U_J1
J1.SchDoc

U_Soc_1
Soc_1.SchDoc

U_Soc_2
Soc_2.SchDoc

U_Soc_3
Soc_3.SchDoc

U_DDR3
DDR3-RAM.SchDoc

U_ETH
ETH.SchDoc

U_PowerSupply
PowerSupply.SchDoc

Serial
Serial
Serialnumber 6,3 x 6.3mm

S/N
GND 1 0R 2 GND
Serialnumber

PM1 PM2
FIDU-DOT - mini FIDU-DOT - mini
PM3 PM4
FIDU-DOT - mini FIDU-DOT - mini
PM5 PM6
FIDU-DOT - mini FIDU-DOT - mini

GND
Mount.Hole 2mm

GND
Mount.Hole 2mm

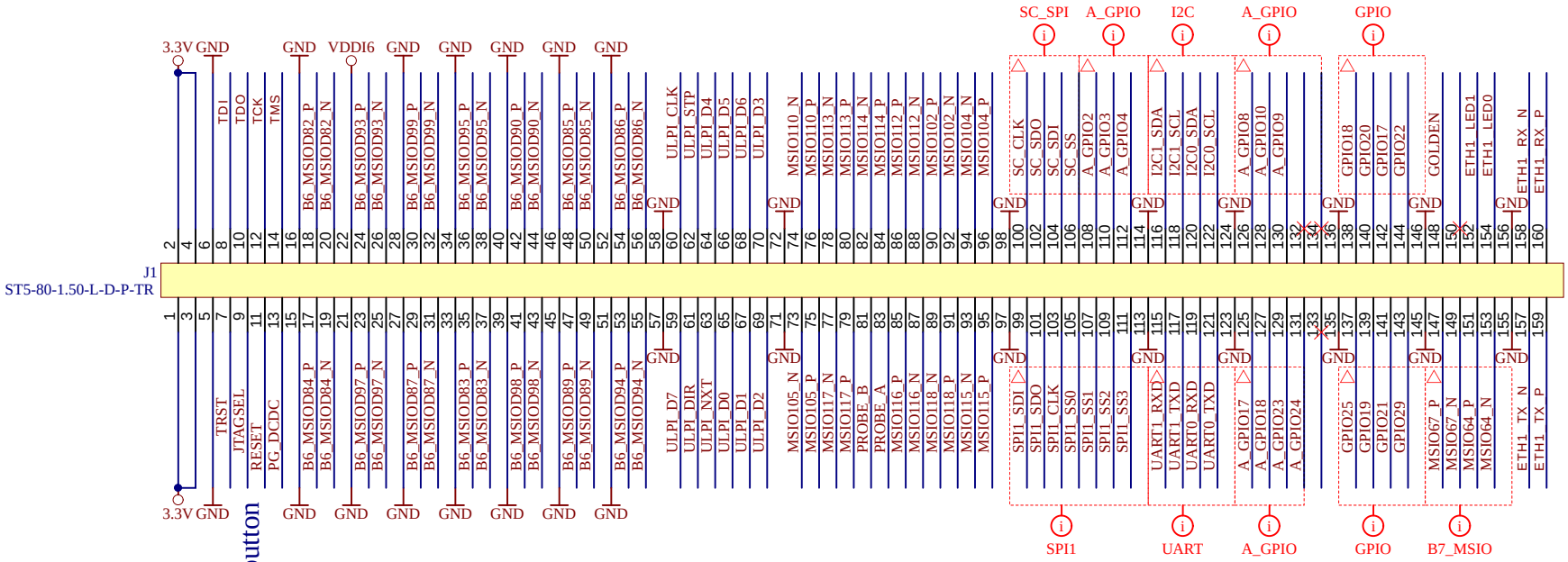
GND
Mount.Hole 2mm

GND
Mount.Hole 2mm

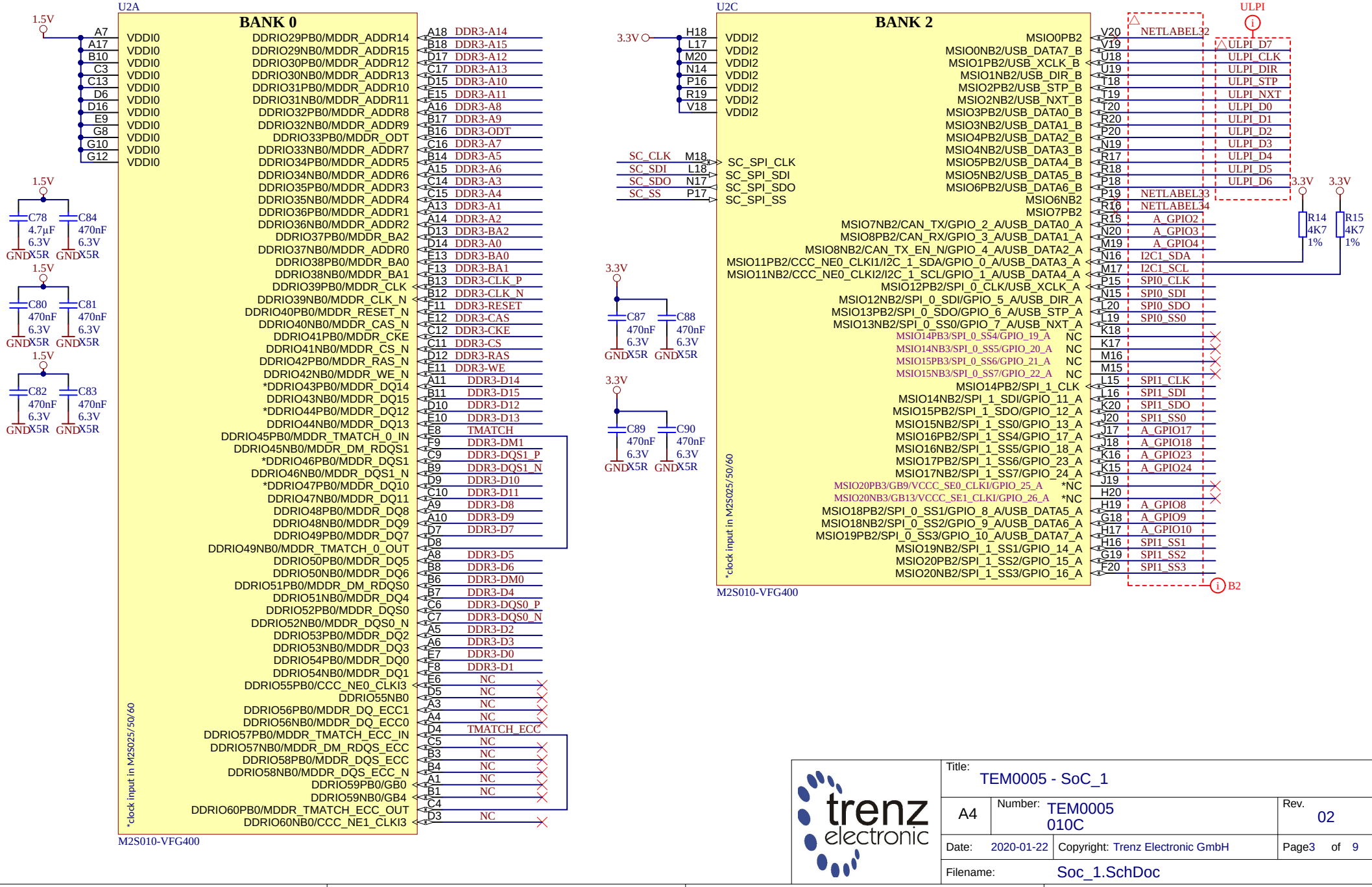
Assembly variant	010C
Created by	VT
Modified by	VT
Modified at	2020-01-22
SVN Revision	12490

