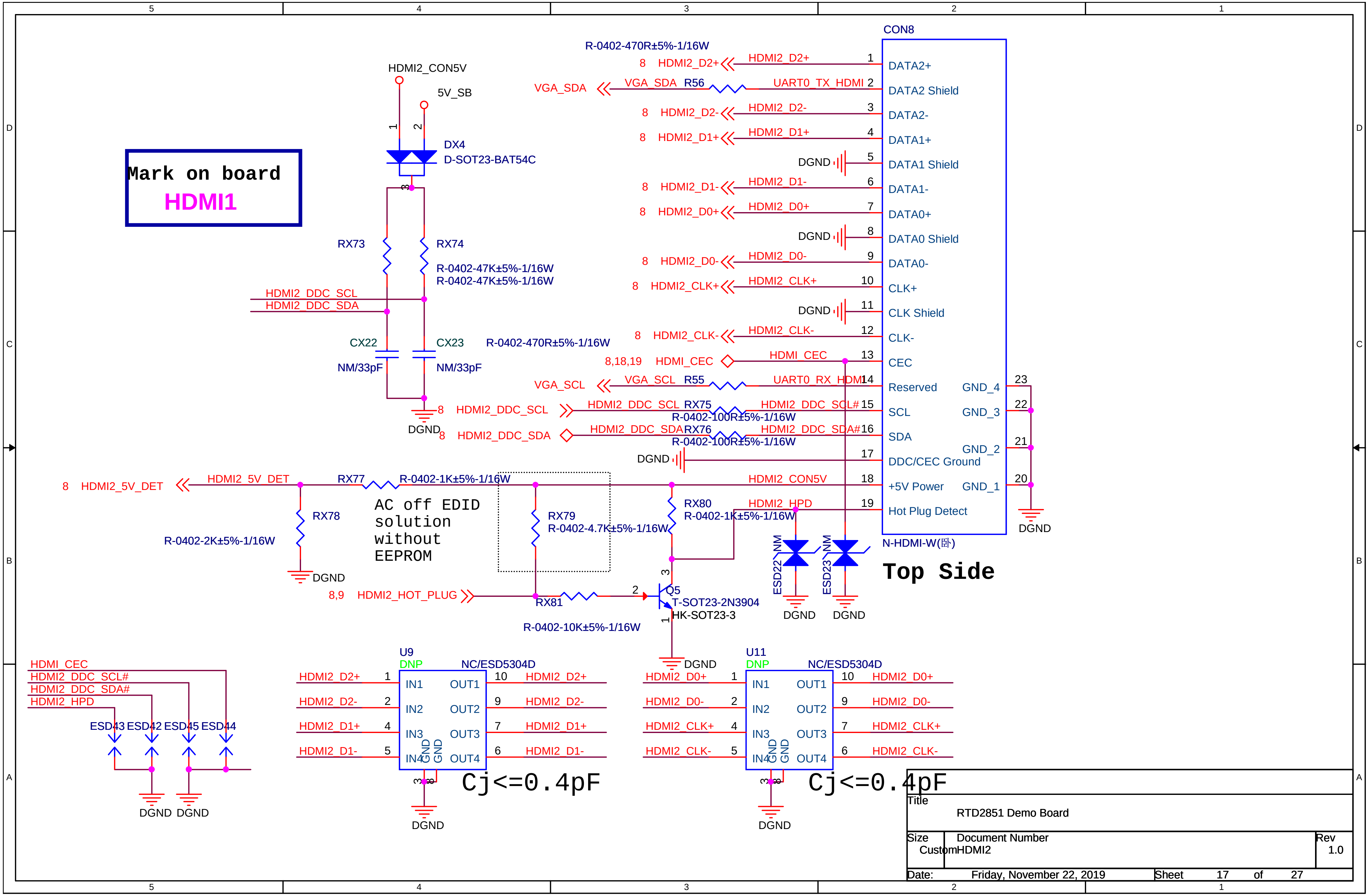
Title	RTD2851 Demo Board	
Size C	Document Number AV1/AUD_IN	Rev 1.0
Date: Friday, November 22, 2019	Sheet 14 of 27	

