U_B12
B12.SchDoc

U_B13
B13.SchDoc

U_B14
B14.SchDoc

U_B15
B15.SchDoc

U_B16
B16.SchDoc

U_B34
B34.SchDoc

U_FPGA-MGT
FPGA-MGT.SchDoc

U_FPGA-CFG
FPGA-CFG.SchDoc

U_FPGA-MISC
FPGA-MISC.SchDoc

U_FPGA-PWR
FPGA-PWR.SchDoc

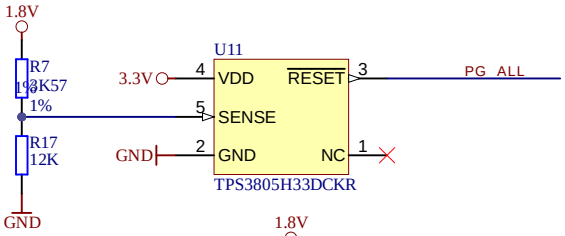
U_PWR1
PWR1.SchDoc

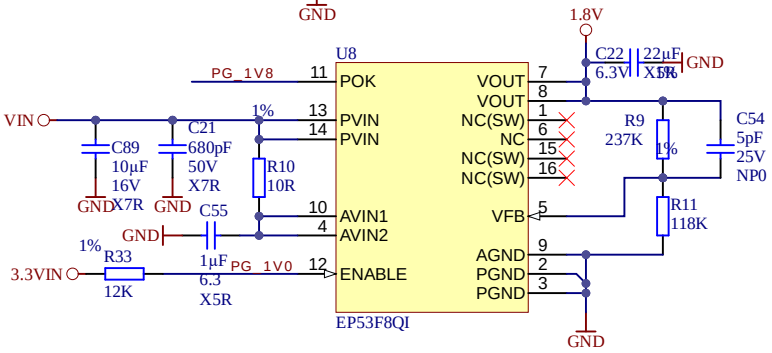
U_PWR2
PWR2.SchDoc

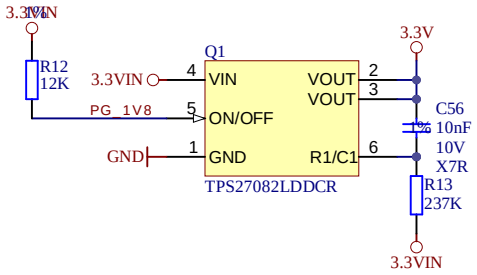
U_Clock
Clock.SchDoc

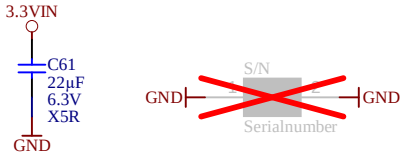
U_B2B-Connectors
B2B-Connectors.SchDoc

U_B33
B33.SchDoc

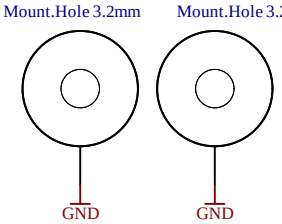


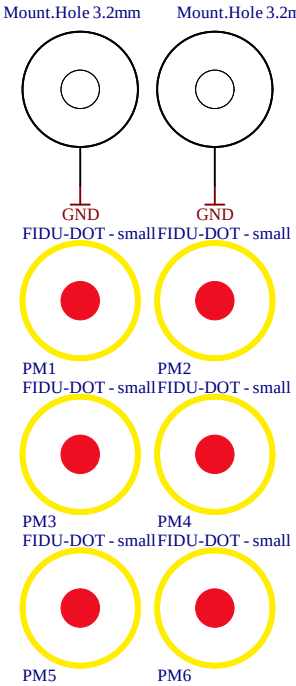




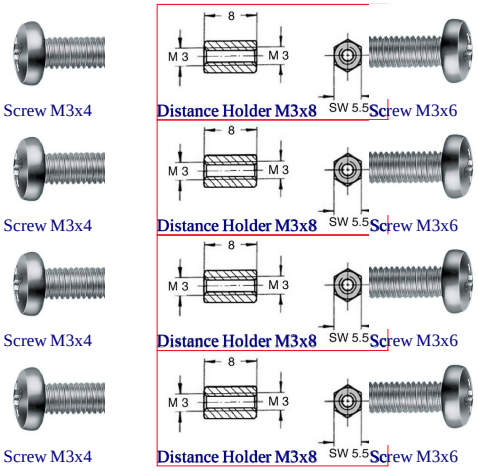


Serial
Serial
Serialnumber 6,3 x 6.3mm





Top of Board



Assembly variant	410-2IF
Created by	VT
Modified by	VY
Modified at	2018-10-12
SVN Revision	8679