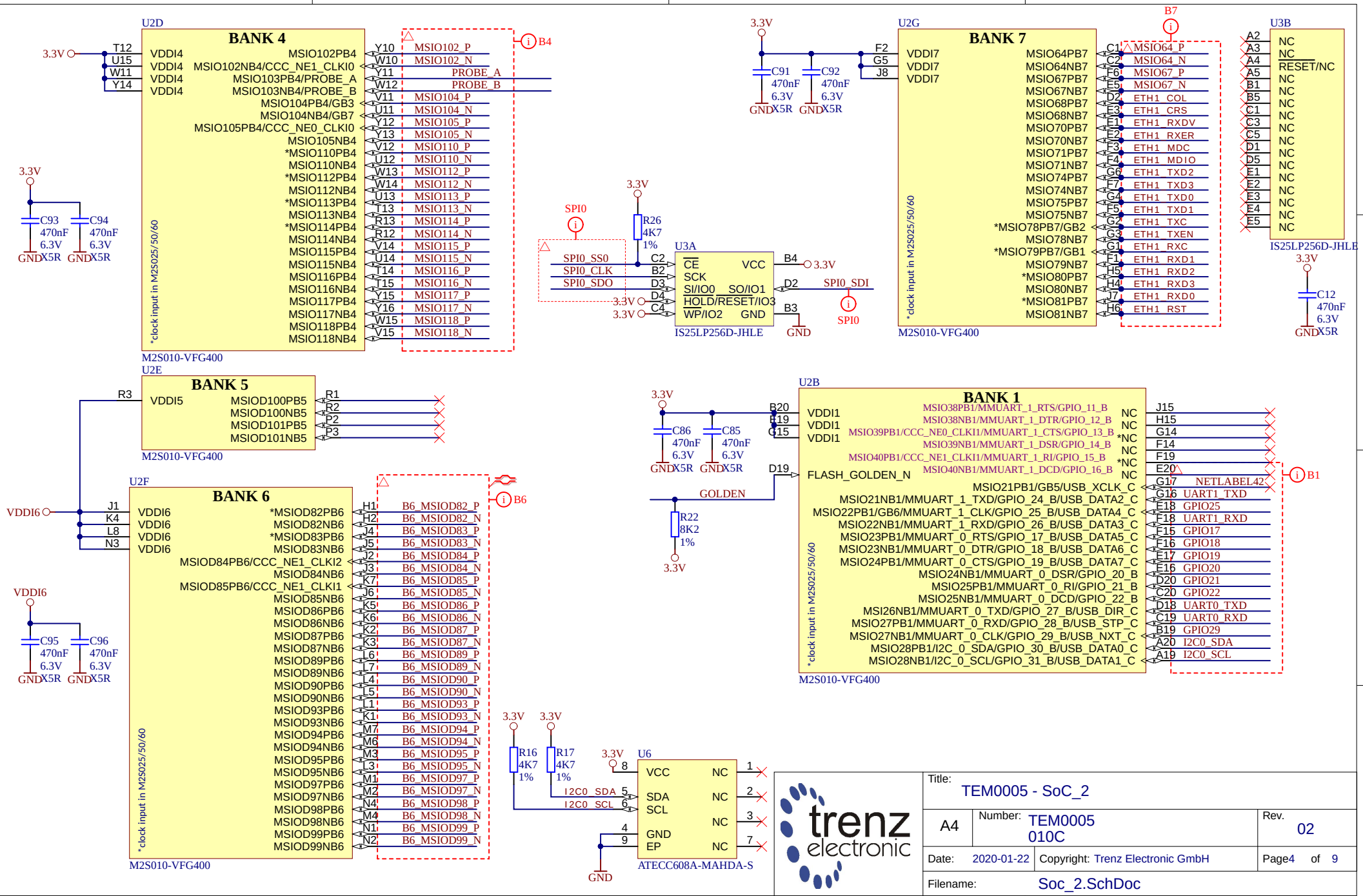
trenz electronic

Title: TEM0005		
A4	Number: TEM0005 010C	Rev. 02
Date: 2020-01-22	Copyright: Trenz Electronic GmbH / TT	Page1 of 9
Filename: TEM0005.SchDoc		



trenz electronic	Title: TEM0005 - B2B_connector J1		
A4	Number: TEM0005 010C		Rev. 02
Date: 2020-01-22	Copyright: Trenz Electronic GmbH / TT		Page2 of 9
Filename: J1.SchDoc			