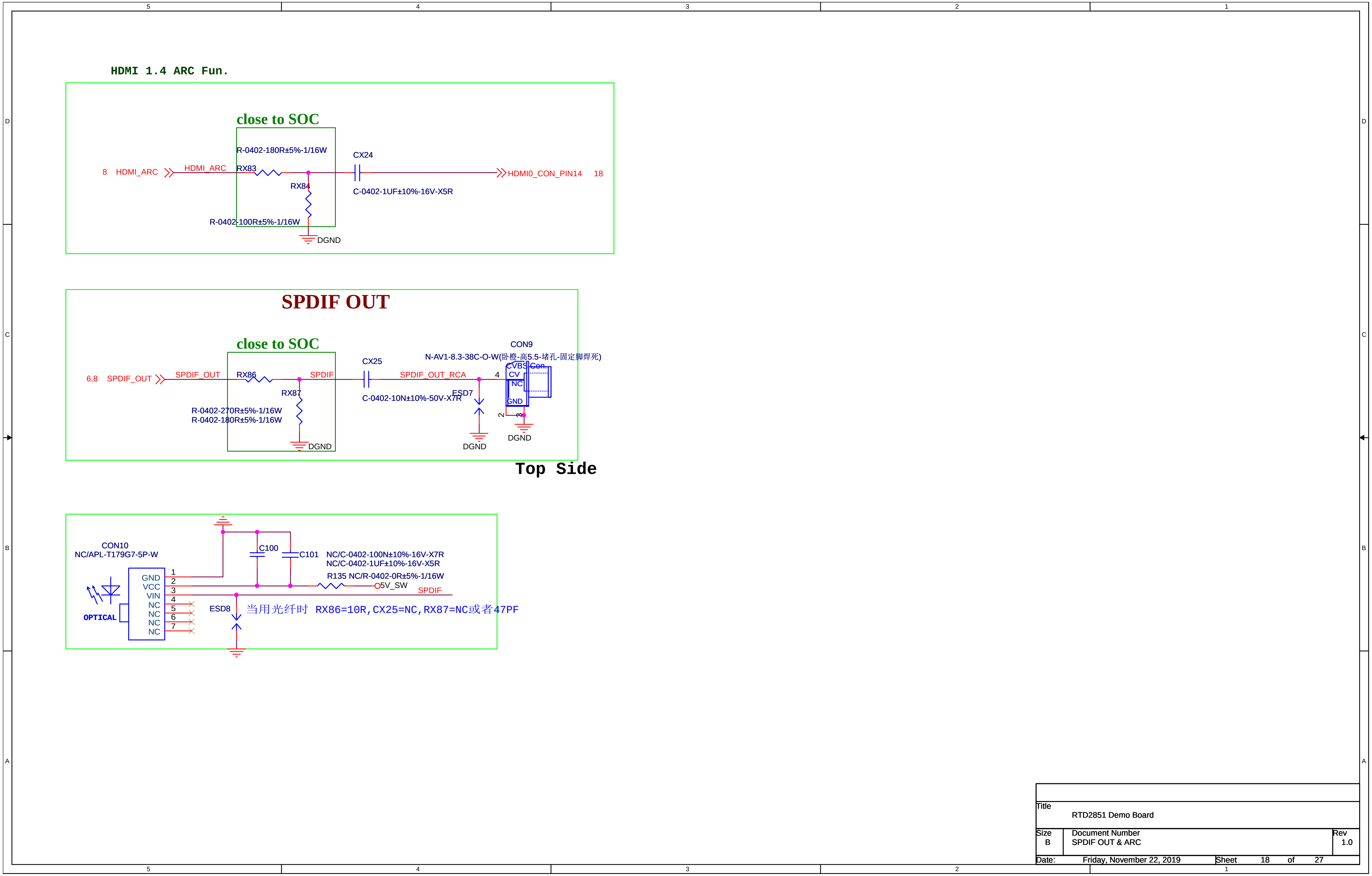


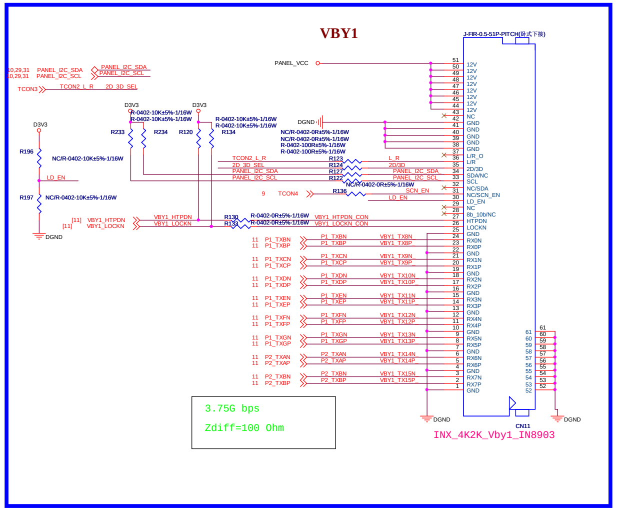
Mark on board
HDMI3
HDMI0_CON5V
5V_SB
DX2
D-SOT23-BAT54C
RX55
RX56
R-0402-47K±5%-1/16W
R-0402-47K±5%-1/16W
HDMI0_DDC_SCL
HDMI0_DDC_SDA
CX18
CX19
NM/33pF
NM/33pF
DGND
CON6
8 HDMI0_D2+ HDMI0_D2+ 1 DATA2+
DGND 2 DATA2 Shield
8 HDMI0_D2- HDMI0_D2- 3 DATA2-
8 HDMI0_D1+ HDMI0_D1+ 4 DATA1+
DGND 5 DATA1 Shield
8 HDMI0_D1- HDMI0_D1- 6 DATA1-
8 HDMI0_D0+ HDMI0_D0+ 7 DATA0+
DGND 8 DATA0 Shield
8 HDMI0_D0- HDMI0_D0- 9 DATA0-
8 HDMI0_CLK+ HDMI0_CLK+ 10 CLK+
DGND 11 CLK Shield
8 HDMI0_CLK- HDMI0_CLK- 12 CLK-
8,19,20 HDMI_CEC HDMI_CEC 13 CEC
21 HDMI0_CON_PIN14 HDMI0_CON_PIN14 14 Reserved
8 HDMI0_DDC_SCL HDMI0_DDC_SCL RX57 HDMI0_DDC_SCL# 15 SCL
8 HDMI0_DDC_SDA HDMI0_DDC_SDA RX58 HDMI0_DDC_SDA# 16 SDA
R-0402-100R±5%-1/16W
R-0402-100R±5%-1/16W
DGND 17 DDC/CEC Ground
HDMI0_CON5V 18 +5V Power
HDMI0_HPD 19 Hot Plug Detect
GND_4 23
GND_3 22
GND_2 21
GND_1 20
DGND
N-HDMI-W(卧)
Board Side
8 HDMI0_5V_DET HDMI0_5V_DET
RX59 R-0402-1K±5%-1/16W
RX60
R-0402-2K±5%-1/16W
DGND
AC off EDID solution without EEPROM
RX61
R-0402-4.7K±5%-1/16W
RX62
R-0402-1K±5%-1/16W
8 HDMI0_HOT_PLUG
RX63
R-0402-10K±5%-1/16W
Q3
T-SOT23-2N3904
HK-SOT23-3
DGND
ESD18 NM
ESD19 NM
DGND DGND
HDMI0_CON_PIN14
HDMI_CEC
HDMI0_DDC_SCL#
HDMI0_DDC_SDA#
HDMI0_HPD
ESD34 ESD33 ESD36 ESD35 ESD37
DGND DGND
U3
DNP
NC/ESD5304D
HDMI0_D2+ 1 IN1 OUT1 10 HDMI0_D2+
HDMI0_D2- 2 IN2 OUT2 9 HDMI0_D2-
HDMI0_D1+ 4 IN3 OUT3 7 HDMI0_D1+
HDMI0_D1- 5 IN4 OUT4 6 HDMI0_D1-
GND GND
DGND
Cj<=0.4pF
U5
DNP
NC/ESD5304D
HDMI0_D0+ 1 IN1 OUT1 10 HDMI0_D0+
HDMI0_D0- 2 IN2 OUT2 9 HDMI0_D0-
HDMI0_CLK+ 4 IN3 OUT3 7 HDMI0_CLK+
HDMI0_CLK- 5 IN4 OUT4 6 HDMI0_CLK-
GND GND
DGND
Cj<=0.4pF
Title
RTD2851 Demo Board
Size Custom
Document Number HDMI0
Rev 1.0
Date: Friday, November 22, 2019
Sheet 15 of 27