trenz electronic

Title: TE0741		
A4	Number: TE0741 410-2IF	Rev. 03
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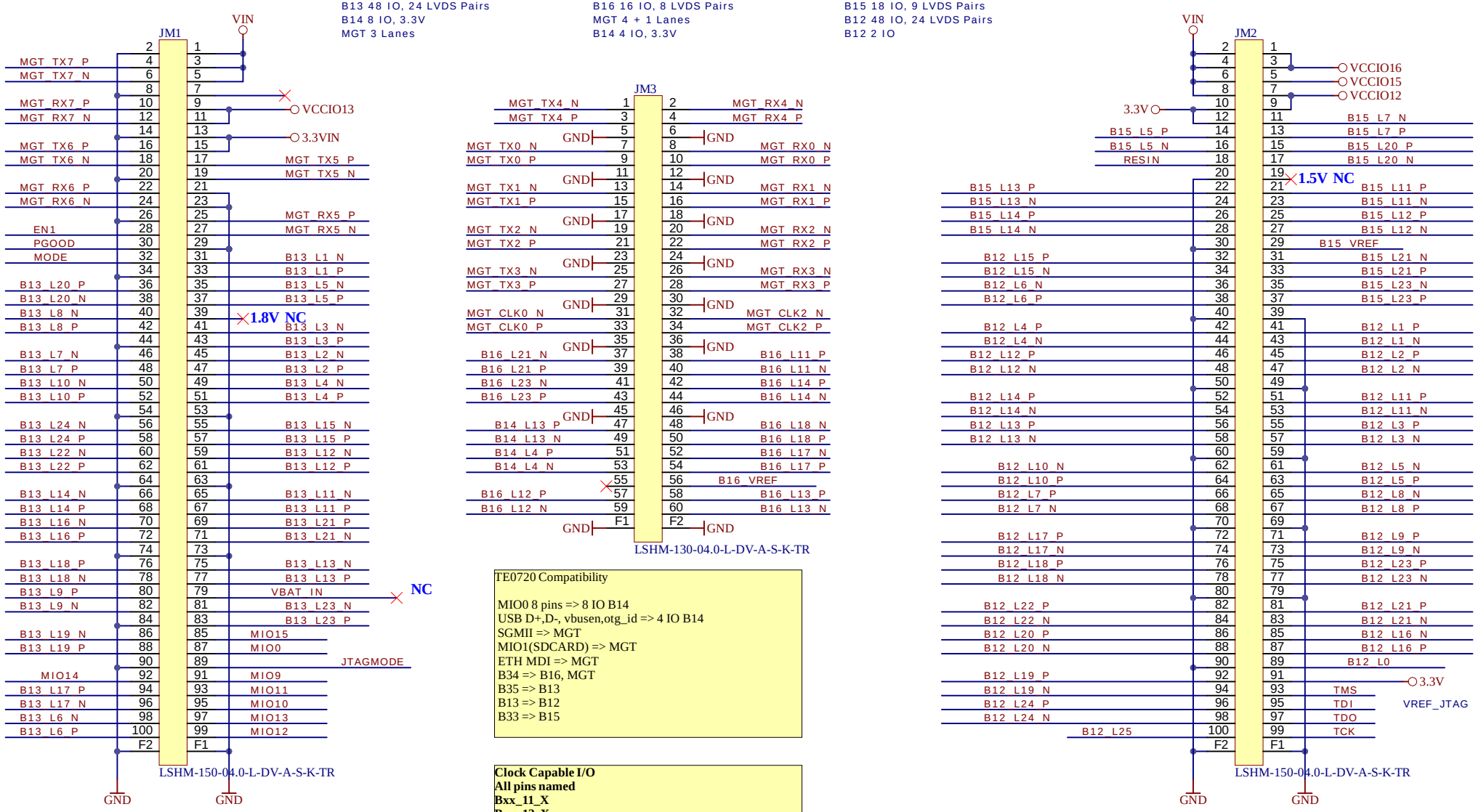
B13 48 IO, 24 LVDS Pairs
B14 8 IO, 3.3V
MGT 3 Lanes
B16 16 IO, 8 LVDS Pairs
MGT 4 + 1 Lanes
B14 4 IO, 3.3V
B15 18 IO, 9 LVDS Pairs
B12 48 IO, 24 LVDS Pairs
B12 2 IO
JM1
VIN
MGT_TX7_P
MGT_TX7_N
MGT_RX7_P
MGT_RX7_N
MGT_TX6_P
MGT_TX6_N
MGT_RX6_P
MGT_RX6_N
EN1
PGOOD
MODE
B13_L20_P
B13_L20_N
B13_L8_N
B13_L8_P
B13_L7_N
B13_L7_P
B13_L10_N
B13_L10_P
B13_L24_N
B13_L24_P
B13_L22_N
B13_L22_P
B13_L14_N
B13_L14_P
B13_L16_N
B13_L16_P
B13_L18_P
B13_L18_N
B13_L9_P
B13_L9_N
B13_L19_N
B13_L19_P
MIO14
B13_L17_P
B13_L17_N
B13_L6_N
B13_L6_P
VCCIO13
3.3VIN
MGT_TX5_P
MGT_TX5_N
MGT_RX5_P
MGT_RX5_N
B13_L1_N
B13_L1_P
B13_L5_N
B13_L5_P
1.8V NC
B13_L3_N
B13_L3_P
B13_L2_N
B13_L2_P
B13_L4_N
B13_L4_P
B13_L15_N
B13_L15_P
B13_L12_N
B13_L12_P
B13_L11_N
B13_L11_P
B13_L21_P
B13_L21_N
B13_L13_N
B13_L13_P
VBAT_IN
NC
B13_L23_N
B13_L23_P
MIO15
MIO0
JTAGMODE
MIO9
MIO11
MIO10
MIO13
MIO12
LSHM-150-04.0-L-DV-A-S-K-TR
GND
JM3
MGT_TX4_N
MGT_TX4_P
MGT_TX0_N
MGT_TX0_P
MGT_TX1_N
MGT_TX1_P
MGT_TX2_N
MGT_TX2_P
MGT_TX3_N
MGT_TX3_P
MGT_CLK0_N
MGT_CLK0_P
B16_L21_N
B16_L21_P
B16_L23_N
B16_L23_P
B14_L13_P
B14_L13_N
B14_L4_P
B14_L4_N
B16_L12_P
B16_L12_N
F1
MGT_RX4_N
MGT_RX4_P
MGT_RX0_N
MGT_RX0_P
MGT_RX1_N
MGT_RX1_P
MGT_RX2_N
MGT_RX2_P
MGT_RX3_N
MGT_RX3_P
MGT_CLK2_N
MGT_CLK2_P
B16_L11_P
B16_L11_N
B16_L14_P
B16_L14_N
B16_L18_N
B16_L18_P
B16_L17_N
B16_L17_P
B16_VREF
B16_L13_P
B16_L13_N
F2
LSHM-130-04.0-L-DV-A-S-K-TR
TE0720 Compatibility
MIO0 8 pins => 8 IO B14
USB D+,D-, vbusen,otg_id => 4 IO B14
SGMII => MGT
MIO1(SDCARD) => MGT
ETH MDI => MGT
B34 => B16, MGT
B35 => B13
B13 => B12
B33 => B15
Clock Capable I/O
All pins named
Bxx_11_X
Bxx_12_X
Bxx_13_X
Bxx_14_X
Are Clock Capable I/O's
JM2
VIN
3.3V
B15_L5_P
B15_L5_N
RESIN
B15_L13_P
B15_L13_N
B15_L14_P
B15_L14_N
B12_L15_P
B12_L15_N
B12_L6_N
B12_L6_P
B12_L4_P
B12_L4_N
B12_L12_P
B12_L12_N
B12_L14_P
B12_L14_N
B12_L13_P
B12_L13_N
B12_L10_N
B12_L10_P
B12_L7_P
B12_L7_N
B12_L17_P
B12_L17_N
B12_L18_P
B12_L18_N
B12_L22_P
B12_L22_N
B12_L20_P
B12_L20_N
B12_L19_P
B12_L19_N
B12_L24_P
B12_L24_N
B12_L25
VCCIO16
VCCIO15
VCCIO12
B15_L7_N
B15_L7_P
B15_L20_P
B15_L20_N
1.5V NC
B15_L11_P
B15_L11_N
B15_L12_P
B15_L12_N
B15_VREF
B15_L21_N
B15_L21_P
B15_L23_N
B15_L23_P
B12_L1_P
B12_L1_N
B12_L2_P
B12_L2_N
B12_L11_P
B12_L11_N
B12_L3_P
B12_L3_N
B12_L5_N
B12_L5_P
B12_L8_N
B12_L8_P
B12_L9_P
B12_L9_N
B12_L23_P
B12_L23_N
B12_L21_P
B12_L21_N
B12_L16_N
B12_L16_P
B12_L0
3.3V
TMS
TDI
TDO
TCK
VREF_JTAG
LSHM-150-04.0-L-DV-A-S-K-TR
GND
trenz electronic
Title: TE0741
A4
Number: TE0741 410-2IF
Rev. 03
Date: 2016-10-25
Copyright: 2013 Trenz Electronic GmbH
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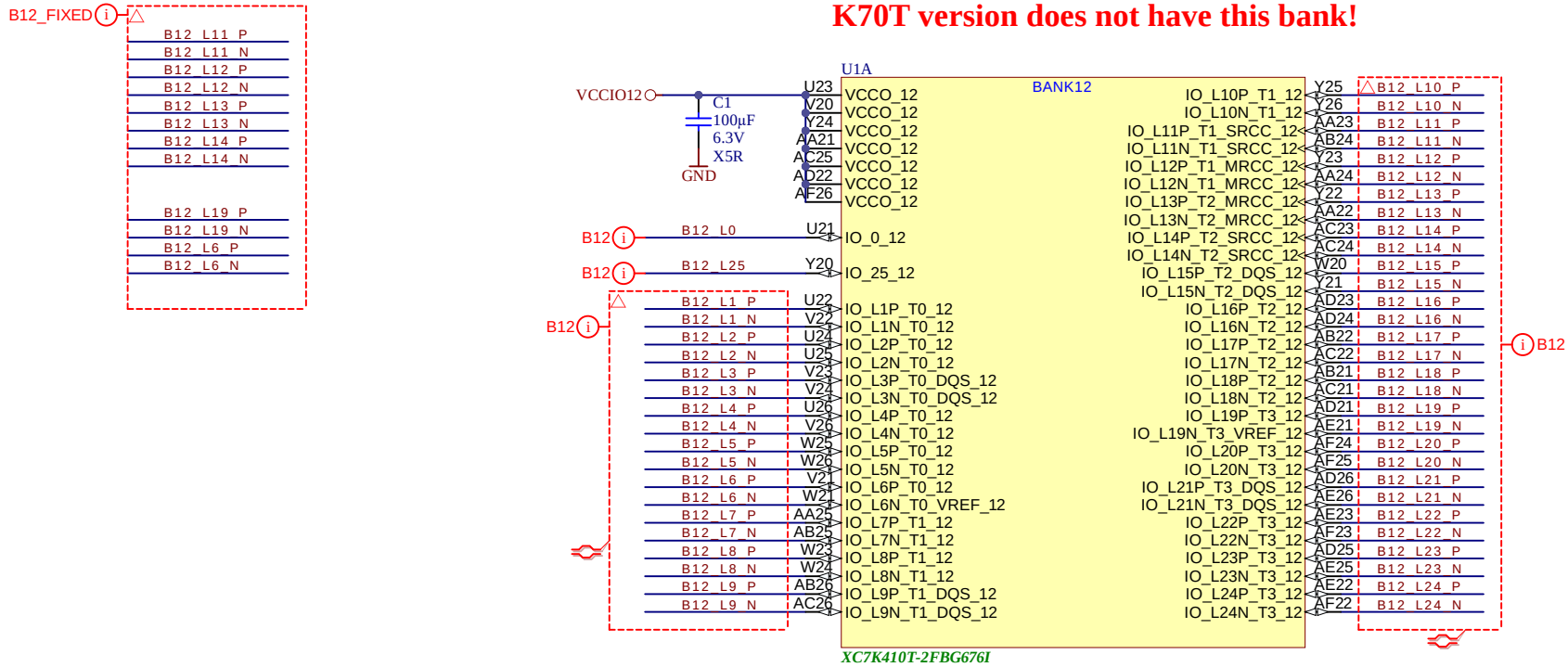
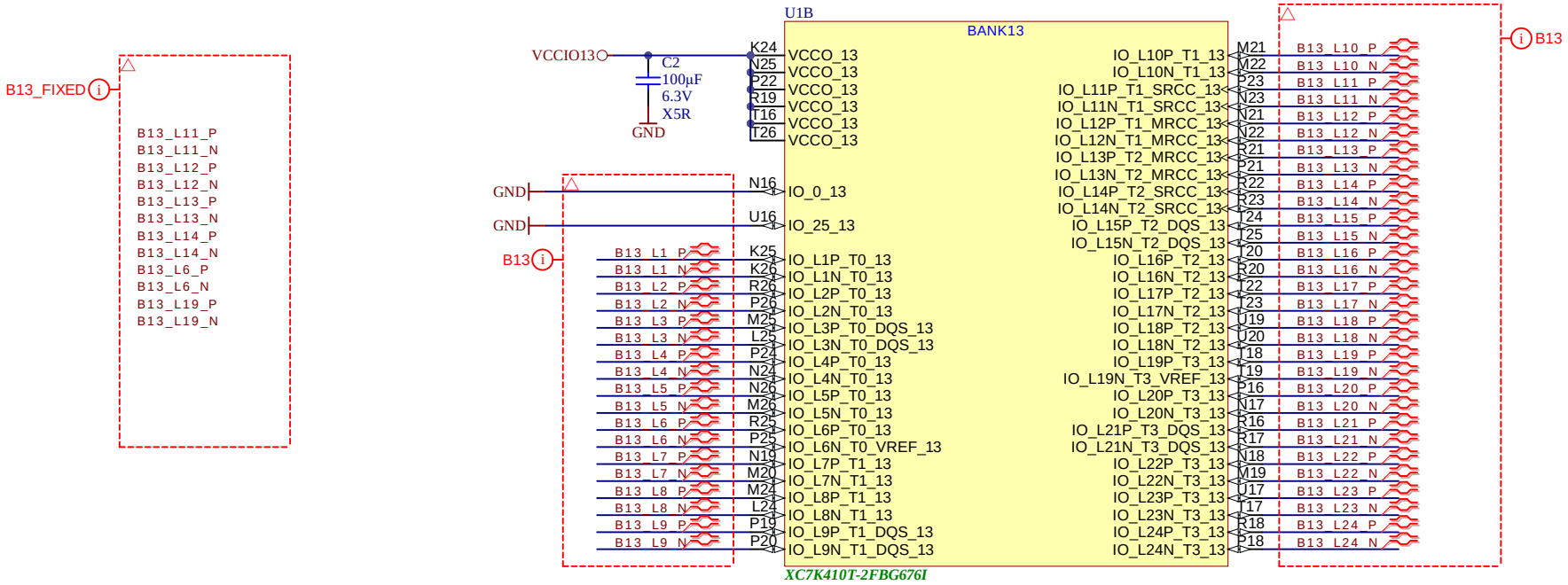
Filename: B2B-Connectors.SchDoc