U2A
BANK 0
1.5V
A7 VDDI0
A17 VDDI0
B10 VDDI0
C3 VDDI0
C13 VDDI0
D6 VDDI0
D16 VDDI0
E9 VDDI0
G8 VDDI0
G10 VDDI0
G12 VDDI0
C78 4.7µF 6.3V X5R GND
C84 470nF 6.3V X5R GND
C80 470nF 6.3V X5R GND
C81 470nF 6.3V X5R GND
C82 470nF 6.3V X5R GND
C83 470nF 6.3V X5R GND
A18 DDRIO29PB0/MDDR_ADDR14 DDR3-A14
B18 DDRIO29NB0/MDDR_ADDR15 DDR3-A15
D17 DDRIO30PB0/MDDR_ADDR12 DDR3-A12
C17 DDRIO30NB0/MDDR_ADDR13 DDR3-A13
D15 DDRIO31PB0/MDDR_ADDR10 DDR3-A10
E15 DDRIO31NB0/MDDR_ADDR11 DDR3-A11
A16 DDRIO32PB0/MDDR_ADDR8 DDR3-A8
B17 DDRIO32NB0/MDDR_ADDR9 DDR3-A9
B16 DDRIO33PB0/MDDR_ODT DDR3-ODT
C16 DDRIO33NB0/MDDR_ADDR7 DDR3-A7
B14 DDRIO34PB0/MDDR_ADDR5 DDR3-A5
A15 DDRIO34NB0/MDDR_ADDR6 DDR3-A6
C14 DDRIO35PB0/MDDR_ADDR3 DDR3-A3
C15 DDRIO35NB0/MDDR_ADDR4 DDR3-A4
A13 DDRIO36PB0/MDDR_ADDR1 DDR3-A1
A14 DDRIO36NB0/MDDR_ADDR2 DDR3-A2
D13 DDRIO37PB0/MDDR_BA2 DDR3-BA2
D14 DDRIO37NB0/MDDR_ADDR0 DDR3-A0
E13 DDRIO38PB0/MDDR_BA0 DDR3-BA0
F13 DDRIO38NB0/MDDR_BA1 DDR3-BA1
B13 DDRIO39PB0/MDDR_CLK DDR3-CLK_P
B12 DDRIO39NB0/MDDR_CLK_N DDR3-CLK_N
F11 DDRIO40PB0/MDDR_RESET_N DDR3-RESET
E12 DDRIO40NB0/MDDR_CAS_N DDR3-CAS
C12 DDRIO41PB0/MDDR_CKE DDR3-CKE
C11 DDRIO41NB0/MDDR_CS_N DDR3-CS
D12 DDRIO42PB0/MDDR_RAS_N DDR3-RAS
E11 DDRIO42NB0/MDDR_WE_N DDR3-WE
A11 *DDRIO43PB0/MDDR_DQ14 DDR3-D14
B11 DDRIO43NB0/MDDR_DQ15 DDR3-D15
D10 *DDRIO44PB0/MDDR_DQ12 DDR3-D12
E10 DDRIO44NB0/MDDR_DQ13 DDR3-D13
E8 DDRIO45PB0/MDDR_TMATCH_0_IN TMATCH
F9 DDRIO45NB0/MDDR_DM_RDQS1 DDR3-DM1
C9 *DDRIO46PB0/MDDR_DQS1 DDR3-DQS1_P
B9 DDRIO46NB0/MDDR_DQS1_N DDR3-DQS1_N
D9 *DDRIO47PB0/MDDR_DQ10 DDR3-D10
C10 DDRIO47NB0/MDDR_DQ11 DDR3-D11
A9 DDRIO48PB0/MDDR_DQ8 DDR3-D8
A10 DDRIO48NB0/MDDR_DQ9 DDR3-D9
D7 DDRIO49PB0/MDDR_DQ7 DDR3-D7
D8 DDRIO49NB0/MDDR_TMATCH_0_OUT
A8 DDRIO50PB0/MDDR_DQ5 DDR3-D5
B8 DDRIO50NB0/MDDR_DQ6 DDR3-D6
B6 DDRIO51PB0/MDDR_DM_RDQS0 DDR3-DM0
B7 DDRIO51NB0/MDDR_DQ4 DDR3-D4
C6 DDRIO52PB0/MDDR_DQS0 DDR3-DQS0_P
C7 DDRIO52NB0/MDDR_DQS0_N DDR3-DQS0_N
A5 DDRIO53PB0/MDDR_DQ2 DDR3-D2
A6 DDRIO53NB0/MDDR_DQ3 DDR3-D3
E7 DDRIO54PB0/MDDR_DQ0 DDR3-D0
F8 DDRIO54NB0/MDDR_DQ1 DDR3-D1
E6 DDRIO55PB0/CCC_NE0_CLKI3 NC
D5 DDRIO55NB0 NC
A3 DDRIO56PB0/MDDR_DQ_ECC1 NC
A4 DDRIO56NB0/MDDR_DQ_ECC0 NC
D4 DDRIO57PB0/MDDR_TMATCH_ECC_IN TMATCH_ECC
C5 DDRIO57NB0/MDDR_DM_RDQS_ECC NC
B3 DDRIO58PB0/MDDR_DQS_ECC NC
B4 DDRIO58NB0/MDDR_DQS_ECC_N NC
A1 DDRIO59PB0/GB0 NC
B1 DDRIO59NB0/GB4 NC
C4 DDRIO60PB0/MDDR_TMATCH_ECC_OUT
