U_J1
J1.SchDoc

U_J2
J2.SchDoc

U_J3
J3.SchDoc

U_J4
J4.SchDoc

U_DDR4-TERM
DDR4-TERM.SchDoc

U_B64
B64.SchDoc

U_B65
B65.SchDoc

U_B66
B66.SchDoc

U_B_GT
B_GT.SchDoc

U_B_PS_GT
B_PS_GT.SchDoc

U_PS_DDR
PS_DDR.SchDoc

U_B_MIO
B_MIO.SchDoc

U_B_HD
B_HD.SchDoc

U_Clock
Clock.SchDoc

U_CONFIG
CONFIG.SchDoc

U_DDR4-RAM
DDR4-RAM.SchDoc

U_DDR4-RAM_2
DDR4-RAM_2.SchDoc

U_DDR4-RAM_3
DDR4-RAM_3.SchDoc

U_DDR4-RAM_4
DDR4-RAM_4.SchDoc

U_DDR4-TERM
DDR4-TERM.SchDoc

U_ZU_POWER
ZU_POWER.SchDoc

U_ZU_PS_POWER
ZU_PS_POWER.SchDoc

U_POWER
POWER.SchDoc

U_POWER_2
POWER_2.SchDoc

U_POWER_4
POWER_4.SchDoc

U_REV_CH
Revision_Changes.SchDoc

Special notes:

Low power FPGA
VCCINT = 0.72V

GND
Mount.Hole 3.2mm für Unterlegscheibe

GND
Mount.Hole 3.2mm für Unterlegscheibe

GND
Mount.Hole 3.2mm für Unterlegscheibe

GND
Mount.Hole 3.2mm für Unterlegscheibe

GND
Mount.Hole 3.2mm für Unterlegscheibe

GND
Mount.Hole 3.2mm für Unterlegscheibe

GND
Mount.Hole 3.2mm für Unterlegscheibe

GND
Mount.Hole 3.2mm für Unterlegscheibe

PM1
FIDU-DOT - mini

PM2
FIDU-DOT - mini

PM3
FIDU-DOT - mini

PM4
FIDU-DOT - mini

PM5
FIDU-DOT - mini

PM6
FIDU-DOT - mini

LOGO1
TE Logo PRINT Layer
LOGO PRINT

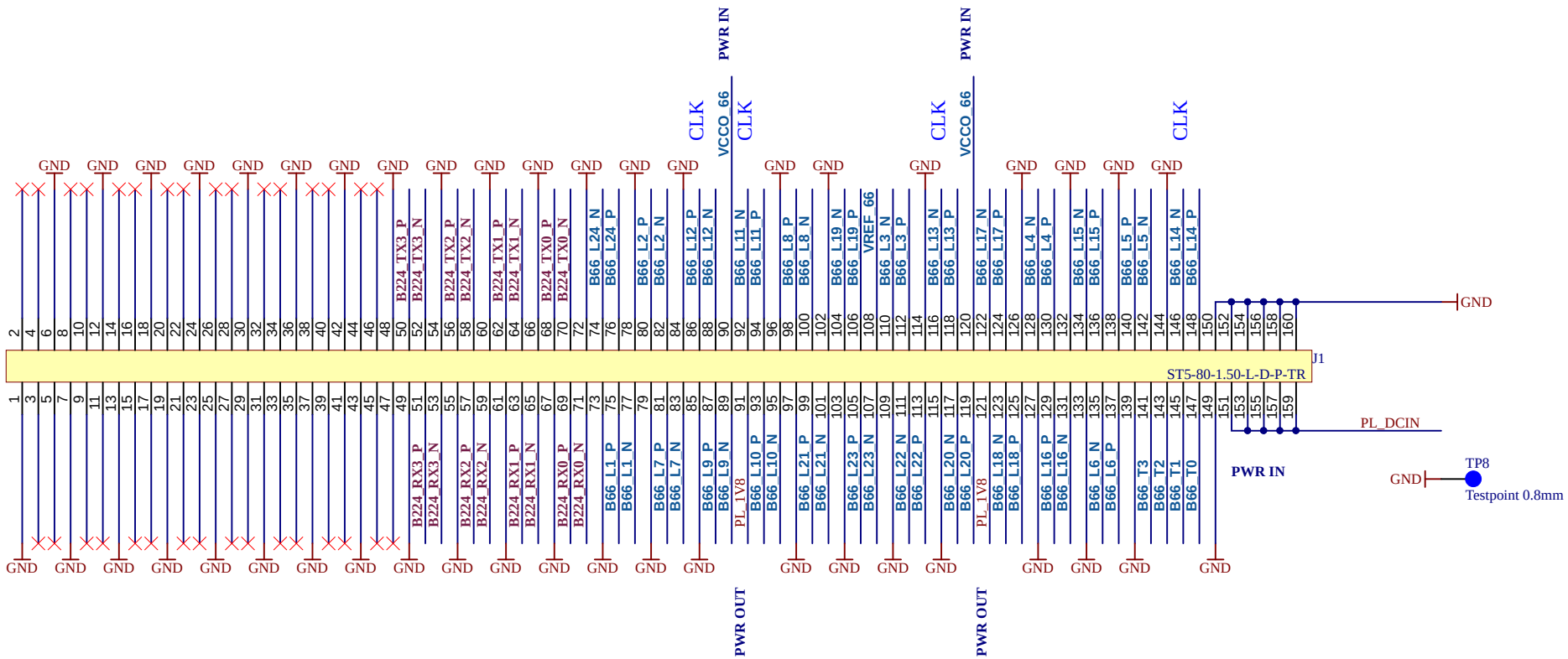
Serial
Serial
Serialnumber 6,3 x 6.3mm

S/N
1 0R 2
Serialnumber

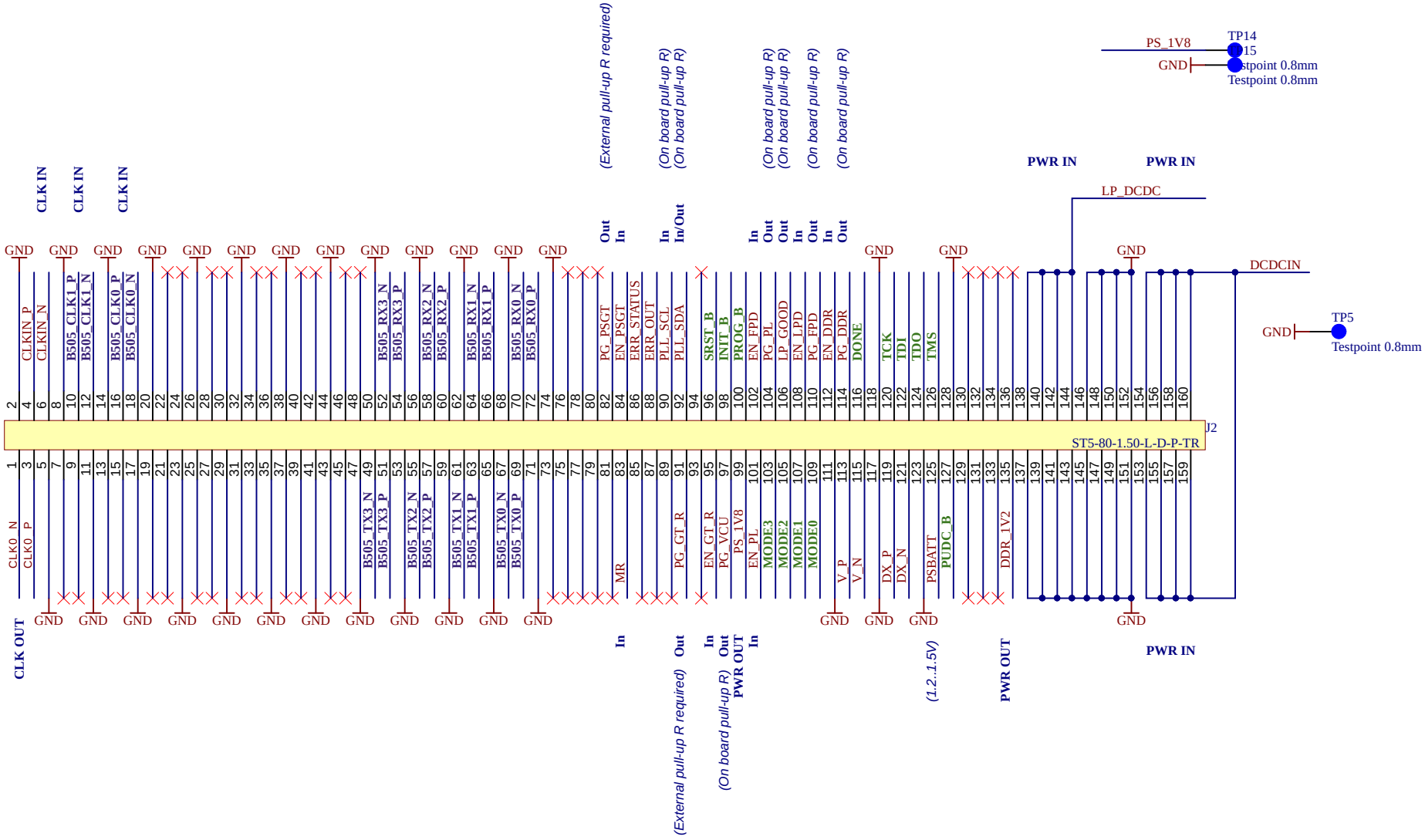
Assembly variant	3RI21-A
Created by	VY
Modified by	VY
Modified at	2020-02-12
SVN Revision	9100 [Locally Modified]

trenz electronic

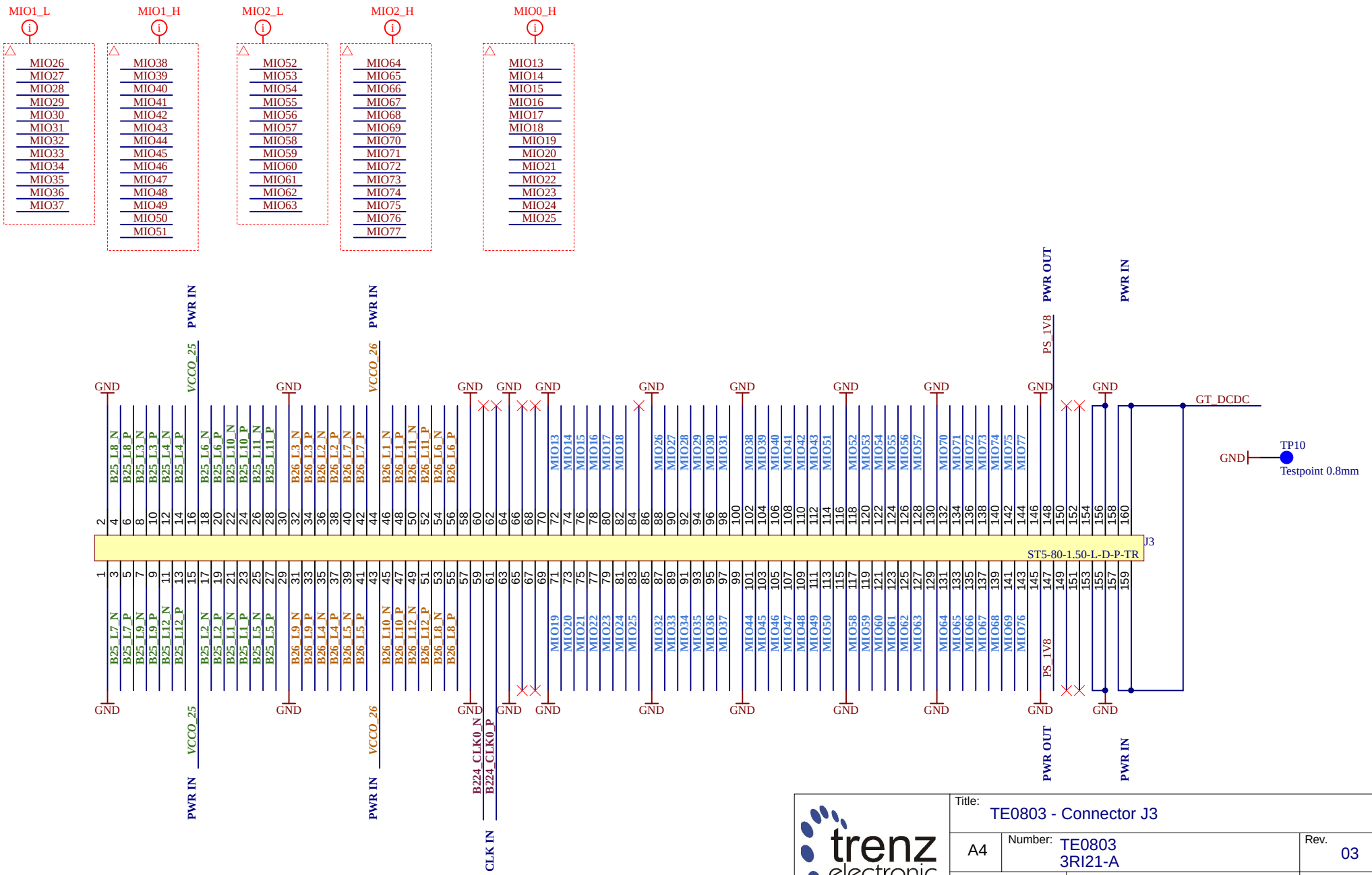
Title: TE0803			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page1 of 26
Filename: TE0803.SchDoc			