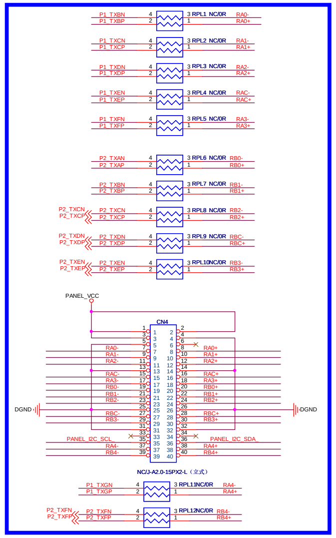


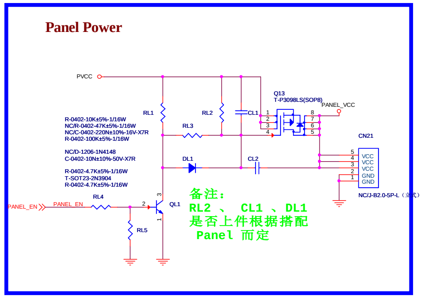
Title	RTD2851 Demo Board	
Size Custom	Document Number HDMI1	Rev 1.0
Date: Friday, November 22, 2019	Sheet 16 of 27	


CON8
R-0402-470R±5%-1/16W
HDMI2_CON5V
5V_SB
DX4
D-SOT23-BAT54C
Mark on board
HDMI1
RX73
RX74
R-0402-47K±5%-1/16W
R-0402-47K±5%-1/16W
HDMI2_DDC_SCL
HDMI2_DDC_SDA
CX22
CX23
NM/33pF
NM/33pF
R-0402-470R±5%-1/16W
DGND
8 HDMI2_DDC_SCL
8 HDMI2_DDC_SDA
HDMI2_D2+
VGA_SDA
R56
UART0_TX_HDMI
HDMI2_D2-
HDMI2_D1+
HDMI2_D1-
HDMI2_D0+
HDMI2_D0-
HDMI2_CLK+
HDMI2_CLK-
8,18,19 HDMI_CEC
VGA_SCL
R55
UART0_RX_HDMI
HDMI2_DDC_SCL RX75
HDMI2_DDC_SCL#
R-0402-100R±5%-1/16W
HDMI2_DDC_SDA RX76
HDMI2_DDC_SDA#
R-0402-100R±5%-1/16W
DATA2+
DATA2 Shield
DATA2-
DATA1+
DATA1 Shield
DATA1-
DATA0+
DATA0 Shield
DATA0-
CLK+
CLK Shield
CLK-
CEC
Reserved
SCL
SDA
DDC/CEC Ground
+5V Power
Hot Plug Detect
GND_4
GND_3
GND_2
GND_1
N-HDMI-W(卧)
Top Side
8 HDMI2_5V_DET
RX77
R-0402-1K±5%-1/16W
HDMI2_CON5V
RX78
R-0402-2K±5%-1/16W
AC off EDID
solution
without
EEPROM
RX79
R-0402-4.7K±5%-1/16W
RX80
R-0402-1K±5%-1/16W
HDMI2_HPD
ESD22 NM
ESD23 NM
8,9 HDMI2_HOT_PLUG
RX81
R-0402-10K±5%-1/16W
Q5
T-SOT23-2N3904
HK-SOT23-3
HDMI_CEC
HDMI2_DDC_SCL#
HDMI2_DDC_SDA#
HDMI2_HPD
ESD43 ESD42 ESD45 ESD44
U9
DNP
NC/ESD5304D
IN1 IN2 IN3 IN4
OUT1 OUT2 OUT3 OUT4
GND
Cj<=0.4pF
U11
DNP
NC/ESD5304D
HDMI2_D0+
HDMI2_D0-
HDMI2_CLK+
HDMI2_CLK-
Cj<=0.4pF
Title
RTD2851 Demo Board
Size
Custom
Document Number
HDMI2
Rev
1.0
Date: Friday, November 22, 2019
Sheet 17 of 27