D3 DDRIO60NB0/CCC_NE1_CLKI3 NC
*clock input in M2S025/50/60
M2S010-VFG400
U2C
BANK 2
3.3V
H18 VDDI2
L17 VDDI2
M20 VDDI2
N14 VDDI2
P16 VDDI2
R19 VDDI2
V18 VDDI2
SC_CLK M18 SC_SPI_CLK
SC_SDI L18 SC_SPI_SDI
SC_SDO N17 SC_SPI_SDO
SC_SS P17 SC_SPI_SS
C87 470nF 6.3V X5R GND
C88 470nF 6.3V X5R GND
C89 470nF 6.3V X5R GND
C90 470nF 6.3V X5R GND
V20 MSIO0PB2
V19 MSIO0NB2/USB_DATA7_B
U18 MSIO1PB2/USB_XCLK_B
U19 MSIO1NB2/USB_DIR_B
T18 MSIO2PB2/USB_STP_B
T19 MSIO2NB2/USB_NXT_B
T20 MSIO3PB2/USB_DATA0_B
R20 MSIO3NB2/USB_DATA1_B
P20 MSIO4PB2/USB_DATA2_B
N19 MSIO4NB2/USB_DATA3_B
R17 MSIO5PB2/USB_DATA4_B
R18 MSIO5NB2/USB_DATA5_B
P18 MSIO6PB2/USB_DATA6_B
P19 MSIO6NB2
R16 MSIO7PB2
R15 MSIO7NB2/CAN_TX/GPIO_2_A/USB_DATA0_A
N20 MSIO8PB2/CAN_RX/GPIO_3_A/USB_DATA1_A
M19 MSIO8NB2/CAN_TX_EN_N/GPIO_4_A/USB_DATA2_A
N16 MSIO11PB2/CCC_NE0_CLKI1/I2C_1_SDA/GPIO_0_A/USB_DATA3_A
M17 MSIO11NB2/CCC_NE0_CLKI2/I2C_1_SCL/GPIO_1_A/USB_DATA4_A
P15 MSIO12PB2/SPI_0_CLK/USB_XCLK_A
N15 MSIO12NB2/SPI_0_SDI/GPIO_5_A/USB_DIR_A
L20 MSIO13PB2/SPI_0_SDO/GPIO_6_A/USB_STP_A
L19 MSIO13NB2/SPI_0_SS0/GPIO_7_A/USB_NXT_A
K18 MSIO14PB3/SPI_0_SS4/GPIO_19_A NC
K17 MSIO14NB3/SPI_0_SS5/GPIO_20_A NC
M16 MSIO15PB3/SPI_0_SS6/GPIO_21_A NC
M15 MSIO15NB3/SPI_0_SS7/GPIO_22_A NC
L15 MSIO14PB2/SPI_1_CLK
L16 MSIO14NB2/SPI_1_SDI/GPIO_11_A
K20 MSIO15PB2/SPI_1_SDO/GPIO_12_A
J20 MSIO15NB2/SPI_1_SS0/GPIO_13_A
J17 MSIO16PB2/SPI_1_SS4/GPIO_17_A
J18 MSIO16NB2/SPI_1_SS5/GPIO_18_A
K16 MSIO17PB2/SPI_1_SS6/GPIO_23_A
K15 MSIO17NB2/SPI_1_SS7/GPIO_24_A
J19 MSIO20PB3/GB9/VCCC_SE0_CLKI/GPIO_25_A *NC
H20 MSIO20NB3/GB13/VCCC_SE1_CLKI/GPIO_26_A *NC
H19 MSIO18PB2/SPI_0_SS1/GPIO_8_A/USB_DATA5_A
G18 MSIO18NB2/SPI_0_SS2/GPIO_9_A/USB_DATA6_A
H17 MSIO19PB2/SPI_0_SS3/GPIO_10_A/USB_DATA7_A
H16 MSIO19NB2/SPI_1_SS1/GPIO_14_A
G19 MSIO19NB2/SPI_1_SS2/GPIO_15_A
F20 MSIO20NB2/SPI_1_SS3/GPIO_16_A
*clock input in M2S025/50/60
M2S010-VFG400
NETLABEL32
NETLABEL33
NETLABEL34
A_GPIO2
A_GPIO3
A_GPIO4
I2C1_SDA
I2C1_SCL
SPI0_CLK
SPI0_SDI
SPI0_SDO
SPI0_SS0
SPI1_CLK
SPI1_SDI
SPI1_SDO
SPI1_SS0
A_GPIO17
A_GPIO18
A_GPIO23
A_GPIO24
A_GPIO8
A_GPIO9
A_GPIO10
SPI1_SS1
SPI1_SS2
SPI1_SS3
ULPI
ULPI_D7
ULPI_CLK
ULPI_DIR
ULPI_STP
ULPI_NXT
ULPI_D0
ULPI_D1
ULPI_D2
ULPI_D3
ULPI_D4
ULPI_D5
ULPI_D6
B2
3.3V
R14 4K7 1%
R15 4K7 1%
trenz electronic
Title: TEM0005 - SoC_1
A4
Number: TEM0005 010C
Rev. 02
Date: 2020-01-22
Copyright: Trenz Electronic GmbH
Page3 of 9
Filename: Soc_1.SchDoc


