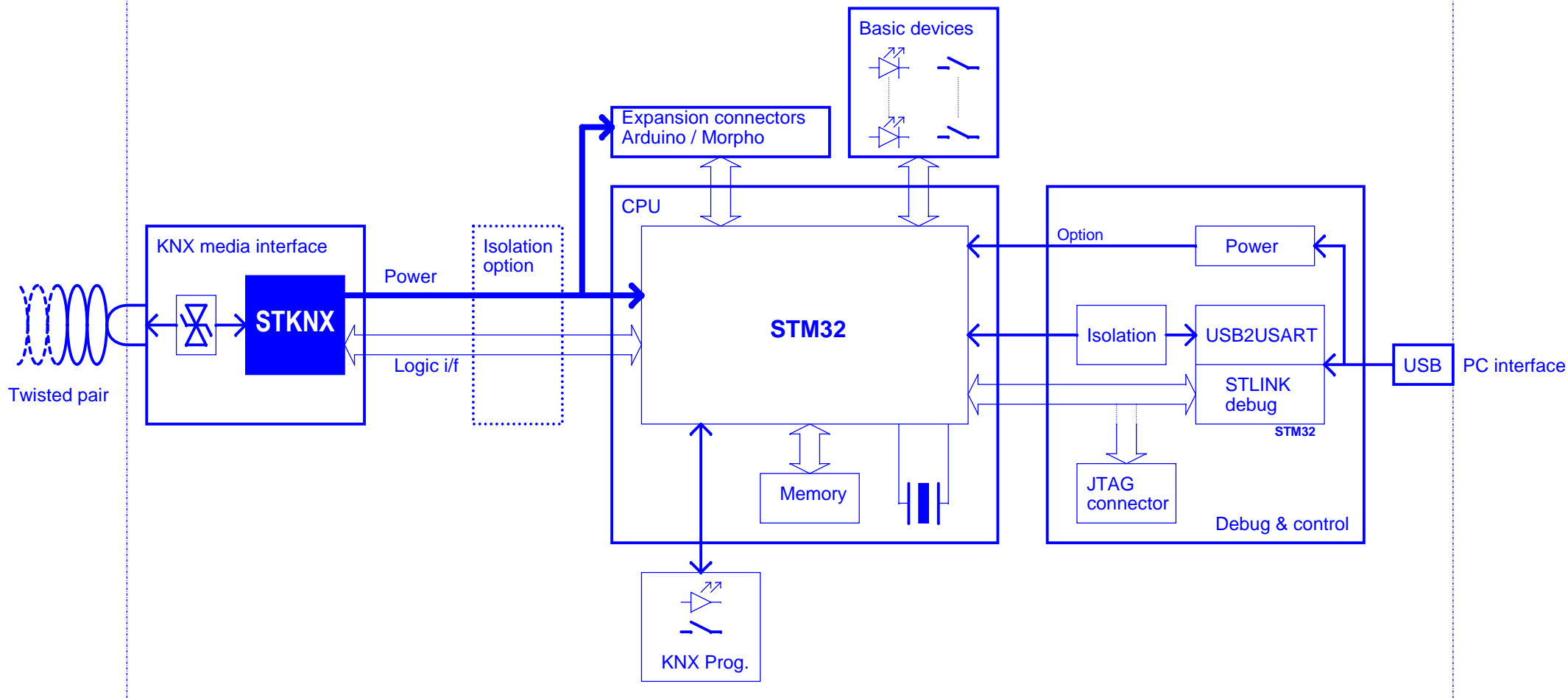


STKNX Evaluation and Development kit



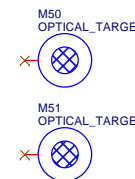
Revision	Date	Comments
1 1 1	2017/11/16	Initial delivery
1 2 1	2018/01/31	Minor BOM updates
1 3 1	2018/03/16	BOM updates
1 4 1	2018/11/07	BOM and comments updates

PCB revision =>
BOM revision =>
VARIANT revision =>

Silkscreen (green):
FOR EVALUATION ONLY
NOT FCC APPROVED
FOR RESALE

STM Logo
KNX logo
EVALKIT STKNX

PCBKA-REV1
RoHS EU
RoHS Chinese



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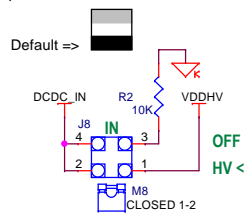
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Size: A3 Document Number: **Block diagram** Rev: 141