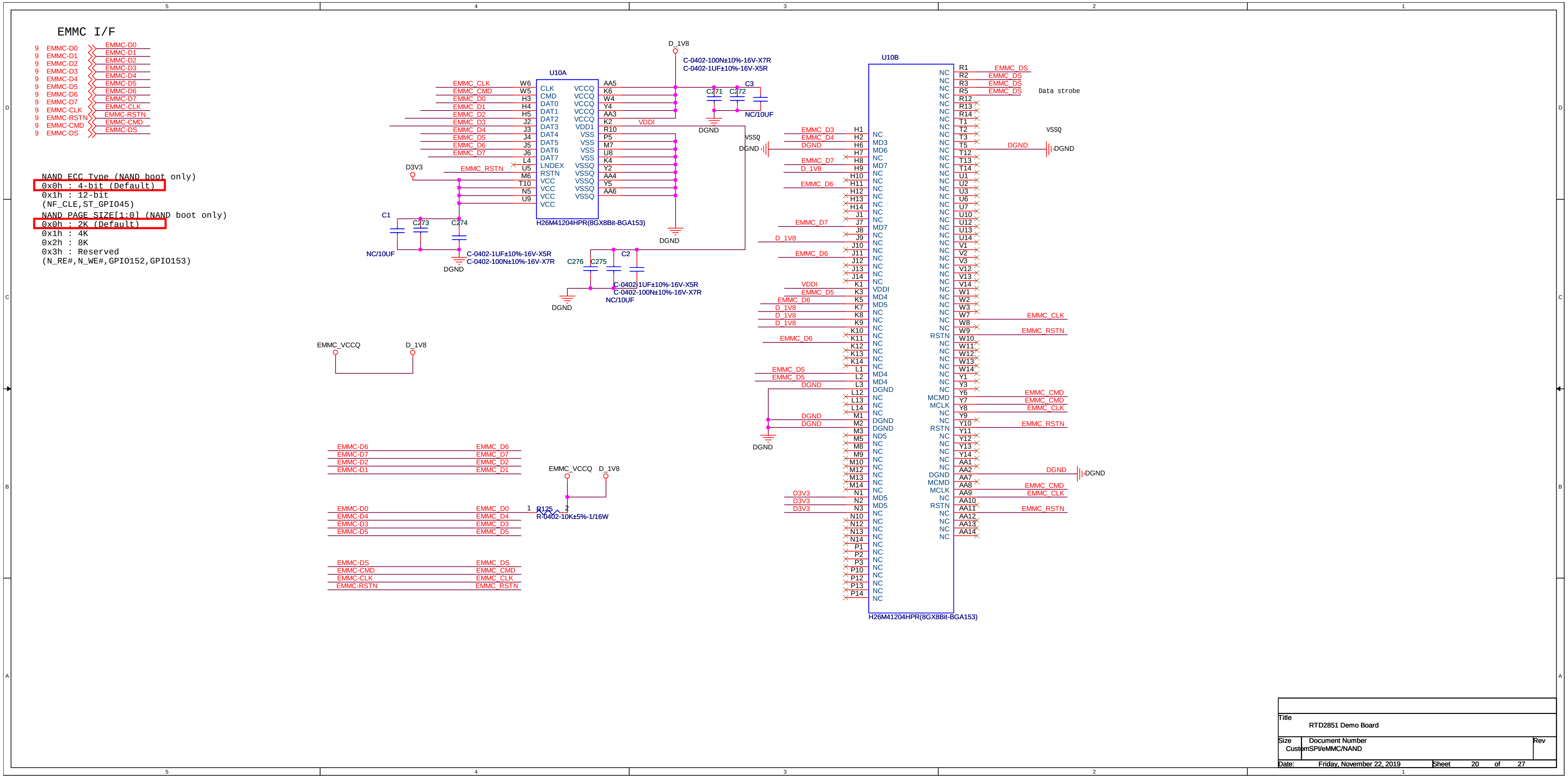

HDMI 1.4 ARC Fun.
close to SOC
R-0402-180R±5%-1/16W
CX24
8 HDMI_ARC
HDMI_ARC
RX83
HDMI0_CON_PIN14 18
RX84
C-0402-1UF±10%-16V-X5R
R-0402-100R±5%-1/16W
DGND
SPDIF OUT
close to SOC
CON9
N-AV1-8.3-38C-O-W(卧橙-高5.5-堵孔-固定脚焊死)
CX25
6,8 SPDIF_OUT
SPDIF_OUT
RX86
SPDIF
SPDIF_OUT_RCA
CVBS Con
CV
NC
GND
RX87
ESD7
C-0402-10N±10%-50V-X7R
R-0402-270R±5%-1/16W
R-0402-180R±5%-1/16W
DGND
DGND
DGND
Top Side
CON10
NC/APL-T179G7-5P-W
C100
C101
NC/C-0402-100N±10%-16V-X7R
NC/C-0402-1UF±10%-16V-X5R
R135 NC/R-0402-0R±5%-1/16W
GND
VCC
VIN
NC
NC
NC
NC
5V_SW
SPDIF
OPTICAL
ESD8
当用光纤时 RX86=10R,CX25=NC,RX87=NC或者47PF
Title
RTD2851 Demo Board
Size B
Document Number
SPDIF OUT & ARC
Rev 1.0
Date: Friday, November 22, 2019
Sheet 18 of 27