U2D
BANK 4
VDDI4
MSIO102NB4/CCC_NE1_CLKI0
MSIO103PB4/PROBE_A
MSIO103NB4/PROBE_B
MSIO104PB4/GB3
MSIO104NB4/GB7
MSIO105PB4/CCC_NE0_CLKI0
MSIO105NB4
*MSIO110PB4
MSIO110NB4
*MSIO112PB4
MSIO112NB4
*MSIO113PB4
MSIO113NB4
*MSIO114PB4
MSIO114NB4
MSIO115PB4
MSIO115NB4
MSIO116PB4
MSIO116NB4
MSIO117PB4
MSIO117NB4
MSIO118PB4
MSIO118NB4
MSIO102_P
MSIO102_N
PROBE_A
PROBE_B
MSIO104_P
MSIO104_N
MSIO105_P
MSIO105_N
MSIO110_P
MSIO110_N
MSIO112_P
MSIO112_N
MSIO113_P
MSIO113_N
MSIO114_P
MSIO114_N
MSIO115_P
MSIO115_N
MSIO116_P
MSIO116_N
MSIO117_P
MSIO117_N
MSIO118_P
MSIO118_N
*clock input in M2S025/50/60
M2S010-VFG400
B4
3.3V
C93 470nF 6.3V X5R
C94 470nF 6.3V X5R
C91 470nF 6.3V X5R
C92 470nF 6.3V X5R
U2G
BANK 7
VDDI7
MSIO64PB7
MSIO64NB7
MSIO67PB7
MSIO67NB7
MSIO68PB7
MSIO68NB7
MSIO70PB7
MSIO70NB7
MSIO71PB7
MSIO71NB7
MSIO74PB7
MSIO74NB7
MSIO75PB7
MSIO75NB7
*MSIO78PB7/GB2
MSIO78NB7
*MSIO79PB7/GB1
MSIO79NB7
*MSIO80PB7
MSIO80NB7
*MSIO81PB7
MSIO81NB7
MSIO64_P
MSIO64_N
MSIO67_P
MSIO67_N
ETH1_COL
ETH1_CRS
ETH1_RXDV
ETH1_RXER
ETH1_MDC
ETH1_MDIO
ETH1_TXD2
ETH1_TXD3
ETH1_TXD0
ETH1_TXD1
ETH1_TXC
ETH1_TXEN
ETH1_RXC
ETH1_RXD1
ETH1_RXD2
ETH1_RXD3
ETH1_RXD0
ETH1_RST
*clock input in M2S025/50/60
M2S010-VFG400
B7
U3B
NC
RESET/NC
IS25LP256D-JHLE
C12 470nF 6.3V X5R
SPI0
SPI0_SS0
SPI0_CLK
SPI0_SDO
SPI0_SDI
R26 4K7 1%
U3A
CE
SCK
SI/IO0
SO/IO1
HOLD/RESET/IO3
WP/IO2
VCC
GND
IS25LP256D-JHLE
U2E
BANK 5
VDDI5
MSIOD100PB5
MSIOD100NB5
MSIOD101PB5
MSIOD101NB5
M2S010-VFG400
R3
U2F
BANK 6
VDDI6
*MSIOD82PB6
MSIOD82NB6
*MSIOD83PB6
MSIOD83NB6
MSIOD84PB6/CCC_NE1_CLKI2
MSIOD84NB6
MSIOD85PB6/CCC_NE1_CLKI1
MSIOD85NB6
MSIOD86PB6
MSIOD86NB6
MSIOD87PB6
MSIOD87NB6
MSIOD89PB6
MSIOD89NB6
MSIOD90PB6
MSIOD90NB6
MSIOD93PB6
MSIOD93NB6
MSIOD94PB6
MSIOD94NB6
MSIOD95PB6
MSIOD95NB6
MSIOD97PB6
MSIOD97NB6
MSIOD98PB6
MSIOD98NB6
MSIOD99PB6
MSIOD99NB6
B6_MSIOD82_P
