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08.	MLink IO, MikroBus
09.	CAN, RF GPO


Revisions & Change Log			
Rev	Description	Date	Approved
X1	First Release	03/20/24	M.B - K.P.
X2	RF GPO Header - JP26 RST LED circuit update RF SW CTL update RF SW VDD update Antennas symbol changed Pi-array for antenna updated Pullup added for RF SW CTL Components for DDC peaks removed or updated for zero-ohm cut traces SH21-SH23 RF switch powered VDD_IC LANT/GPIO updated on JP26/JP23 J7 and J8 update BOM J4 and J5 update BOM J7/J8 SMA footprint update VDD_DDC net fix Block diagram	04/04/24 04/10/24 04/25/24 05/02/24	K.P.
X3	C9-C12, L11-L12 removed L20&L21 values to 4.7nH C21&C22 moved to PTC0/PTC1 JP13,JP14,JP27,JP28 replaced for PCB shunt headers. 2nd CAN PHY support	05/24/24 05/27/24	K.P.
X4	Adjustable LDO - U4 for 1.8V support	05/28/24	K.P.
A	Prototype Release	06/20/24	K.P.
B	Tracking Changes List Prototype II Release	01/07/24 02/19/24	K.P. K.P.
C	C165 added to VOUT_SYS R32 added to EXTAL_RF Block diagram updated	06/27/25	M. B.
D	Production Release	09/10/25	K.P.

KW47-LOC

"Bluetooth Low Energy Channel Sounding"

(KW47 LOCalization kit)

To ease your board design, Please refer to the [nxp.com web](https://www.nxp.com/web) and NXP community article ' The best way to build a PCB first time right '

		BL Secure Connected Edge Connectivity 6501 William Cannon Drive West Austin, TX 78725-6598	
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Designer: ANTONIO QUIROZ	Drawing Title: KW47-LOC		
Drawn by: ANTONIO QUIROZ	Page Title: TITLE PAGE		
Approved: Karel P.	Size C	Document Number SCH-93460 PDF: SPF-93460	Rev D
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1. Unless Otherwise Specified:
 - All resistors are in ohms, 5%, 1/8 Watt
 - All capacitors are in μ F, 20%, 50V
 - All voltages are DC
 - All polarized capacitors are aluminum electrolytic
2. Interrupted lines coded with the same letter or letter combinations are electrically connected.
3. Device type number is for reference only. The number varies with the manufacturer.
4. Special signal usage:
 - _B Denotes - Active-Low Signal
 - <= or [] Denotes Inverted Signals
5. Interpret diagram in accordance with American National Standards Institute specifications, current revision, with the exception of logic block symbology.