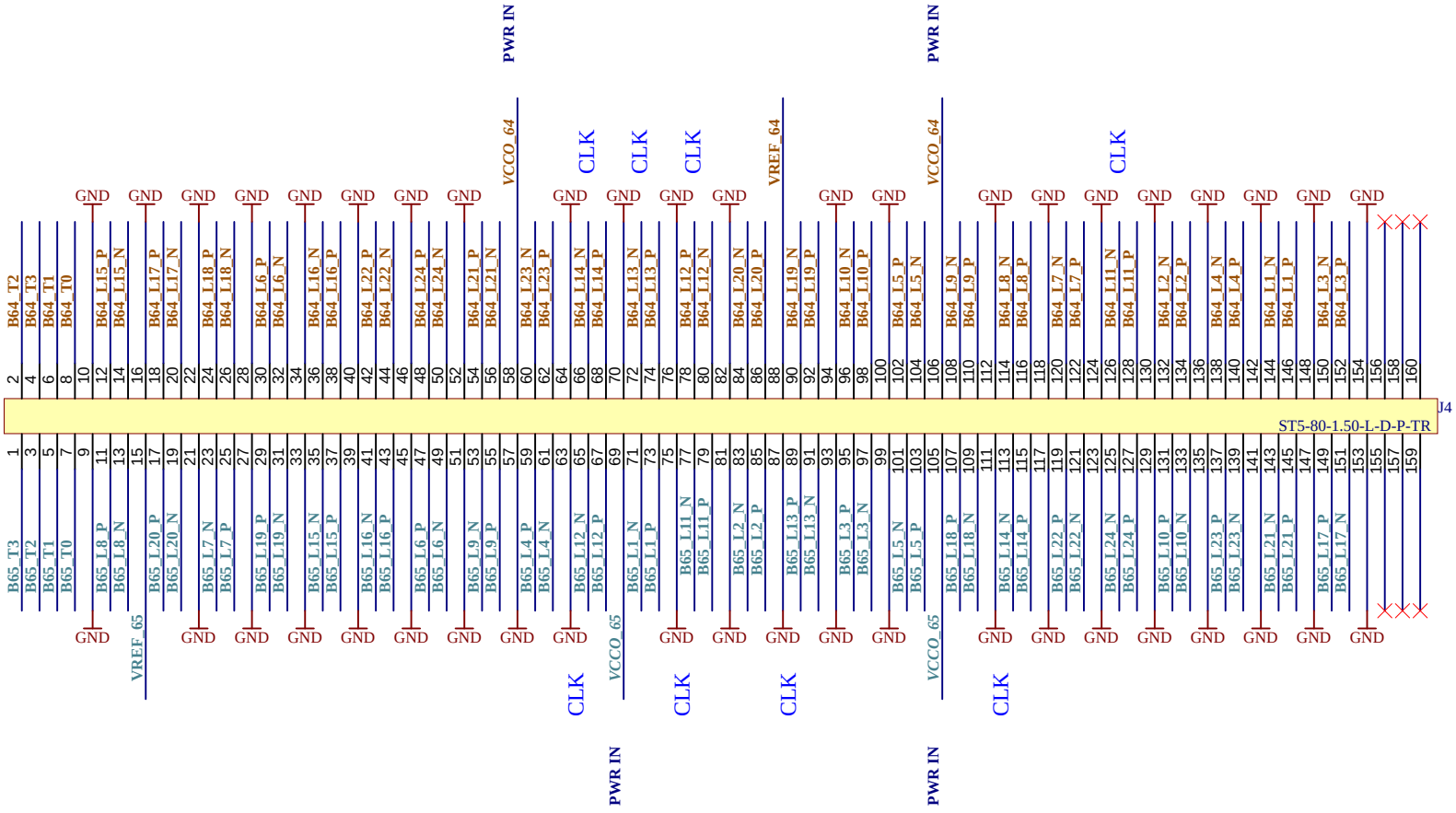


Title: TE0803 - Connector J1			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page2 of 26
Filename: J1.SchDoc			

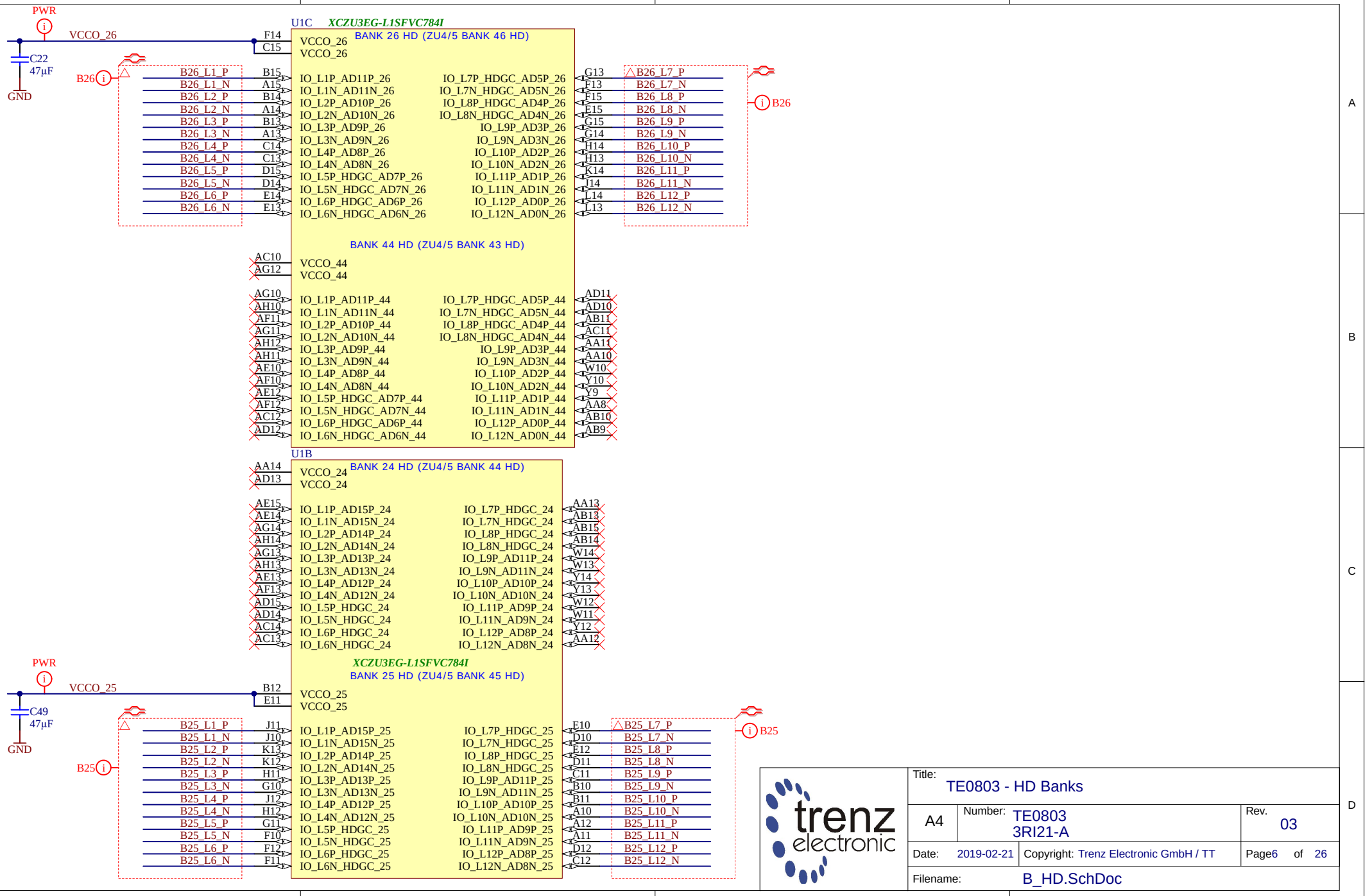


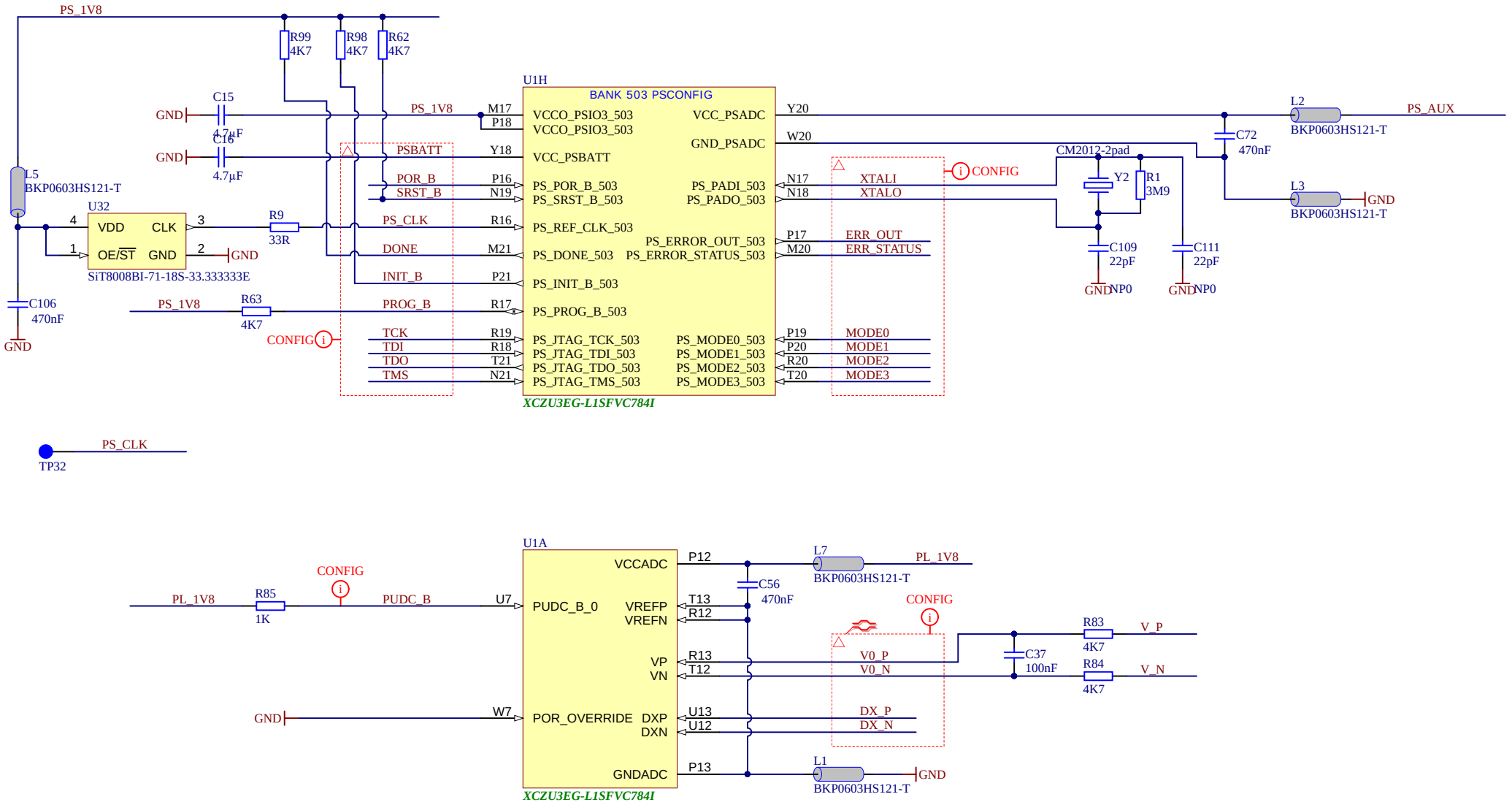
Title: TE0803 - Connector J2			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page3 of 26
Filename: J2.SchDoc			