B6_MSIOD82_N
B6_MSIOD83_P
B6_MSIOD83_N
B6_MSIOD84_P
B6_MSIOD84_N
B6_MSIOD85_P
B6_MSIOD85_N
B6_MSIOD86_P
B6_MSIOD86_N
B6_MSIOD87_P
B6_MSIOD87_N
B6_MSIOD89_P
B6_MSIOD89_N
B6_MSIOD90_P
B6_MSIOD90_N
B6_MSIOD93_P
B6_MSIOD93_N
B6_MSIOD94_P
B6_MSIOD94_N
B6_MSIOD95_P
B6_MSIOD95_N
B6_MSIOD97_P
B6_MSIOD97_N
B6_MSIOD98_P
B6_MSIOD98_N
B6_MSIOD99_P
B6_MSIOD99_N
*clock input in M2S025/50/60
M2S010-VFG400
B6
VDDI6
C95 470nF 6.3V X5R
C96 470nF 6.3V X5R
U2B
BANK 1
VDDI1
FLASH_GOLDEN_N
MSIO38PB1/MMUART_1_RTS/GPIO_11_B
MSIO38NB1/MMUART_1_DTR/GPIO_12_B
MSIO39PB1/CCC_NE0_CLKI1/MMUART_1_CTS/GPIO_13_B
MSIO39NB1/MMUART_1_DSR/GPIO_14_B
MSIO40PB1/CCC_NE1_CLKI1/MMUART_1_RI/GPIO_15_B
MSIO40NB1/MMUART_1_DCD/GPIO_16_B
MSIO21PB1/GB5/USB_XCLK_C
MSIO21NB1/MMUART_1_TXD/GPIO_24_B/USB_DATA2_C
MSIO22PB1/GB6/MMUART_1_CLK/GPIO_25_B/USB_DATA4_C
MSIO22NB1/MMUART_1_RXD/GPIO_26_B/USB_DATA3_C
MSIO23PB1/MMUART_0_RTS/GPIO_17_B/USB_DATA5_C
MSIO23NB1/MMUART_0_DTR/GPIO_18_B/USB_DATA6_C
MSIO24PB1/MMUART_0_CTS/GPIO_19_B/USB_DATA7_C
MSIO24NB1/MMUART_0_DSR/GPIO_20_B
MSIO25PB1/MMUART_0_RI/GPIO_21_B
MSIO25NB1/MMUART_0_DCD/GPIO_22_B
MSI26NB1/MMUART_0_TXD/GPIO_27_B/USB_DIR_C
MSIO27PB1/MMUART_0_RXD/GPIO_28_B/USB_STP_C
MSIO27NB1/MMUART_0_CLK/GPIO_29_B/USB_NXT_C
MSIO28PB1/I2C_0_SDA/GPIO_30_B/USB_DATA0_C
MSIO28NB1/I2C_0_SCL/GPIO_31_B/USB_DATA1_C
NETLABEL42
UART1_TXD
GPIO25
UART1_RXD
GPIO17
GPIO18
GPIO19
GPIO20
GPIO21
GPIO22
UART0_TXD
UART0_RXD
GPIO29
I2C0_SDA
I2C0_SCL
*clock input in M2S025/50/60
M2S010-VFG400
B1
C86 470nF 6.3V X5R
C85 470nF 6.3V X5R
GOLDEN
R22 8K2 1%
R16 4K7 1%
R17 4K7 1%
I2C0_SDA
I2C0_SCL
U6
VCC
SDA
SCL
GND
EP
NC
ATECC608A-MAHDA-S
trenz electronic
Title: TEM0005 - SoC_2
A4
Number: TEM0005 010C
Rev. 02
Date: 2020-01-22
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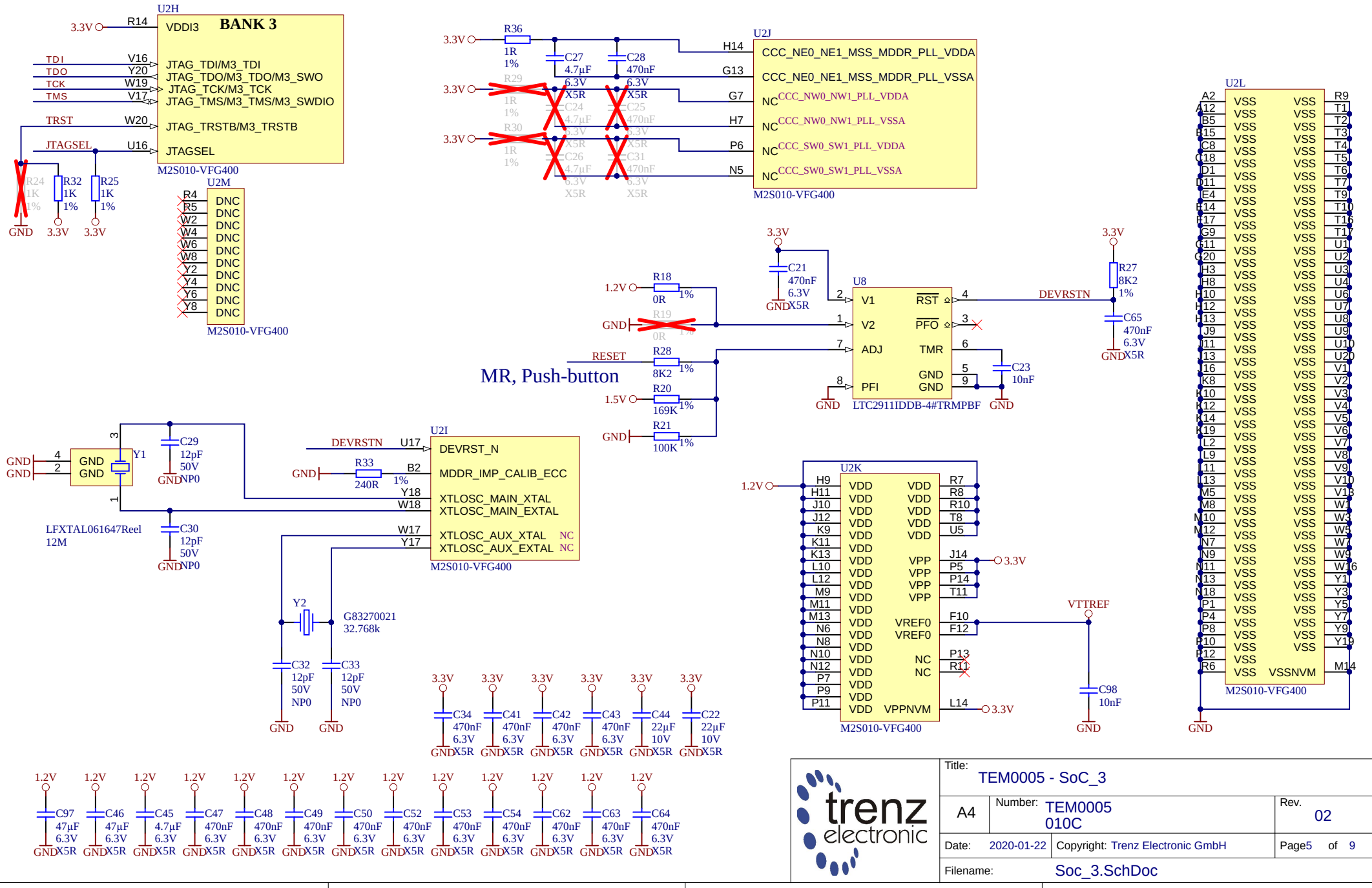
Filename: Soc_2.SchDoc