trenz electronic	Title: TE0741		
A4	Number: TE0741 410-2IF		Rev. 03
Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH		Page3 of 17
Filename: B12.SchDoc			



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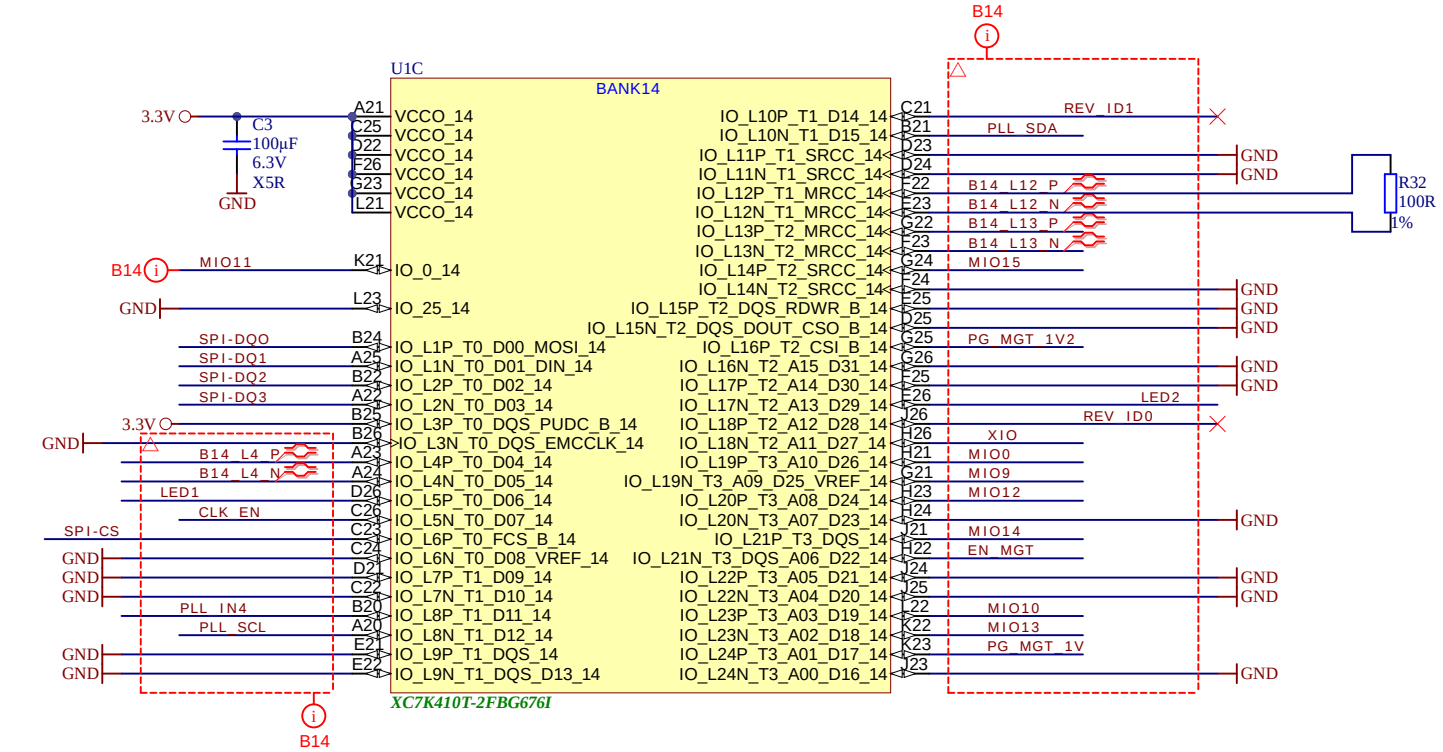
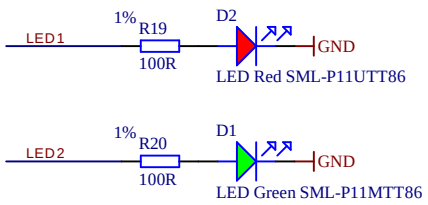
A4	Number: TE0741 410-2IF		Rev. 03
Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH		Page4 of 17
Filename: B13.SchDoc			