MIO1_L
MIO26
MIO27
MIO28
MIO29
MIO30
MIO31
MIO32
MIO33
MIO34
MIO35
MIO36
MIO37
MIO1_H
MIO38
MIO39
MIO40
MIO41
MIO42
MIO43
MIO44
MIO45
MIO46
MIO47
MIO48
MIO49
MIO50
MIO51
MIO2_L
MIO52
MIO53
MIO54
MIO55
MIO56
MIO57
MIO58
MIO59
MIO60
MIO61
MIO62
MIO63
MIO2_H
MIO64
MIO65
MIO66
MIO67
MIO68
MIO69
MIO70
MIO71
MIO72
MIO73
MIO74
MIO75
MIO76
MIO77
MIO0_H
MIO13
MIO14
MIO15
MIO16
MIO17
MIO18
MIO19
MIO20
MIO21
MIO22
MIO23
MIO24
MIO25
PWR IN
VCCO_25
VCCO_26
PWR OUT
PS_1V8
GND
GT_DCDC
TP10
Testpoint 0.8mm
J3
ST5-80-1.50-L-D-P-TR
B224_CLK0_N
B224_CLK0_P
CLK IN
Title:
TE0803 - Connector J3
A4
Number:
TE0803
3RI21-A
Rev.
03
Date:
2019-02-21
Copyright: Trenz Electronic GmbH / TT
Page4 of 26
Filename:
J3.SchDoc
trenz
electronic

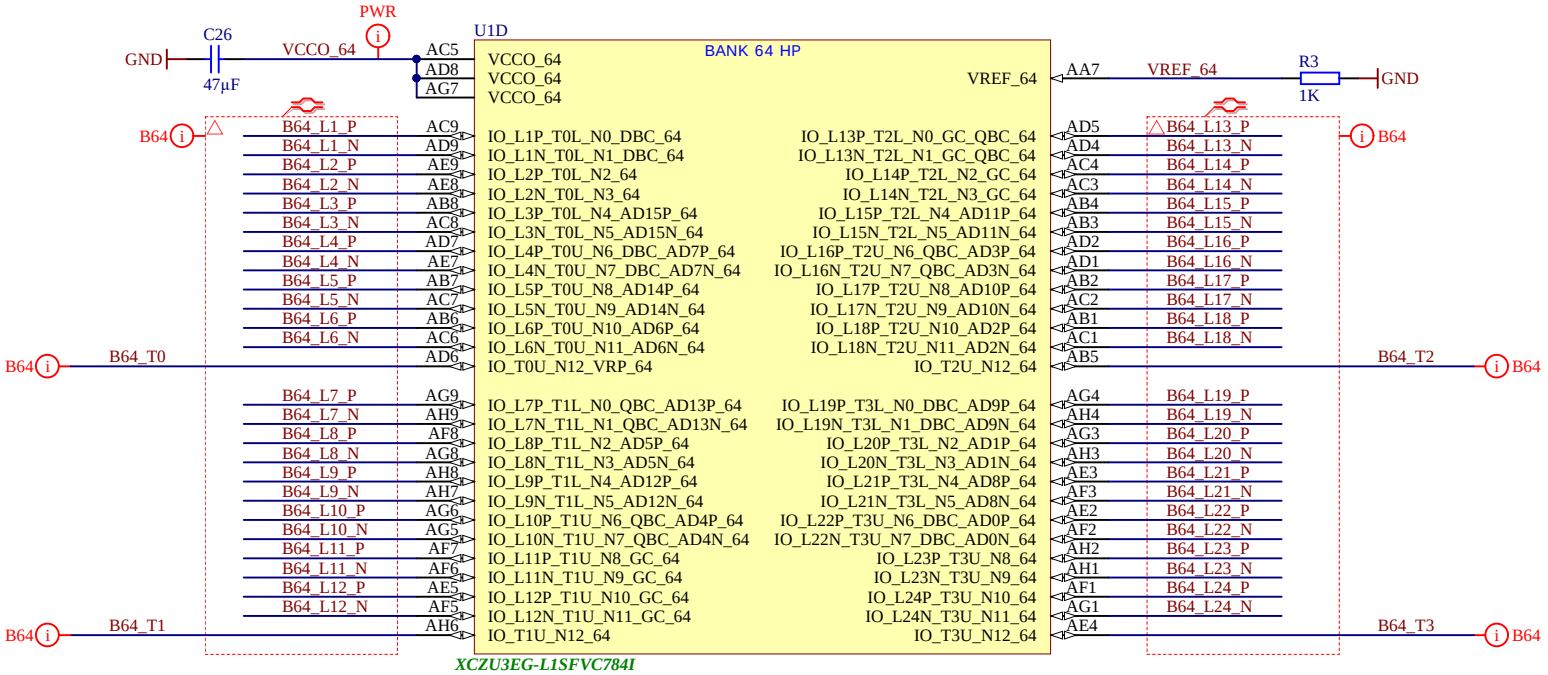


Title: TE0803 - Connector J4			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page5 of 26
Filename: J4.SchDoc			

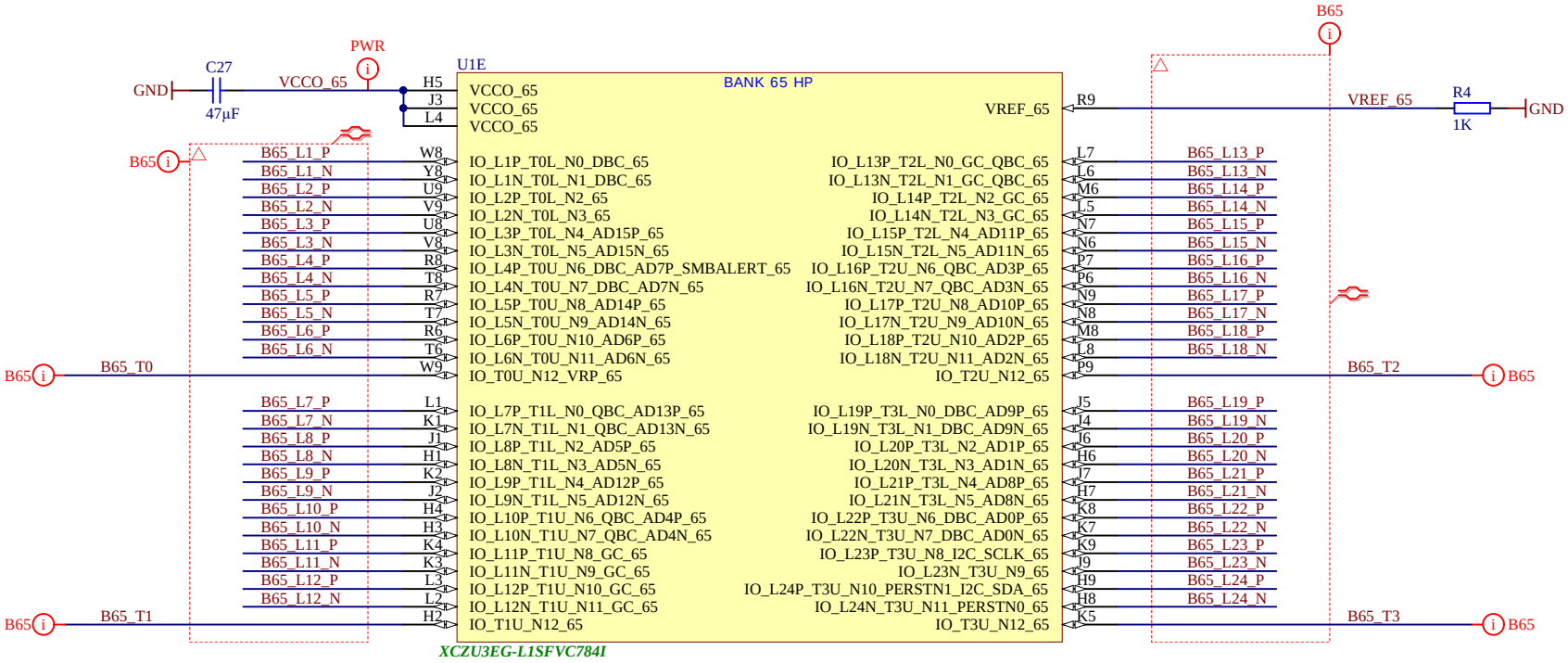

PWR
VCCO_26
C22
47µF
GND
U1C
XCZU3EG-L1SFVC784I
BANK 26 HD (ZU4/5 BANK 46 HD)
VCCO_26
VCCO_26
IO_L1P_AD11P_26
IO_L1N_AD11N_26
IO_L2P_AD10P_26
IO_L2N_AD10N_26
IO_L3P_AD9P_26
IO_L3N_AD9N_26
IO_L4P_AD8P_26
IO_L4N_AD8N_26
IO_L5P_HDGC_AD7P_26
IO_L5N_HDGC_AD7N_26
IO_L6P_HDGC_AD6P_26
IO_L6N_HDGC_AD6N_26
IO_L7P_HDGC_AD5P_26
IO_L7N_HDGC_AD5N_26
IO_L8P_HDGC_AD4P_26
IO_L8N_HDGC_AD4N_26
IO_L9P_AD3P_26
IO_L9N_AD3N_26
IO_L10P_AD2P_26
IO_L10N_AD2N_26
IO_L11P_AD1P_26
IO_L11N_AD1N_26
IO_L12P_AD0P_26
IO_L12N_AD0N_26
B26_L1_P
B26_L1_N
B26_L2_P
B26_L2_N
B26_L3_P
B26_L3_N
B26_L4_P
B26_L4_N
B26_L5_P
B26_L5_N
B26_L6_P
B26_L6_N
B26_L7_P
B26_L7_N
B26_L8_P
B26_L8_N
B26_L9_P
B26_L9_N
B26_L10_P
B26_L10_N
B26_L11_P
B26_L11_N
B26_L12_P
B26_L12_N
B26
BANK 44 HD (ZU4/5 BANK 43 HD)
VCCO_44
VCCO_44
IO_L1P_AD11P_44
IO_L1N_AD11N_44
IO_L2P_AD10P_44
IO_L2N_AD10N_44
IO_L3P_AD9P_44
IO_L3N_AD9N_44
IO_L4P_AD8P_44
IO_L4N_AD8N_44
IO_L5P_HDGC_AD7P_44
IO_L5N_HDGC_AD7N_44
IO_L6P_HDGC_AD6P_44
IO_L6N_HDGC_AD6N_44
IO_L7P_HDGC_AD5P_44
IO_L7N_HDGC_AD5N_44
IO_L8P_HDGC_AD4P_44
IO_L8N_HDGC_AD4N_44
IO_L9P_AD3P_44
IO_L9N_AD3N_44
IO_L10P_AD2P_44
IO_L10N_AD2N_44
IO_L11P_AD1P_44
IO_L11N_AD1N_44
IO_L12P_AD0P_44
IO_L12N_AD0N_44
U1B
BANK 24 HD (ZU4/5 BANK 44 HD)
VCCO_24
VCCO_24
IO_L1P_AD15P_24
IO_L1N_AD15N_24
IO_L2P_AD14P_24
IO_L2N_AD14N_24
IO_L3P_AD13P_24
IO_L3N_AD13N_24
IO_L4P_AD12P_24
IO_L4N_AD12N_24
IO_L5P_HDGC_24
IO_L5N_HDGC_24
IO_L6P_HDGC_24
IO_L6N_HDGC_24
IO_L7P_HDGC_24
IO_L7N_HDGC_24
IO_L8P_HDGC_24
IO_L8N_HDGC_24
IO_L9P_AD11P_24
IO_L9N_AD11N_24
IO_L10P_AD10P_24
IO_L10N_AD10N_24
IO_L11P_AD9P_24
IO_L11N_AD9N_24
IO_L12P_AD8P_24
IO_L12N_AD8N_24
XCZU3EG-L1SFVC784I
BANK 25 HD (ZU4/5 BANK 45 HD)
VCCO_25
VCCO_25
IO_L1P_AD15P_25
IO_L1N_AD15N_25
IO_L2P_AD14P_25
IO_L2N_AD14N_25
IO_L3P_AD13P_25
IO_L3N_AD13N_25
IO_L4P_AD12P_25
IO_L4N_AD12N_25
IO_L5P_HDGC_25
IO_L5N_HDGC_25
IO_L6P_HDGC_25
IO_L6N_HDGC_25
IO_L7P_HDGC_25
IO_L7N_HDGC_25
IO_L8P_HDGC_25
IO_L8N_HDGC_25
IO_L9P_AD11P_25
IO_L9N_AD11N_25
IO_L10P_AD10P_25
IO_L10N_AD10N_25
IO_L11P_AD9P_25
IO_L11N_AD9N_25
IO_L12P_AD8P_25
IO_L12N_AD8N_25
PWR
VCCO_25
C49
47µF
GND
B25_L1_P
B25_L1_N
B25_L2_P
B25_L2_N
B25_L3_P
B25_L3_N
B25_L4_P
B25_L4_N
B25_L5_P
B25_L5_N
B25_L6_P
B25_L6_N
B25_L7_P
B25_L7_N
B25_L8_P
B25_L8_N
B25_L9_P
B25_L9_N
B25_L10_P
B25_L10_N
B25_L11_P
B25_L11_N
B25_L12_P
B25_L12_N
B25
trenz electronic
Title: TE0803 - HD Banks
A4
Number: TE0803 3RI21-A
Rev. 03
Date: 2019-02-21
Copyright: Trenz Electronic GmbH / TT
Page6 of 26
Filename: B_HD.SchDoc