U2H
BANK 3
VDDI3
JTAG_TDI/M3_TDI
JTAG_TDO/M3_TDO/M3_SWO
JTAG_TCK/M3_TCK
JTAG_TMS/M3_TMS/M3_SWDIO
JTAG_TRSTB/M3_TRSTB
JTAGSEL
M2S010-VFG400
U2M
DNC
M2S010-VFG400
U2J
CCC_NE0_NE1_MSS_MDDR_PLL_VDDA
CCC_NE0_NE1_MSS_MDDR_PLL_VSSA
NC CCC_NW0_NW1_PLL_VDDA
NC CCC_NW0_NW1_PLL_VSSA
NC CCC_SW0_SW1_PLL_VDDA
NC CCC_SW0_SW1_PLL_VSSA
M2S010-VFG400
U2L
VSS
VSSNVM
M2S010-VFG400
MR, Push-button
U8
LTC2911IDDB-4#TRMPBF
U2I
DEVRST_N
MDDR_IMP_CALIB_ECC
XTLOSC_MAIN_XTAL
XTLOSC_MAIN_EXTAL
XTLOSC_AUX_XTAL NC
XTLOSC_AUX_EXTAL NC
M2S010-VFG400
U2K
VDD
VPP
VREF0
NC
VPPNVM
M2S010-VFG400
LFXTAL061647Reel
12M
G83270021
32.768k
DEVRSTN
RESET
VTTREF
Title: TEM0005 - SoC_3
A4
Number: TEM0005 010C
Rev. 02
Date: 2020-01-22
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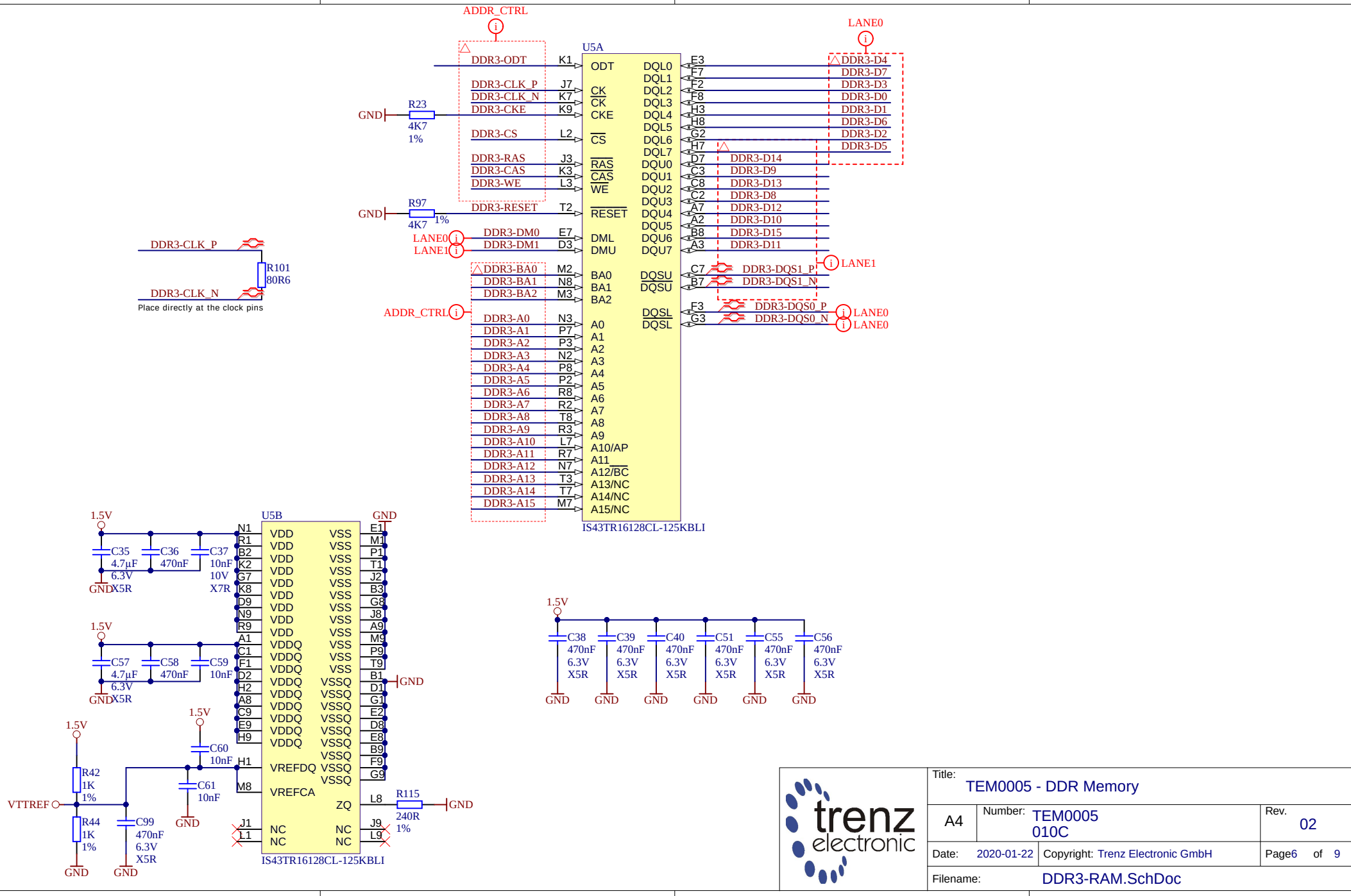
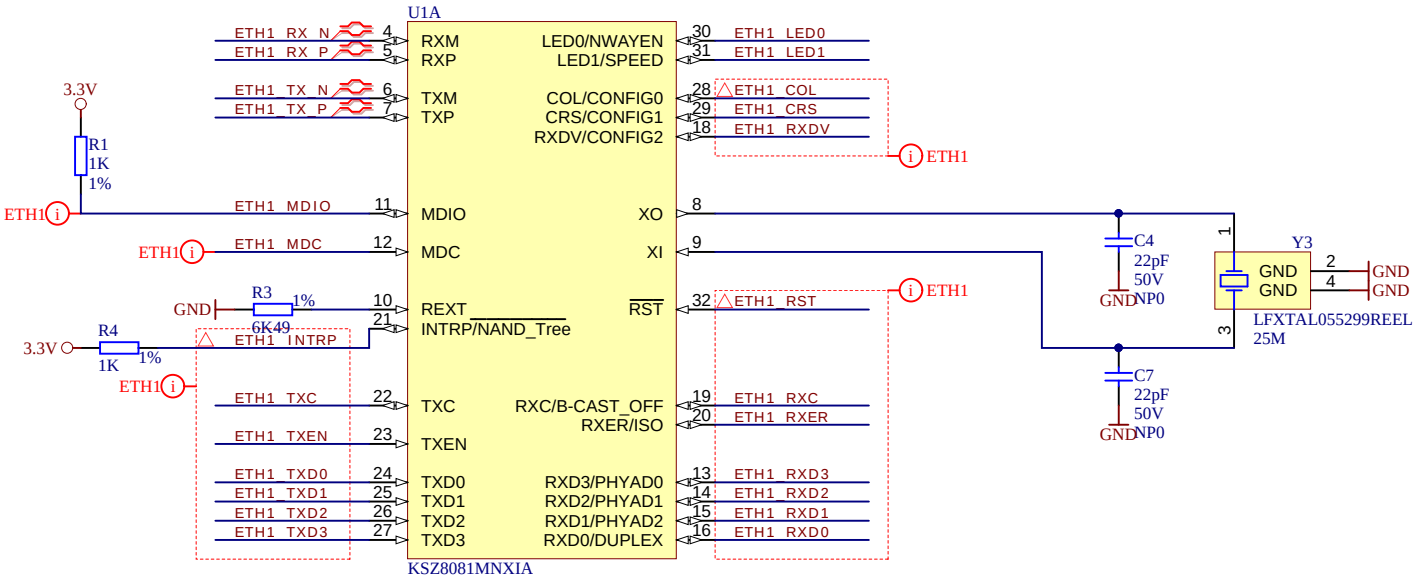
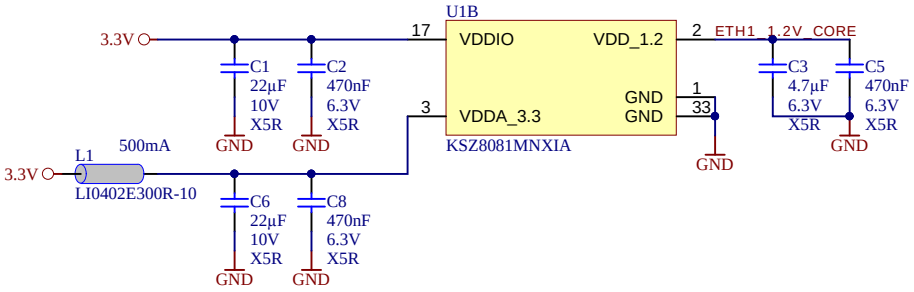
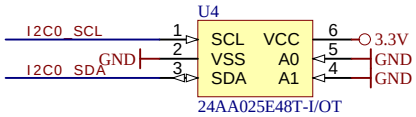
Filename: Soc_3.SchDoc