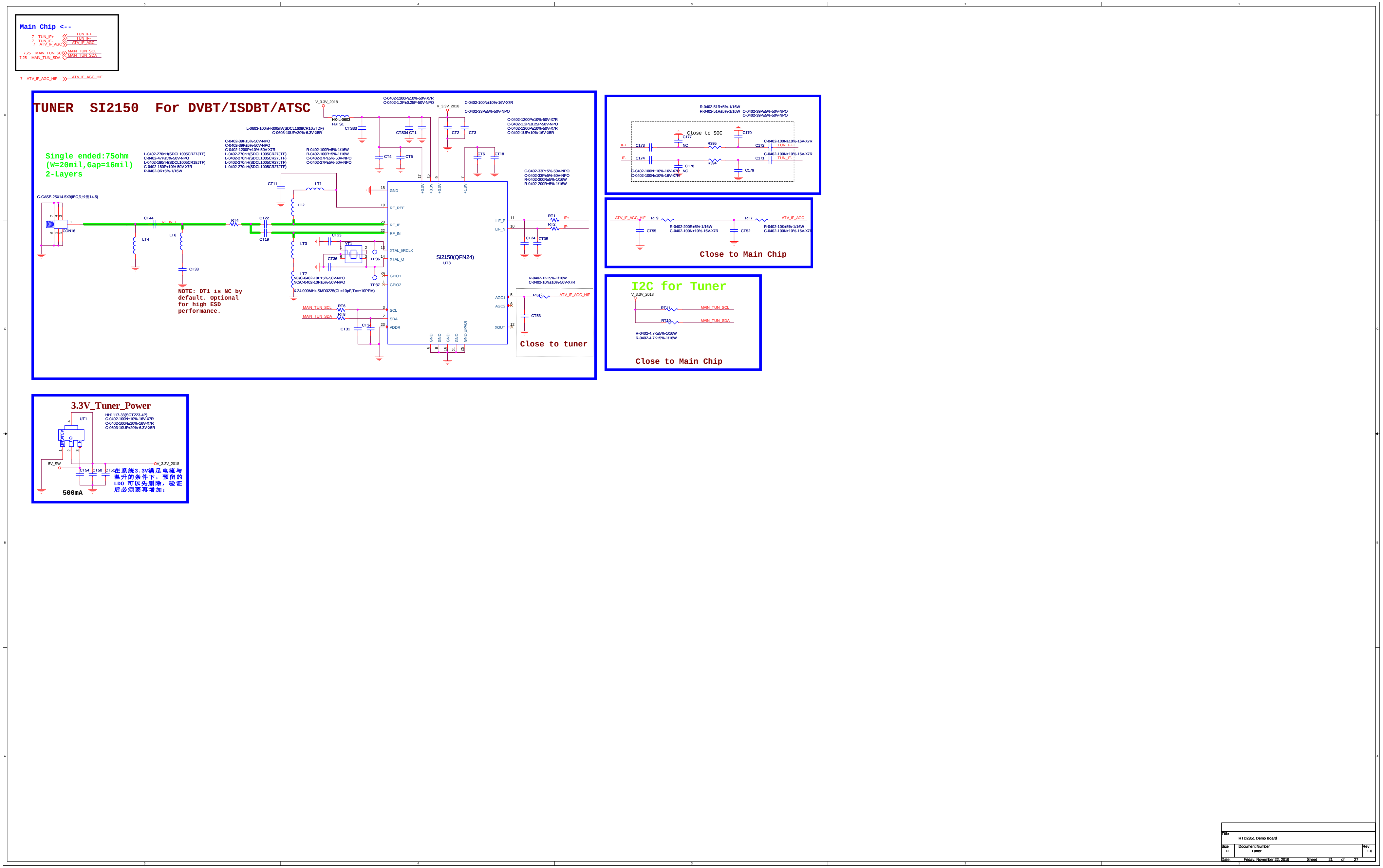




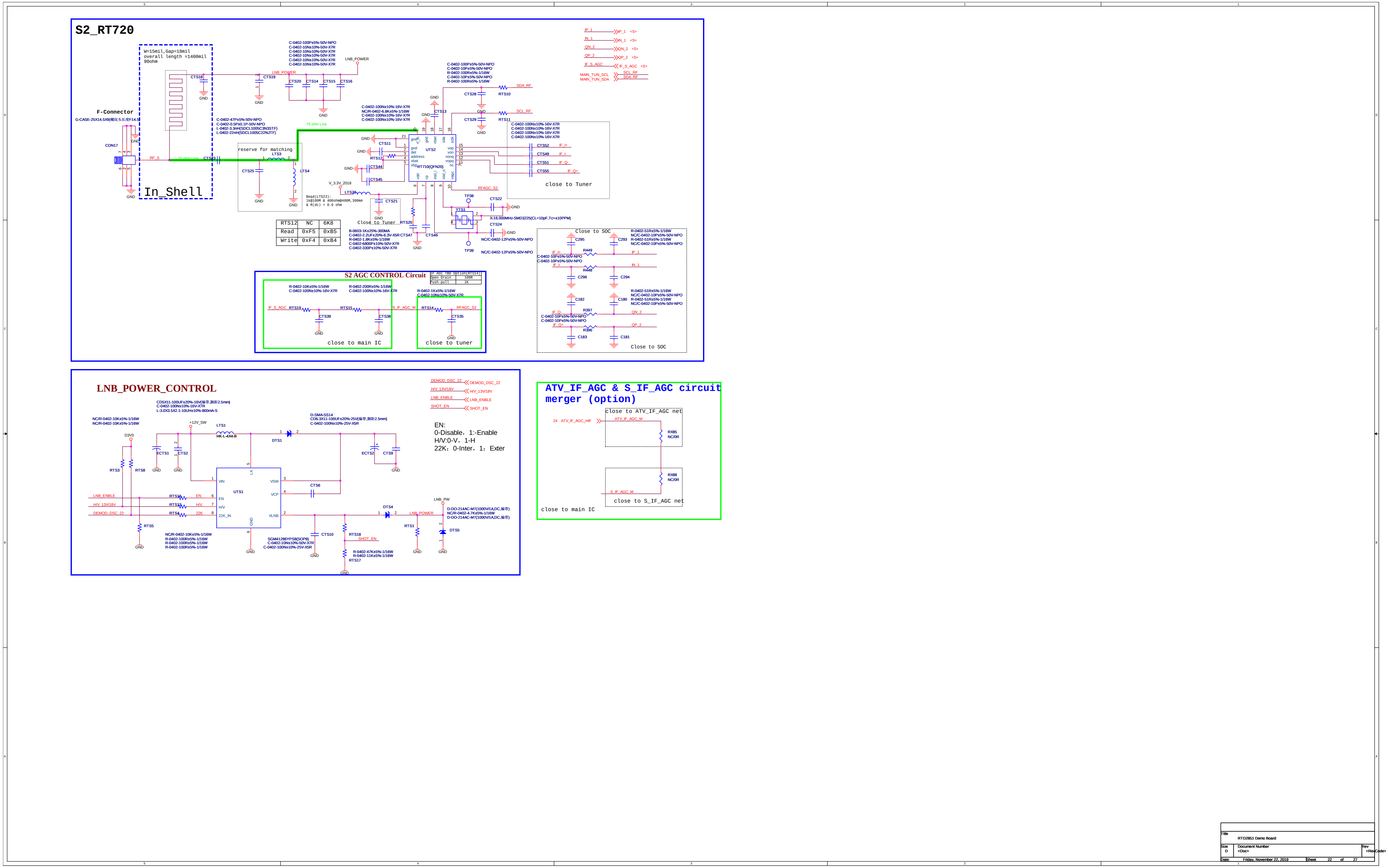


Title	RTD2851 Demo Board	
Size D	Document Number PIF(Vby1/LVDS)	Rev 1.0
Date: Friday, November 22, 2019	Sheet 19 of 27	