Date: Friday, March 01, 2019 Sheet: 1 of 7

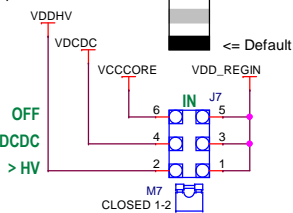
DCDC

DCDC regulator input selection

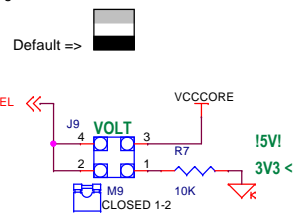


LINEAR

Linear regulator input selection



Linear regulator voltage selection



DCDC feedback selection guide :

Output voltage	Rfb1	Cfb1	Rfb2
1V	0Ohm	NP	NP
3V3	30 kOhm	180 pF	13kOhm
5V	40.2kOhm	150pF	10kOhm
7.5V (*)	130kOhm	47pF	20kOhm
12V	110kOhm	51pF	10kOhm

(*) Minimum voltage for connection to VDD_REGIN

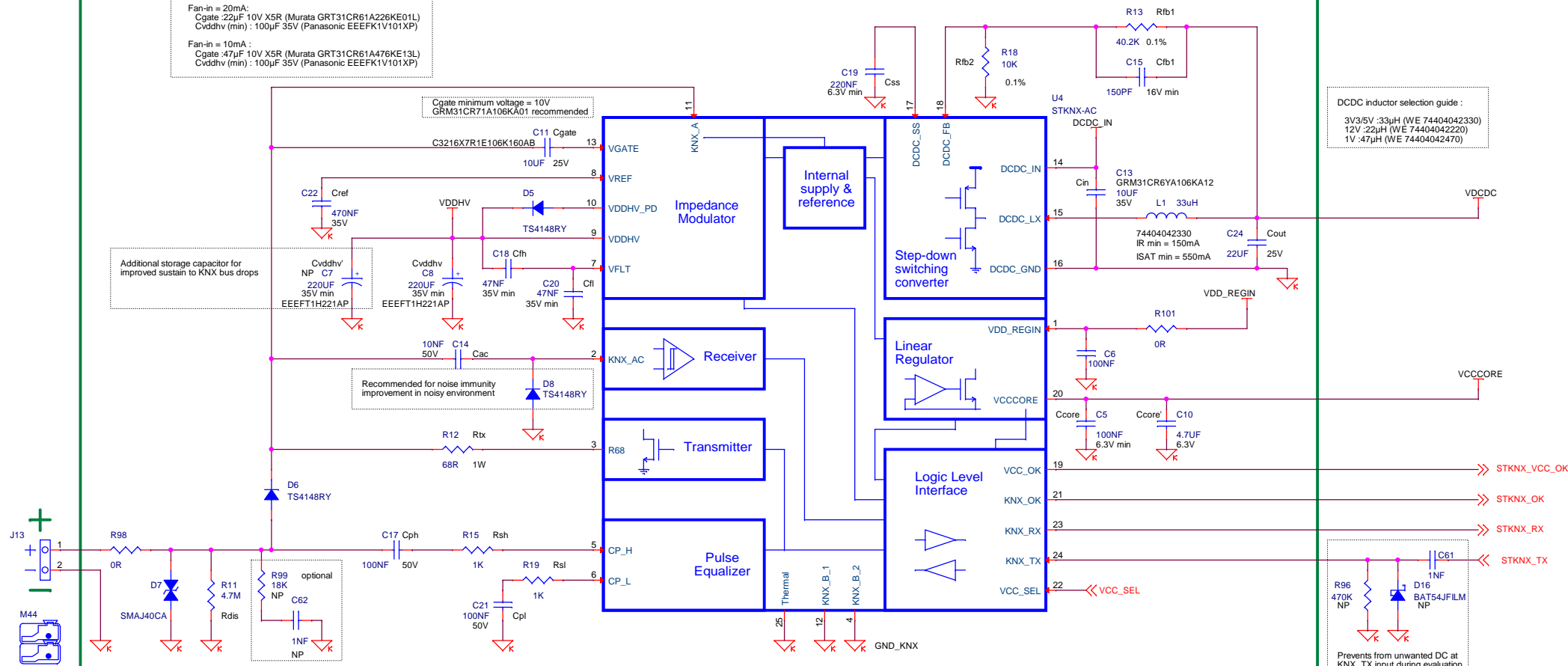
STKNX

Capacitors selection guide :

Fan-in = 30mA : see schematic

Fan-in = 20mA :
Cgate : 22uF 10V X5R (Murata GRT31CR61A226KE01L)
Cvddhv (min) : 100uF 35V (Panasonic EEEFK1V101XP)