Title: TE0741			
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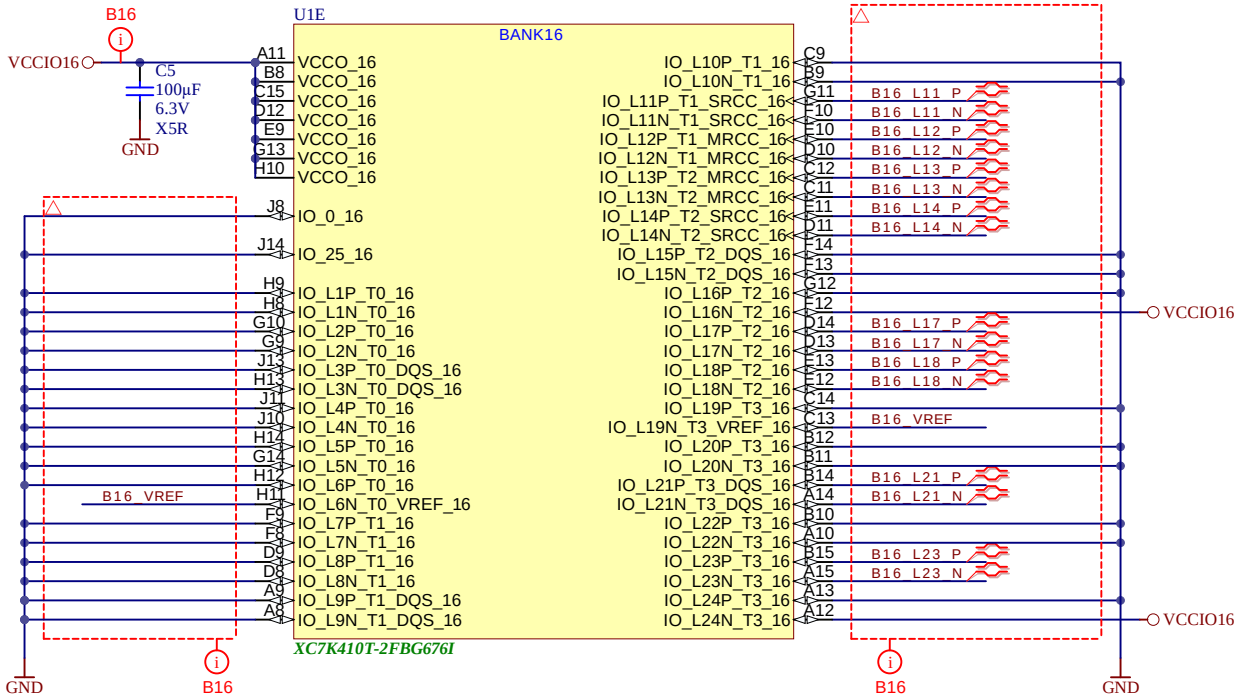
Filename: B14.SchDoc			



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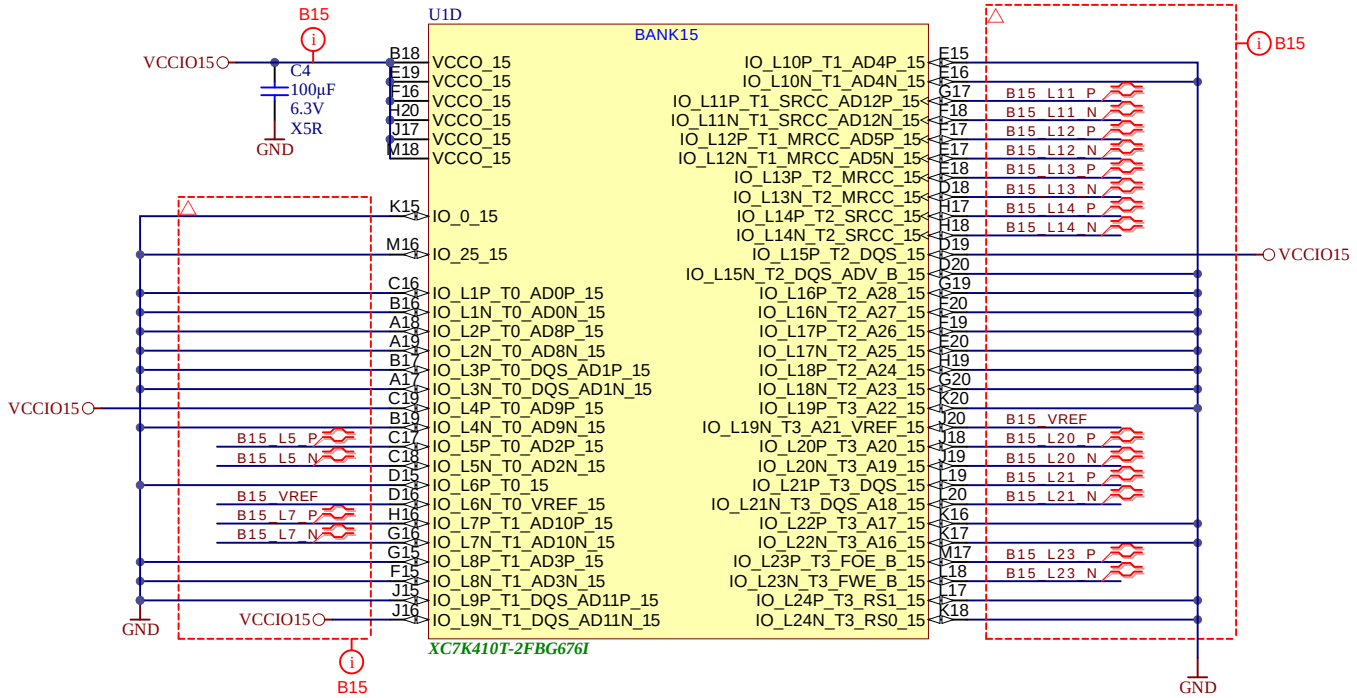
Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH		Page6 of 17
Filename: B16.SchDoc			



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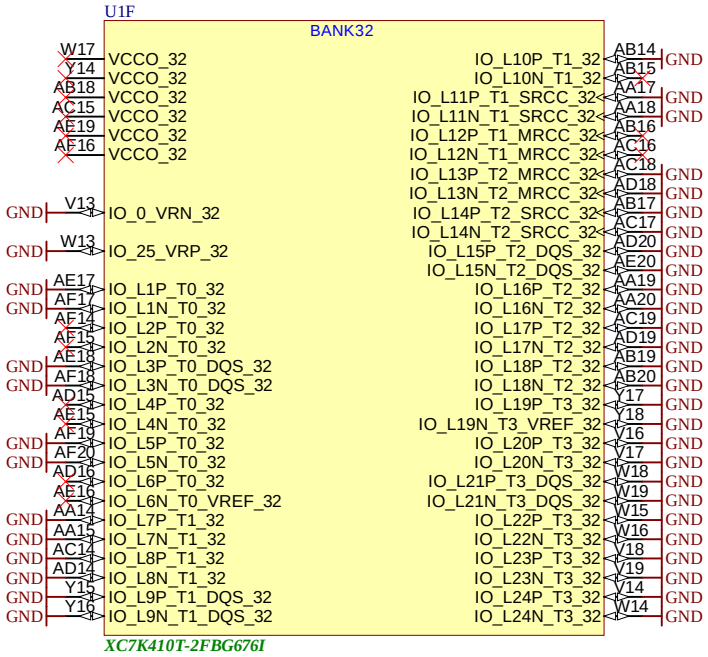
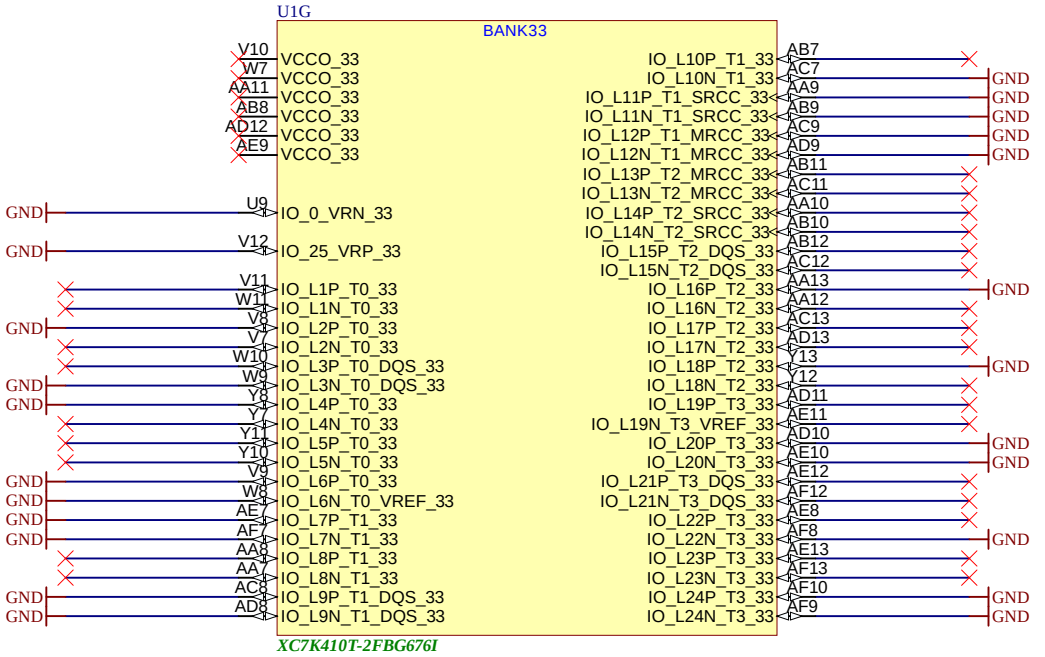
Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH		Page7 of 17
Filename: B15.SchDoc			