This Color is for User Notes

This Color is for CAD/LAY Notes

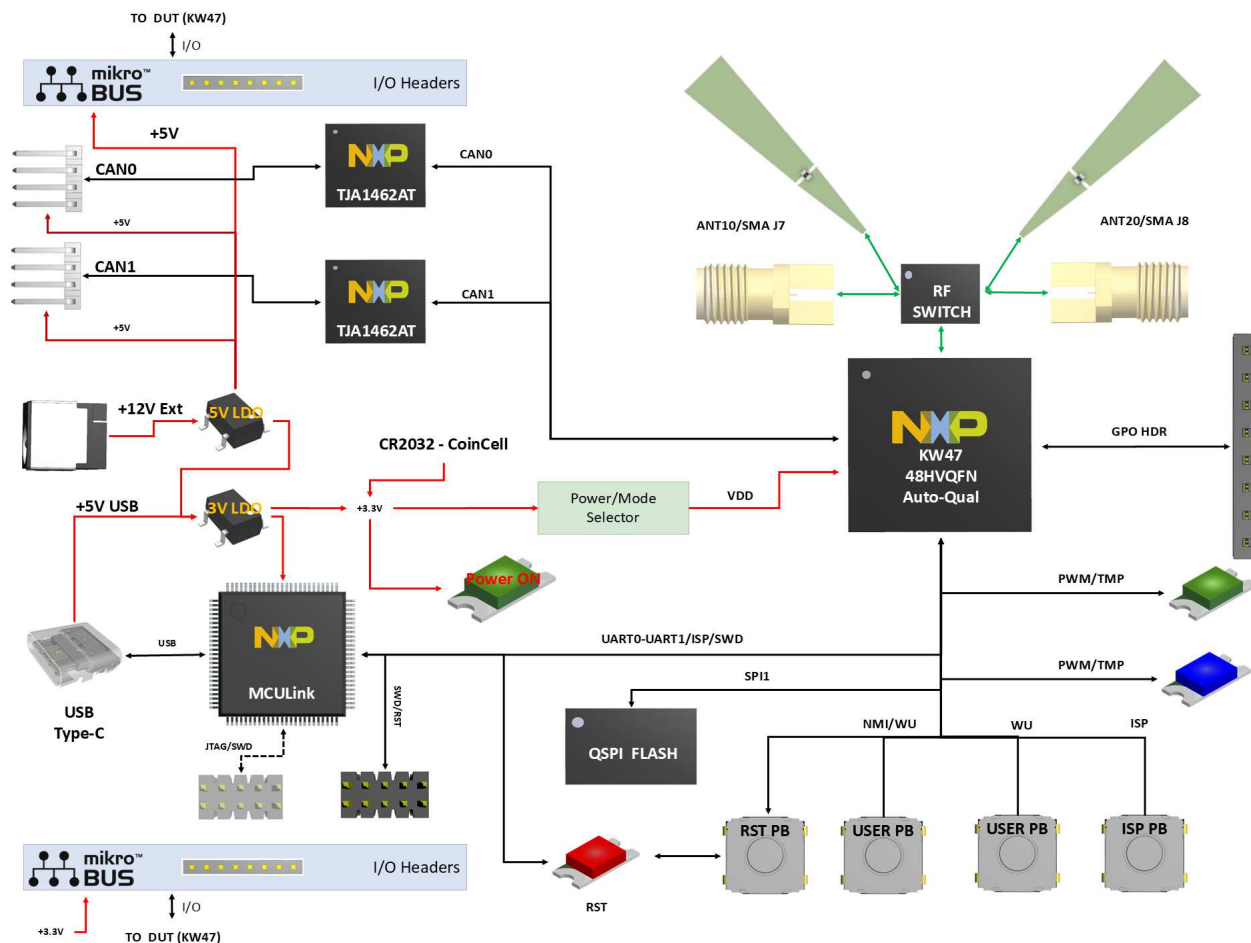
This Color is custom Shield Notes

This Color is for Silk

This Color is for DNP components

Target MCU: KW47 p[3]

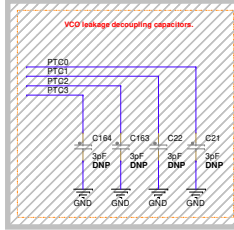
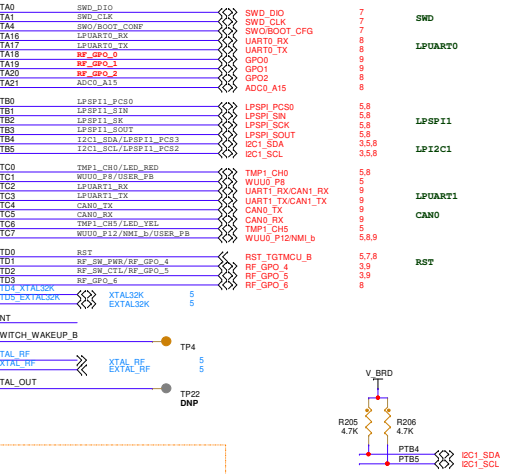
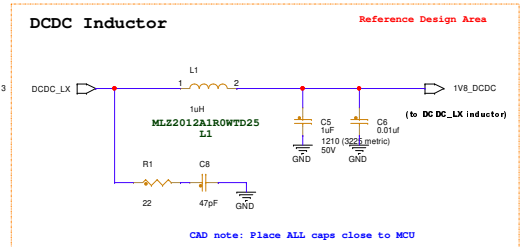
Debug MCULink: LPC55S69 p[6]