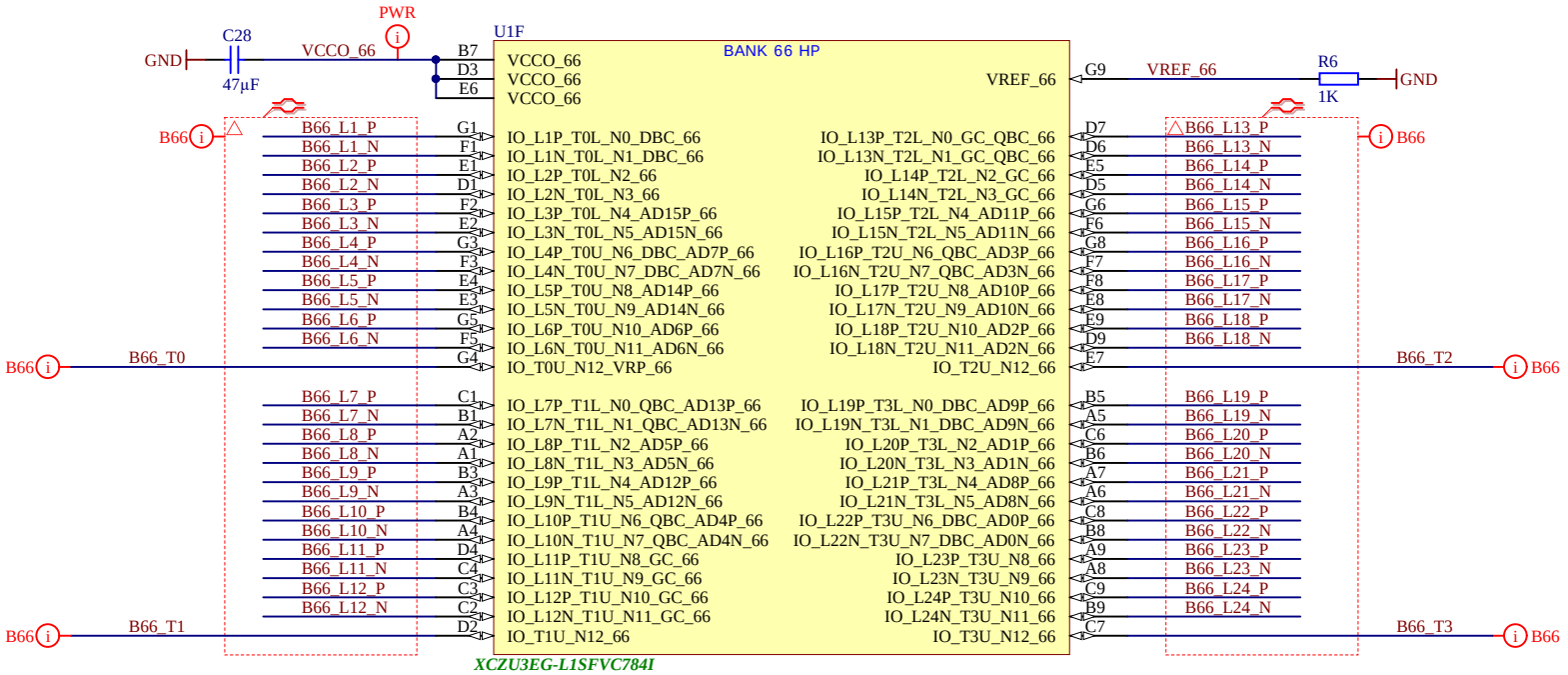
Title: TE0803 - Config			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page7 of 26
Filename: CONFIG.SchDoc			



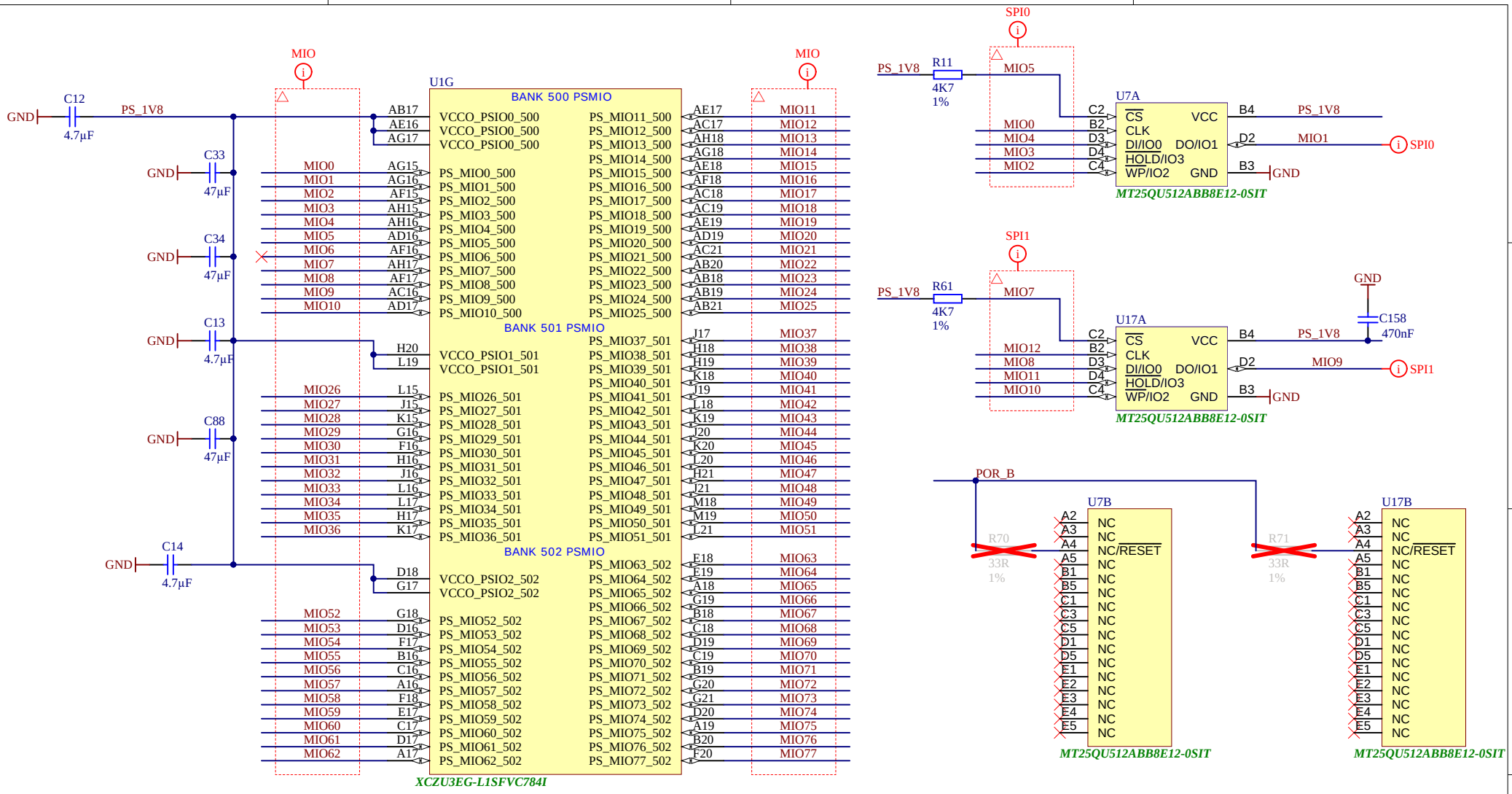
	Title: TE0803 - B64		
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page8 of 26
Filename: B64.SchDoc			



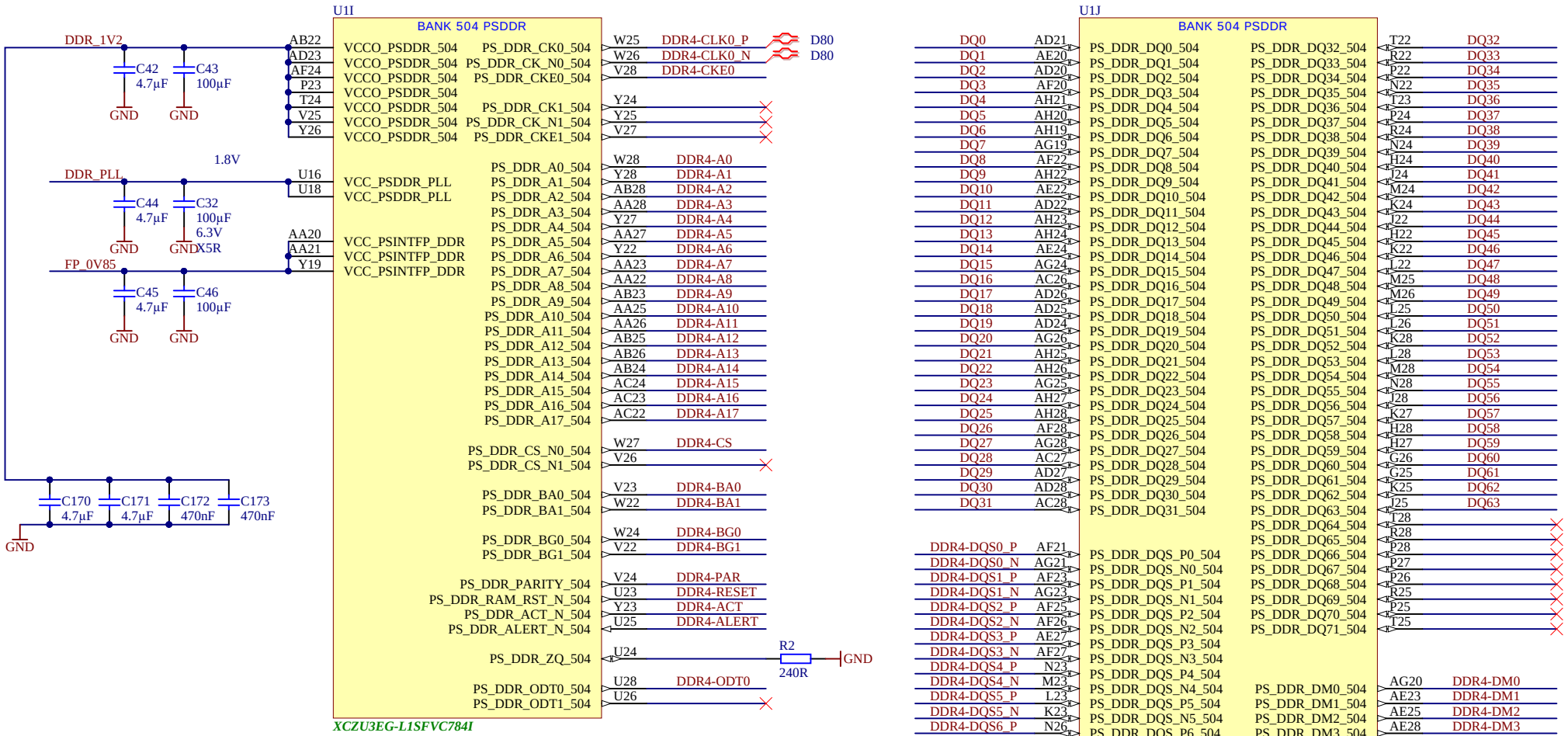
trenz electronic	Title: TE0803 - B65		
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page9 of 26
Filename: B65.SchDoc			