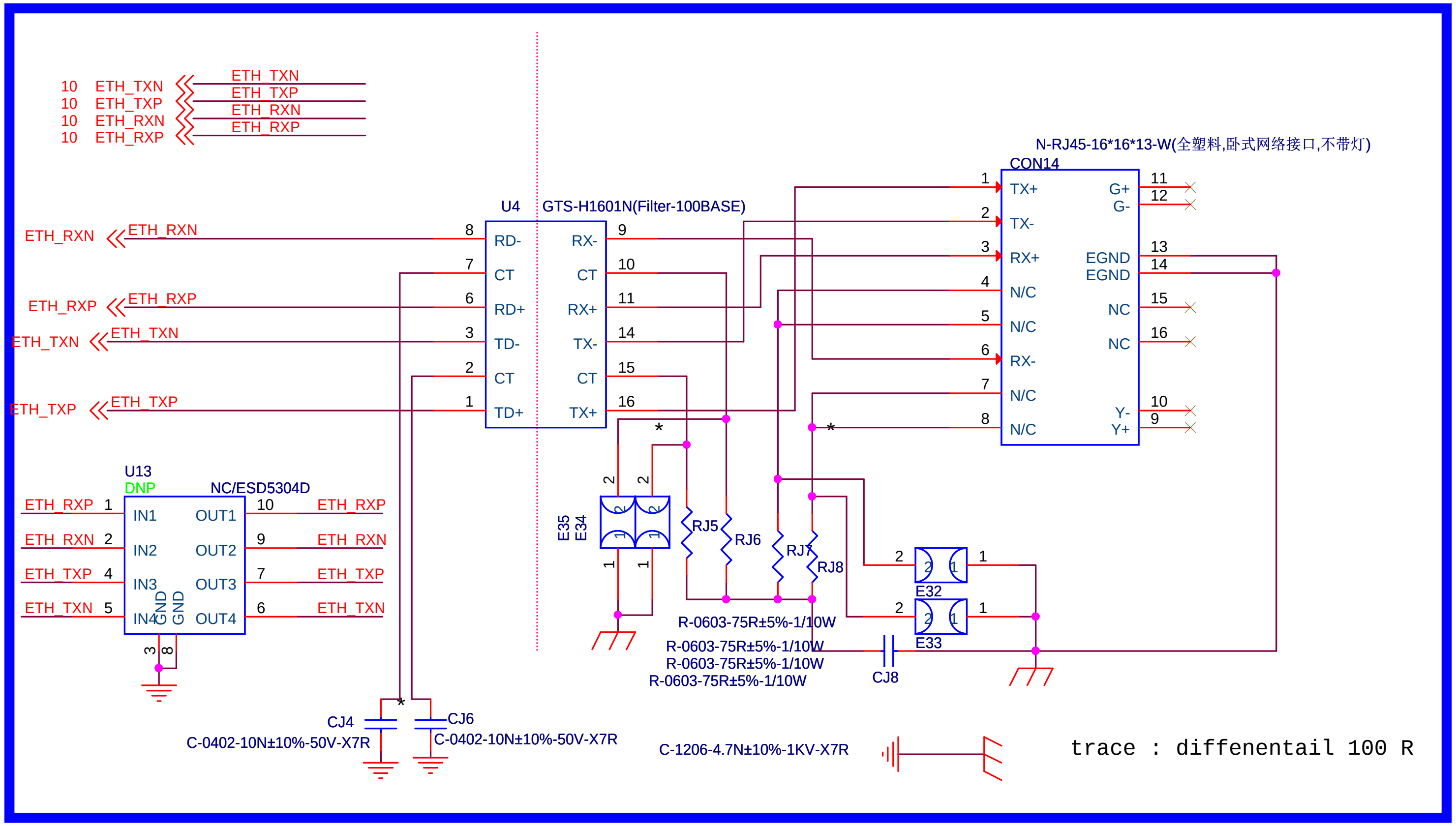

EMMC I/F
NAND ECC Type (NAND boot only)
0x0h : 4-bit (Default)
0x1h : 12-bit
(NF_CLE,ST_GPIO45)
NAND PAGE SIZE[1:0] (NAND boot only)
0x0h : 2K (Default)
0x1h : 4K
0x2h : 8K
0x3h : Reserved
(N_RE#,N_WE#,GPIO152,GPIO153)
U10A
H26M41204HPR(8GX8Bit-BGA153)
U10B
H26M41204HPR(8GX8Bit-BGA153)
Data strobe
Title
RTD2851 Demo Board
Size
Custom
Document Number
SPI/eMMC/NAND
Rev
Date: Friday, November 22, 2019
Sheet 20 of 27



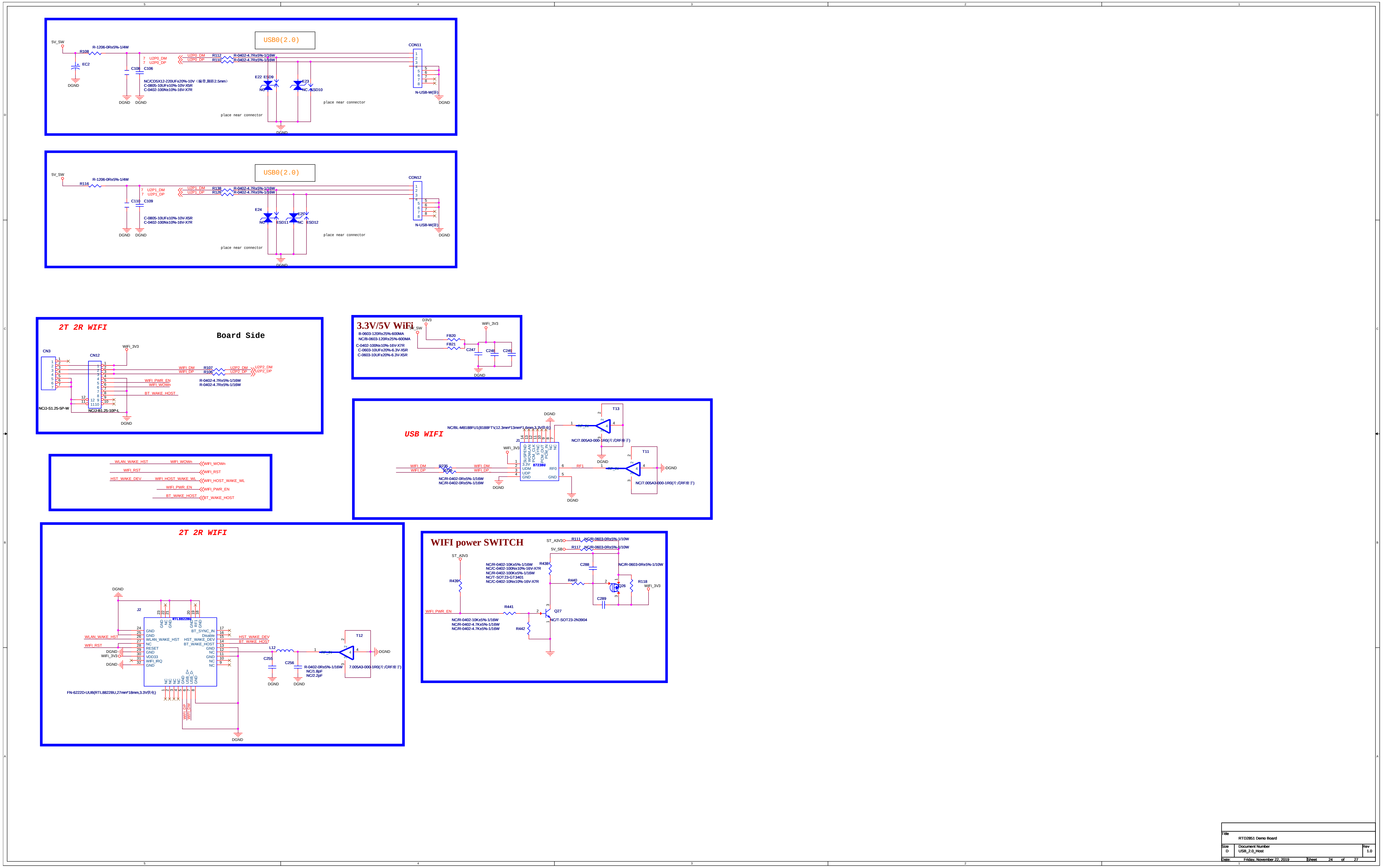
Main Chip <--
TUNER SI2150 For DVBT/ISDBT/ATSC
Single ended:75ohm
(W=20mil,Gap=16mil)
2-Layers
NOTE: DT1 is NC by default. Optional for high ESD performance.
SI2150(QFN24)
Close to tuner
Close to SOC
Close to Main Chip
I2C for Tuner
Close to Main Chip
3.3V_Tuner_Power
500mA
在系统3.3V满足电流与温升的条件下，预留的LDO可以先删除，验证后必须要再增加。
RTD2851 Demo Board
Tuner
Friday, November 22, 2019