Fan-in = 10mA :
Cgate : 47uF 10V X5R (Murata GRT31CR61A476KE13L)
Cvddhv (min) : 100uF 35V (Panasonic EEEFK1V101XP)

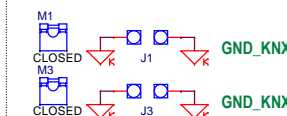


DCDC inductor selection guide :

3V3/5V : 33uH (WE 74404042330)
12V : 22uH (WE 74404042220)
1V : 47uH (WE 74404042470)

Place TVS as close as possible to KNX connector for optimized surges protection

Board support and GND test point



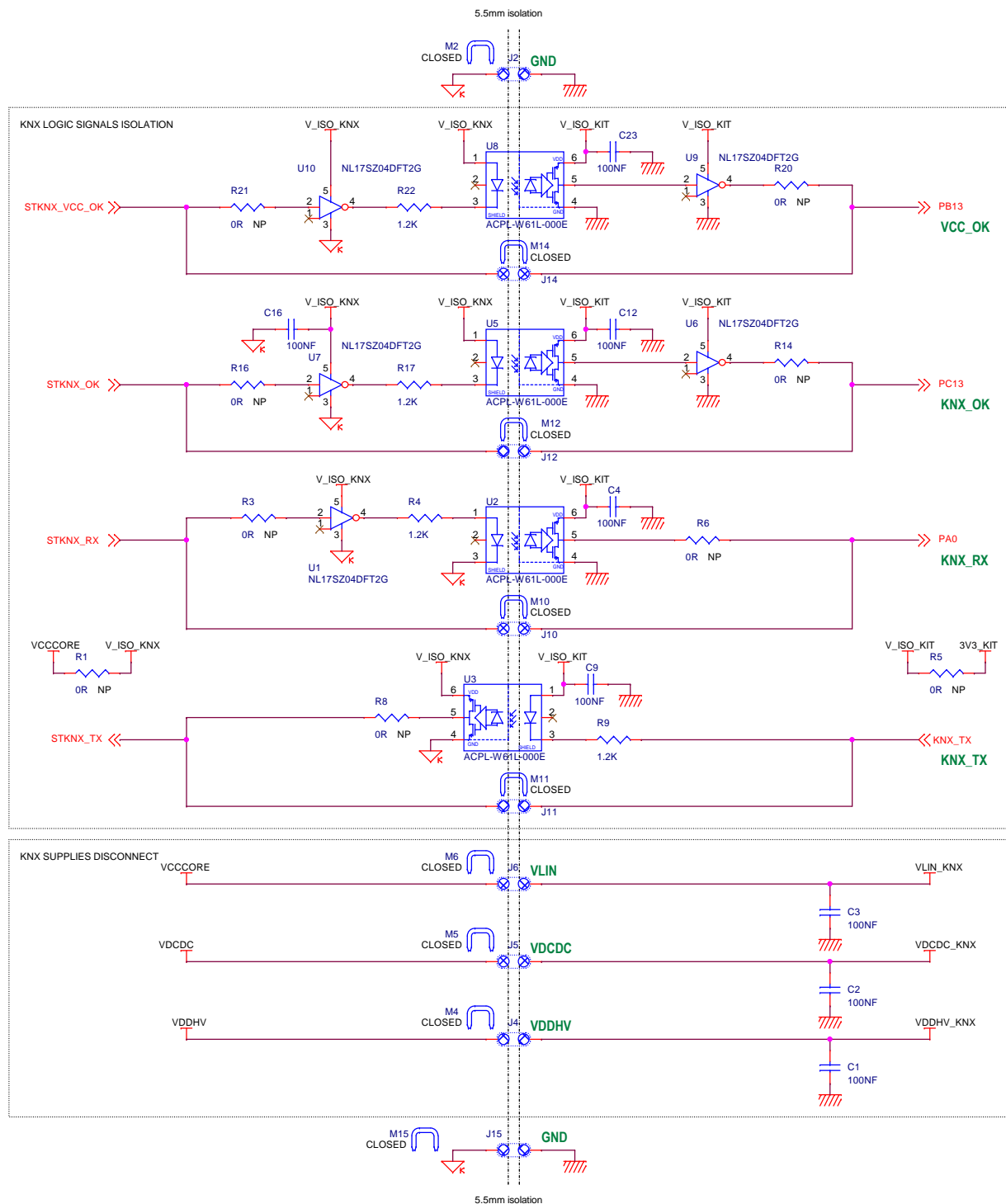
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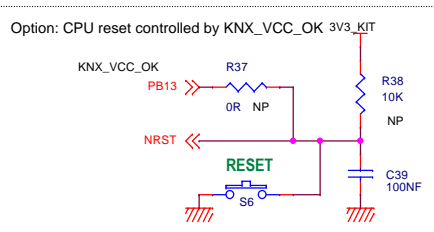
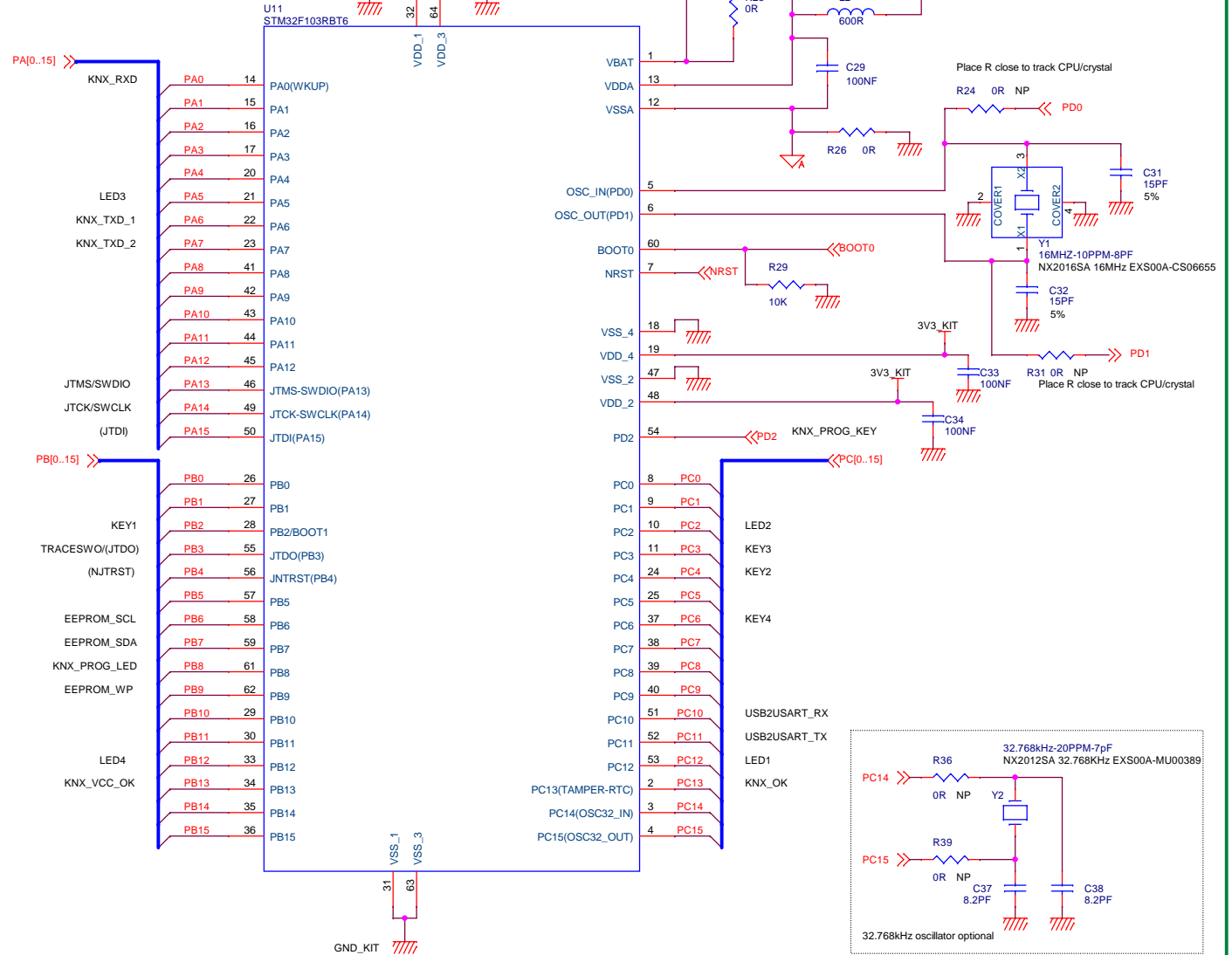
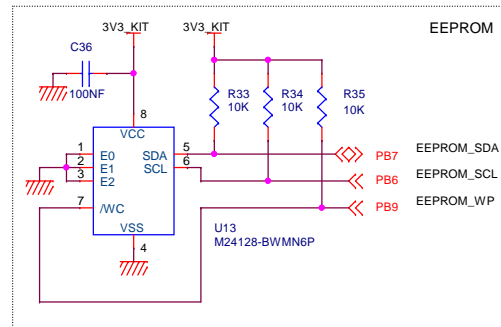
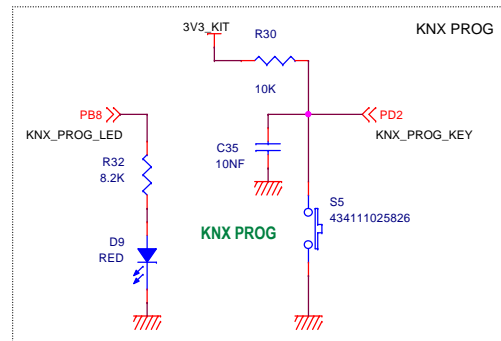
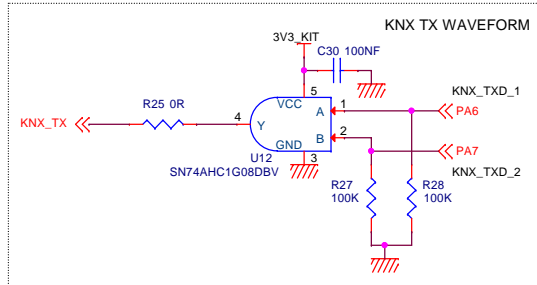
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ISOLATED mode:

- * remove every x9 jumpers shortcutting supplies, GND and opto-couplers
- place x2 resistors connecting resp. VCCCORE-V_ISO_KNX and V_ISO_KIT-3V3_KIT
- * KNX_RX, KNX_OK, VCC_OK:
 - place serial resistors at inverters input and output
- * KNX_TX:
 - place the serial resistor at opto-coupler output

KNX CPU



JUMPERS USE

 Arduino supply selection line =>
 EVALKIT supply selection line =>



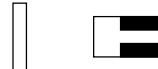
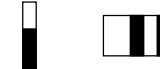
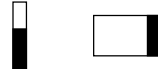
Jumpers positions examples :

Default:
 * CPU 3.3V is supplied by STKNX linear regulator
 * STKNX DCDC converter (5V) is available for expansion i/f

FW mode (USB power):
 * the full kit (excepted STKNX area) and expansion board are supplied by USB connector
 * this allows FW development / debug with simple setup

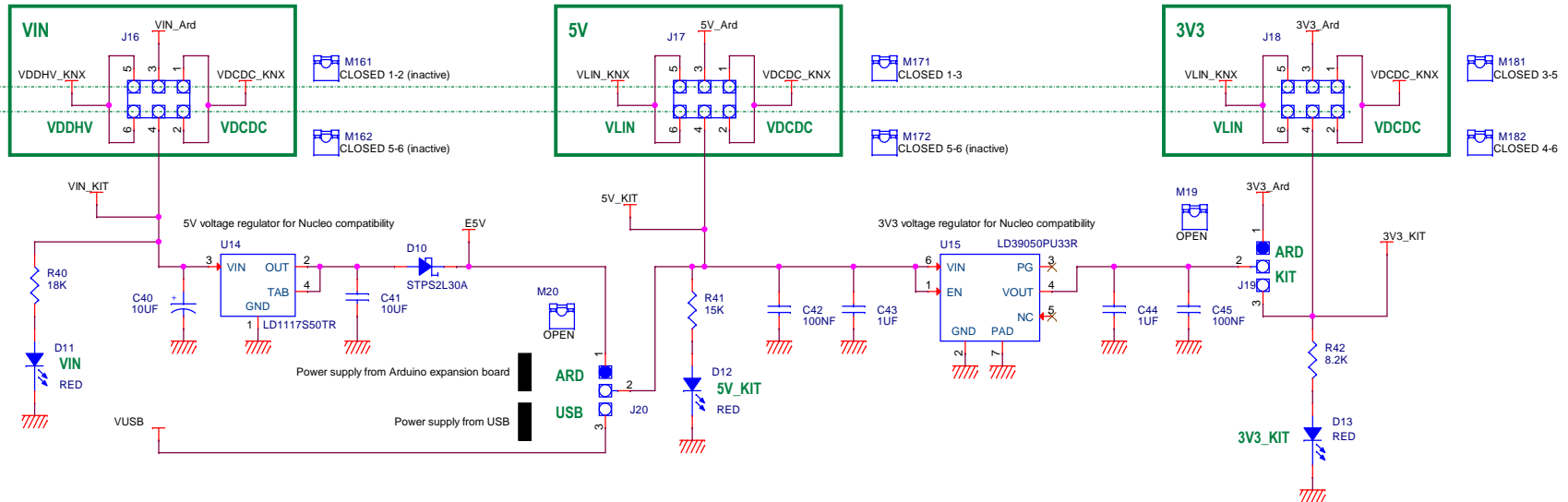
Dimming demo with LED16A1 board:
 * STKNX switching converter (5V) is supplying the Arduino expansion board and the "on kit" linear regulator U15
 * CPU and STKNX digital IOs are supplied from 3.3V generated from U15