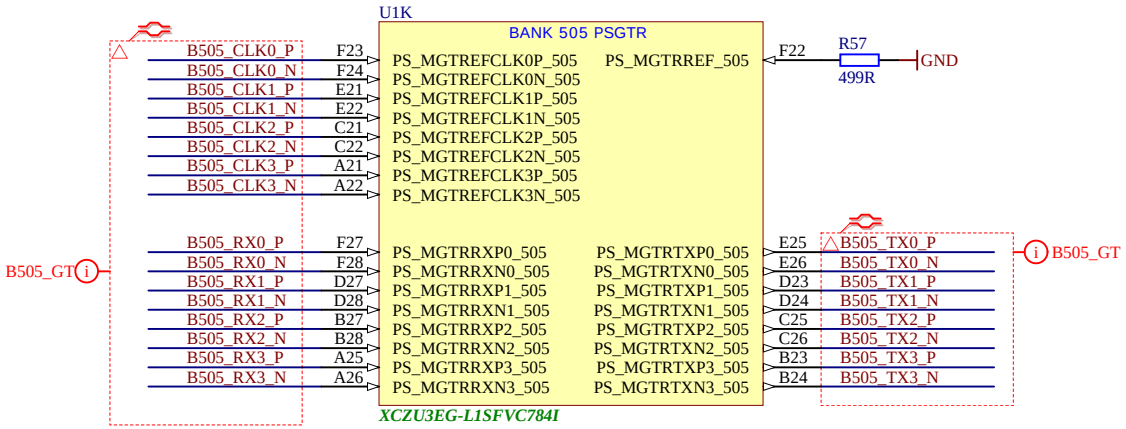
trenz electronic	Title: TE0803 - B66		
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page10 of 26
Filename: B66.SchDoc			



Title:	TE0803 - MIO Banks		
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page11 of 26
Filename:	B_MIO.SchDoc		

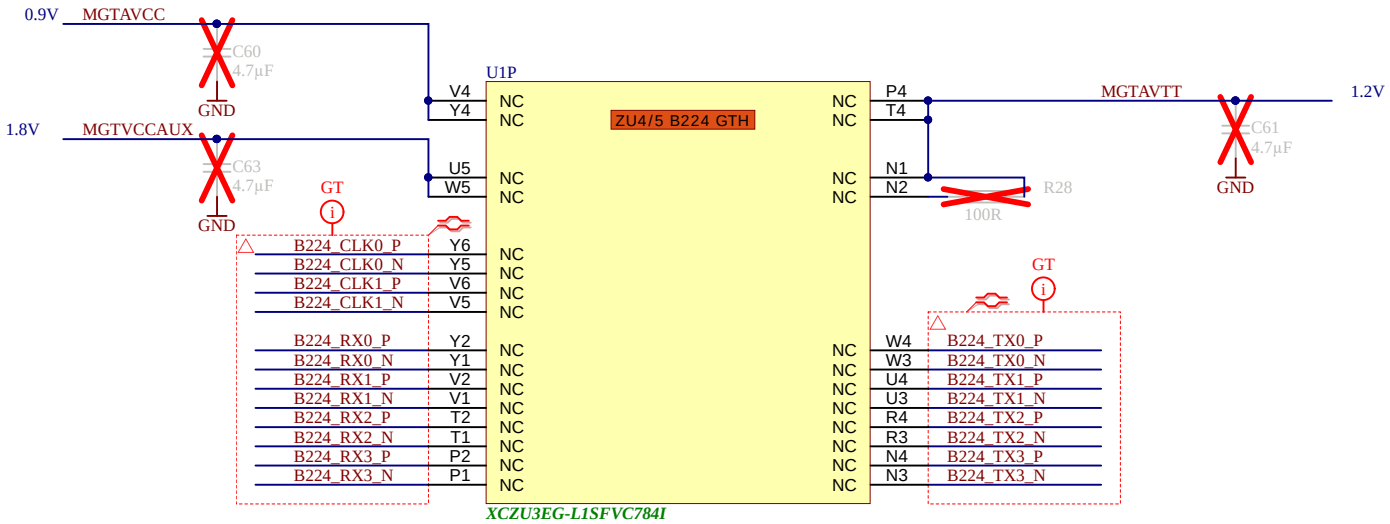


trenz electronic	Title: TE0803 - PS_DDR		
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page12 of 26
Filename: PS_DDR.SchDoc			

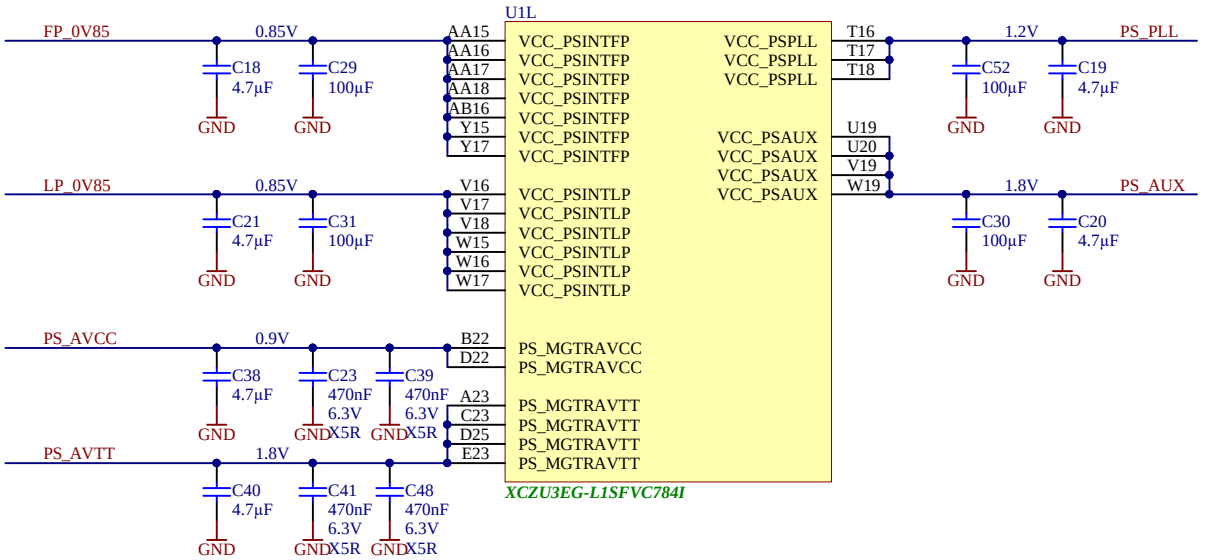


trenz electronic

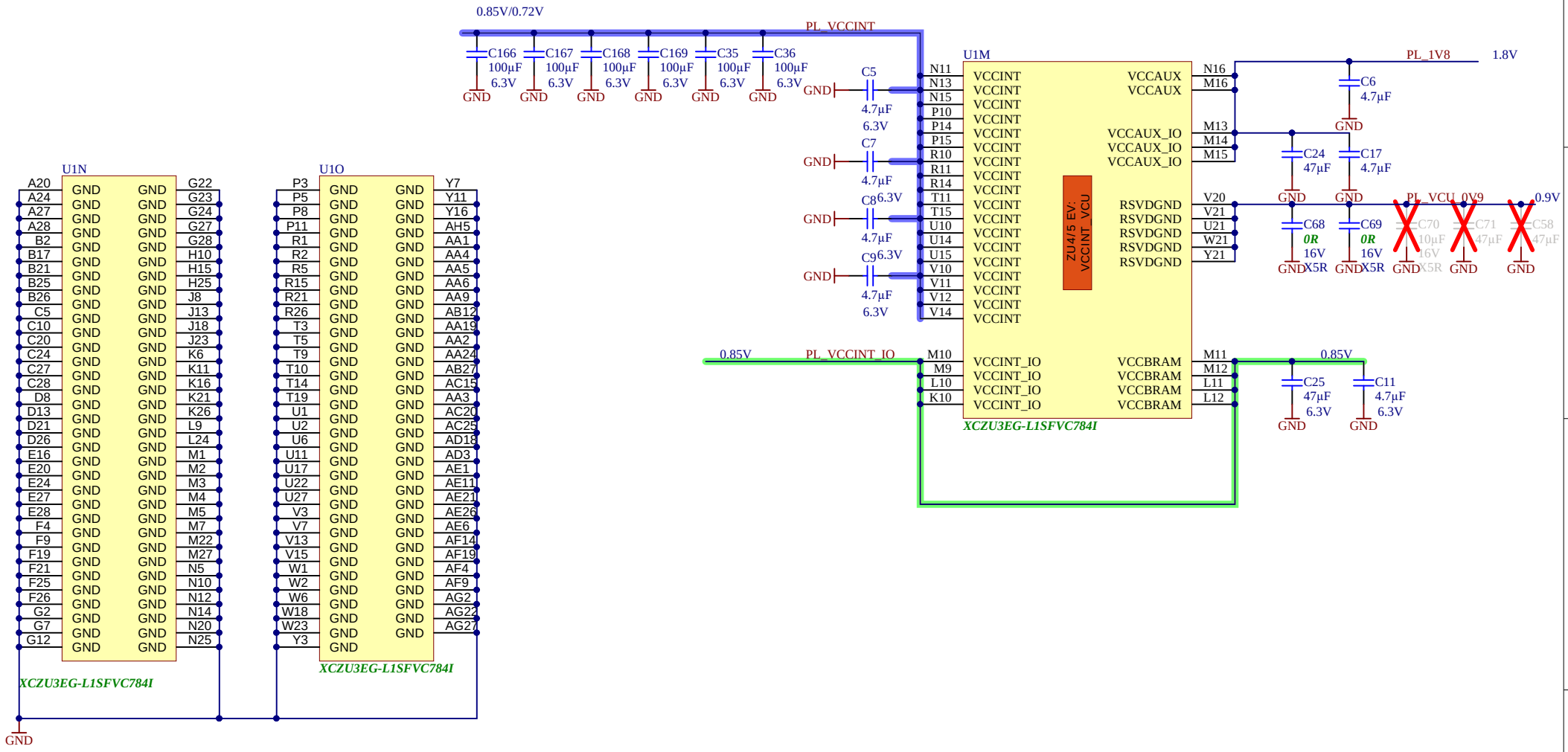
Title: TE0803 - PS_GT		
A4	Number: TE0803 3RI21-A	Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT	Page13 of 26
Filename: B_PS_GT.SchDoc		