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Title: TE0741			
A4	Number: TE0741 410-2IF		Rev. 03
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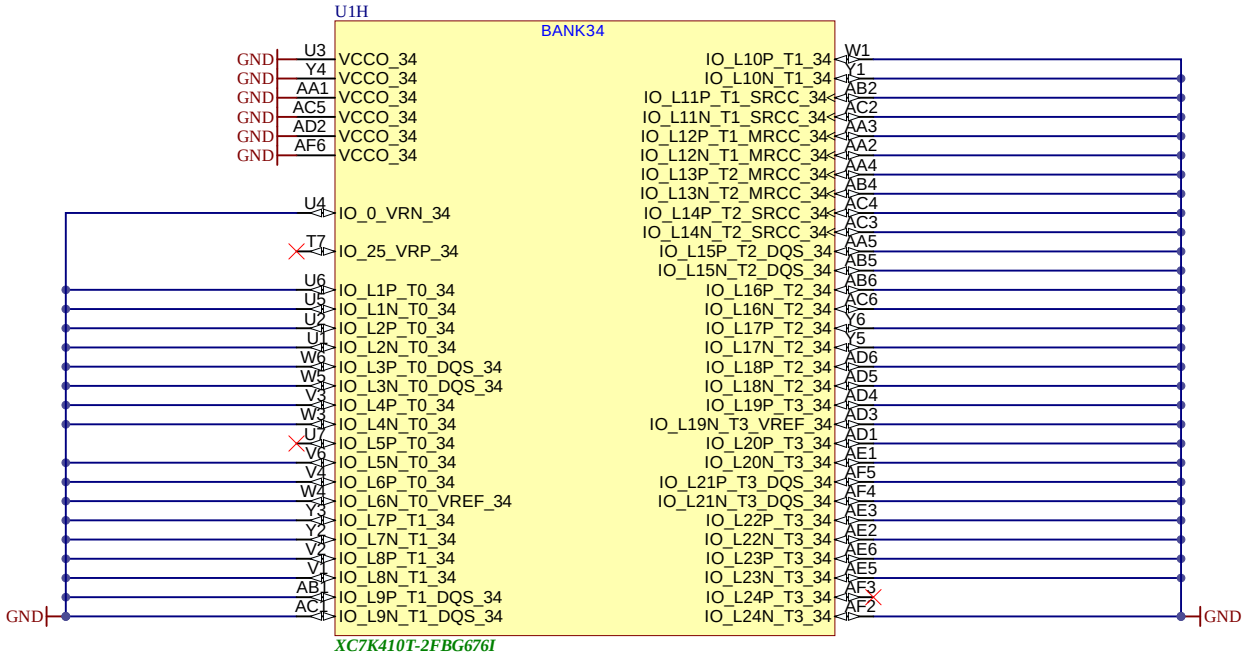

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Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH		Page9 of 17
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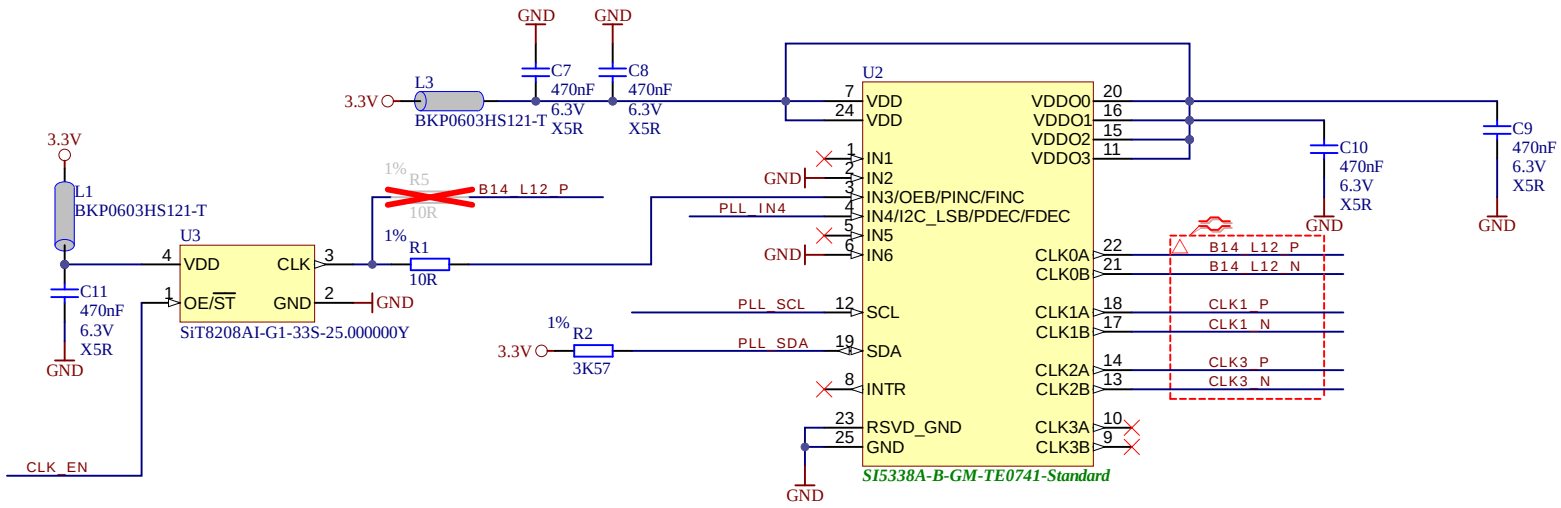

trenz electronic	Title: TE0741		
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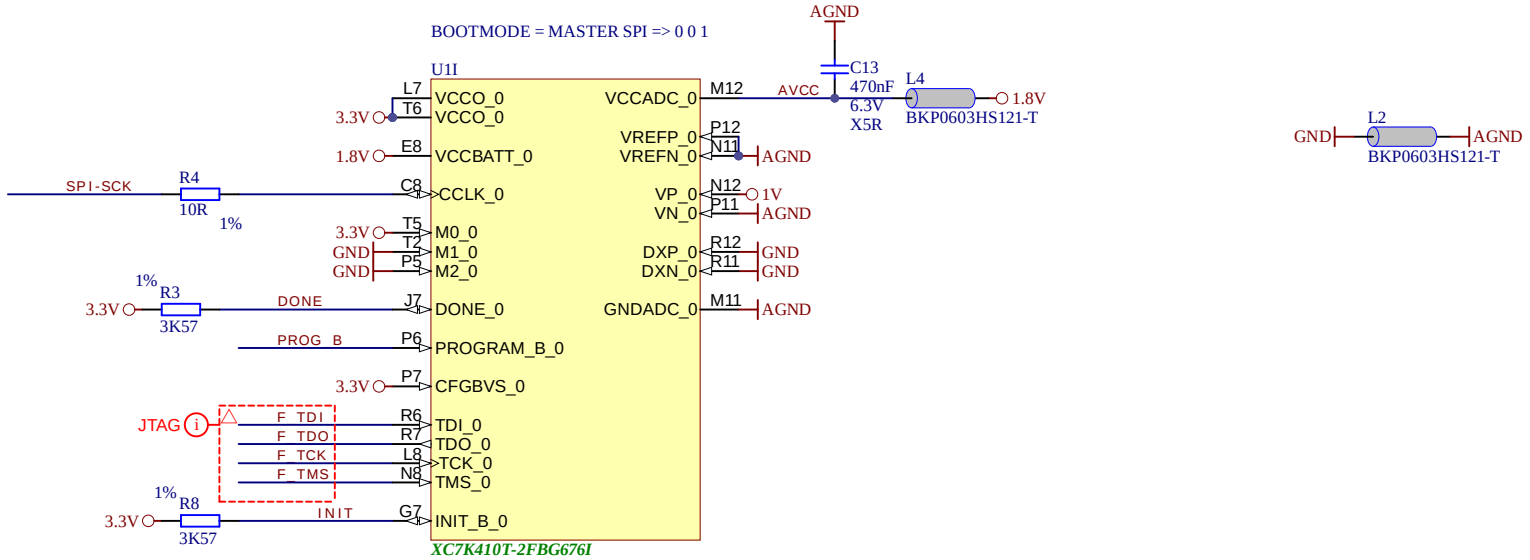
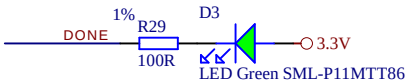
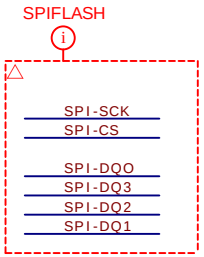
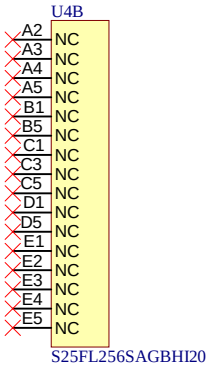
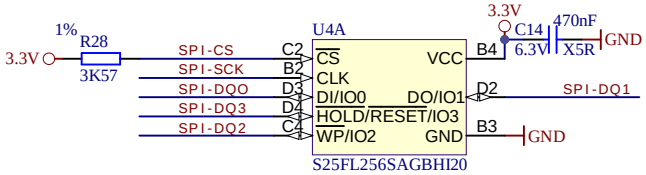
	Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH	Page10 of 17
	Filename: Clock.SchDoc		