STKNX DCDC 3.3V:
 * This mode produces the lowest consumption on KNX bus
 * The STKNX DCDC regulator must be adjusted to 3.3V (Rfb1, Rfb2)
 * The STKNX linear regulator is disabled



POWER MANAGEMENT

Arduino expansion board supply selection =>
 EVALKITSTKNX supply selection =>



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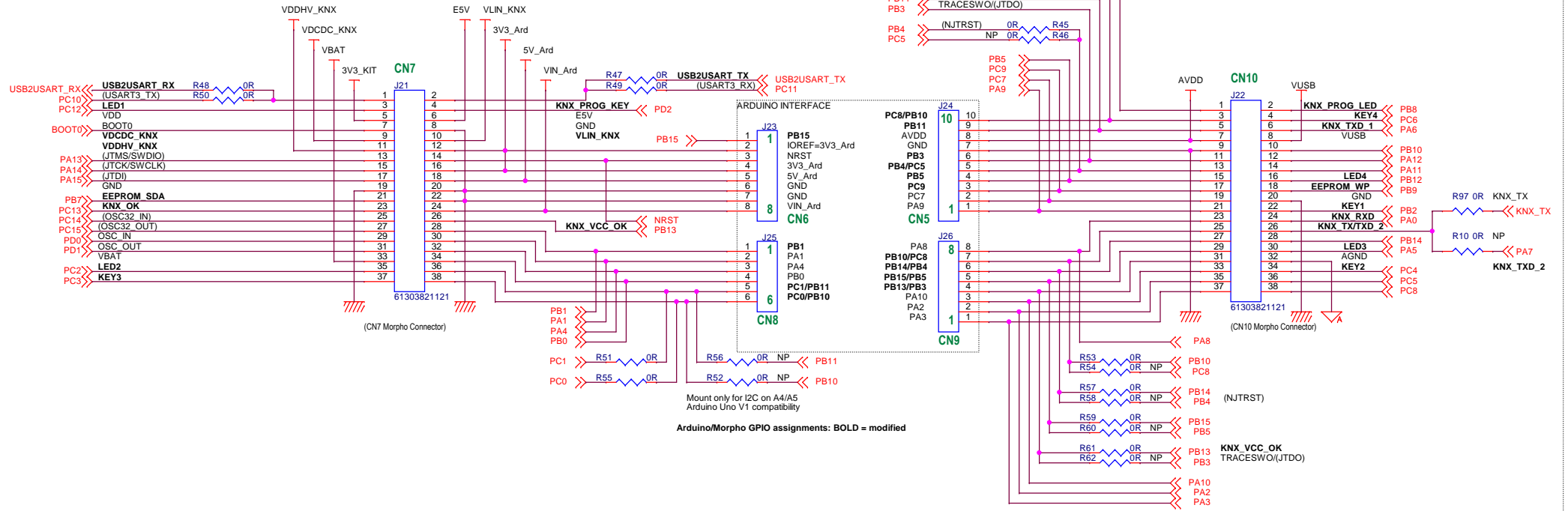


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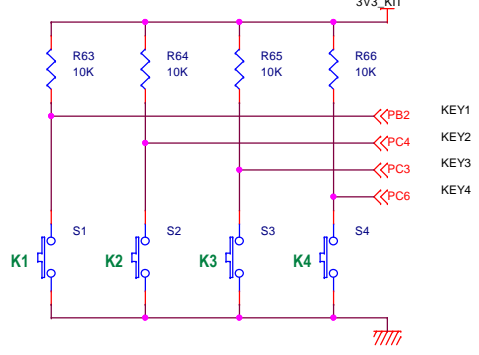
Title **STKNX Evaluation and Development kit**
 Size A3 Document Number **Power management** Rev 141