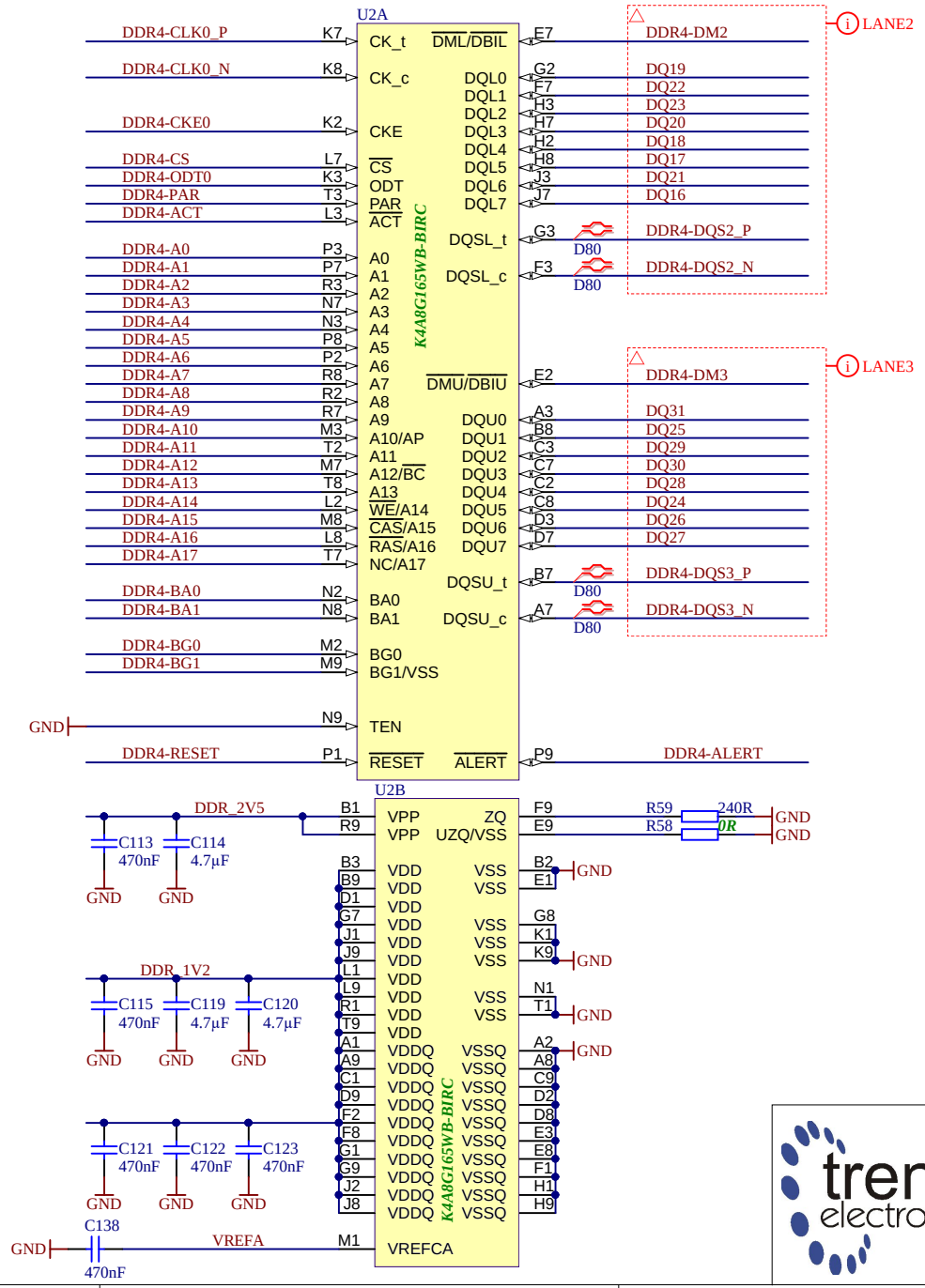
trenz electronic	Title: TE0803 - B224GTH		
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page14 of 26
Filename: B_GT.SchDoc			



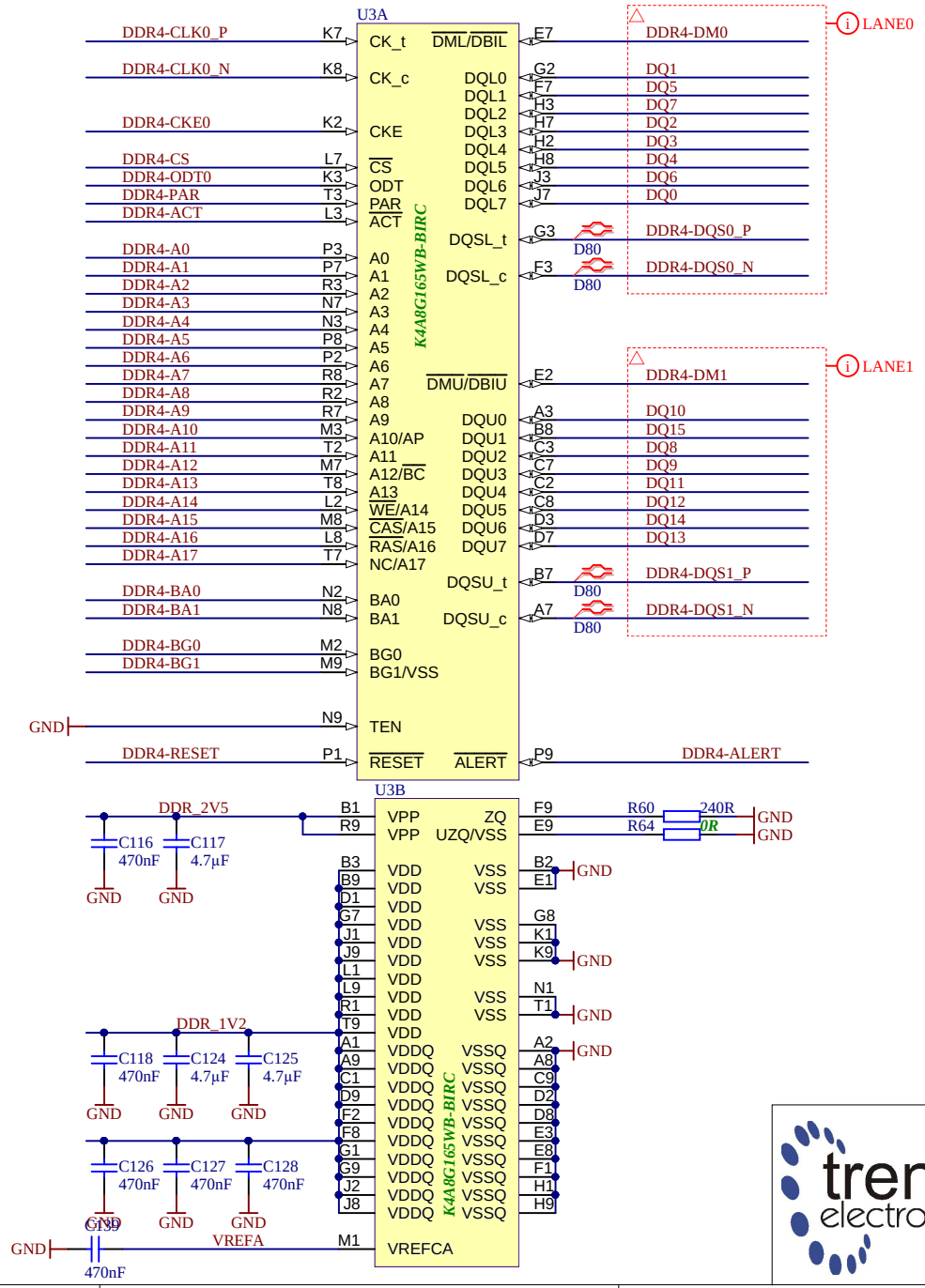
trenz electronic	Title: TE0803 - ZU_PS_POWER		
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page15 of 26
Filename: ZU_PS_POWER.SchDoc			



Title: TE0803 - ZU_POWER			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page16 of 26
Filename: ZU_POWER.SchDoc			

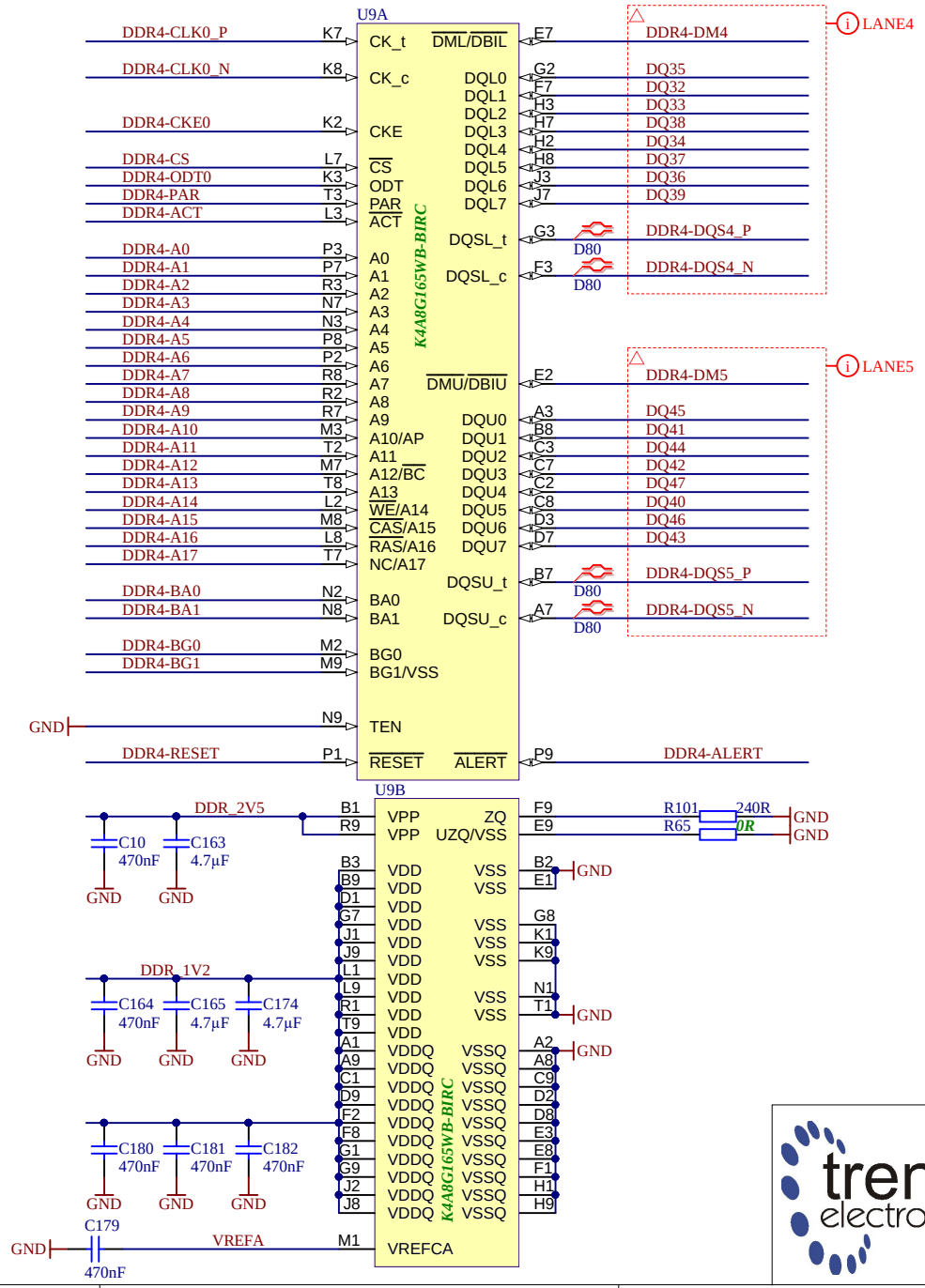


Title: TE0803 - DDR4_1_RAM			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page17 of 26
Filename: DDR4-RAM.SchDoc			