REF DES	JUMPER(DEFAULT)	PAGE NAME
JP1,JP3,JP4,JP6,JP7,JP8,JP9,JP10	1-2	04. PWR MANAGEMENT
JP2	2-4	04. PWR MANAGEMENT
JP12,JP21,JP22	OPEN	06. MCU Link
JP18,JP25	1-2	07. MCU Link SWD
JP17	OPEN	07. MCU Link SWD
JP23,JP24	1-2	08. MLink I/O, MikroBus
JP27,JP28	1-2	09. CAN, RF GPO

REF DES	ASSY OPT	PAGE NAME
C16,C21,C22,C38,C96,C98,C163, C164,J7,J8,R115,R204,TP22,U21	DNP	03. KW47B41Z MCU
BT1,C27,C29,C37,JS4,R89	DNP	04. PWR MANAGEMENT
C49,C50,JS1,JS2,JS3,JS14,R9, R10,R11,R15,R17,R18,R21	DNP	05. LED, MEMORY, XTAL
C77,C78,J4,R41,R42,U9	DNP	06. MCU Link
C13,R65,R66	DNP	07. MCU Link SWD
JS5,JS6	DNP	08. MLink I/O, MikroBus

REF DES	SHORTED(DEFAULT)	PAGE NAME
SH9,SH24	CLOSED	03. KW47B41Z MCU
JS4,SH19,SH21,SH22,SH23	CLOSED	04. MEMORY MANAGEMENT
JS1,JS2,JS3,JS14	CLOSED	05. LED, MEMORY, XTAL
SH15,SH20	CLOSED	07. MCU Link SWD
JS5,JS6,JS10,JS11,SH1,SH2,SH3,SH4,SH5,SH6,SH8,SH10,SH11,SH12,SH13,SH14	CLOSED	08. MLink IO, MikroBus



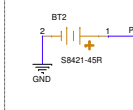
CAD Note:

50 ohm controlled impedance line

Keep the same length of the RF signals RFA and RFB in the layout

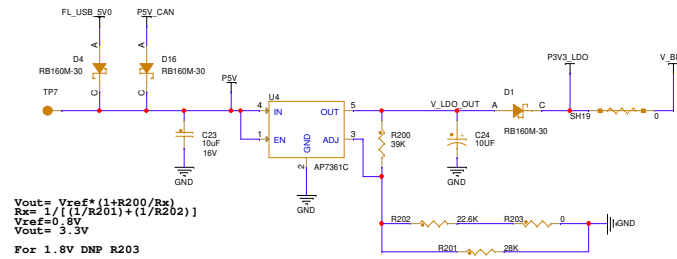
For matching components recommended for your first prototype and to fine tune moving to the final production platform