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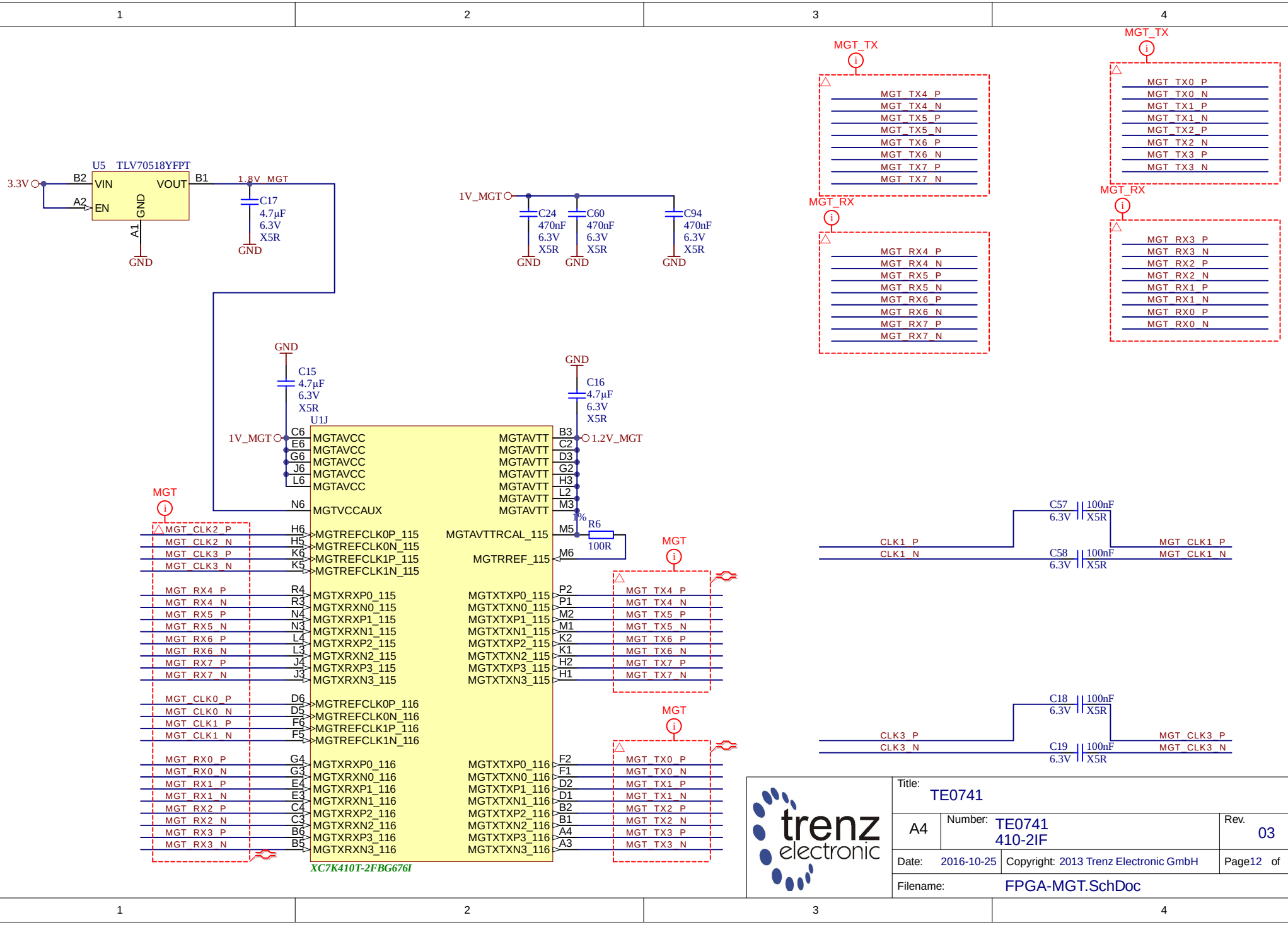
Title: TE0741			
A4	Number: TE0741 410-2IF		Rev. 03
Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH		Page11 of 17
Filename: FPGA-CFG.SchDoc			