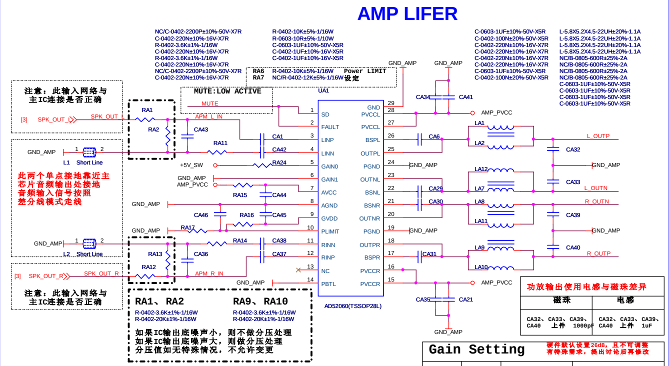
S2_RT720
W=15mil,Gap=18mil
overall length =1400mil
90ohm
F-Connector
In_Shell
reserve for matching
RT710(QFN20)
close to Tuner
Close to Tuner
Close to SOC
RTS12 NC 6K8
Read 0xF5 0xB5
Write 0xF4 0xB4
S2 AGC CONTROL Circuit
close to main IC
close to tuner
LNB_POWER_CONTROL
EN:
0-Disable，1:-Enable
H/V:0-V，1-H
22K：0-Inter，1：Exter
ATV_IF_AGC & S_IF_AGC circuit
merger (option)
close to ATV_IF_AGC net
close to S_IF_AGC net
close to main IC
RTD2851 Demo Board
Friday, November 22, 2019



Title	RTD2851 Demo Board	
Size Custom	Document Number 10/100 Ethernet	Rev 1.0
Date: Friday, November 22, 2019	Sheet 23 of 27	


USB0(2.0)
USB0(2.0)
2T 2R WIFI
Board Side
3.3V/5V WiFi
USB WIFI
2T 2R WIFI
WIFI power SWITCH
place near connector
Title
RTD2851 Demo Board
Size
D
Document Number
USB_2.0_Host
Rev
1.0
Date: Friday, November 22, 2019
Sheet 24 of 27

AMP LIFER



功放输出使用电感与磁珠差异

磁珠	电感
CA32、CA33、CA39、CA40 上件 1000pF	CA32、CA33、CA39、CA40 上件 1uF

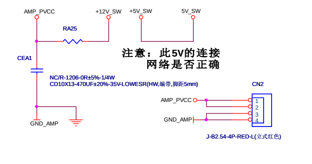
更换不同IC，器件修改差异表

	TDA3110LD2(26V)	VA2221(26V)		
Gain设定	RA6上件10K	RA6上件10K		
Power LIMIT	RA7上件10K 功率限制约19W 最大不失真功率约14W	RA7 上件 7.5K 功率限制约11W		
其他				

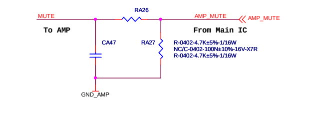
Gain Setting 硬件默认设置26dB，且不可调整 有特殊需求，提出讨论后再修改

GAIN1	GAIN0	AMP GAIN(DB) TYP	Input Impedance(K R) TYP
0	0	20	60
0	1	26	30
1	0	32	15
1	1	36	9

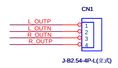
AMP Power Input

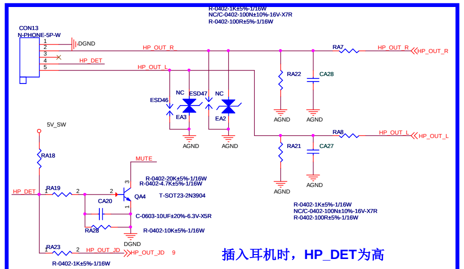


MUTE: LOW ACTIVE

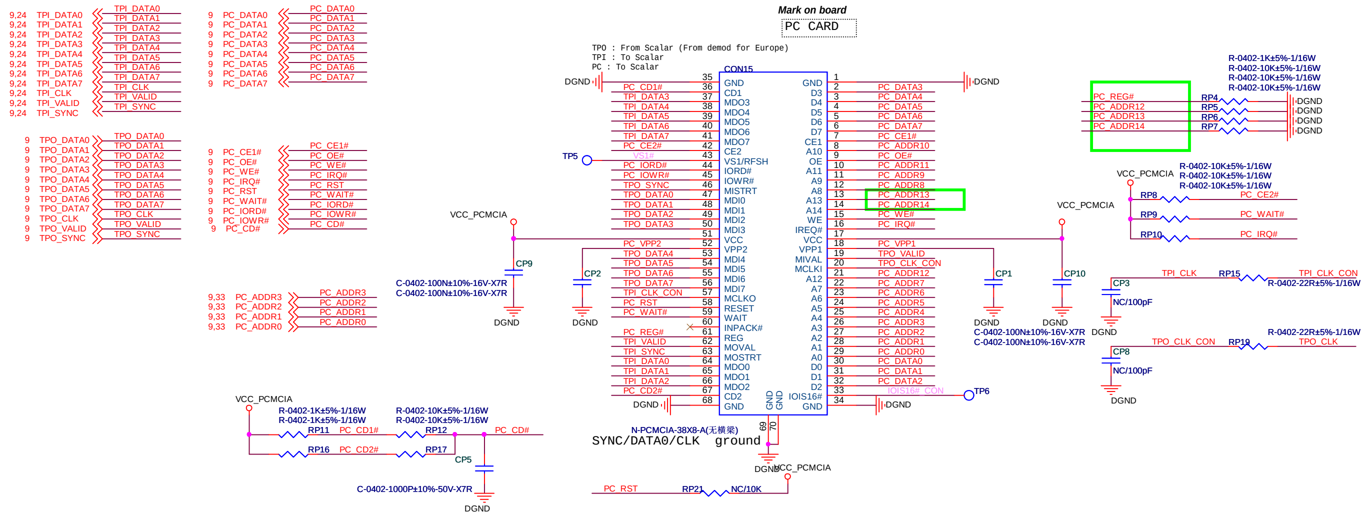


AMP OUT

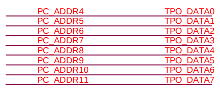




Title	RTD2851 Demo Board		
Size D	Document Number I2S OUTPUT Amp		Rev 1.0
Date: Friday, November 22, 2019	Sheet 25 of 27		