COIN CELL
HOLDER

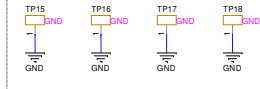


```
Vout= Vref*(1+R200/Rx)
Rx= 1/[ (1/R201)+(1/R202) ]
Vref=0.8V
Vout= 3.3V

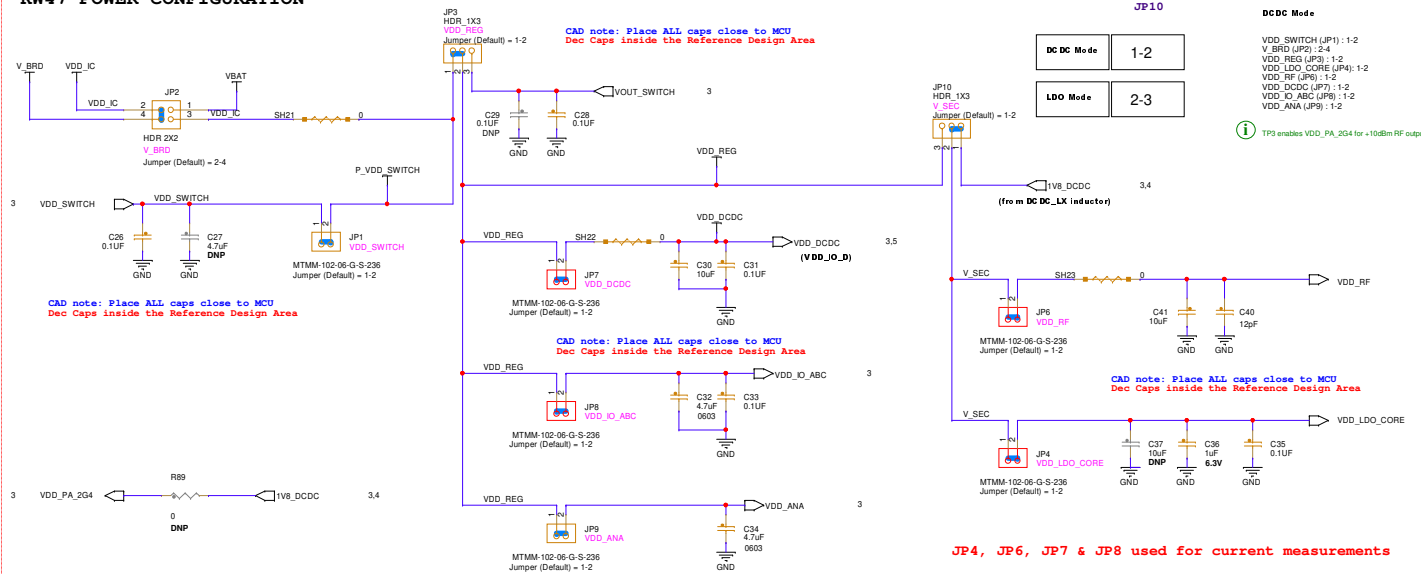
For 1.8V DNP R203
```



IN CIRCUIT TEST
GND PROBING



Reference Design Area

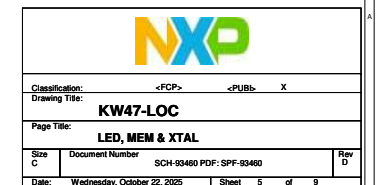


JP4, JP6, JP7 & JP8 used for current measurements



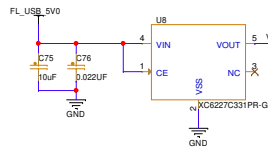
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KW47-LOC				
Page Title:				
PWR MANAGEMENT				
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A



MCU LINK

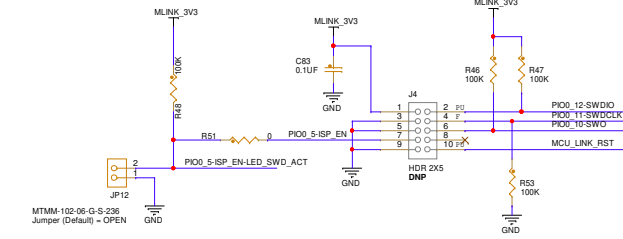
3V3 MCULINK Regulator



MCULINK LEDs



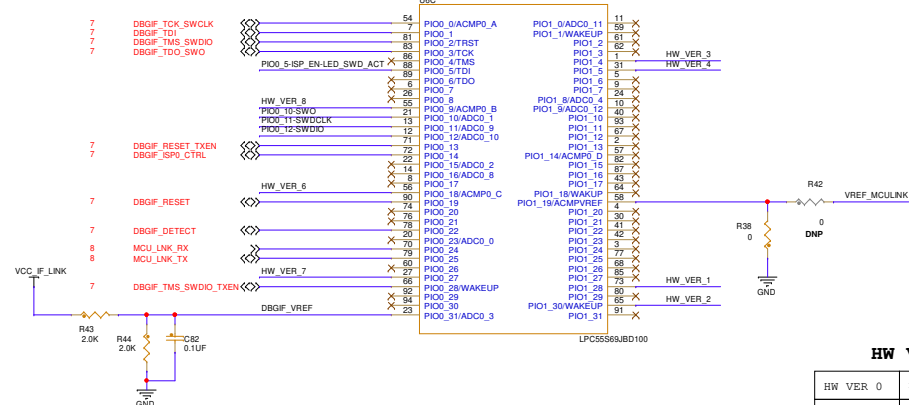
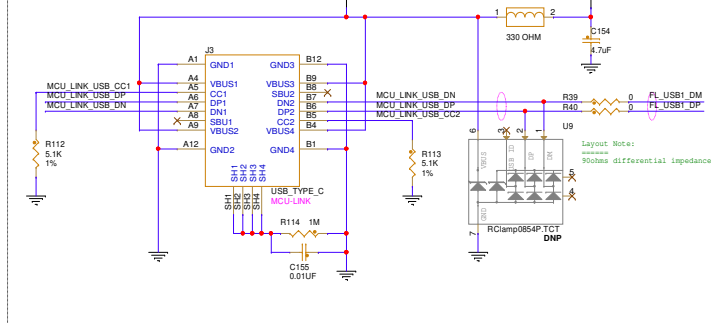
MCULINK SWD connector