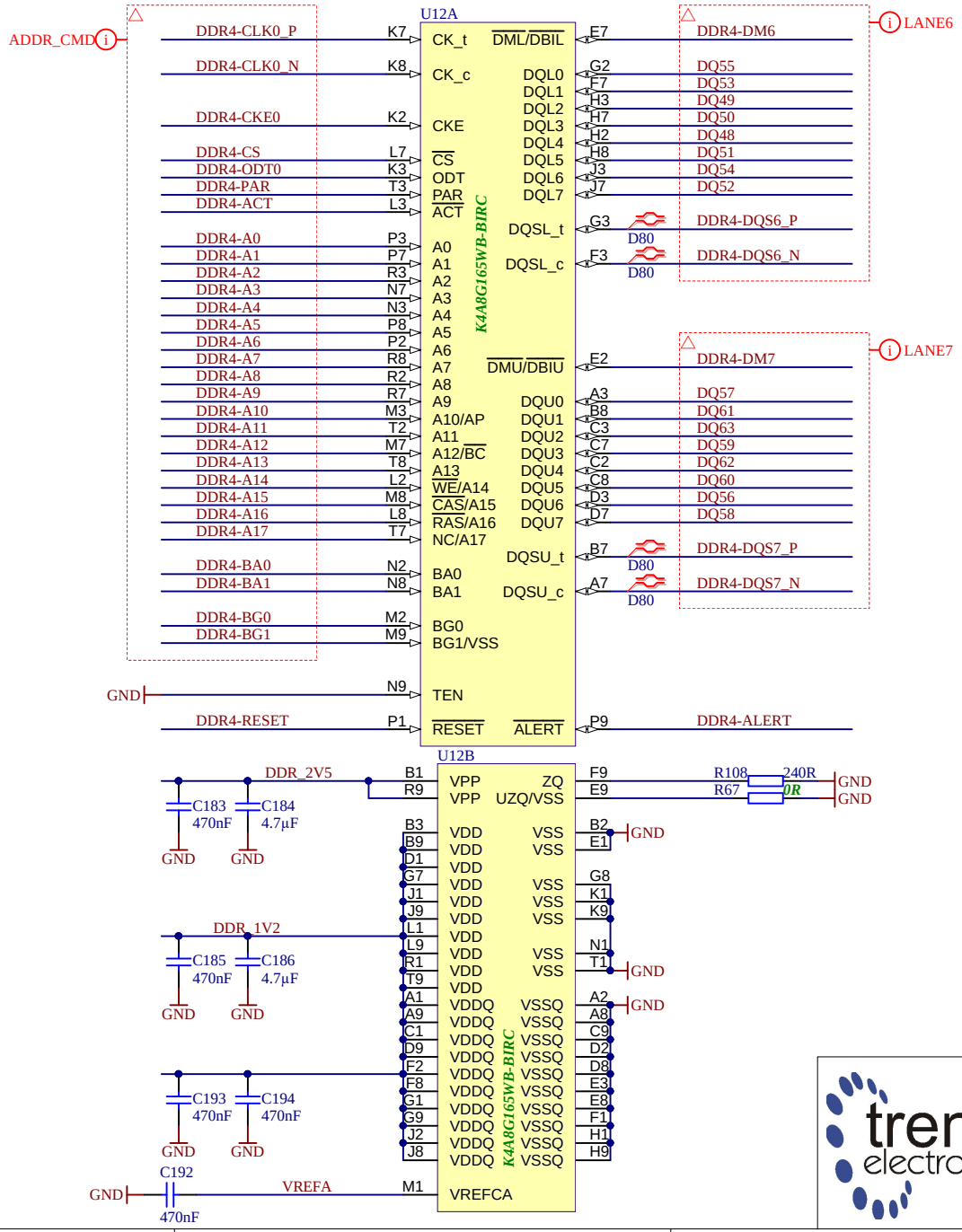


trenz electronic

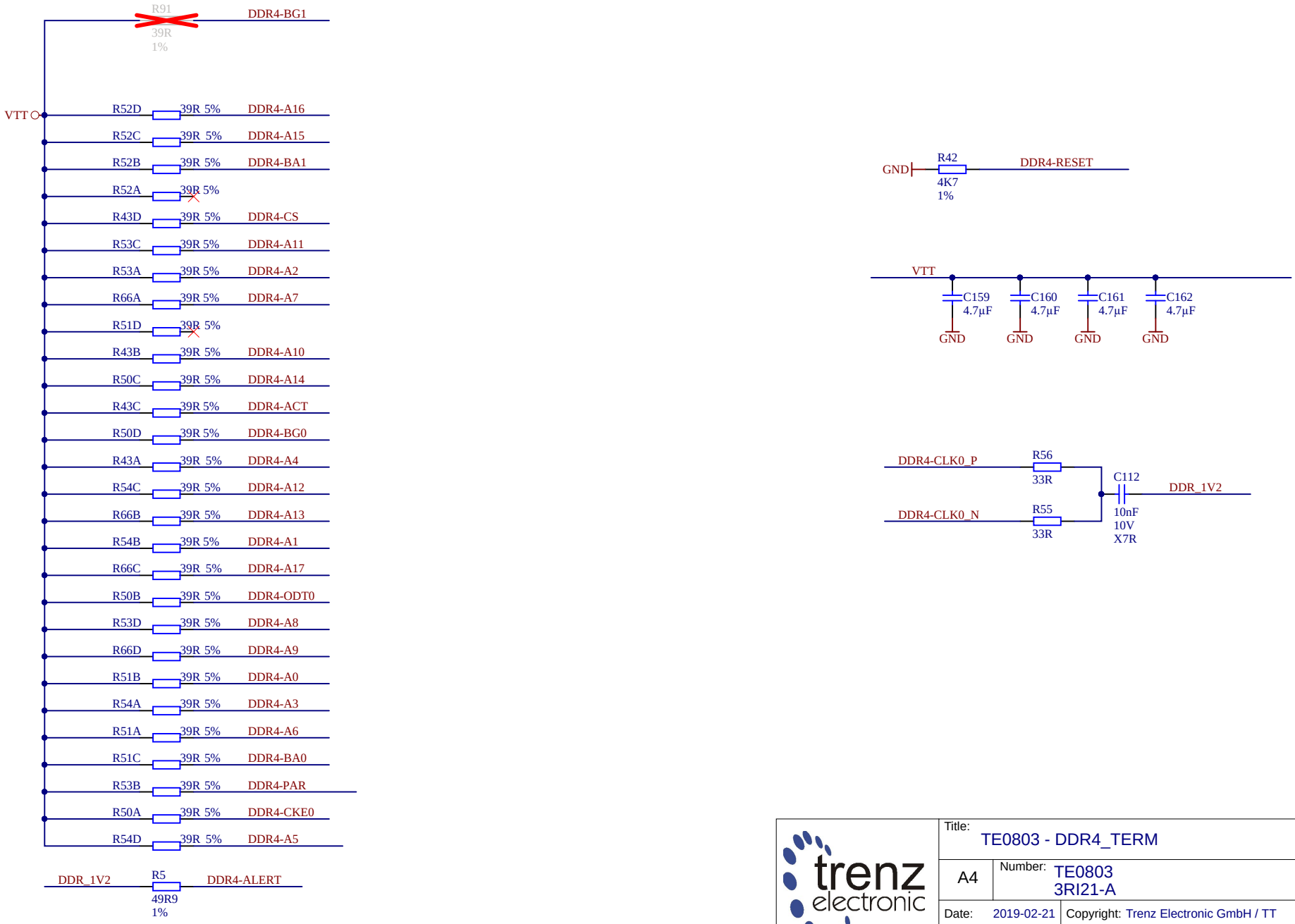
Title: TE0803 - DDR4_2_RAM			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page18 of 26
Filename: DDR4-RAM_2.SchDoc			



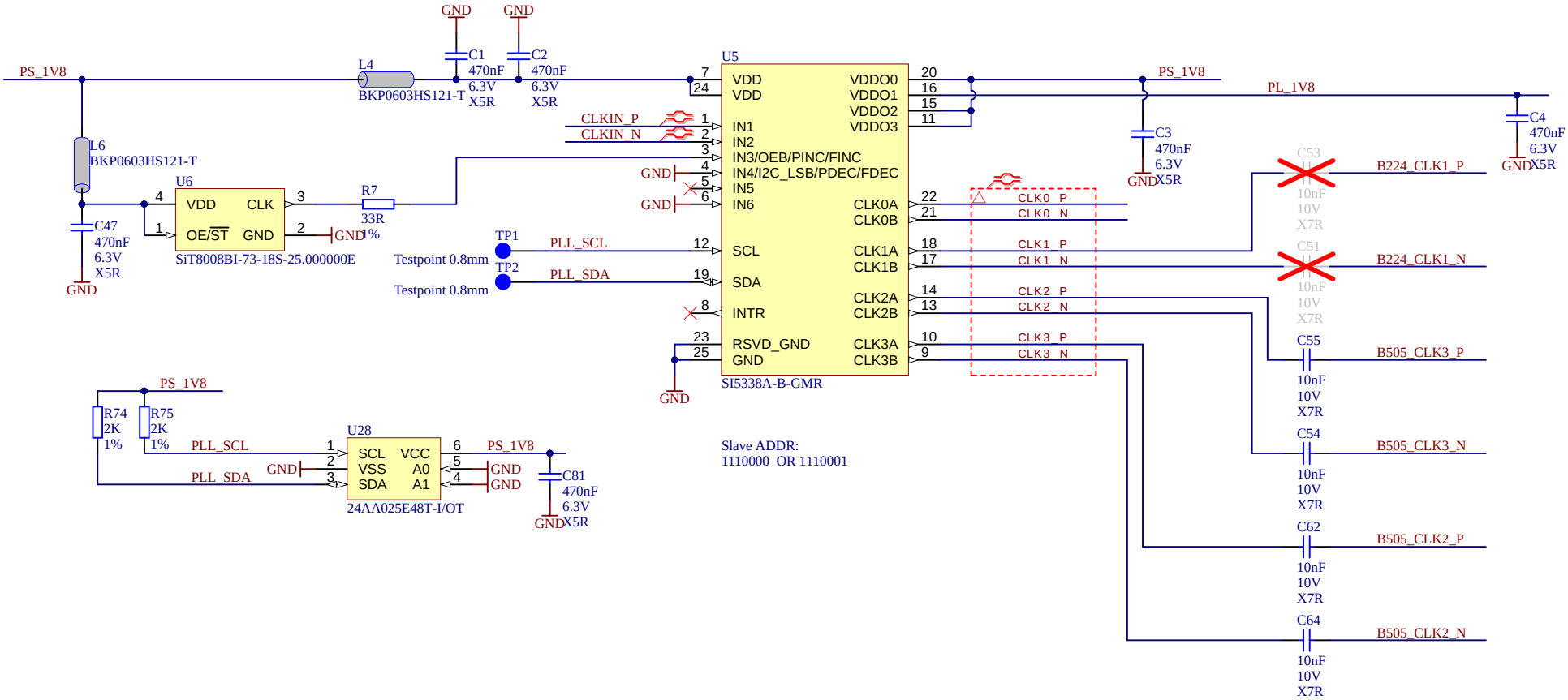
Title: TE0803 - DDR4_3_RAM			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page19 of 26
Filename: DDR4-RAM_3.SchDoc			



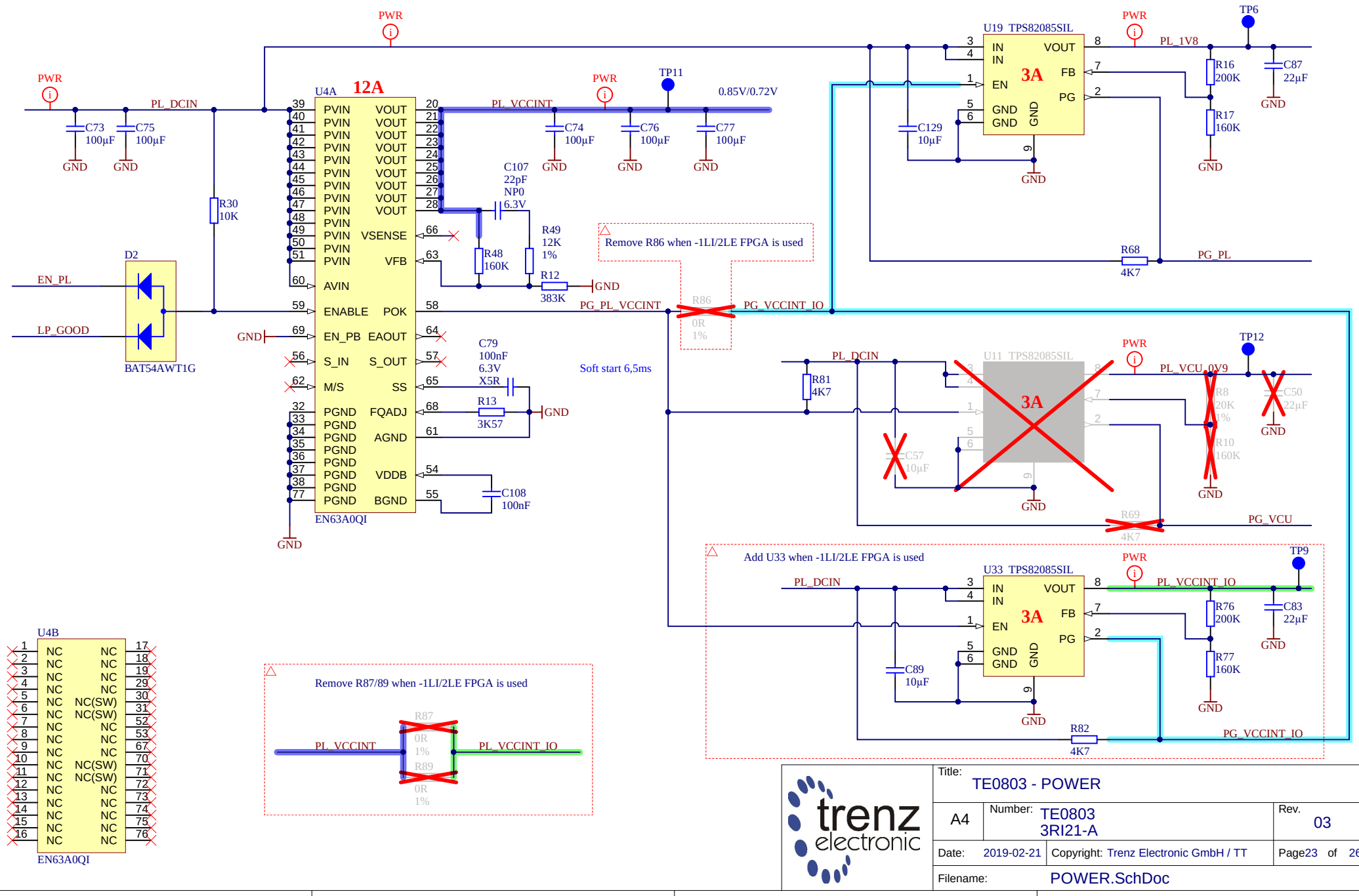
trenz electronic	Title: TE0803 - DDR4_4_RAM		
	A4	Number: TE0803 3RI21-A	Rev. 03
	Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT	Page20 of 26
	Filename: DDR4-RAM_4.SchDoc		