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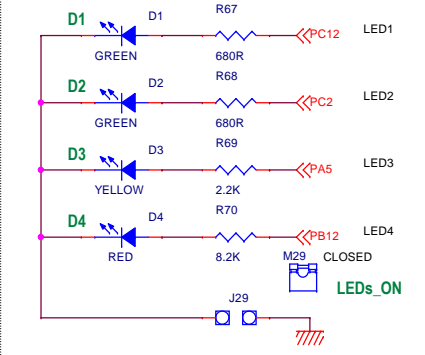
ARDUINO / MORPHO INTERFACE



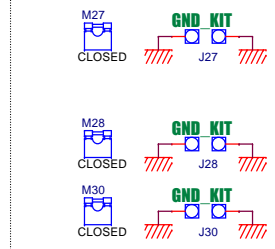
BASIC SENSORS



BASIC ACTUATORS



Board support and GND test point



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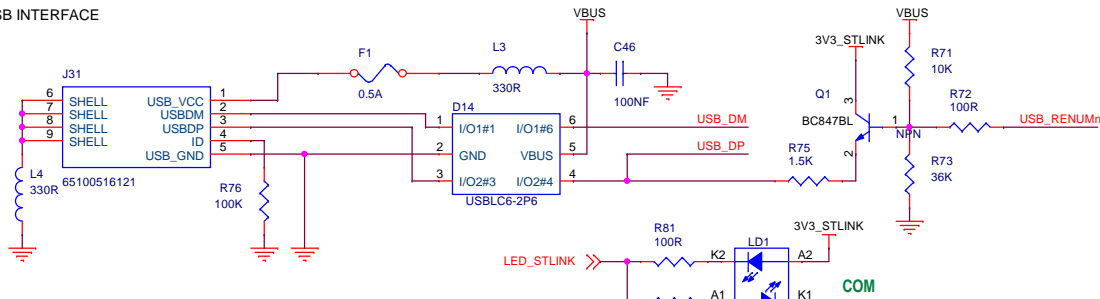
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Title **STKNX Evaluation and Development kit**

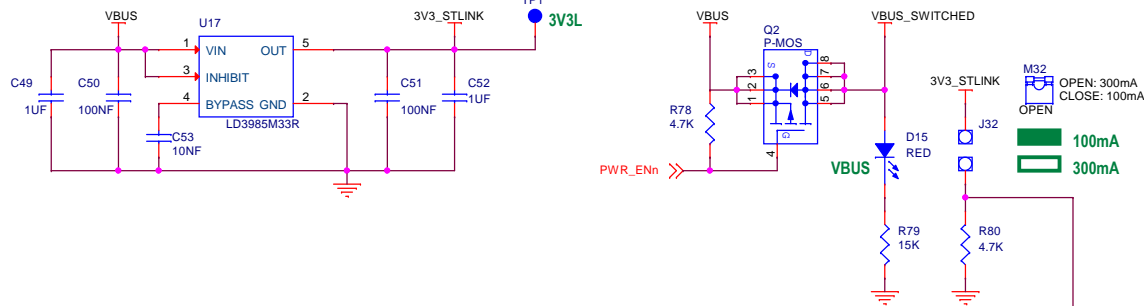
Size A3 Document Number **Expansion** Rev 141

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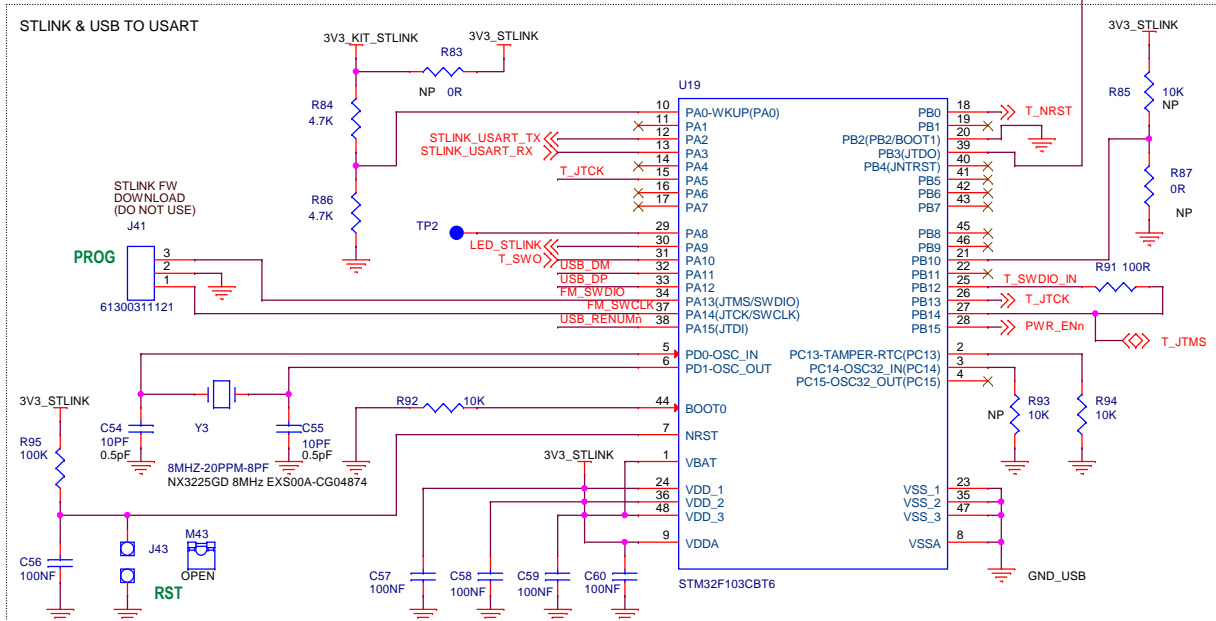
USB INTERFACE