ISP - Onboard Debugger

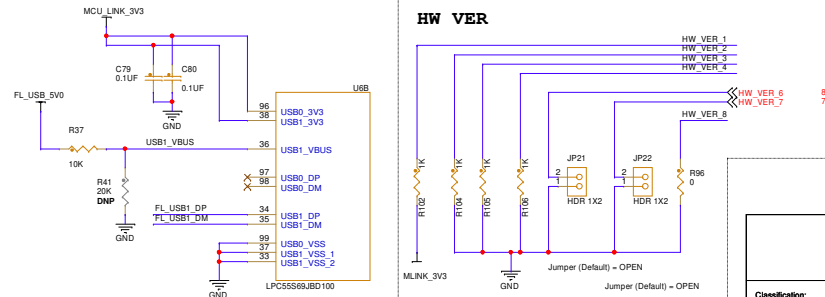
MCULink USB

USB2.0 Type C



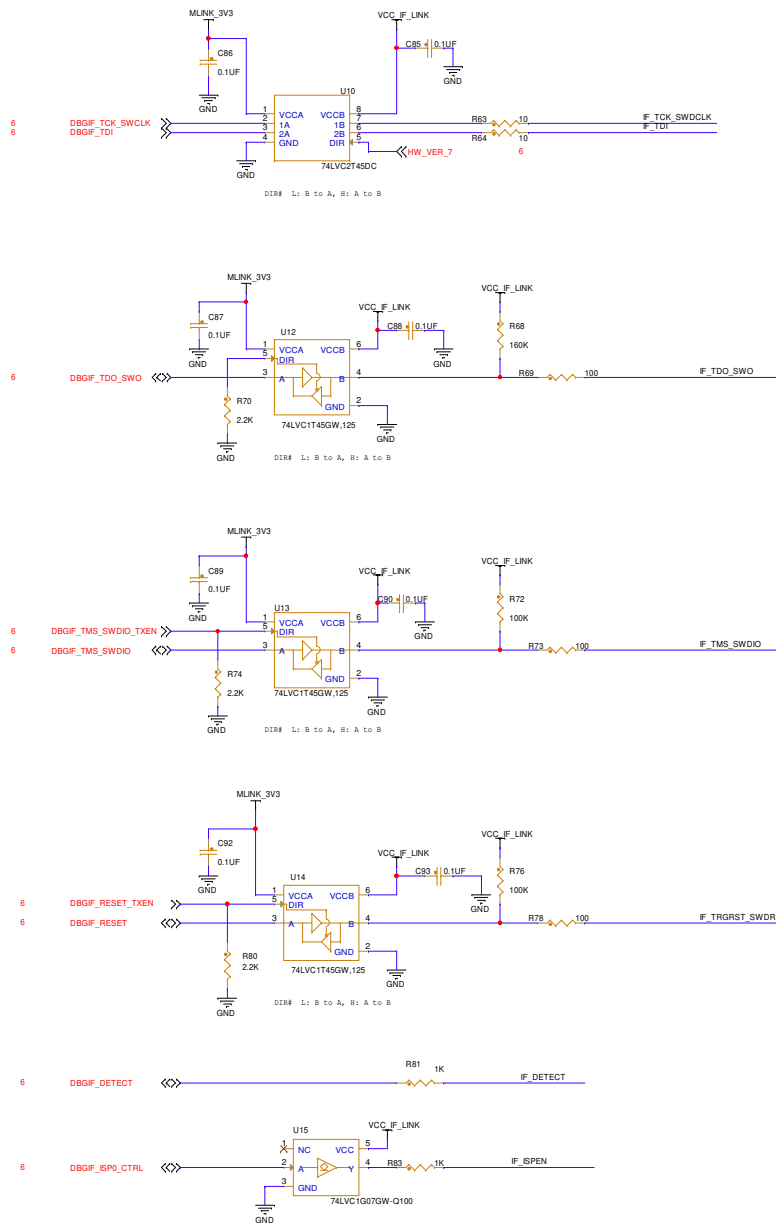
HW VER

HW VER	0	1	2	3	4	5	6	7	8
FW negotiation	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open
SR1/2C bridge	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low
MCULink Version	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High
Board Identity	Low	Low	Low	Low	Low	Low	Low	Low	Low
FW measurement	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open	Low / Open
Primary VCON	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low
SWD Debug	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High	Low / High
Secondary VCON	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low	Open / Low