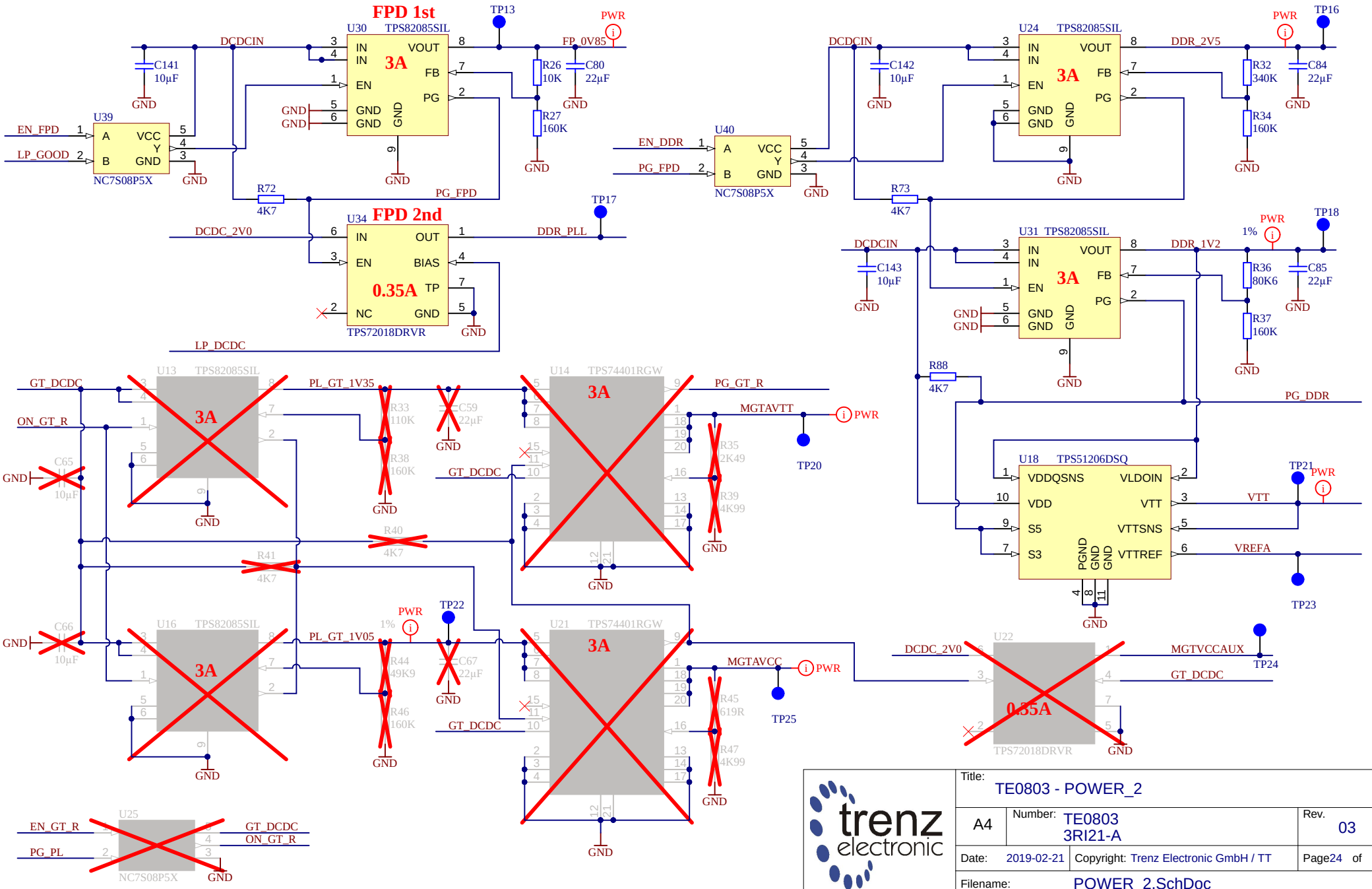


Title: TE0803 - DDR4_TERM			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page21 of 26
Filename: DDR4-TERM.SchDoc			

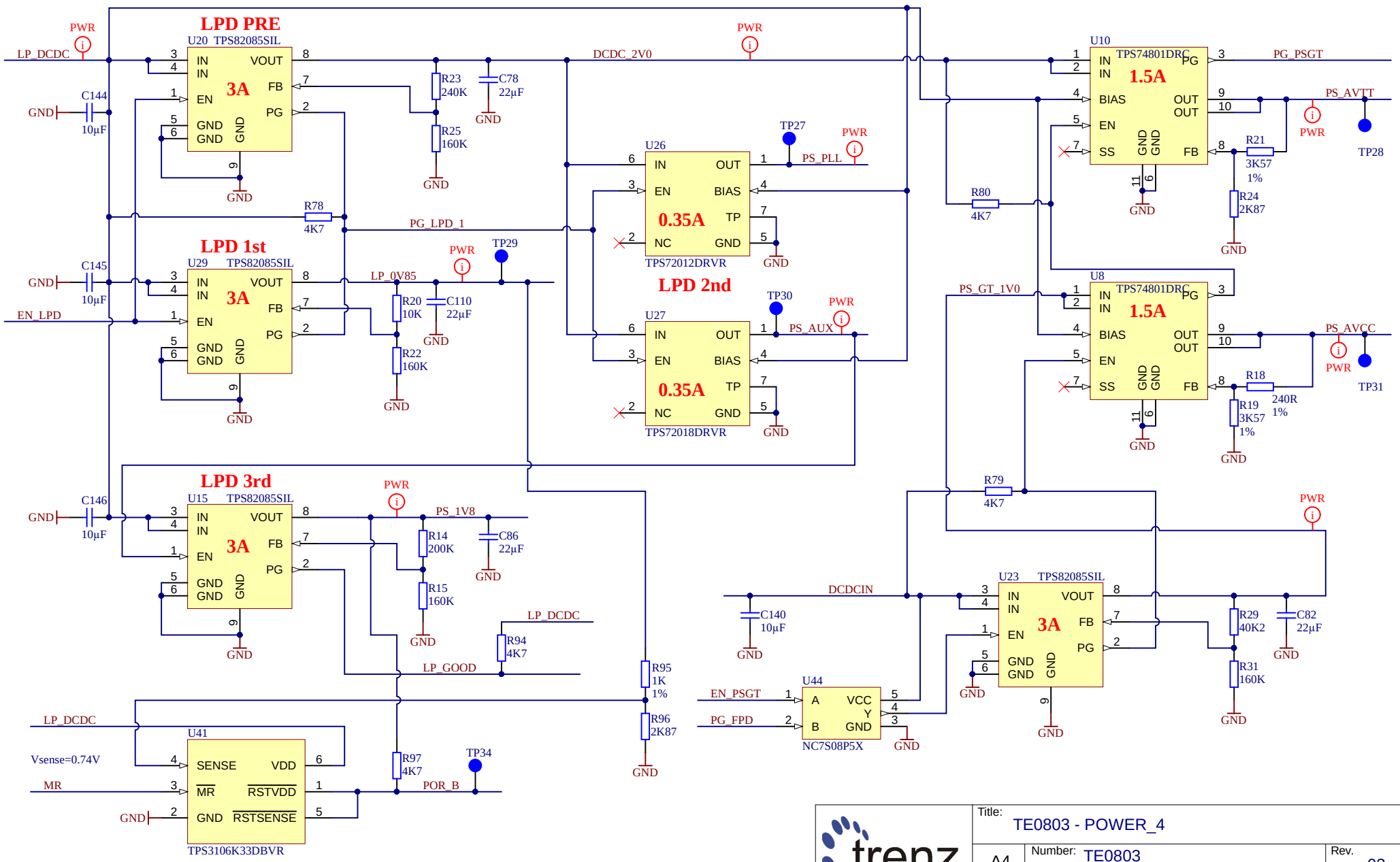


trenz electronic	Title: TE0803 - CLOCK		
	A4	Number: TE0803 3RI21-A	Rev. 03
	Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT	Page22 of 26
	Filename: Clock.SchDoc		


PWR
PL_DCIN
C73 100µF
C75 100µF
GND
R30 10K
D2
EN_PL
LP_GOOD
BAT54AWT1G
U4A
12A
PVIN
VOUT
VSENSE
VFB
AVIN
ENABLE
POK
EN_PB
EAOUT
S_IN
S_OUT
M/S
SS
PGND
FQADJ
AGND
VDDB
BGND
EN63A0QI
C107 22pF NP0 6.3V
R48 160K
R49 12K 1%
R12 383K
C74 100µF
C76 100µF
C77 100µF
TP11
0.85V/0.72V
PL_VCCINT
PG_PL_VCCINT
Remove R86 when -1LI/2LE FPGA is used
R86 0R 1%
PG_VCCINT_IO
C79 100nF 6.3V X5R
R13 3K57
C108 100nF
Soft start 6,5ms
U19 TPS82085SIL
IN
EN
GND
VOUT
FB
PG
3A
C129 10µF
R16 200K
R17 160K
C87 22µF
TP6
PL_1V8
R68 4K7
PG_PL
U11 TPS82085SIL
R81 4K7
C57 10µF
R8 20K 1%
R10 160K
C50 22µF
TP12
PL_VCU_0V9
R69 4K7
PG_VCU
Add U33 when -1LI/2LE FPGA is used
U33 TPS82085SIL
C89 10µF
R76 200K
R77 160K
C83 22µF
TP9
PL_VCCINT_IO
R82 4K7
U4B
NC
NC(SW)
EN63A0QI
Remove R87/89 when -1LI/2LE FPGA is used
R87 0R 1%
R89 0R 1%
trenz electronic
Title: TE0803 - POWER
A4
Number: TE0803 3RI21-A
Rev. 03
Date: 2019-02-21
Copyright: Trenz Electronic GmbH / TT
Page23 of 26
Filename: POWER.SchDoc



Title: TE0803 - POWER_2			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page24 of 26
Filename: POWER_2.SchDoc			



Title: TE0803 - POWER_4			
A4	Number: TE0803 3RI21-A		Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH / TT		Page25 of 26
Filename: POWER_4.SchDoc			

CHANGES REV01a (20.11.2017):
---
1) VCU voltage set to 0.9V, R20 changed to 40K , PL_VCU_1V0 renamed to PL_VCU_0V9.

CHANGES REV02 (20.06.2018):
---
1) Added LDO to DDR_PLL
2) All differential pairs wath length matched with tollerance 0.1mm (excluding package delays)
3) Added MAC EEPROM U28
4) VPS_MGTRAVCC set to 0.85V
5) Added pull-up resistors R68,R69

CHANGES REV03 (21.02.2019):
---
1) Added support of DDP DDR4
2) Added support of Low power FPGA (-L1/L2).
3) Revised testpoints
4) Revised J1-J4 connectors net label style

trenz electronic

Title: TE0803 - Changes list		
A4	Number: TE0803 3RI21-A	Rev. 03
Date: 2019-02-21	Copyright: Trenz Electronic GmbH	Page 26 of 26
Filename: Revision_Changes.SchDoc		