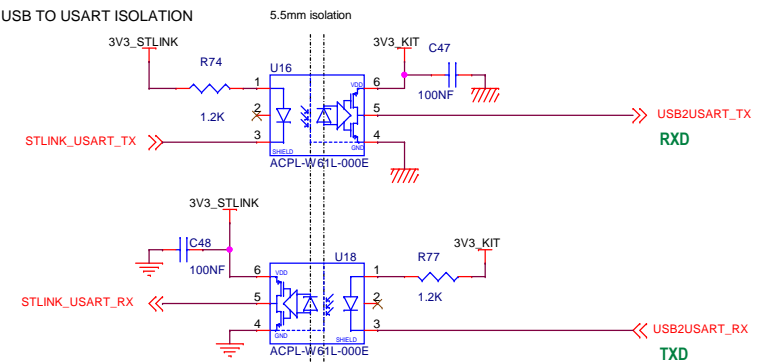
USB POWER MANAGEMENT



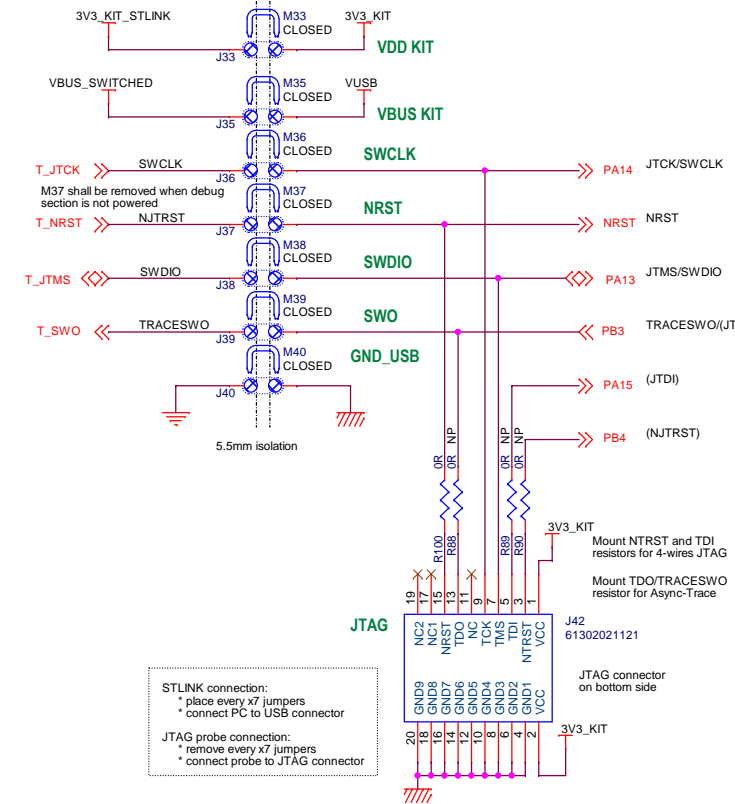
STLINK & USB TO USART



USB TO USART ISOLATION

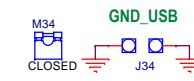


DEBUG INTERFACE



- STLINK connection:
 - * place every x7 jumpers
 - * connect PC to USB connector
- JTAG probe connection:
 - * remove every x7 jumpers
 - * connect probe to JTAG connector

Board support and GND test point



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Size A3	Document Number Debug and control	Rev 141
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