U5 TLV70518YFPT
3.3V
B2
VIN
VOUT
B1
1.8V_MGT
A2
EN
GND
A1
GND
C17
4.7µF
6.3V
X5R
GND
1V_MGT
C24
470nF
6.3V
X5R
C60
470nF
6.3V
X5R
C94
470nF
6.3V
X5R
GND
GND
GND
C15
4.7µF
6.3V
X5R
U1J
C16
4.7µF
6.3V
X5R
1V_MGT
C6
E6
G6
J6
L6
MGTAVCC
N6
MGTVCCAUX
B3
C2
D3
G2
H3
L2
M3
MGTAVTT
1.2V_MGT
1%
R6
100R
M5
MGTAVTTRCAL_115
M6
MGTRREF_115
MGT
MGT_CLK2_P
MGT_CLK2_N
MGT_CLK3_P
MGT_CLK3_N
H6
H5
K6
K5
MGTREFCLK0P_115
MGTREFCLK0N_115
MGTREFCLK1P_115
MGTREFCLK1N_115
MGT_RX4_P
MGT_RX4_N
MGT_RX5_P
MGT_RX5_N
MGT_RX6_P
MGT_RX6_N
MGT_RX7_P
MGT_RX7_N
R4
R3
N4
N3
L4
L3
J4
J3
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MGTXRXN0_115
MGTXRXP1_115
MGTXRXN1_115
MGTXRXP2_115
MGTXRXN2_115
MGTXRXP3_115
MGTXRXN3_115
MGTXTXP0_115
MGTXTXN0_115
MGTXTXP1_115
MGTXTXN1_115
MGTXTXP2_115
MGTXTXN2_115
MGTXTXP3_115
MGTXTXN3_115
P2
P1
M2
M1
K2
K1
H2
H1
MGT_TX4_P
MGT_TX4_N
MGT_TX5_P
MGT_TX5_N
MGT_TX6_P
MGT_TX6_N
MGT_TX7_P
MGT_TX7_N
MGT_CLK0_P
MGT_CLK0_N
MGT_CLK1_P
MGT_CLK1_N
D6
D5
F6
F5
MGTREFCLK0P_116
MGTREFCLK0N_116
MGTREFCLK1P_116
MGTREFCLK1N_116
MGT_RX0_P
MGT_RX0_N
MGT_RX1_P
MGT_RX1_N
MGT_RX2_P
MGT_RX2_N
MGT_RX3_P
MGT_RX3_N
G4
G3
E4
E3
C4
C3
B6
B5
MGTXRXP0_116
MGTXRXN0_116
MGTXRXP1_116
MGTXRXN1_116
MGTXRXP2_116
MGTXRXN2_116
MGTXRXP3_116
MGTXRXN3_116
MGTXTXP0_116
MGTXTXN0_116
MGTXTXP1_116
MGTXTXN1_116
MGTXTXP2_116
MGTXTXN2_116
MGTXTXP3_116
MGTXTXN3_116
F2
F1
D2
D1
B2
B1
A4
A3
MGT_TX0_P
MGT_TX0_N
MGT_TX1_P
MGT_TX1_N
MGT_TX2_P
MGT_TX2_N
MGT_TX3_P
MGT_TX3_N
XC7K410T-2FBG676I
MGT_TX
MGT_TX4_P
MGT_TX4_N
MGT_TX5_P
MGT_TX5_N
MGT_TX6_P
MGT_TX6_N
MGT_TX7_P
MGT_TX7_N
MGT_RX
MGT_RX4_P
MGT_RX4_N
MGT_RX5_P
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MGT_RX6_P
MGT_RX6_N
MGT_RX7_P
MGT_RX7_N
MGT_TX
MGT_TX0_P
MGT_TX0_N
MGT_TX1_P
MGT_TX1_N
MGT_TX2_P
MGT_TX2_N
MGT_TX3_P
MGT_TX3_N
MGT_RX
MGT_RX3_P
MGT_RX3_N
MGT_RX2_P
MGT_RX2_N
MGT_RX1_P
MGT_RX1_N
MGT_RX0_P
MGT_RX0_N
C57
6.3V
100nF
X5R
CLK1_P
CLK1_N
C58
6.3V
100nF
X5R
MGT_CLK1_P
MGT_CLK1_N
C18
6.3V
100nF
X5R
CLK3_P
CLK3_N
C19
6.3V
100nF
X5R
MGT_CLK3_P
MGT_CLK3_N
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Title: TE0741
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Number: TE0741 410-2IF
Rev. 03
Date: 2016-10-25
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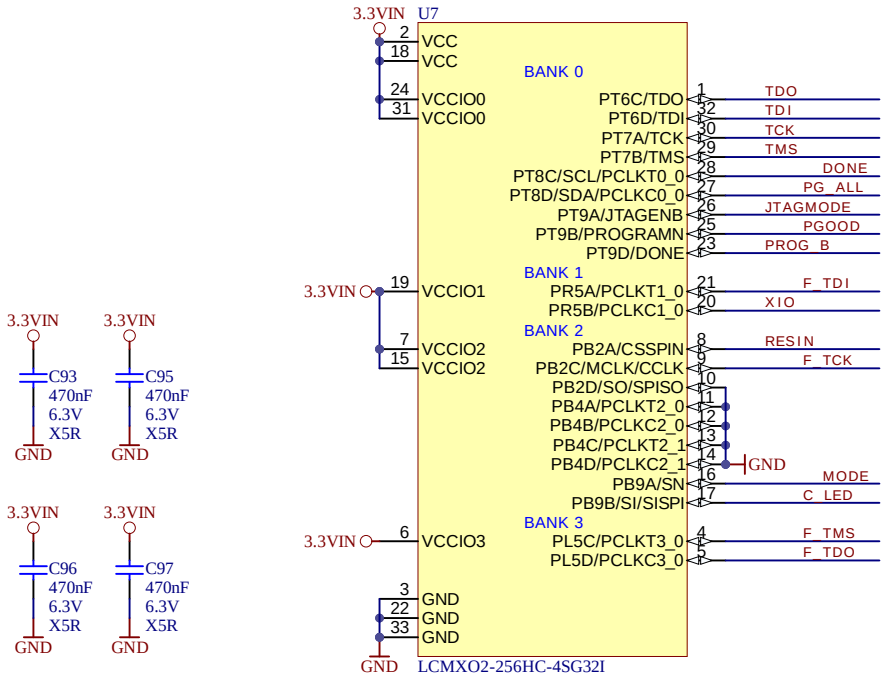
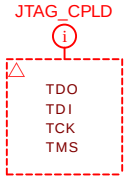
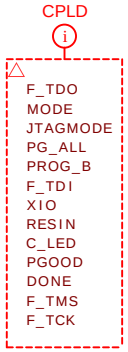
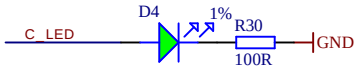


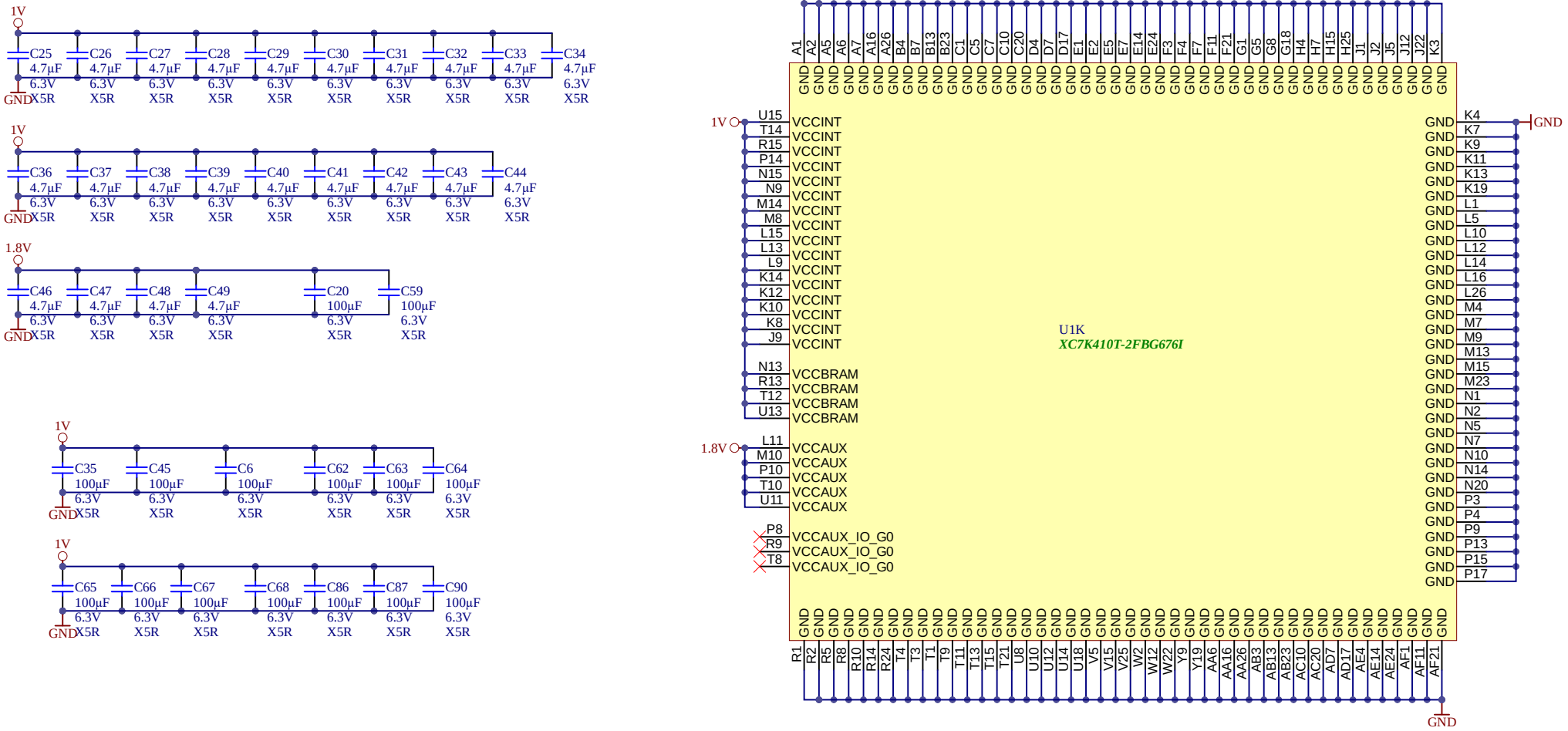






LED Green SML-P11MTT86

Title: TE0741			
A4	Number: TE0741 410-2IF		Rev. 03
Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH		Page13 of 17
Filename: FPGA-MISC.SchDoc			