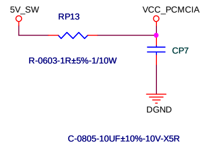


PC_CD1#	PC_CD2#	PC_CD#
GND GND NC NC	GND NC GND NC	0V 2.38V 2.38V 5V

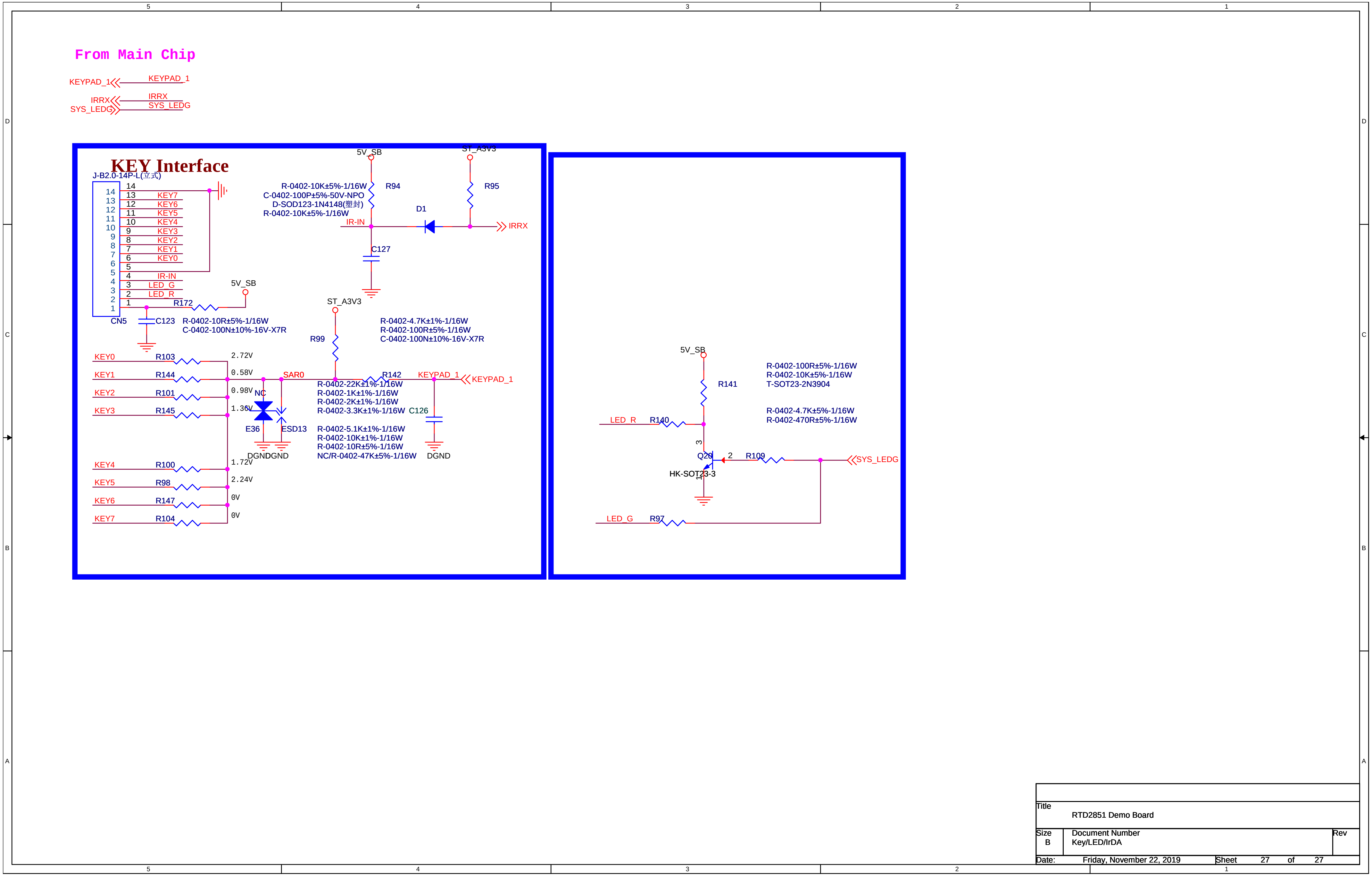


PC_Address / TPO_DATA auto pin share

PC_A4 = TPO_D0
PC_A5 = TPO_D1
PC_A6 = TPO_D2
PC_A7 = TPO_D3
PC_A8 = TPO_D4
PC_A9 = TPO_D5
PC_A10 = TPO_D6
PC_A11 = TPO_D7



Title	RTD2851 Demo Board	
Size C	Document Number PCMCIA(CI CARD)	Rev <RevCode>
Date:	Friday, November 22, 2019	Sheet 26 of 27


From Main Chip
KEYPAD_1
IRRX
SYS_LEDG
KEY Interface
J-B2.0-14P-L(立式)
CN5
KEY7
KEY6
KEY5
KEY4
KEY3
KEY2
KEY1
KEY0
IR-IN
LED_G
LED_R
5V_SB
ST_A3V3
R94
R95
D1
IRRX
C127
R172
C123
R-0402-10K±5%-1/16W
C-0402-100P±5%-50V-NPO
D-SOD123-1N4148(塑封)
R-0402-10K±5%-1/16W
R-0402-10R±5%-1/16W
C-0402-100N±10%-16V-X7R
R99
R-0402-4.7K±1%-1/16W
R-0402-100R±5%-1/16W
C-0402-100N±10%-16V-X7R
R103
R144
R101
R145
R100
R98
R147
R104
2.72V
0.58V
0.98V
1.36V
1.72V
2.24V
0V
0V
SAR0
R142
KEYPAD_1
NC
E36
ESD13
C126
DGNDGND
DGND
R-0402-22K±1%-1/16W
R-0402-1K±1%-1/16W
R-0402-2K±1%-1/16W
R-0402-3.3K±1%-1/16W
R-0402-5.1K±1%-1/16W
R-0402-10K±1%-1/16W
R-0402-10R±5%-1/16W
NC/R-0402-47K±5%-1/16W
R141
R-0402-100R±5%-1/16W
R-0402-10K±5%-1/16W
T-SOT23-2N3904
R-0402-4.7K±5%-1/16W
R-0402-470R±5%-1/16W
LED_R
R140
Q26
HK-SOT23-3
R109
SYS_LEDG
LED_G
R97
Title
RTD2851 Demo Board
Size
B
Document Number
Key/LED/IrDA
Rev
Date:
Friday, November 22, 2019
Sheet 27 of 27