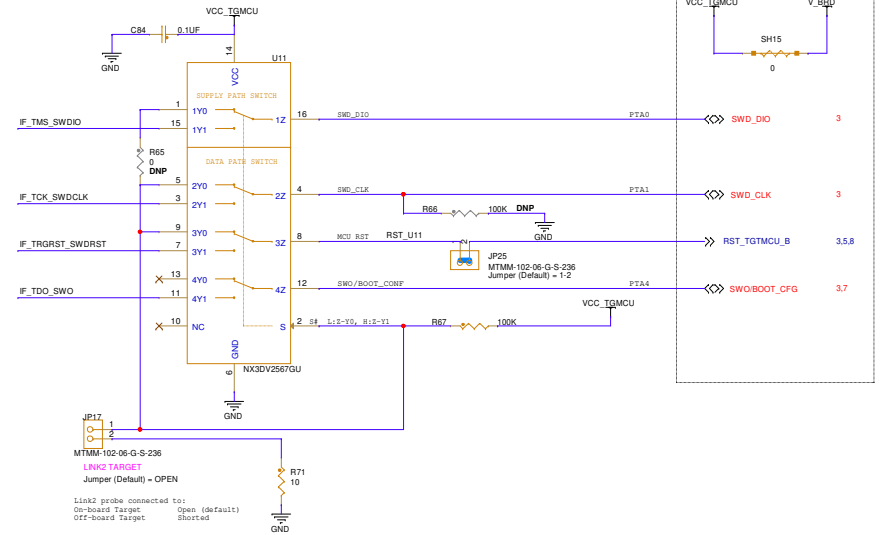


MCU LINK

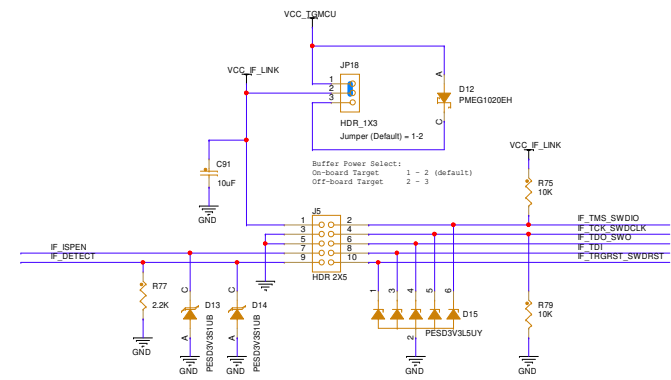
Debug Interface



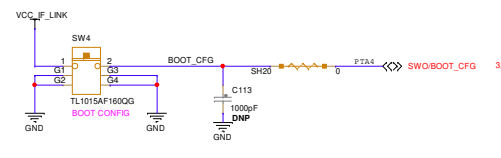
Target MCU



10pin JTAG/SWD



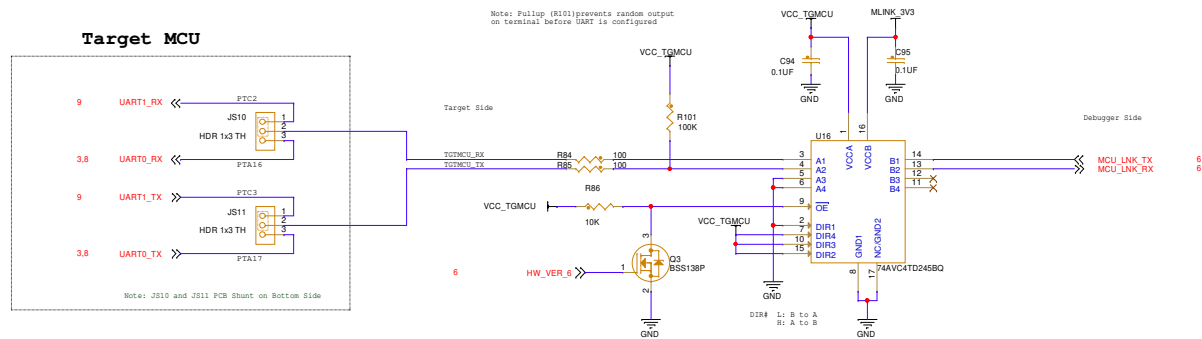
BOOT CONFIG ISP - DUT



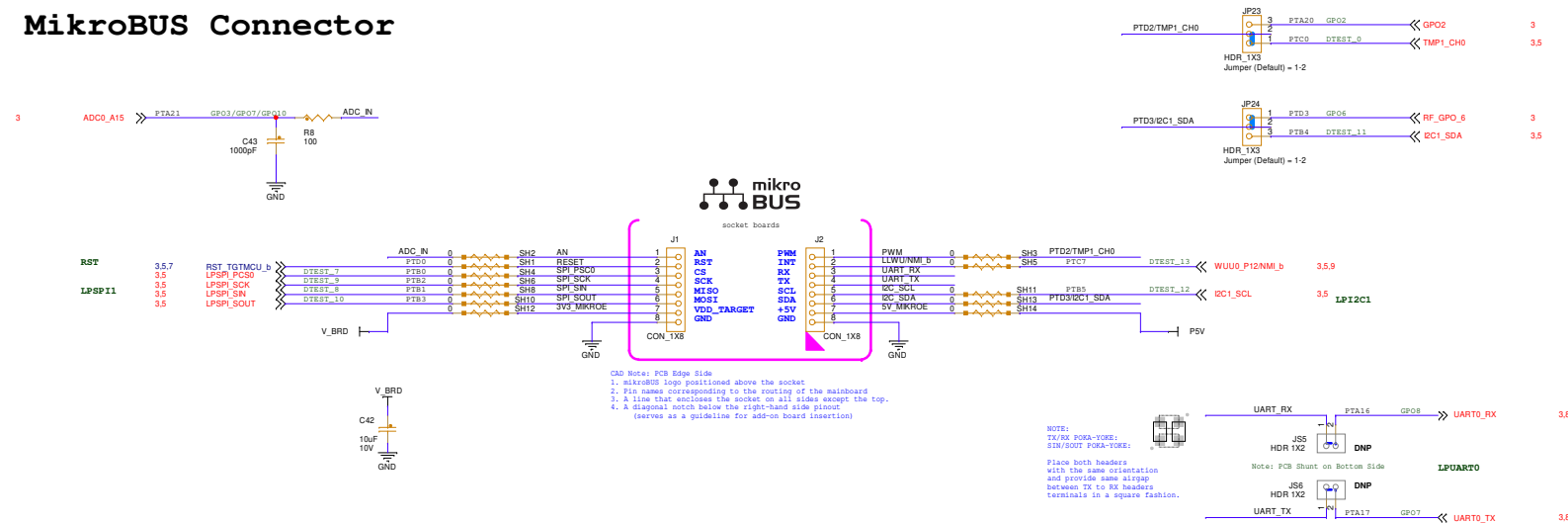
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Page Title:	MCU LINK DEBUGGER		
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MCU LINK
USB-UART

Voltage Translation Buffers



MikroBUS Connector



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