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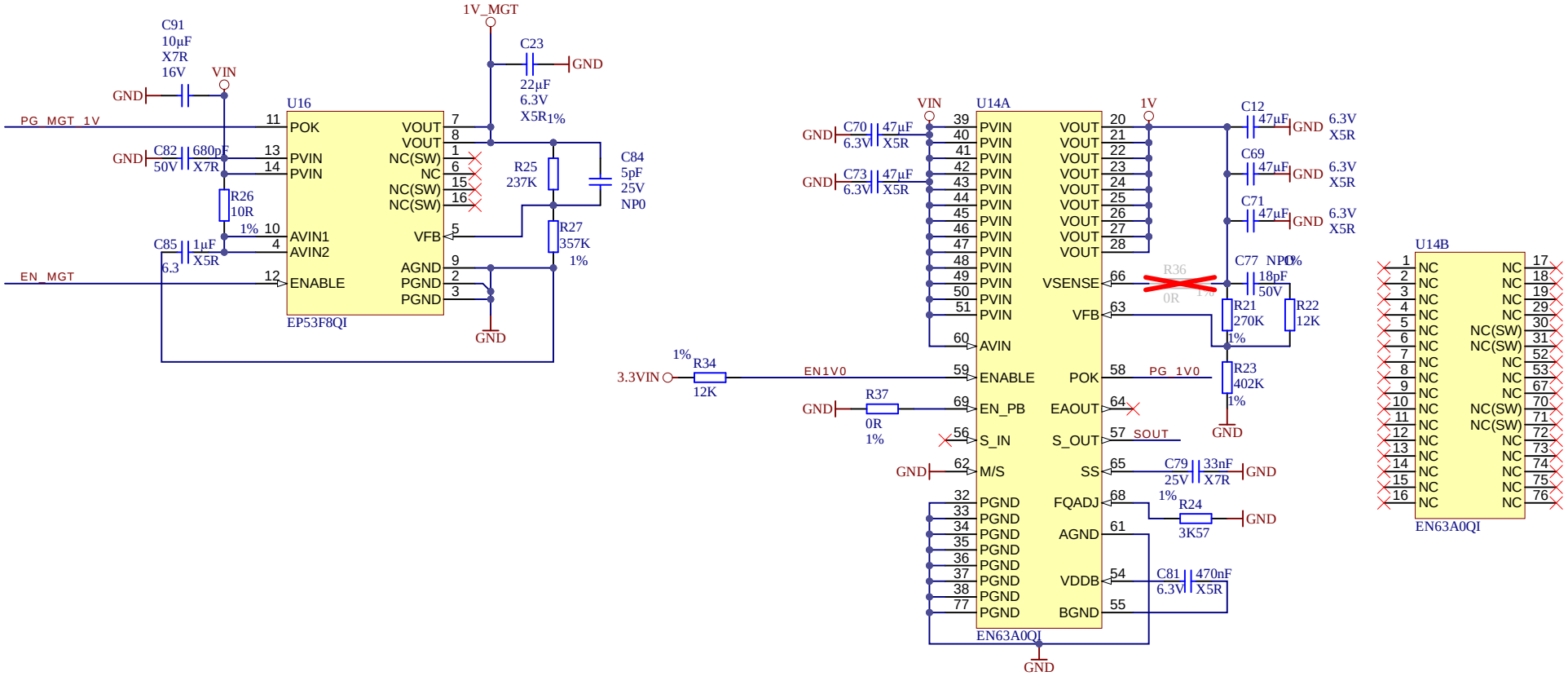
Title: TE0741		
A4	Number: TE0741 410-2IF	Rev. 03
Date: 2016-10-25	Copyright: 2013 Trenz Electronic GmbH	Page14 of 17
Filename: FPGA-PWR.SchDoc		



Pre-bias feature is not available for parallel operations

```
R36 R37 MODE EN63A0QI
-------------------------------------
OK   X      |  enable pre-bias start-up (available when U14 or U15 as DNP )
X    OK     |  disable pre-bias start-up
```

trenz electronic	Title: TE0741		
A4	Number: TE0741 410-2IF		Rev. 03
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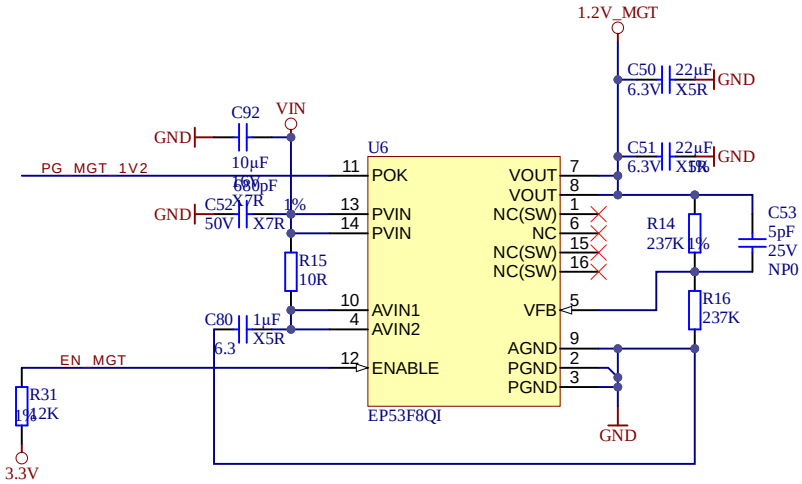
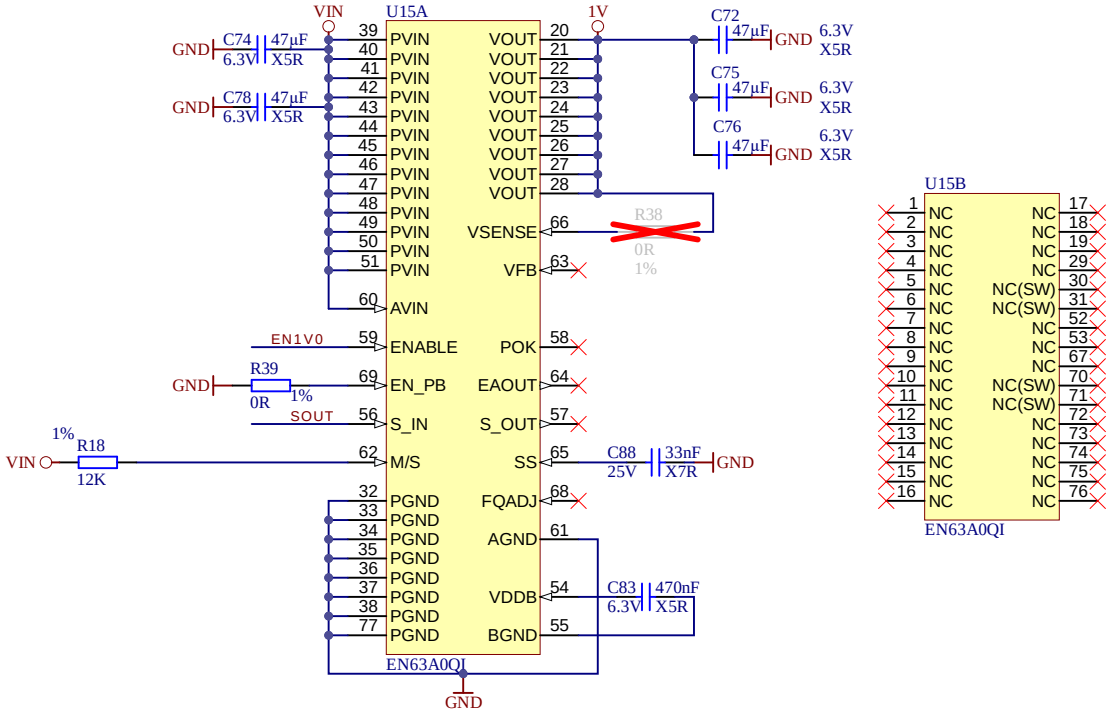
Filename: PWR1.SchDoc			





Pre-bias feature is not available for parallel operations

```
R38 R39 MODE EN63A0QI
-------------------------------------
OK   X      |  enable pre-bias start-up (available when U14 or U15 as DNP )
X    OK     |  disable pre-bias start-up
```

trenz electronic	Title: TE0741		
A4	Number: TE0741 410-2IF		Rev. 03
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Filename: PWR2.SchDoc			

CHANGES REV02 to REV03

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1) fixed connection DCDC for parallel operations
2) update Razorbeam Connectors, full update lib
3) added serial number (tracebility pad)
4) changed ferrite beads L1..L4 size 0402 on BKP0603HS121-T
5) added thermal vias to mounting holes

trenz electronic	Title: TE0741 - Changes list		
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	Filename: Revision_Changes.SchDoc		