Title: TEM0005 - DDR Memory			
A4	Number: TEM0005 010C		Rev. 02
Date: 2020-01-22	Copyright: Trenz Electronic GmbH		Page6 of 9
Filename: DDR3-RAM.SchDoc			

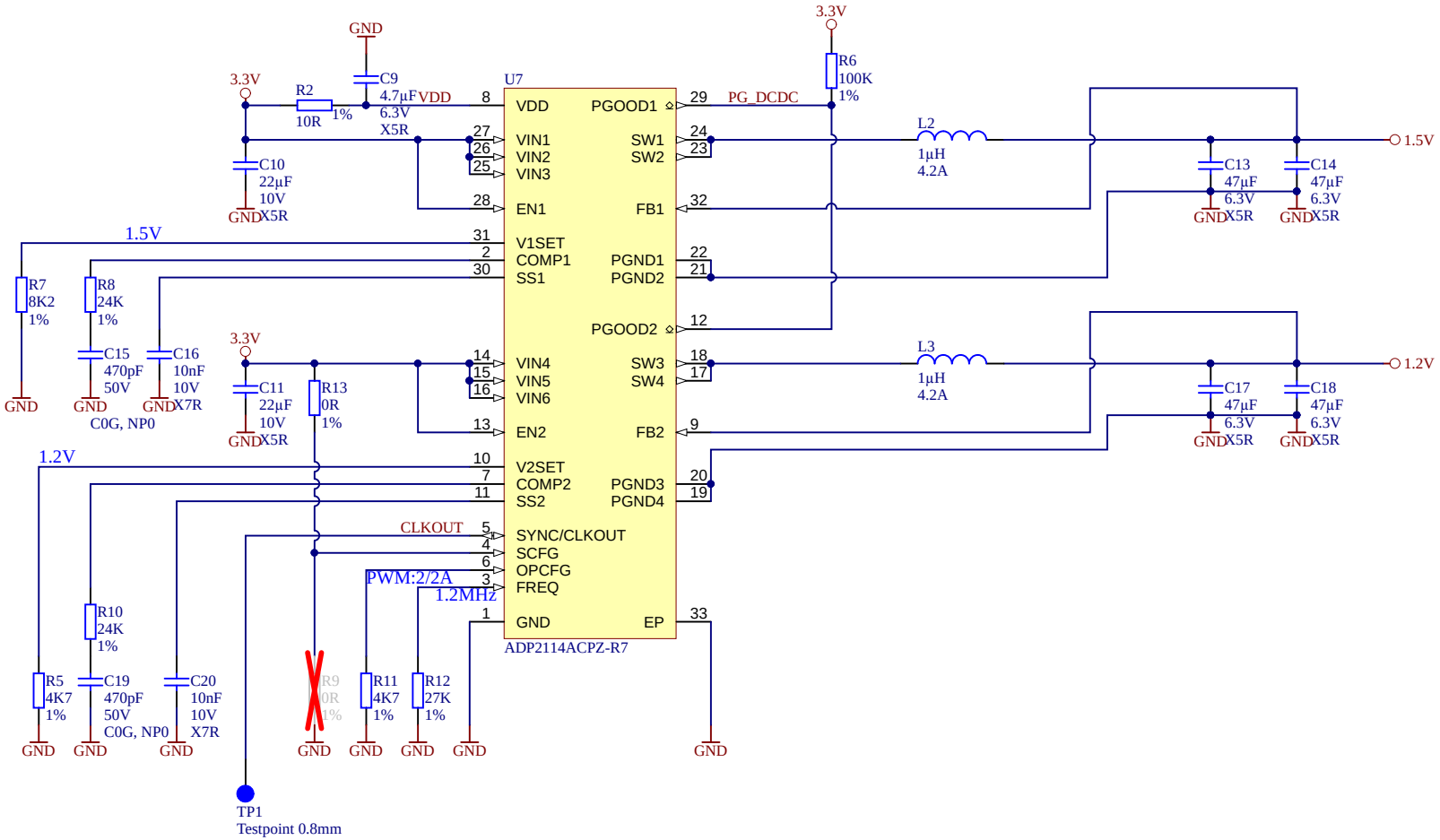






Slave address: 1010000x

trenz electronic	Title: TEM0005 - ETH_PHY		
	A4	Number: TEM0005 010C	Rev. 02
	Date: 2020-01-22	Copyright: Trenz Electronic GmbH	Page7 of 9
	Filename: ETH.SchDoc		



trenz electronic	Title: TEM0005 - PowerSupply		
	A4	Number: TEM0005 010C	Rev. 02
	Date: 2020-01-22	Copyright: Trenz Electronic GmbH	Page 8 of 9
	Filename: PowerSupply.SchDoc		

VT: Initial Rev (07.2019)

REV02: (01.2020)
VT: 1) Support M2S050 -> added R29,R30, C24..C26,C31
VT: 2) Added resistor R32
VT: 3) Full upd LIB

Title: TEM0005 - Revision changes			
A4	Number: TEM0005 010C		Rev. 02
Date: 2020-01-22	Copyright: Trenz Electronic GmbH		Page 9 of 9
Filename: Revision_Changes.SchDoc			